

11/21+
KMV11B

KMV11B LINE CNT DIAG
CNKMEAO

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AH-T849A-MC
FICHE 01 OF 01

OCT 1984
digital
Made In USA

The microfiche card displays a grid of 120 small frames, arranged in 10 rows and 12 columns. Each frame contains a small diagram or data table, likely representing a line count diagram for the KMV11B component. The diagrams are too small to read clearly but appear to be organized in a structured manner, possibly showing connections or data points for each line. The overall layout is consistent across all frames, suggesting a repetitive or modular design.

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IDENTIFICATION

PRODUCT CODE: AC-T848A-MC
PRODUCT NAME: CNKMEAO KMV11B LINE CNT DIAG
PRODUCT DATE: JULY 1984
MAINTAINER: CSS ANNECY
AUTHOR: MICHELET GUY
MODIFIED BY: JAKI BERG 9-JUL-1984

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

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

REV B: BUG FIX GUY MICHELET APRIL 83
WRONG CLOCK DIVIDER VALUE IN TWO TEST.

CVKMEB => CNKMEA JAKI BERG 9-JUL-84
CHANGES WERE MADE TO CVKMEB TO PRODUCE CNDMEA 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).
- LOWER THE INTERRUPT PRIORITY FROM 7 TO 6 TO ALLOW THE <BREAK> KEY TO
INTERRUPT.

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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 QBUS ADDRESS,
VECTOR ADDRESS, AND PROCESSOR TYPE.

1.2 HARDWARE INTRODUCTION

THIS DIAGNOSTIC WILL TEST ALL THE HARDWARE PART OF THE KMV11 B
MODULE (M7501).
TO TEST COMPLETELY THIS PART ,EXTERNAL LOOP BACK CONNECTOR
MUST BE INSTALLED.
DIAGNOSTIC WILL AUTOMATICALLY DETECT IF LOOPBACK CONNECTOR IS
PLUGGED OR NOT (IF NOT ,EXTERNAL TEST IS DROPPED AND REPORTS
THE ERROR)

EXTERNAL LOOP BACK CONNECTOR:

KMV11 B CAN OPERATE EITHER IN RS422 OR RS 423
FOR RS422 MODEM SIGNAL 103,104,114,AND 115 ARE SUPPORTED.
FOR RS 423 MODEM SIGNAL 103,104,105,107,108,106,109,113,114,115
ARE SUPPORTED.

RS422 LOOP BACK:

TO TEST KMV11 B IN RS422 MODE ,RUN THIS DIAGNOSTIC
WITH THE ZIF LOOP BACK CONNECTOR 2P-E155A-00 PLUG ON THE ZIF
SOCKET (12-11591-35)AT THE END OF BC05 CABLE

RS423 LOOP BACK:

TO TEST COMPLETELY A KMV11 B IN RS423 MODE ,RUN THIS DIAGNOSTIC
WITH ZIF LOOP BACK CONNECTOR 2P-E156A-00 PLUG ON THE ZIF
SOCKET (12-11591-35) AT THE END OF BC05 CABLE.

RS423 LOOP BACK:

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

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CAUTION:

IF LOOP BACK CONNECTORS ARE NOT PLUGED IN BOTH CHANNEL A AND B,
THE DIAGNOSTIC WILL AUTOMATICALLY REPORT AN ERROR AND DROP THE
TEST FOR THE EXTERNAL LOOP BACK.

KMOV11 B 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 KMOV11B
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.

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 10K OF MEMORY.

4.2 EXECUTION TIME

THE TOTAL TIME REQUIRED TO RUN THE KMOV11 STATIC TESTS IS ABOUT 330 SECONDS PER PASS FOR EACH UNIT.

4.3 XXDP.

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

4.4 ACT/SLIDE

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

4.5 APT

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

4.6 MEMORY MANAGEMENT

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

4.7 MEMORY PARITY OPTION

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

4.8 ERROR LOGGING

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

5.0 PROGRAM LOAD MEDIA

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

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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
NKMEAO
KMV11 B 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 OCCURANCE OF AN ERROR WITH THE HALT ON ERROR FLAG BEING SET. THE EXIT IS A RETURN TO COMMAND MODE. SEE EXAMPLE AT END OF 6.3.1.5.

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

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

- HOE HALT ON ERROR, CAUSING COMMAND MODE TO BE ENTERED WHEN AN ERROR IS ENCOUNTERED
- LOE LOOP ON ERROR, CAUSING THE DIAGNOSTIC TO LOOP

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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
"0 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 DIAGLOGUE. THE UNITS WHICH ARE SELECTED MUST NOT HAVE BEEN DROPPED BY THE DROP COMMAND. SEE THE DISCUSSION OF ADD AND DROP COMMANDS BELOW. DEFAULT IS TO TEST ALL UNITS WHICH HAVE NOT BEEN DROPPED BY A DROP COMMAND.

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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

FL(AGS)

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 SURPRESSED FOR THE REMAINDER OF THE DIAGNOSTIC OR UNTIL ANOTHER O IS TYPED, WHICH RESTORES NORMAL TELETYPE OUTPUT.

6.3.12 HARDWARE PARAMETERS

THE FOLLOWING 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: (O) 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: (O) 300?

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

PROGRAM DOCUMENT

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

DEFFAULT VALYE IS 4

NOTE:

M7501 MODULE MOUNTED WITH DC003 CHIPS CAN ONLY
INTERUPT ON LEVEL 4

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 "# 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).

PROGRAM DOCUMENT

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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:

0 UNITS (0) ? 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 OPERATOR IN THE FORM "UNIT XX" AT THE BEGINNING OF EACH SERIES). QUESTION 1 IS RESPONDED '0 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).

PROGRAM DOCUMENT

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7.0 TEST DESCRIPTIONS

***** TEST 1 *****
*VERIFY THAT REFERENCED QBUS DEVICE REGISTERS
*DO NOT CAUSE TIME OUT TRAP

***** TEST 2 *****
*
*CHECK PROM REVISION COMPATIBILITY
*

***** TEST 3 *****
*
*KMV11 REAL TIME CLOCK TEST
*

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

***** TEST 5 *****
*
*TRANSMIT AND RECEIVE FRAMES IN INTERNAL
*LOOPBACK MODE WITHOUT INTERRUPTIONS ON CHANEL A.
*

***** TEST 6 *****
*
*TRANSMIT AND RECEIVE FRAMES IN INTERNAL
*LOOPBACK MODE WITHOUT INTERRUPTIONS ON CHANEL B.
*

***** TEST 7 *****
*
*TRANSMIT AND RECEIVE FRAMES AT DIFFERENT SPEEDS IN
*INTERNAL LOOPBACK ON CHANEL A WITH INTERRUPTS.

PROGRAM DOCUMENT

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*
*****
***** TEST 8 *****
*
*TRANSMIT AND RECEIVE FRAMES AT DIFFERENT SPEEDS IN
*INTERNAL LOOPBACK ON CHANEL B WITH INTERRUPTS
*
*****

NOTE: THE REMAINING TESTS REQUIRE EXTERNAL LOOPBACK
CONNECTORS.

***** TEST 9 *****
*
*TRANSMIT FRAMES IN EXTERNAL LOOP BACK ON CHANEL A
*(LOOPBACK CONNECTOR INSTALLED)
*
*****

***** TEST 10 *****
*
*TRANSMIT FRAMES IN EXTERNAL LOOP BACK ON CHANEL B
*(LOOPBACK CONNECTOR INSTALLED)
*
*****

***** TEST 11 *****
*
*TEST MODEM SIGNAL CCITT 107 AND CCITT 108 ON
*CHANEL A WITH EXTERNAL LOOPBACK
*(LOOP BACK CONNECTOR INSTALLED)
*
*TEST MODEM SIGNAL CCITT 107 AND CCITT 108 ON
*CHANEL B WITH EXTERNAL LOOPBACK
*(LOOP BACK CONNECTOR INSTALLED)
*
*****

***** TEST 12 *****
*
*TEST MODEM SIGNAL CCITT 105,106,109 ON CHANEL A

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PROGRAM DOCUMENT

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* WITH EXTERNAL LOOPBACK
*(LOOP BACK CONNECTOR INSTALLED)
*
*TEST MODEM SIGNAL CCITT 105,106,109 ON CHANEL B
* WITH EXTERNAL LOOP BACK
*(LOOP BACK CONNECTOR INSTALLED)
*

PROGRAM DOCUMENT

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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 JANUARY 82	
	REV A0 ON DECEMBER 82	:DIAGNOSTIC REVIEW
-	REV B0 ON APRIL 83	:WRONG CLOCK DIVIDER VALUE IN TWO TEST
-	CVKMEBO => CNKMEAO ON JULY 84	:CONVERT TO RUN UNDER FALCON .
a		

PROGRAM DOCUMENT

```

988          .TITLE KMV11 B LINE CNT DIAG.
996          002000          . =2000
997
998
999
1000
1001
1002
1003          .MCALL  SVC
1004 002000          SVC          ; INITIALIZE SUPERVISOR MACROS
1005
1006
1007
1008
1009
1010 002000          BGNMOD  KMV11B
1011
1012
1013          000000          $LSTIN= 0
1014          000000          $LSTTAG= 0
1015          177777          SVCINS= -1      ; LIST INSTRUCTIONS, SHIFTED RIGHT
1016          177777          SVCTST= -1     ; LIST TEST TAGS, SHIFTED RIGHT
1017          177777          SVCSUB= -1     ; LIST SUBTEST TAGS, SHIFTED RIGHT
1018          177777          SVCGBL= -1    ; LIST GLOBAL TAGS, SHIFTED RIGHT
1019          177777          SVCTAG= -1    ; LIST OTHER TAGS, SHIFTED RIGHT
1020
1021          ;      CHANGE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
1022          ;      TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS.  CHANGE THE
1023          ;      SYMBOLS TO BE MINUS-ONE TO NOT LIST THE EXPANSIONS.  YOU MAY
1024          ;      CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.
1025
1026

```

PROGRAM HEADER

```
1028      .SBTTL  PROGRAM HEADER
1029      :***
1030      : THE PROGRAM HEADER IS THE INTERFACE BETWEEN
1031      : THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
1032      :--
1033
1034 002000      POINTER BGNSW,BGNDU,BGNSETUP
1035
1036
1037
1055
1056 002000      HEADER  NKMEA0,B,0,240..0
1057
1058
1069
```

PROGRAM HEADER

```
1071
1072
1073      ;*+
1074      ; THIS TABLE IS USED BY THE RUNTIME SERVICES
1075      ; TO PROTECT THE LOAD MEDIA.
1076      ;--
1077      002122          BGNPROT
1078
1079      002122  000000          0          ;OFFSET INTO P-TABLE FOR CSR ADDRESS
1080      002124  177777          -1         ;OFFSET INTO P-TABLE FOR MASSBUS ADDRESS
1081      002126  177777          -1         ;OFFSET INTO P-TABLE FOR DRIVE NUMBER
1082
1083
1097
1098
1099      002130          ENDPROT
1100
```

DISPATCH TABLE

1102
1103
1104
1105
1106
1107
1108
1109 002130
1110
1117
1118
1119
1120
1121

.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 12

DEFAULT HARDWARE P-TABLE

1123
 1124
 1125
 1126
 1127
 1128
 1129
 1130
 1131
 1132
 1133 002162
 1134
 1144
 1145
 1146 002164 177000
 1147 002166 000300
 1148 002170 004000
 1149 002172 000001
 1150 002174
 1151
 1152

.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 ;KMV11.CSRS ADDRESS
.WORD 300 ;KMV11. VECTOR ADDRESS
.WORD 4000 ;INTERRUPT PRIORITY LEVEL
.WORD 1
ENDHW

```


DEFAULT HARDWARE P-TABLE

1154
1155
1156
1157
1158
1159
1160
1161
1162
1163
1164
1174
1175
1190
1191 002174

.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

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

GLOBAL DATA SECTION

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1234
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1269
1270
1271
1272
1273
1274

002174

002222
002222 000000
002224 000000
002226 000000
002230 000000

.SBTTL GLOBAL DATA SECTION

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

* STORAGE FOR DEVICE REGISTERS
DESCRIPT <KMV11B LINE CNT DIAG.>

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 UNIT
ERRCNT: .WORD 0 ; ERROR COUNT
LOGDEV: .WORD 0 ; LOGICAL DEVICE NUMBER
PSTACK: .WORD 0 ; BASE LEVEL PROGRAM STACK POINTER
SAVSP: .WORD 0 ; STACK POINTER STORAGE
SAVPC: .WORD 0 ; PROGRAM COUNTER STORAGE
FLAG: .WORD 0 ; SCRATCH STORAGE
FTIME: .WORD 0
SAVE4: .WORD 0
SAVE6: .WORD 0
L\$SW: .WORD 0
L\$UIT: .WORD 15
UNIT: .WORD 0

GLOBAL DATA SECTION

```

1276 ;*****
1277 ;* MISCELLANEOUS STORAGE
1278 ;*****
1279
1280 002266 000000 DELCT1: .WORD 0
1281 002270 000000 DELCT2: .WORD 0
1282 002272 000000 GOOD: .WORD 0
1283 002274 000000 GOOD0: .WORD 0
1284 002276 000000 GOOD1: .WORD 0
1285 002300 000000 GOOD2: .WORD 0
1286 002302 000000 GOOD4: .WORD 0
1287 002304 000000 GOOD6: .WORD 0
1288 002306 000000 GOOD10: .WORD 0
1289 002310 000000 GOOD12: .WORD 0
1290 002312 000000 GOOD14: .WORD 0
1291 002314 000000 GOOD16: .WORD 0
1292 002316 000000 SELO: .WORD 0
1293 002320 000000 SEL1: .WORD 0
1294 002322 000000 SEL2: .WORD 0
1295 002324 000000 SEL4: .WORD 0
1296 002326 000000 SEL6: .WORD 0
1297 002330 000000 SEL10: .WORD 0
1298 002332 000000 SEL12: .WORD 0
1299 002334 000000 SEL14: .WORD 0
1300 002336 000000 SE16: .WORD 0
1301 002340 000000 BSEL1: .WORD 0
1302 002342 000000 RANST: .WORD 0
1303 002344 000000 RANSEL: .WORD 0
1304 002346 000000 RANMTA: .WORD 0
1305 002350 000000 RANDN: .WORD 0
1306 002352 000000 SAVPC1: .WORD 0
1307 002354 000000 SAVSTA: .WORD 0
1308 002356 000000 COUNT: .WORD 0
1309 002360 000000 M'JER: .WORD 0
1310 002362 000000 ADDR: .WORD 0
1311 002364 000000 GDDAT: .WORD 0
1312 002366 000000 BDDAT: .WORD 0
1313
1314 002370 TTABLE: .BLKW 2000
1315 006370 RTABLE: .BLKW 2000
1316
1317 012370 000000 EXADDR: .WORD 0
1318 012372 000000 INTFLG: .WORD 0
1319 012374 000000 BAD: .WORD 0
1320 012376 000000 BSELO: .WORD 0
1321 012400 000000 DATA: .WORD 0
1322 012402 000000 VECT: .WORD 0
1323
1324
1325 012404 000000 KIND: .WORD 0
1326 012406 000000 CHANEL: .WORD 0
1327
1328 012410 000000 TXDATA: .WORD 0
1329 012412 000000 RXDATA: .WORD 0
1330 012414 000000 TSPEED: .WORD 0
1331 012416 000000 LENGTH: .WORD 0
1332 012420 000000 NUB: .WORD 0

```

;=0 IF KMV11A .=1 IF KMV11B

E3

KMV11 B LINE CNT DIAG. MACRO M1200 05-JUN-84 15:56 PAGE 26-1

SEQ 0030

GLOBAL DATA SECTION

1333	012422	000000	RXCNT:	.WORD	0
1334	012424	000000	STAER?:	.WORD	0
1335	012426	000000	WRDCNT:	.WORD	0

GLOBAL DATA SECTION

```

1337
1338 ;*****
1339 ;LOAD IN LOCATION "GDREV" THE PROM VERSION NUMBER THAT IS *
1340 ;COMPATIBLE WITH THIS DIAGNOSTIC *
1341 ; *
1342 ;EACH PROM CONTAIN A REV LEVEL AND A ECO LEVEL: *
1343 ;THE REV LEVEL IS MODIFIED EACH TIME A MODIFICATION IS DONE *
1344 ;THE ECO LEVEL IS MODIFIED WHEN THE PROM MODIFICATION NEED *
1345 ;A DIAGNOSTIC MODIFICATION *
1346 ;*****
1347
1348
1349
1350
1351
1352 012430 000001 GDREV: .WORD 1
1353
1354
1355
1356
1357

```


GLOBAL DATA SECTION

```

1359 ;*****
1360 ;* PROGRAM CONTROL FLAGS
1361 ;*****
1362 012432 000 INIFLG: .BYTE 0 ;PROGRAM INITIALIZING FLAG
1363 .EVEN
1364 012434 000 LOKFLG: .BYTE 0 ;LOCK ON CURRENT TEST FLAG
1365 012435 000 QV.FLG: .BYTE 0 ;QUICK VERIFY FLAG
1366 .EVEN
1367 012436 000000 UUT: .WORD 0 ;CURRENT UNIT UNDER TEST
1368
1369
1370
1371
1372
1373 ;*****
1374 ;* POINTERS TO KMV11 VECTORS AND REGISTERS
1375 ;*****
1376 012440 000000 KMVV00: 0 ;POINTER TO KMV11 INTRPT VECTOR 0
1377 012442 000000 KMVLVL: 0 ;POINTER TO KMV11 INTRPT SERVICE
1378 012444 000000 KMVV04: 0 ;POINTER TO KMV11 INTRPT VECTOR 04
1379 012446 000000 KMVV02: 0 ; " " " " 02
1380 012450 000000 KMVV06: 0 ; " " " " 06
1381 012452 000000 KMTLVL: 0 ;POINTER TO KMV11 TX INTRPT SERVICE PS
1382 012454 000000 KMVCSR: 0 ;POINTER TO KMV11 CONTROL STATUS REGISTER
1383 012456 000000 KMVP02: 0 ;POINTER TO KMV11 PORT REGISTER - SEL2
1384 012460 000000 KMVP04: 0 ;POINTER TO KMV11 PORT REGISTER - SEL4
1385 012462 000000 KMVP06: 0 ;POINTER TO KMV11 PORT REGISTER - SEL6
1386
1387 012464 000000 KMVP10: 0 ;POINTER TO KMV11 PORT REG -SEL10
1388 012466 000000 KMVP12: 0 ;POINTER TO PORT REG -SEL 14
1389 012470 000000 KMVP14: 0 ;POINTER TO PORT REG -SEL14
1390 012472 000000 KMVP16: 0 ;POINTER TO PORT REG 16
1391
1392 012474 000000 LOOP: 0 ;POINTER TO LOOP BACK CONNECTOR
1393
1394
1395 ;***** PRIMARY REG ADRS STORAGE FOR THIS UNIT *****
1396 ;THESE LOCATIONS WILL BE LOADED FOR THE CURRENT UNIT, IN INIT CODE
1397 012476 REGADR:
1398
1399 ;***** STACK USED FOR SUBROUTINE LINKAGE *****
1400 012476 .BLKW 100
1401 012676 SSTACK:
1402
1403
1404
1405
1406
1407
1408

```

GLOBAL TEXT SECTION

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1414
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1419
1420
1421 012676
1422
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1424
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1434
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1438

```

.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 <KMV11B>

;
; FORMAT STATEMENTS USED IN PRINT CALLS
;

```

GLOBAL SUBROUTINES

1440
1441
1442
1443
1444
1445
1446
1447
1448
1449
1450
1451
1452
1453

.SBTTL GLOBAL SUBROUTINES

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

.MACRO CLRMAR
ROMCLK
004000
.ENDM CLRMAR

GLOBAL SUBROUTINES

```

1455           ;ROUTINE TO WAIT FOR EVENT OR TIMEOUT
1456
1457
1458
1459           ;CALLING SEQUENCE:      JSR   PC,WAIT1
1460           ;                      JSR   PC,WAIT2
1461
1462
1463           ;INPUTS PARAMETERS:      DELCT1,DELCT2
1464
1465
1466           ;                      INC DELCT1 UNTIL 0
1467           ;                      DEC DELCT2 UNTIL 0
1468
1469
1470
1471
1472
1473
1474
1475 012706 005237 002266      WAIT2:  INC   DELCT1
1476 012712 001375           BNE   WAIT2
1477
1478 012714           BREAK
1479
1480 012716 005337 002270      DEC   DELCT2
1481 012722 001371           BNE   WAIT2
1482
1483 012724 000207           RTS    PC
1484
1485
1486
1487
1488
1489
1490 012726 005237 002266      WAIT1:  INC   DELCT1
1491 012732 001375           BNE   WAIT1
1492 012734           BREAK
1493
1494 012736 000207           RTS    PC

```

GLOBAL SUBROUTINES

```

1496           ;MACRO TO WAIT A FEW MS
1497
1498           ;CALLING SEQUENCE:      WAITA  X           0<X<177777
1499           ;                       WAITB  X,Y         0<X OR Y<177777
1500
1501
1502
1503           .MACRO  WAITA  X
1504                   MOV   #X,DELCT1           ;LOAD COUNT
1505                   JSR   PC,WAIT1            ;WAIT
1506
1507           .ENDM
1508
1509
1510
1511
1512
1513
1514           .MACRO  WAITB  X,Y
1515                   MOV   #X,DELCT1
1516                   MOV   #Y,DELCT2
1517                   JSR   PC,WAIT2
1518
1519           .ENDM
1520
1521

```


GLOBAL SUBROUTINES

```

1570          ;ROUTINE TO CHECK REGISTER BSELO AND TO REPORT ERROR
1571
1572
1573
1574
1575
1576
1577          ;CALLING SEQUENCE:      JSR      PC,TSTERR
1578
1579
1580
1581          ;OUTPUT PARAMETERS:      RETURN TO      PC      IF TEST IS OK
1582          ;                        :              PC+2    IF TIMEOUT DURING TEST
1583          ;                        :              PC+4    IF NO KMV11 ANSWER
1584          ;                        :              PC+6    IF DATA CMP ERROR
1585
1586
1587
1588
1589
1590
1591 013102 004537 013652      TSTERR: JSR      R5,CBSELO      ;LOOK IF BSELO=0
1592 013106 000000              .WORD      0
1593 013110 000411              BR        1$      ;TEST IS OK ,RTS PC
1594
1595
1596 013112 004537 013652              JSR      R5,CBSELO      ;LOOK IF BSELO=200
1597 013116 000200              .WORD      200
1598 013120 000406              BR        2$      ;TIMEOUT DURING TEST,RTS PC+2
1599
1600
1601 013122 004537 013652              JSR      R5,CBSELO      ;LOOK IF BSELO=100
1602 013126 000100              .WORD      100
1603 013130 000405              BR        3$      ;DATA CMP ERROR,RTS PC+6
1604
1605
1606
1607 013132 000407              BR        4$      ;NO KMV11 ANSWER ,RTS PC+4
1608
1609
1610
1611 013134 000207              1$:      RTS      PC      ;TEST OK
1612
1613
1614 013136 062716 000002              2$:      ADD      #2,(SP)
1615 013142 000207              RTS      PC      ;TIMEOUT ERROR
1616
1617
1618 013144 062716 000006              3$:      ADD      #6,(SP)
1619 013150 000207              RTS      PC      ;DATA CMP ERROR
1620
1621
1622 013152 062716 000004              4$:      ADD      #4,(SP)
1623 013156 000207              RTS      PC      ;NO KMV11 ANSWER

```


SAVE REGISTERS

1751
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1753
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1755
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1794
1795
1796
1797
1798
1799
1800
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1804
1805
1806
1807

```

.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 7 TO AVOID ANY 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

```

013460
013466
013474 012637 002246

SAVE REGISTERS

1808	013500	012637	002352	MOV	(SP)+,SAVPC1	
1809	013504	010546		MOV	R5,-(SP)	
1810	013506	010446		MOV	R4,-(SP)	
1811	013510	010346		MOV	R3,-(SP)	
1812	013512	010246		MOV	R2,-(SP)	
1813	013514	010146		MOV	R1,-(SP)	
1814	013516	010046		MOV	R0,-(SP)	
1815	013520	013746	002352	MOV	SAVPC1,-(SP)	
1816	013524	013746	002246	MOV	SAVPC,-(SP)	;PUT PC READY FOR
1817	013530			SETPRI	SAVSTA	
1818	013536	000207		RTS	PC	;RETURN
1819						
1820						
1821						

RESTORE REGISTERS

1880	013570	012602	MOV	(SP)+,R2	
1881	013572	012603	MOV	(SP)+,R3	
1882	013574	012604	MOV	(SP)+,R4	
1883	013576	012605	MOV	(SP)+,R5	
1884	013600	013746	MOV	SAVPC1,-(SP)	
1885	013604	013746	MOV	SAVPC,-(SP)	;PUT PC READY FOR
1886	013610		SETPRI	SAVSTA	
1887	013616	000207	RTS	PC	

RESTORE REGISTERS

```

1889           ;CHECK CONTENT OF ONE OF THE 8 REGISTERS
1890
1891           ; CALLING SEQUENCE
1892           ;       JSR      R5,CKSELN           ; N = REGISTER NUMBER
1893           ;       .WORD A                   A=EXPECTED CONTENT OF REGISTER N
1894
1895           ;OUTPUT PARAMETER:
1896           ;       BRANCH IN PC+2 IF ERROR DETECTED
1897           ;       BRANCH IN PC IF NO ERROR DETECTED
1898
1899
1900
1901
1902
1903 013620 012537 002272           CKSELO: MOV      (R5)+,GOOD           ;WRITE GOOD
1904 013624 017737 176624 002316           MOV      @KMVCSR,SELO           ;READ SEL 0
1905 013632 023737 002316 002272           CMP      SELO,GOOD             ;CMP ?
1906 013640 001001                   BNE      1$
1907 013642 000402                   BR       2$
1908 013644 062705 000002           1$:    ADD      @2,R5
1909 013650 000205                   2$:    RTS      R5
1910
1911
1912
1913
1914
1915
1916
1917 013652 005037 002272           CBSELO: CLR      GOOD
1918 013656 012537 002272           MOV      (R5)+,GOOD
1919 013662 117737 176566 012376           MOVB    @KMVCSR,BSELO
1920 013670 123737 012376 002272           CMPB    BSELO,GOOD
1921 013676 001001                   BNE      1$
1922 013700 000402                   BR       2$
1923 013702 062705 000002           1$:    ADD      @2,R5
1924 013706 000205                   2$:    RTS      R5

```

RESTORE REGISTERS

```

1926           ;ROUTINE TO CHECK ALL REGISTER FROM SEL0 TO SEL16
1927
1928
1929           ;CALLING SEQUENCE:
1930           ;       JSR R5,CKALL
1931           ;       .WORD A           A = EXPECTED VALUE FOR SEL0
1932           ;       .WORD B           B       "           "       SEL2
1933           ;       .WORD C           C       "           "       SEL4
1934           ;       .WORD D           D       "           "       SEL6
1935           ;       .WORD E           E       "           "       SEL10
1936           ;       .WORD F           F       "           "       SEL12
1937           ;       .WORD G           G       "           "       SEL14
1938           ;       .WORD H           H       "           "       SEL16
1939
1940
1941           ;OUTPUT PARAMETER:
1942           ;       BRANCH IN PC+2 IF ERROR
1943           ;       BRANCH IN PC IF NO ERROR
1944
1945
1946
1947 013710 012537 002274           CKALL:  MOV     (R5)+,GOOD0
1948 013714 012537 002300           MOV     (R5)+,GOOD2
1949 013720 012537 002302           MOV     (R5)+,GOOD4
1950 013724 012537 002304           MOV     (R5)+,GOOD6
1951 013730 012537 002306           MOV     (R5)+,GOOD10
1952 013734 012537 002310           MOV     (R5)+,GOOD12
1953 013740 012537 002312           MOV     (R5)+,GOOD14
1954 013744 012537 002314           MOV     (R5)+,GOOD16
1955
1956 013750 017737 176500 002316           MOV     @KMVCSR,SEL0           ;READ SEL0
1957 013756 000240           NOP
1958 013760 017737 176472 002322           MOV     @KMVP02,SEL2           ;READ SEL2
1959 013766 000240           NOP
1960 013770 017737 176464 002324           MOV     @KMVP04,SEL4           ;READ SEL4
1961 013776 000240           NOP
1962 014000 017737 176456 002326           MOV     @KMVP06,SEL6           ;READ SEL6
1963 014006 000240           NOP
1964 014010 017737 176450 002330           MOV     @KMVP10,SEL10          ;READ SEL10
1965 014016 000240           NOP
1966 014020 017737 176442 002332           MOV     @KMVP12,SEL12          ;READ SEL12
1967 014026 000240           NOP
1968 014030 017737 176434 002334           MOV     @KMVP14,SEL14          ;READ SEL14
1969 014036 000240           NOP
1970 014040 017737 176426 002336           MOV     @KMVP16,SEL16          ;READ SEL16
1971
1972 014046 023737 002316 002274           CMP     SEL0,GOOD0
1973 014054 001035           BNE     1$
1974 014056 023737 002322 002300           CMP     SEL2,GOOD2
1975 014064 001031           BNE     1$
1976 014066 023737 002324 002302           CMP     SEL4,GOOD4
1977 014074 001025           BNE     1$
1978 014076 023737 002326 002304           CMP     SEL6,GOOD6
1979 014104 001021           BNE     1$
1980 014106 023737 002330 002306           CMP     SEL10,GOOD10
1981 014114 001015           BNE     1$
1982 014116 023737 002332 002310           CMP     SEL12,GOOD12

```


RESTORE REGISTERS

1983	014124	001011			BNE	1\$
1984	014126	023737	002334	002312	CMP	SEL14,GOOD14
1985	014134	001005			BNE	1\$
1986	014136	023737	002336	002314	CMP	SEL16,GOOD16
1987	014144	001001			BNE	1\$
1988						
1989	014146	000402			BR	2\$
1990	014150	062705	000002	1\$:	ADD	02,R5
1991	014154	000205		2\$:	RTS	R5

RESTORE REGISTERS

;ROUTINE TO CHECK SEL2 TO SEL16

```

1993
1994
1995
1996
1997
1998
1999 014156 012537 002300      CKREG:  MOV      (R5)+,GOOD2
2000 014162 012537 002302      MOV      (R5)+,GOOD4
2001 014166 012537 002304      MOV      (R5)+,GOOD6
2002 014172 012537 002306      MOV      (R5)+,GOOD10
2003 014176 012537 002310      MOV      (R5)+,GOOD12
2004 014202 012537 002312      MOV      (R5)+,GOOD14
2005 014206 012537 002314      MOV      (R5)+,GOOD16
2006
2007
2008 014212 017737 176240 002322      MOV      @KMVP02,SEL2
2009 014220 000240                NOP
2010 014222 017737 176232 002324      MOV      @KMVP04,SEL4
2011 014230 000240                NOP
2012 014232 017737 176224 002326      MOV      @KMVP06,SEL6
2013 014240 000240                NOP
2014 014242 017737 176216 002330      MOV      @KMVP10,SEL10
2015 014250 000240                NOP
2016 014252 017737 176210 002332      MOV      @KMVP12,SEL12
2017 014260 000240                NOP
2018 014262 017737 176202 002334      MOV      @KMVP14,SEL14
2019 014270 000240                NOP
2020 014272 017737 176174 002336      MOV      @KMVP16,SEL16
2021
2022
2023
2024
2025 014300 023737 002322 002300      CMP      SEL2,GOOD2
2026 014306 001031                BNE      1$
2027 014310 023737 002324 002302      CMP      SEL4,GOOD4
2028 014316 001025                BNE      1$
2029 014320 023737 002326 002304      CMP      SEL6,GOOD6
2030 014326 001021                BNE      1$
2031 014330 023737 002330 002306      CMP      SEL10,GOOD10
2032 014336 001015                JNE      1$
2033 014340 023737 002332 002310      CMP      SEL12,GOOD12
2034 014346 001011                BNE      1$
2035 014350 023737 002334 002312      CMP      SEL14,GOOD14
2036 014356 001005                BNE      1$
2037 014360 023737 002336 002314      CMP      SEL16,GOOD16
2038 014366 001001                BNE      1$
2039 014370 000402                BR       2$
2040
2041 014372 062705 000002      1$:     ADD      #2,R5
2042 014376 000205      2$:     RTS      R5

```

RESTORE REGISTERS

```

2044           ;ROUTINE TO CLEAR KMV11 MODULE
2045
2046
2047           ;CALLING SEQUENCE:
2048           ;       JSR PC,CLRKMV
2049
2050           ;ROUTINE DESCRIPTION: CLEAR ALL CSR'S REGISTERS AND CHECK IF = 0
2051
2052
2053
2054 014400           CLRKMV:
2055 014400 005077 176050           CLR      @KMVC R           ;CLEAR REGISTERS
2056 014404 012777 054000 176042           MOV      @MAINTO,@KMVCSR           ;SET MAINTENANCE MODE
2057 014412           WAITA      0
2058
2059
2060
2061 014424 012702 000010           MOV      @10,R2
2062 014430 013701 012454           MOV      KMVCSR,R1           ;LOAD ADDRESS
2063 014434 005021           1$: CLR      (R1)+           ;CLEAR
2064 014436 005302           DEC      R2           ;ALL DONE
2065 014440 001375           BNE      1$           ;NO
2066 014442 004537 013710           JSR      R5,CKALL           ;CHECK ALL REG = 0
2067 014446 000000           .WORD   0
2068 014450 000000           .WORD   0
2069 014452 000000           .WORD   0
2070 014454 000000           .WORD   0
2071 014456 000000           .WORD   0
2072 014460 000000           .WORD   0
2073 014462 000000           .WORD   0
2074 014464 000000           .WORD   0
2075 014466 000404           BR       2$
2076 014470           ERRHRD 1,EM0002,PRALL           ;OK BRANCH AT END
2077 014500 000207           2$: RTS      PC           ;CSR'S REGISTERS CAN'T BE CLEARED
2078

```

RESTORE REGISTERS

```

2080           ;ROUTINE TO SET MAINT MODE 1 AND CHECK DCT11 CLEAR SELO AFTER HAVING DECODED
2081
2082
2083
2084           ;CALLING SEQUENCE:
2085           ;      JSR PC,MAINM1
2086
2087
2088
2089           ;GIVE AN ERROR IF MASTER CLEAR IS NOT CLEAR BY DCT11
2090           ;
2091           ;MAINT1= MASTER CLEAR=1 + MAINT 1 =0 + MODE = 1 : T11=HOLD
2092
2093
2094
2095
2096
2097
2098
2099 014502 012777 044000 175744 MAINM1: MOV      #MAINT1,@KMVCSR      ;LOAD ADDRESS
2100 014510 012737 000000 002266      MOV      #0,DELCT1
2101 014516 012737 000001 002270      MOV      #1,DELCT2
2102 014524 004737 012706      JSR      PC,WAIT2
2103 014530 004537 013620      JSR      R5,CKSELO      ;CHECK SELO=0 BUT MODE BIT =1
2104 014534 004000      .WORD    4000
2105 014536 000404      BR       1$            ;OK BRANCH
2106 014540      ERRHRD  2,EM0001,PRSELO
2107 014550 000207      1$:    RTS      PC
2108
2109
2110
2111
2112

```

RESTORE REGISTERS

```

2114                ;ROUTINE TO SET TEST NUMBER ON BSELO
2115
2116
2117
2118
2119                ;CALLING SEQUENCE:
2120                ;          JSR R5,TSTNUB
2121                ;          .WORD  A
2122
2123
2124
2125
2126
2127
2128 014552 012537 012420 TSTNUB: MOV (R5)+,NUB
2129 014556 053777 012420 175670 BIS NUB,@KMVCSR ;LOAD TEST NUMBER
2130 014564 012737 000000 002266 MOV #0000,DELCT1
2131 014572 004737 012726 JSR PC,WAIT1 ;WAIT
2132 014576 000205 RTS R5

```

RESTORE REGISTERS

```

2134 ;ROUTINE TO CHECK IF KMV11A OR B AND IF LOOP BACK CONNECTOR
2135 ;ARE PLUGGED OR NOT
2136
2137
2138
2139
2140
2141 ;CALLING SEQUENCE:
2142
2143 ;JSR PC,CKKMV
2144
2145
2146
2147 ;OUTPUTS: IF LOOP BACK LOOP=1
2148 ; IF NO LOOP BACK LOOP=0
2149 ;
2150 ; IF KMV11 A KIND=0
2151 ; IF KMV11 B KIND=1
2152
2153
2154
2155
2156 ;MICRO DIAG NB 44 DESCRIPTION:
2157 ;DCT11 LOOK IF KMV11A OR B BY READING BIT 1 OF 8255 CHIP PORT C
2158 ;IF THIS BIT =0 IT IS KMV11 B MODULE AND DCT11 SET 1 IN BSEL4
2159 ; " " 1 " " A " " 0 "
2160 ;
2161 ;DCT11 LOOK IF LOOP BACK OR NOT BY READING BIT 0 OF 8255 CHIP
2162 ;IF THIS BIT =0 LOOP BACK CONNECTOR ARE PLUGGED SO DCT11 SET 1
2163 ;IN BSEL2 IN OTHER CASE BSEL2=0
2164 ;
2165 ;NOTE:PORT C ADDRESS=13006
2166 ;
2167
2168
2169
2170 014600 004737 014400 CKKMV: JSR PC,CLRKMV
2171 014604 004737 014502 JSR PC,MAINM1 ;SET MAINT MODE
2172 014610 004537 014552 JSR RS,TSTNUB ;CHECK WHICH KMV11 AND IF LOOP BACK
2173 014614 000044 .WORD 44
2174
2175 014616 004737 013102 JSR PC,TSTERR ;LOOK IF TEST CORRECTLY DONE
2176 014622 000412 BR 1$
2177 014624 000402 BR 2$
2178 014626 000401 BR 2$
2179 014630 000400 BR 2$
2180
2181
2182
2183 014632 2$: ERRHRD 3,EM0004 ;NO KMV11 ANSWER
2184 014642 004737 012740 JSR PC,CHKMAX ;LOOK IF MAX ERROR
2185 014646 000207 RTS PC
2186
2187 014650 017737 175602 012474 1$: MOV @KMVPO2,LOOP ;WRITE LOOP BIT
2188 014656 042737 177776 012474 BIC @177776,LOOP
2189 014664 017737 175570 012404 MOV @KMVPO4,KIND ;WRITE KIND
2190 014672 042737 177776 012404 BIC @177776,KIND

```

C5

KMV11 B LINE CNT DIAG. MACRO M1200 05-JUN-84 15:56 PAGE 44 1

SEQ 0054

RESTORE REGISTERS

2191 014700 000207

RTS PC

RESTORE REGISTERS

```

2193
2194 ;ROUTIN TO WRITE OR READ ONE OF THE KMV11 REGISTERS
2195
2196
2197
2198 ;CALLING SEQUENCE:
2199 ;JSR R5,WRITE
2200 ;.WORD A ;A=ADDRESS TO WRITE
2201 ;.WORD B ;B=DATA TO WRITE
2202 ;
2203 ;
2204 ;
2205 ;JSR R5,READ
2206 ;.WORD A ;A=ADDRESS TO READ
2207 ;
2208 ;
2209 ;
2210 ;MICRO DIAG NB 47 DESCRIPTION:
2211 ;WRITE: PUT ADDRESS TO WRITE IN SEL2
2212 ; PUT DATA TO WRITE IN SEL4
2213 ; SET BIT 0 OF SEL6(WRITE BIT)
2214 ; SET TEST NB 44
2215 ; KMV11 CLEAR BSEL0 WHEN DONE
2216 ;
2217 ;
2218 ;READ: PUT ADDRESS TO READ IN SEL2
2219 ; CLEAR BIT 0 IN SEL6
2220 ; SET TEST 47
2221 ; KMV11 READ ADDRESS IN SEL2 AND CLEAR BSEL0 WHEN DONE
2222 ;
2223 ;
2224 ;
2225 ;
2226 014702 012577 175550 WRITE: MOV (R5),@KMVP02 ;WRITE ADDRESS
2227 014706 012577 175546 MOV (R5),@KMVP04 ; " DATA
2228 014712 012777 000001 175542 MOV @1,@KMVP06 ;BIT WRITE
2229 ;
2230 014720 004537 014552 JSR R5,TSTNJB ;SEND TEST NB 47
2231 014724 000047 .WORD 47
2232 ;
2233 014726 000205 RTS R5 ;RETURN
2234 ;
2235 ;
2236 ;
2237 ;
2238 ;
2239 ;
2240 014730 012577 175522 READ: MOV (R5),@KMVP02 ;SET ADDRESS TO READ
2241 014734 005077 175520 CLR @KMVP04
2242 014740 005077 175516 CLR @KMVP06
2243 ;
2244 014744 004537 014552 JSR R5,TSTNJB ;SEND TEST NB 44
2245 014750 000047 .WORD 47
2246 ;
2247 ;
2248 014752 004737 013102 JSR PC,TSTERR ;CHECK BSEL 0
2249 014756 000412 BR 18 ;OK

```


RESTORE REGISTERS

```
2264
2265
2266      .MACRO ROMCLK
2267      .LIST      JSR      R5,.ROMCLK      ;CLOCK INSTRUCTION
2268
2269      .NLIST
2270      .ENDM
2271
2272      .MACRO ED$CALL XY
2273      .LIST
2274      ;***** TEST'XY' *****
2275      .NLIST
2276      .ENDM
2277
2278
2279
2280      .MACRO BADHEAD
2281      .RADIX 10
2282      ED$CALL \T$TESTNUM+1
2283      .RADIX 8
2284      .ENDM
2285
2286
2287
2288
```

GLOBAL ERROR REPORT SECTION

```

2290      .SBTTL GLOBAL ERROR REPORT SECTION
2291
2292      ;////////////////////////////////////
2293      ;/      THE GLOBAL ERROR REPORT SECTION CONTAINS ERROR MESSAGES
2294      ;/      THAT ARE USED IN MORE THAN ONE TEST.
2295      ;////////////////////////////////////
2296
2297      .NLIST BEX
2298
2299 015014    040    102    125 TIM:  .ASCIZ / BUS TIMEOUT /
2300
2301 015032    045    116    045 TFM36: .ASCIZ /%N%AREGISTER ADDRESS ERROR,ADDRESS = %06%A,UNIT = %02/
2302
2303 015120    115    101    123 EM0001: .ASCIZ /MASTER CLEAR FAILS TO RESET: DCT11 CAN'T CLEAR MASTER CLEAR /
2304
2305 015215    040    113    115 EM0002: .ASCIZ / KMV11 REGISTERS CANNOT BE CLEARED /
2306
2307 015261    040    104    101 EM0003: .ASCIZ / DATA COMPARE ERROR ON KMV11 REGISTER (SEL2 TO SEL16)/
2308
2309 015347    040    116    117 EM0004: .ASCIZ / NO ANSWER FROM KMV11 /
2310
2311 015376    040    124    111 EM0006: .ASCIZ / TIMEOUT DURING KMV11 MICRO TEST /
2312
2313 015440    111    116    124 EM0007: .ASCIZ /INTERRUPT OCCURED ON KMV11,WHEN ADDRESSING CSR REGISTER/
2314
2315 015531    116    117    040 EM0010: .ASCIZ /NO KMV11 INTERRUPT WHEN CSR'S ARE ACCESSED/
2316
2317 015604    113    115    126 EM0011: .ASCIZ /KMV11 REAL LINE TIME CLOCK FAILED TO INTERRUPT /
2318
2319 015664    103    110    101 EM0012: .ASCIZ /CHANEL A GENERATOR COUNT CANNOT BE READ OR WRITTEN CORRECTLY /
2320
2321 015762    103    110    101 EM0013: .ASCIZ /CHANEL A GENERATOR OUTPUT IS NOT CORRECT/
2322
2323 016034    103    110    101 EM0112: .ASCIZ /CHANEL B GENERATOR COUNT CANNOT BE READ OR WRITTEN CORRECTLY /
2324
2325 016132    103    110    101 EM0113: .ASCIZ /CHANEL B GENERATOR OUTPUT IS NOT CORRECT/
2326
2327 016204    125    116    101 EM0033: .ASCIZ /UNABLE TO CHANGE BAUD RATE GENERATOR COUNTER /
2328
2329 016262    116    117    040 EM0014: .ASCIZ /NO CHANGE ON BAUD RATE GENERATOR OUTPUT /
2330
2331 016333    124    122    101 EM0015: .ASCIZ /TRANSMISSION ERROR IN INTERNAL LOOP ON CH A WITHOUT INTERRUPTS/
2332
2333 016432    105    122    122 EM0016: .ASCIZ /ERROR WHEN TRANSMITTING FRAMES IN INTERNAL LOOPBACK ON CH A /
2334
2335 016527    124    122    101 EM0115: .ASCIZ /TRANSMISSION ERROR IN INTERNAL LOOP ON CH B WITHOUT INTERRUPTS/
2336
2337 016626    105    122    122 EM0116: .ASCIZ /ERROR WHEN TRANSMITTING FRAMES IN INTERNAL LOOPBACK ON CH B /
2338
2339 016723    105    122    122 EM0017: .ASCIZ /ERROR WHEN TRANSMITTING FRAMES IN EXTERNAL LOOP BACK ON CH A/
2340
2341 017020    105    122    122 EM0020: .ASCIZ /ERROR WHEN TRANSMITTING FRAMES IN EXTERNAL LOOP BACK ON CH B/
2342
2343 017115    113    115    126 EM0023: .ASCIZ /KMV11 REAL TIME CLOCK INTERRUPT OCCURED TOO EARLY /
2344
2345 017200    111    116    103 EM0024: .ASCIZ /INCORRECT KMV11 REPLY /
2346

```

GLOBAL ERROR REPORT SECTION

2347	017227	116	117	040	EM0027: .ASCIZ /NO LOOP BACK CONNECTOR ,TEST NOT EXECUTED/
2348					
2349	017301	104	101	124	EM0030: .ASCIZ /DATA COMPARE ERROR BETWEEN MODEM SIGNAL 108 AND 107 ON CH A /
2350					
2351	017376	104	101	124	EM0130: .ASCIZ /DATA COMPARE ERROR BETWEEN MODEM SIGNAL 108 AND 107 ON CH B /
2352					
2353	017473	115	117	104	EM0032: .ASCIZ /MODEM SIGNAL ERROR ON CHANEL A IN EXTERNAL LOOPBACK MODE/
2354					
2355	017564	115	117	104	EM0034: .ASCIZ /MODEM SIGNAL ERROR ON CHANEL B IN EXTERNAL LOOPBACK MODE/
2356					
2357	017655	120	122	117	EM0035: .ASCIZ /PROM REVISION IS NOT COMPATIBLE WITH DIACNOSTIC /
2358					
2359					
2360					
2361					

GLOBAL ERROR REPORT SECTION

2363	017736	045	116	045	MLOOP:	.ASCIZ	/NNA	NO LOOP BACK CONNECTOR, TEST NOT EXECUTED/
2364								
2365	020014	045	116	045	MSEL0:	.ASCIZ	/NNA	SELO = #06#A SHOULD BE = #06#N/
2366								
2367	020062	045	116	045	MREG0:	.ASCIZ	/NNA	SELO = #06#A SHOULD BE = #06/
2368	020126	045	116	045	MREG2:	.ASCIZ	/NNA	SEL2 = #06#A SHOULD BE = #06/
2369	020172	045	116	045	MREG4:	.ASCIZ	/NNA	SEL4 = #06#A SHOULD BE = #06/
2370	020236	045	116	045	MREG6:	.ASCIZ	/NNA	SEL6 = #06#A SHOULD BE = #06/
2371	020302	045	116	045	MREG10:	.ASCIZ	/NNA	SEL10 = #06#A SHOULD BE = #06/
2372	020346	045	116	045	MREG12:	.ASCIZ	/NNA	SEL12 = #06#A SHOULD BE = #06/
2373	020412	045	116	045	MREG14:	.ASCIZ	/NNA	SEL14 = #06#A SHOULD BE = #06/
2374	020456	045	116	045	MREG16:	.ASCIZ	/NNA	SEL16 = #06#A SHOULD BE = #06/
2375								
2376								
2377								
2378	020522	045	116	045	MINT:	.ASCIZ	/NNA	GOOD = #06#A BAD = #06/
2379	020556	045	116	045	MBSEL0:	.ASCIZ	/NNA	BSEL0 = #06#A SHOULD BE = #06/
2380								
2381	020620	045	116	045	MINTR:	.ASCIZ	/NNA	INTERRUPT OCCUR WHEN ADDRESS = #06#A IS WRITTEN/
2382								
2383	020705	045	116	045	MVECT:	.ASCIZ	/NNA	RECEIVE BAD VECT = #06#A SHOULD BE = #06/
2384								
2385								
2386								
2387								
2388								
2389	020761	045	116	045	MT11V:	.ASCIZ	/NNA	RECEIVE VECTOR VECT = #06#A SHOULD BE = #06/
2390	021043	045	116	045	MFRAM1:	.ASCIZ	/NNA	RECEIVE FRAME IS = #06#A SHOULD BE = #06/
2391	021121	045	116	045	MFRAM2:	.ASCIZ	/NNA	TRANSMIT SPEED IS = #06#A FRAME LENGTH = #06/
2392								
2393								
2394	021204	045	116	045	MSTER1:	.ASCIZ	/NNA	ERROR STATUS = #06/
2395	021236	045	116	045	MSTER2:	.ASCIZ	/NNA	WORD COUNT DISCREPANCY = #06/
2396								
2397	021301	045	116	045	MODEM1:	.ASCIZ	/NNA	TESTED MODEM SIGNAL IS = #06/
2398	021345	045	116	045	MODEM2:	.ASCIZ	/NNA	RESULT OF TEST IS = #06/
2399	021404	045	116	045	MODEM3:	.ASCIZ	/NNA	MODEM SIGNAL STATE IS = #06/
2400	021447	045	116	045	MRAMEF:	.ASCIZ	/NNA	TXDATA = #06#A RXDATA = #06/
2401								

GLOBAL ERROR REPORT SECTION

```

2403
2404          .EVEN
2405
2406
2407
2408
2409          :-----
2410          : MACRO'S NEEDED TO REPORT ERRORS
2411          :-----
2412 021520          BGNMSG  PRSELO          ;REPORT SELO
2413 021520          PRINTB  #MSELO,SELO,GOOD
2414 021550 004737 012740 JSR      PC,CHKMAX
2415 021554          ENDMSG
2416
2417
2418
2419 021556          BGNMSG  PRINT
2420 021556          PRINTB  #MINT,GOOD,BAD
2421 021606 004737 012740 JSR      PC,CHKMAX          ;CHECK IF TOO MANY ERROR
2422 021612          ENDMSG
2423
2424
2425 021614          BGNMSG  PRALL          ;REPORT CONTENT OF ALL CSR'S
2426 021614          PRINTB  #MREG0,SELO,GOOD0
2427 021644          PRINTB  #MREG2,SEL2,GOOD2
2428 021674          PRINTB  #MREG4,SEL4,GOOD4
2429 021724          PRINTB  #MREG6,SEL6,GOOD6
2430 021754          PRINTB  #MREG10,SEL10,GOOD10
2431 022004          PRINTB  #MREG12,SEL12,GOOD12
2432 022034          PRINTB  #MREG14,SEL14,GOOD14
2433 022064          PRINTB  #MREG16,SEL16,GOOD16
2434 022114 004737 012740 JSR      PC,CHKMAX          ;CHECK IF TOO MANY ERROR
2435 022120          ENDMSG
2436
2437
2438
2439
2440
2441
2442 022122          BGNMSG  PRREG          ;REPORT ALL CSR'S BUT SELO
2443 022122          PRINTB  #MREG2,SEL2,GOOD2
2444 022152          PRINTB  #MREG4,SEL4,GOOD4
2445 022202          PRINTB  #MREG6,SEL6,GOOD6
2446 022232          PRINTB  #MREG10,SEL10,GOOD10
2447 022262          PRINTB  #MREG12,SEL12,GOOD12
2448 022312          PRINTB  #MREG14,SEL14,GOOD14
2449 022342          PRINTB  #MREG16,SEL16,GOOD16
2450 022372 004737 012740 JSR      PC,CHKMAX          ;CHECK IF TOO MANY ERROR
2451 022376          ENDMSG
2452
2453
2454
2455
2456
2457
2458
2459 022400          BGNMSG  PBSELO          ;REPORT BSELO

```

GLOBAL ERROR REPORT SECTION

2460	022400			PRINTB	@MBSELO,BSELO,GOOD	
2461	022430	004737	012740	JSR	PC,CHKMAX	;CHECK IF TOO MANY ERROR
2462	022434			ENDMSG		
2463						
2464						
2465						
2466						
2467						
2468						
2469						
2470						
2471	022436			BGNMSG	PINTR	;REPORT INTERRUPT
2472	022436			PRINTB	@MINTR,ADDR	
2473	022462	004737	012740	JSR	PC,CHKMAX	;CHECK IF TOO MANY ERROR
2474	022466			ENDMSG		
2475						
2476						
2477						
2478						
2479						
2480	022470			BGNMSG	PVECT	;REPORT VECTOR
2481	022470			PRINTB	@MVECT,VECT,GOOD	
2482	022520	004737	012740	JSR	PC,CHKMAX	;CHECK IF TOO MANY ERROR
2483	022524			ENDMSG		
2484						
2485						
2486						
2487						
2488	022526			BGNMSG	PRT11V	
2489	022526			PRINTB	@MT11V,VECT,GOOD	
2490	022556	004737	012740	JSR	PC,CHKMAX	;CHECK IF TOO MANY ERROR
2491	022562			ENDMSG		
2492						
2493						
2494						
2495						
2496	022564			BGNMSG	PFRAME	;REPORT FRAME ERROR
2497	022564			PRINTB	@MFRAM1,RXDATA,TXDATA	
2498	022614			PPINTB	@MFRAM2,TSPEED,LENGTH	
2499	022644	004737	012740	JSR	PC,CHKMAX	;CHECK IF TOO MANY ERROR
2500	022650			ENDMSG		
2501						
2502						
2503						
2504						
2505						
2506	022652			BGNMSG	PMODEM	;REPORT MODEM SIGNAL ERROR
2507	022652			PRINTB	@MODEM1,GOOD	
2508	022676			PRINTB	@MODEM2,BAD	
2509	022722			PRINTB	@MODEM3,DATA	
2510	022746	004737	012740	JSR	PC,CHKMAX	;CHECK IF TOO MANY ERROR
2511	022752			ENDMSG		
2512						
2513						
2514						
2515						
2516						

GLOBAL ERROR REPORT SECTION

```

2517
2518
2519 022754      BGNMSG  PRAMEF
2520 022754      PRINTB  @MRAMEF,TXDATA,RXDATA      ;SHORT REPORT FOR FRAME ERROR
2521 023004      ENDMSG
2522
2523
2524
2525
2526
2527
2528
2529
2530 023006      BGNMSG  PRSTER                      ;REPORT ERROR STATUS ,WORD CNT
2531 023006      PRINTB  @MSTER1,STAERR
2532 023032      PRINTB  @MSTER2,WRDCNT
2533 023056      JSR      PC,CHKMAX      ;CHECK IF TOO MANY ERROR
2534 023062
2535
2536
2537
2538 023064      BGNMSG  PADFLT                      ;ADDRESS TEST
2539 023064      PRINTB  @TFM36,ADDR,UNIT
2540 023114      JSR      PC,CHKMAX
2541 023120      ENDMSG
2542
2543
2544
2545

```


REPORT CODING SECTION

.SBTTL REPORT CODING SECTION

2547
2548
2549
2550
2551
2552
2553
2554
2555 023122
2556
2562
2563 023122
2564
2571
2572 023126
2573
2574

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

BGNRPT

EXIT RPT

ENDRPT

INITIALIZE SECTION

```

2576          .SBTTL  INITIALIZE SECTION
2577
2578          ;////////////////////////////////////
2579          ;/ THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
2580          ;/ AT THE BEGINNING OF EACH PASS.
2581          ;////////////////////////////////////
2582
2583 023130          BGNINIT
2584
2585
2620
2621          .EVEN
2622
2623          .EVEN
2624
2625 023130          SETVEC  #140,#170000,#340          ;ODT ROM ADDRESS          ;JB REV A-0
2626
2627
2628
2629          ;INITIALIZE SUBROUTINE STACK
2630 023156 012705 012676          MOV          #SSTACK,R5
2631          ;STORE BASE LEVEL PROGRAM STACK POINTER
2632 023162 010637 002242          MOV          SP,PSTACK
2633 023166 005737 002252          TST          FTIME
2634 023172 001011          BNE          1$
2635 023174 013737 000004 002254          MOV          @#4,SAVE4
2636 023202 013737 000006 002256          MOV          @#6,SAVE6
2637 023210 012737 000001 002252          MOV          #1,FTIME
2638 023216 013737 002254 000004 1$: MOV          SAVE4,@#4
2639 023224 013737 002256 000006          MOV          SAVE6,@#6
2640
2641 023232          READEF  #EF.START          ;START COMMAND?
2642 023240          BCOMPLETE          SETUP          ;IF YES BRANCH
2643
2644 023242          READEF  #EF.CONTINUE          ;CONTINUE COMMAND?
2645 023250          BCOMPLETE          END
2646
2647 023252          READEF  #EF.NEW          ;NEW PASS?
2648 023260          BNCOMPLETE          NEXT          ;IF NOT EXIT SETUP
2649
2650 023262 012737 177777 012436  SETUP:  MOV          #-1,UUT          ;INITIALISE UNIT NUMBER
2651
2652 023270 005237 012436          NEXT:  INC          UUT          ;POINT NEXT UNIT
2653 023274 023737 012436 002262          CMP          UUT,L$UIT          ;ALL DONE?
2654 023302 001523          BEQ          ABORT          ;IF YES END OF PASS
2655
2656 023304 013737 012436 002264          MOV          UUT,UNIT
2657 023312          PRINTF  #RUNNING,UNIT
2658
2659
2660 023336          GPHARD  UUT,R1          ;GET P TABLE
2661 023346          BNCOMPLETE          NEXT          ;IF NOT AVAILABLE GET NEXT
2662
2663
2664 023350          GETPRM:
2665
2666 023350 011137 012454          MOV          (R1),KMVCSR          ;GET ADDRESS OF KMV11

```

INITIALIZE SECTION

```

2667
2668 023354 011137 012456      MOV    (R1),KMVP02
2669 023360 062737 000002 012456  ADD    #2,KMVP02
2670
2671 023366 011137 012460      MOV    (R1),KMVP04
2672 023372 062737 000004 012460  ADD    #4,KMVP04
2673
2674 023400 011137 012462      MOV    (R1),KMVP06
2675 023404 062737 000006 012462  ADD    #6,KMVP06
2676
2677 023412 011137 012464      MOV    (R1),KMVP10
2678 023416 062737 000010 012464  ADD    #10,KMVP10
2679
2680 023424 011137 012466      MOV    (R1),KMVP12
2681 023430 062737 000012 012466  ADD    #12,KMVP12
2682
2683 023436 011137 012470      MOV    (R1),KMVP14
2684 023442 062737 000014 012470  ADD    #14,KMVP14
2685
2686 023450 012137 012472      MOV    (R1),KMVP16
2687 023454 062737 000016 012472  ADD    #16,KMVP16
2688
2689 023462 011137 012440      MOV    (R1),KMVV00
2690
2691 023466 011137 012446      MOV    (R1),KMVV02
2692 023472 062737 000002 012446  ADD    #2,KMVV02
2693
2694 023500 011137 012444      MOV    (R1),KMVV04
2695 023504 062737 000004 012444  ADD    #4,KMVV04
2696
2697 023512 012137 012450      MOV    (R1),KMVV06
2698 023516 062737 000006 012450  ADD    #6,KMVV06
2699
2700 023524 012137 012442      MOV    (R1),KMVLVL
2701 023530 062737 000006 012452  ADD    #6,KMVLVL
2702
2703 023536 011137 012474      MOV    (R1),LOOP
2704
2705 023542 005037 002236      CLR    ERRCNT
2706 023546      EXIT    INIT
2707
2708
2709
2710 023552      ABORT:  DOCLN      ;CLEAN UP AND ABORT PASS
2711 023554      EXIT INIT      ;EXIT
2712
2713
2714 023560      END:    ENDINIT
2715
2716
2717
2718 023562      045      116      045  .NLIST BEX
                .LIST  BEX      .ASCIZ /#N#A RUNNING ON UNIT #D2#A /
2719
2720
2721
2722
2723

```

AUTODROP SECTION

.SBTTL AUTODROP SECTION

2725
2726
2727
2728
2729
2730
2731
2732
2733
2734
2735
2742
2743
2744
2745
2746
2747
2748
2749
2750
2751
2752
2753
2754
2755
2756
2757
2758
2759
2760
2761
2762
2763
2764
2765
2766

023620

023620 013701 012454
023624 012705 000007
023630 012737 023662 000004
023636 012737 000340 000006
023644 005711
023646 000240
023650 062701 000002
023654 005305
023656 001372
023660 000405
023662 062706 000004
023666
023674 013737 002254 000004
023702 013737 002256 000006
023710

; 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
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

CLEANUP CODING SECTION

```

2768          .SBTTL  CLEANUP CODING SECTION
2769
2770          ;////////////////////////////////////
2771          ;/ THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
2772          ;/ AT THE END OF EACH PASS.
2773          ;////////////////////////////////////
2774
2775 023712          BGNCLN
2776
2777
2797
2798
2799
2800 023712          BRESET
2801
2802 023714          ENDCLN
2803
2804
2805
2806
2807

```

DROP UNIT SECTION

```

2809      .SBTTL  DROP UNIT SECTION
2810
2811      ;////////////////////////////////////
2812      ;// THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
2813      ;// TO NO LONGER BE TESTED.
2814      ;////////////////////////////////////
2815
2816 023716      BGNDU
2817
2818
2819
2828
2829
2841
2842      .EVEN
2843
2844 023716      PRINTF  @DROPD,RO      ;UNIT DROPPED
2845
2846 023740      EXIT    DU
2847
2848
2849
2850
2851
2852 023744      045      116      045  DROPD:  .NLIST  BEX
2853      .ASCIZ  /%N% A UNIT %D2% A DROPPED/
2854      .LIST  BEX
2855      .EVEN
2856 023774      ENDDU
2857
2858
2859
2860
2861

```


HARDWARE TESTS

```
2893          .SBTTL  HARDWARE TESTS
2894
2895
2896
2897          ;START OF CODE BLOCK WHICH IS USED AS DATA
2898 024000 ROMMAP:; **
2899          ; TEST TO ...
2900          ; --
2901
2902
2903
2904
2905
2906
2907
2908
2909
2910
2911
2912
2913
2914          ;      BGNTST
2915
2916
2917
2918
2919
2920
2921
2922          ;      EXIT   TST
2923
2924
2925
2926
2927
2928
2929
2930
2931
2932
2933
2934
2935
2936
2937          ;      .EVEN
2938          ;      ENDTST
2939
2940
2941
2942
2943
2944
2945
```


HARDWARE TESTS

2947 024000

BADHEAD

***** TEST1 *****

2948

; *VERIFY THAT REFERENCING QBUS DEVICE REGISTERS

2949

; *DOES NOT CAUSE TIME OUT TRAPS.

2950 024000

BADHEAD

***** TEST1 *****

2951

2952 024000

BGNTST

2953 024000 013701 012454

MOV KI /CSR,R1

;R1 CONTAINS KMV11 ADDRESSES

2954 024004 012705 000007

MOV #7,F5

;7 REGISTERS TO BE TESTED

2955 024010 012737 024046 000004

MOV #2\$,4

;SET OUT TIMEOUT TRAP

2956 024016 012737 000340 000006

MOV #340,6

;LEVEL 7

2957 024024 005711

1\$:

TST (R1)

;REFERENCE DEVICE REGISTERS

2958 024026 000240

NOP

2959 024030

ESCAPE TST

2960 024034 062701 000002

ADD #2,R1

;NEXT REGISTER

2961 024040 005305

DEC R5

;DEC REGISTER COUNT

2962 024042 001370

BNE 1\$

;BR IF NOT LAST REGISTER

2963 024044 000415

BR 3\$

2964

2965 024046 062706 000004

2\$:

ADD #4,SP

2966 024052 010137 002362

MOV R1,ADDR

2967 024056 013737 012436 002264

MOV UUT,UNIT

2968 024064

ERRHRD 0,TIM,PADFLT

2969 024074

ESCAPE TST

2970

2971

2972 024100 013737 002254 000004

3\$:

MOV SAVE4,4

2973 024106 013737 002256 000006

MOV SAVE6,6

2974 024114

ESCAPE TST

2975

2976 024120

ENDTST

2977

.EVEN

2978

2979

HARDWARE TESTS

```

2981 024122      BADHEAD
                ;***** TEST2 *****
2982            ;CHECK PROM REVISION TO SEE IF IT IS COMPATIBLE WITH DIAGNOSTIC
2983 024122      BADHEAD
                ;***** TEST2 *****

2984
2985
2986
2987
2988 024122      STARS 1
2989            ;READ LOCATION 2 OF THE PROM (ADDRESS 160002) WHICH CONTAINS PROM VERSION
2990            ;      NUMBER
2991            ;CHECK IF DIAGNOSTIC AND PROM ARE COMPATIBLE AND GIVE AN ERROR IF NOT
2992 024122      STARS 1
2993
2994
2995
2996
2997
2998 024122      BGNST
2999 024122      004737 014400      JSR      PC,CLRKMV      ;CLEAR ALL REGISTERS
3000 024126      004737 014502      JSR      PC,MAINM1    ;SET MAINT MODE
3001
3002
3003 024132      004537 014730      REVPRO: JSR      R5,READ      ;READ LOCATION 160002
3004 024136      160002              .WORD      160002
3005
3006
3007 024140      023737 012430 012374  CMP      GDREV,BAD    ;LOOK IF COMPATIBLE
3008 024146      001410              BEQ      1$           ;YES
3009
3010 024150              ERRHRD 7,EM0035      ;REPORT THE ERROR
3011 024160      004737 012740      JSR      PC,CHKMAX    ;CHECK IF TOO MANY ERROR
3012 024164
3013 024170
3014 024170      1$:
                ENDTST

```

HARDWARE TESTS

3016
3017
3018 024172
3019
3020 024172
3021
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3027 024172
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3062 024172
3063
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3067
3068
3069
3070 024172

```

BADHEAD
:***** TEST3 *****
:REAL TIME CLOCK TEST
BADHEAD
:***** TEST3 *****

STARS 1
:TEST DESCRIPTION:
:THIS TEST CHECK KMV11 REAL TIME CLOCK.
:THE DCT11 FULLY EXECUTE THIS MICRO TEST AND GIVE A TEST RESULT
:VIA CSR'S TO THE HOST COMPUTER.( TIMING IS CHECKED BY DCT11)
:
:
:DCT11 ENABLE CLOCK,AND THEN SET UP CLOCK FOR 80 MS PERIOD
:
:
:QBUS WAIT FOR AT LEAST 80 MS AND CHECK IF AN INTERRUPT OCCUR
:ON DCT11 SHIP AT VECTOR 130
:
:TURN OF CLOCK, WAIT AGAIN FOR MORE THAN 80 MS AND CHECK THAT NO
:INTERRUPT 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 INTERRUPT OCCUR
:                       SEL6=2          IF BAD VECTOR
:                       SEL6=4          IF INTERRUPT OCCUR WHEN CLOCK
:                                       IS NOT ENABLE
:                                       INTERRUPT OCCUR TOO EARLY
:
:                       SEL6=10
:
:                       SEL2=EXPECTED VECTOR
:                       SEL4=OBTAINED VECTOR
:
: MICRO TEST NB= 27

STARS 1

BGNTST

```

HARDWARE TESTS

3071	024172	004737	014400		JSR	PC,CLRKMV		:CLR REG
3072	024176	004737	014502		JSR	PC,MAINM1		:SET MAINT MODE
3073	024202	004537	014552	RTCLK:	JSR	R5,TSTNU8		
3074	024206	000027			.WORD	27		
3075								
3076	024210				WAITB	0,2		:WAIT FOR TEST EXECUTION
3077								
3078								
3079	024230	004737	013102		JSR	PC,TSTERR		:CHECK BSELO
3080	024234	000520			BR	1\$:TEST OK
3081	024236	000423			BR	2\$:TIMEOUT ERROR
3082	024240	000432			BR	3\$:NO KMV ANSWER
3083								
3084								
3085	024242	022777	000001	166212	CMP	#1,@KMVP06		:ERROR DURING TEST ,SEE WHICH ONE
3086	024250	001436			BEQ	4\$:NO INTERRUPT OCCUR
3087								
3088	024252	022777	000002	166202	CMP	#2,@KMVP06		
3089	024260	001442			BEQ	5\$:INT ON BAD VECTOR
3090								
3091	024262	022737	000004	012462	CMP	#4,KMVP06		
3092	024270	001452			BEQ	6\$:INT OCCUP WHEN CLOCK IS DISABLE
3093								
3094								
3095								
3096	024272	022737	000010	012462	CMP	#10,KMVP06		:INTERRUPT OCCUR TOO EARLY
3097	024300	001456			BEQ	7\$		
3098								
3099	024302	000137	024456		JMP	10\$:WRONG KMV11 ANSWER
3100								
3101								
3102								
3103								
3104	024306				2\$:	ERRHRD	8,EM0006	:TIMEOUT ERROR
3105	024316	004737	012740		JSR	PC,CHKMAX		:CHECK IF TOO MANY ERROR
3106	024322				ESCAPE	TST		
3107								
3108								
3109								
3110	024326				3\$:	ERRHRD	9,EM0004	:NO KMV11 ANSWER
3111	024336	004737	012740		JSR	PC,CHKMAX		:CHECK IF TOO MANY ERROR
3112	024342				ESCAPE	TST		
3113								
3114								
3115	024346				4\$:	ERRHRD	10,EM0011	:NO INTERRUPT OCCUR
3116	024356	004737	012740		JSR	PC,CHKMAX		:CHECK IF TOO MANY ERROR
3117	024362				ESCAPE	TST		
3118								
3119								
3120								
3121	024366	017737	166066	012402	5\$:	MOV	@KMVP04,VECT	:READ BAD VECT
3122	024374	012737	000130	002272	MOV	#130,GOOD		
3123	024402				ERRHRD	11,EM0007,PINTR		:INTERRUPT OCCUR AT A BAD VECTOR
3124	024412				ESCAPE	TST		
3125								
3126								
3127	024416				6\$:	ERRHRD	12,EM0012	:INT OCCUR WHEN CHIP IS DISABLE

HARDWARE TESTS

3128	024426	004737	012740		JSR PC,CHKMAX		
3129	024432				ESCAPE TST		:CHECK IF TOO MANY ERROR
3130							
3131							
3132							
3133							
3134	024436			7\$:	ERRHRD 13,EM0023		:INTERRUPT OCCURS EARLY
3135	024446	004737	012740		JSR PC,CHKMAX		:CHECK IF TOO MANY ERROR
3136	024452				ESCAPE TST		
3137							
3138							
3139							
3140							
3141							
3142							
3143	024456			10\$:	ERRHRD 14,EM0024		:WRONG KMV11 ANSWER
3144	024466	004737	012740		JSR PC,CHKMAX		:CHECK IF TOO MANY ERROR
3145	024472				ESCAPE TST		
3146							
3147							
3148							
3149							
3150	024476	000240		1\$:	NOP		
3151	024500			ENDTST			
3152							
3153							
3154							

HARDWARE TESTS

3286

3287

3288 024726

3289 024736 004737 012740

3290 024742

3291

3292

3293

3294 024746

3295 024746

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

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

BOROKO:
ENDSUB

HARDWARE TESTS

```

3297
3298 024750          BGNSUB
3299 024752 004737 014400      JSR    PC,CLRKMV      ;CLR REG
3300 024756 004737 014502      JSR    PC,MAINM1     ;SET MAINT MODE
3301 024762 004537 014552      JSR    R5,TSTNU8
3302 024766 000031          .WCRD    31
3303
3304
3305 024770          WAITB    0.1          ;WAIT FOR TEST EXECUTION
3306
3307 025010 004737 013102      JSR    PC,TSTERR     ;CHECK BSELO TO SEE IF ERROR
3308 025014 000137 025214      JMP    BDROK1        ;TEST OK BR AT END
3309 025020 000402          BR     2$            ;TIME OUT ERROR
3310 025022 000401          BR     2$            ;NO KMV11 ANSWER
3311 025024 000410          BR     3$            ;ERROR DURING TEST
3312
3313
3314
3315 025026          2$:    ERRHRD  20,EM0004      ;NO KMV11 ANSWER
3316 025036 004737 012740      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3317 025042          ESCAPE SUB
3318
3319
3320
3321 025046          3$:
3322 025046 017737 165410 002326  MOV    @KMVP06,SEL6  ;LOOK WHICH ERROR
3323 025054 022737 000001 002326  CMP    #1,SEL6       ;READ SEL6
3324 025062 001010          BNE    4$            ;LOOK IF ERROR 1
3325                                ;NO
3326 025064          ERRHRD  21,EM0112      ;GENE COUNT CAN'T BE READ OR WRITE CORRECTLY
3327 025074 004737 012740      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3328 025100          ESCAPE SUB
3329
3330
3331 025104 022737 000002 002326  4$:    CMP    #2,SEL6       ;LOOK IF ERROR 2
3332 025112 001010          BNE    5$            ;NO
3333
3334
3335
3336 025114          ERRHRD  22,EM0113      ;GENE OUTPUT ISN'T IN A GOOD STATE
3337 025124 004737 012740      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3338 025130          ESCAPE SUB
3339
3340
3341
3342 025134 022737 000010 002326  5$:    CMP    #10,SEL6      ;EROR10?
3343 025142 001414          BEQ    GENO
3344 025144 022737 000040 002326  CMP    #40,SEL6
3345 025152 001410          BEQ    GENO
3346
3347 025154          ERRHRD  23,EM0024      ;WRONG KMV11 ANSWER
3348 025164 004737 012740      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3349 025170          ESCAPE SUB
3350
3351
3352
3353

```

E7

HARDWARE TESTS

3354
3355
3356 025174
3357 025204 004737 012740
3358 025210
3359
3360
3361
3362 025214
3363 025214
3364 025216

GENO: ERRHRD 24,EM0014
JSR PC,CHKMAX
ESCAPE SUB

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

BDRCK1:
ENDSUB
ENDTST

HARDWARE TESTS

3366 025220

BADHEAD

3367

;***** TESTS *****

3368

;TRANSMIT DIFFERENT FRAMES (OF 500 WORDS) IN INTERNAL

3369 025220

;MODE WITHOUT ANY INTERRUPT ON CHANNEL A

BADHEAD

;***** TESTS *****

3370

3371

3372

3373

3374

3375

3376

3377 025220

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

3378

3379

3380

3381

3382

3383

;DCT11 EXECUTE THE TRANSFER IN INTERNAL MODE ON CHA AND WRITE BACK

3384

;IN RX TABLE (TRANSFER FROM QBUS TO KMV11 =DMA)

3385

;QBUS CHECK BSEL0 TO SEE THE STATUS OF THE TEST AND IF TEST DONE CHECK IF

3386

;RX TABLE =TX TABLE

3387

3388

3389

;PARAMETERS SELECTION:

3390

SEL2= TX TABLE ADDRESS

3391

SEL4= TX TABLE LENGTH

3392

BSEL6= EXTENDED ADDRESS OF TX TABLE

3393

BSEL7= " " RX "

3394

SEL12= RX TABLE ADDRESS

3395

SEL14= SPEED SELECTION

3396

SEL16= ERROR STATUS

3397

SEL10= RECEIVED BYTE COUNT

DIFFERENCE BETWEEN RX AND TX TABLE

3398

>0 IF TX>RX,<0 IF TX<RX

3399

BSEL0= TEST STATUS

3400

3401

3402

3403

;TEST STATUS DESCRIPTION:

3404

BSEL0= 0 =TEST DONE CHECK RX TABLE

3405

BSEL0= 200 =TIMEOUT ERROR

3406

BSEL0= TSTNB =NO KMV11 ANSWER

3407

BSEL0= 100 =ERROR DURING TEST ,LOOK WHICH ONE BY TESTING BSEL16

3408

3409

3410

;ERROR STATUS DESCRIPTION:

3411

3412

3413

WHEN BSEL0=100,GIVE CONTAINT OF ERROR STATUS AND WORD COUNT DISCREPANCY

3414

3415

3416

SEL16= BIT14=1 =FCS ERROR

3417

SEL16= BIT13=1 =OVERRUN ERROR

3418

SEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR

3419

SEL16= BIT7 =1 =RX ABORT ERROR

3420

SEL16= BIT6 =1 =UNDERRUN ERROR

HARDWARE TESTS

```

3421      ;      SEL16= BIT5 =1 =3YTE COUNT DISCREPANCY
3422      ;      SEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
3423      ;      SEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
3424      ;      SEL16= BIT2 =1 =CLOCK PROBLEM (NO BUFFER EMPTY)
3425      ;      SEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USE
3426      ;                                     ONLY DURING SELF TEST)
3427      ;
3428      ;MICRO DIAG TEST DESCRIPTION:
3429      ;TEST 36      =TRANSMIT FRAMES ON CHANNEL A WITHOUT INTERRUPT
3430      ;
3431      ;
3432 025220 STARS 1

```

HARDWARE TESTS

```

3434 025220          BGNTST
3435 025220 004737 014400      JSR    PC,CLRKMV      ;CLR REG
3436 025224 005037 002250      CLR    FLAG
3437 025230 004737 014502      JSR    PC,MAINM1     ;SET MAINT MODE
3438 025234 012737 000500 012416  MOV    #500,LENGTH  ;SELECT LENGTH
3439
3440 025242 012737 000174 012414  MOV    #KB56,TSPEED ;SELECT SPEED
3441
3442 025250 012703 000001      INTTX: MOV    #1,R3   ;SELECT A PATTERN
3443
3444
3445 025254 005203      TXSTAR: INC    R3     ;NEW ONE
3446 025256 013704 012416      MOV    LENGTH,R4    ;LOAD LENGTH
3447 025262 012702 002370      MOV    #TTABLE,R2   ;TX TABLE ADDRESS
3448 025266 004737 013160      10$:  JSR    PC,GENER  ;WRITE TX TABLE
3449 025272 013722 012400      MOV    DATA,(R2)+
3450 025276 005304      DEC    R4           ;ALL DONE?
3451 025300 001372      BNE    10$
3452
3453
3454
3455 025302 013704 012416      MOV    LENGTH,R4
3456 025306 012702 006370      MOV    #RTABLE,R2   ;CLEAR RX TABLE
3457 025312 005022      11$:  CLR    (R2)+
3458 025314 005304      DEC    R4
3459 025316 001375      BNE    11$
3460
3461
3462
3463
3464 025320 013777 012414 165142  MOV    TSPEED,@KMVP14 ;SEND TX SPEED
3465 025326 012777 002370 165122  MOV    #TTABLE,@KMVP02 ;SEND TX TABLE ADDRESS
3466 025334 013777 012416 165116  MOV    LENGTH,@KMVP04  ;LOAD TX TABLE ADDRESS
3467 025342 012777 006370 165116  MOV    #RTABLE,@KMVP12 ;LOAD RX TABLE ADDRESS
3468 025350 005077 165106      CLR    @KMVP06
3469
3470
3471
3472
3473
3474
3475 025354 004537 014552      JSR    R5,TSTNUB
3476 025360 000036      .WORD 36           ;DO TEST 36= CHA TEST
3477
3478
3479
3480 025362          2$:  WAITB 0.2         ;WAIT FOR TEST EXECUTION
3481
3482
3483 025402 004737 01310?      JSR    PC,TSTERR    ;CHECK BSELO
3484
3485 025406 000427      BR    6$           ;TEST OK CHECK RX TABLE
3486 025410 000402      BR    3$           ;TIMEOUT ERROR
3487 025412 000401      BR    3$           ;NO KMV11 ANSWER
3488 025414 000410      BR    4$           ;CHECK SEL16 TO SEE WHICH ONE
3489
3490

```


HARDWARE TESTS

3548	025602			7\$:	ERRHRD	27,0,PRAMEF		;SHORT REPORT
3549	025612	005237	002250		INC	FLAG		
3550	025616	062702	000002		ADD	#2,R2		
3551	025622	062705	000002		ADD	#2,R5		;POINT NEXT ADDRESS
3552	025626	022737	000010	002250	CMP	#10,FLAG		;LOOK IF 10 REPORT
3553	025634	001322			BNE	RXCK		
3554								
3555	025636				ESCAPE	TST		
3556								
3557								
3558	025642				RXEND:			
3559								
3560								
3561								
3562	025642				ENDTST			

HARDWARE TESTS

3564 025644

BADHEAD

***** TEST6 *****
; TRANSMIT DIFFERENT FRAMES (OF 500 WORDS) IN INTERNAL
; MODE WITHOUT ANY INTERRUPT ON CHANNEL B

3565

3566

3567 025644

BADHEAD

***** TEST6 *****

3568

3569

3570

3571

3572

3573

3574

3575 025644

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

3576

3577

3578

3579

3580

3581

; DCT11 EXECUTE THE TRANSFER IN INTERNAL MODE ON CHB AND WRITE BACK
; IN RX TABLE (TRANSFER FROM QBUS TO KMV11 =DMA)

3582

3583

3584

3585

3586

3587

; PARAMETERS SELECTION:

3588

3589

3590

3591

3592

3593

3594

3595

3596

3597

3598

3599

3600

3601

; TEST STATUS DESCRIPTION:

3602

3603

3604

3605

3606

3607

3608

3609

; ERROR STATUS DESCRIPTION:

3610

3611

3612

3613

3614

3615

3616

3617

3618

WHEN BSEL0=100,GIVE CONTAINIT OF ERROR STATUS AND WORD COUNT DISCREPANCY

SEL16= BIT14=1 =FCS ERROR
SEL16= BIT13=1 =OVERRUN ERROR
SEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR
SEL16= BIT7 =1 =RX ABORT ERROR
SEL16= BIT6 =1 =UNDERRUN ERROR

L7

HARDWARE TESTS

```
3619      :          SEL16= BIT5 =1 =BYTE COUNT DISCREPANCY
3620      :          SEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
3621      :          SEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
3622      :          SEL16= BIT2 =1 =CLOCK PROBLEM (NO BUFFER EMPTY)
3623      :          SEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USE
3624      :                                     ONLY DURING SELF TEST)
3625      :
3626      : MICRO DIAG TEST DESCRIPTION:
3627      : TEST 37      =TRANSMIT FRAMES ON CHANNEL B WITHOUT INTERRUPT
3628      :
3629      :
3630 025644 STARS 1
```

HARDWARE TESTS

```

3632 025644          BGNTST
3633 025644 004737 014400      JSR   PC,CLRKMV      ;CLR REG
3634 025650 005037 002250      CLR   FLAG
3635 025654 004737 014502      JSR   PC,MAINM1     ;SET MAINT MODE
3636 025660 012737 000500 012416  MOV   #500,LENGTH   ;SELECT LENGTH
3637
3638 025666 012737 000174 012414  MOV   #KBS6,TSPEED  ;SELECT SPEED
3639
3640 025674 012703 000001          MOV   #1,R3         ;SELECT A PATTERN
3641
3642
3643 025700 005203          BTXSTA: INC   R3      ;NEW ONE
3644 025702 013704 012416      MOV   LENGTH,R4     ;LOAD LENGTH
3645 025706 012702 002370      MOV   #TABLE,R2     ;TX TABLE ADDRESS
3646 025712 004737 013160      10$: JSR   PC,GENER   ;WRITE TX TABLE
3647 025716 013722 012400      MOV   DATA,(R2)+
3648 025722 005304          DEC   R4             ;ALL DONE?
3649 025724 001372          BNE   10$
3650
3651
3652
3653 025726 013704 012416      MOV   LENGTH,R4
3654 025732 012702 006370      MOV   #TABLE,R2     ;CLEAR RX TABLE
3655 025736 005022          11$: CLR   (R2)+
3656 025740 005304          DEC   R4
3657 025742 001375          BNE   11$
3658
3659
3660
3661
3662 025744 013777 012414 164516  MOV   TSPEED,@KMVP14 ;SEND TX SPEED
3663 025752 012777 002370 164476  MOV   #TABLE,@KMVP02 ;SEND TX TABLE ADDRESS
3664 025760 013777 012416 164472  MOV   LENGTH,@KMVP04 ;LOAD TX TABLE ADDRESS
3665 025766 012777 006370 164472  MOV   #TABLE,@KMVP12 ;LOAD RX TABLE ADDRESS
3666 025774 005077 164462          CLR   @KMVP06
3667
3668
3669
3670
3671
3672 026000 004537 014552      1$: JSR   R5,TSTNUB   ;DO TEST 37= CHB TEST
3673 026004 000037          .WORD 37
3674
3675
3676
3677 026006          2$: WAITB 0.2       ;WAIT FOR TEST EXECUTION
3678
3679
3680 026026 004737 013102          JSR   PC,TSTERR     ;CHECK BSELO
3681
3682 026032 000427          BR   6$             ;TEST OK CHECK RX TABLE
3683 026034 000402          BR   3$             ;TIMEOUT ERROR
3684 026036 000401          BR   3$             ;NO KMV11 ANSWER
3685 026040 000410          BR   4$             ;CHECK SEL16 TO SEE WHICH ONE
3686
3687
3688 026042          3$: ERRHRD 25,EM0004 ;NO KMV11 ANSWER

```

HARDWARE TESTS

```

3689 026052 004737 012740      JSR    PC,CHKMAX      ;CHECK IF TOO MANY ERROR
3690 026056      ESCAPE  TST
3691
3692
3693
3694 026062      4$:      ;ERROR DURING TEST READ ERROR STATUS
3695      ;TO CHECK WHICH ONE
3696
3697 026062 017737 164404 012424  MOV    @KMVP16,STAERR ;READ ERROR STATUS
3698
3699 026070 017737 164370 012426  MOV    @KMVP10,WRDCNT ;READ WORD COUNT DISCREPANCY
3700
3701 026076      ERRHRD 26,EM0115,PRSTER ;ERROR WHILE TX,RX FRAMES,GIVE ERROR
3702      ;GIVE ERROR STATUS,WORD CNT DISCREPANCY
3703 026106      ESCAPE  TST
3704
3705
3706
3707
3708
3709 026112 012702 002370      6$:      MOV    #TTABLE,R2      ;LOAD TXTABLE ADDRESS
3710 026116 012705 006370      MOV    #RTABLE,R5      ; " RXTABLE ADDRESS
3711 026122 013704 012416      MOV    LENGTH,R4       ;TABLE LENGTH
3712
3713 026126 022225      BRXCK:  CMP    (R2)+,(R5)+ ;CHECK RX AND TX TABLE
3714 026130 001007      BNE    BRXERR
3715 026132 005304      DEC    #4               ;ALL CHECK?
3716 026134 001374      BNE    BRXCK           ;NO BRANCH
3717
3718
3719
3720 026136 022703 000004      CMP    #4,R3           ;ALL KIND OF PATTERN DONE?
3721 026142 001256      BNE    BTXSTA         ;NO TRY WITH NEW ONE
3722
3723
3724
3725 026144 000137 026266      JMP    BRXEND
3726
3727 026150 162705 000002      BRXERR: SUB   #2,R5
3728 026154 162702 000002      SUB   #2,R2
3729
3730 026160 011237 012410      MOV    (R2),TXDATA
3731 026164 011537 012412      MOV    (R5),RXDATA
3732
3733 026170 005737 002250      TST    FLAG           ;LOOK IF 1ST ERROR
3734 026174 001014      BNE    7$
3735
3736 026176      ERRHRD 27,EM0115,PFRAME ;DATA CMP ERROR
3737 026206 005237 002250      INC    FLAG
3738 026212 062702 000002      ADD    #2,R2         ;POINT NEXT ADDRESS
3739 026216 062705 000002      ADD    #2,R5
3740 026222 000137 025502      JMP    RXCK
3741
3742 026226      7$:      ERRHRD 27,0,PRAMEF    ;SHORT REPORT
3743 026236 005237 002250      INC    FLAG
3744 026242 062702 000002      ADD    #2,R2
3745 026246 062705 000002      ADD    #2,R5         ;POINT NEXT ADDRESS

```

HARDWARE TESTS

```
3746 026252 022737 000010 002250      CMP      #10,FLAG      ;LOOK IF 10 REPORT
3747 026260 001322                      BNE      BRXCK
3748
3749 026262                      ESCAPE  TST
3750
3751
3752 026266                      BRXEND:
3753
3754
3755
3756 026266                      ENDTST
```

HARDWARE TESTS

```

3758
3759
3760
3761 026270      BADHEAD
                   ;***** TEST7 *****
                   ;TRANSMIT DIFFERENT FRAME OF VARIOUS LENGTH (FROM 2BYTES TO 2K BYTES)
                   ;AT 56KBAUDS IN INTERNAL MODE ON CHANNEL A (TRANSMISSION WITH INTERRUPT)
3762
3763
3764 026270      BADHEAD
                   ;***** TEST7 *****

3765
3766
3767
3768
3769
3770
3771
3772 026270      STARS 1
                   ;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
                   ;
                   ;
                   ;DCT11 EXECUTE THE TRANSFER IN INTERNAL 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
                   ;SPEED=56KBAUDS
                   ;
                   ;
                   ;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
                   ;   SEL16= ERROR STATUS
                   ;   BSELO= TEST STATUS
                   ;
                   ;
                   ;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:
                   ;
                   ;   WHEN BSELO=100,GIVE CONTAINIT OF ERROR STATUS AND WORD COUNT DISCREPANCY
                   ;
                   ;
                   ;   SEL16= BIT14=1 =FCS ERROR
                   ;   SEL16= BIT13=1 =OVERRUN ERROR
                   ;   SEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR

```

HARDWARE TESTS

```

3813      :      SEL16= BIT7 =1 =RX ABORT ERROR
3814      :      SEL16= BIT6 =1 =UNDERRUN ERROR
3815      :      SEL16= BIT5 =1 =WORD COUNT DISCREPANCY
3816      :      SEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
3817      :      SEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
3818      :      SEL16= BIT2 =1 =CLOCK PROBLEM (NO BUFFER EMPTY)
3819      :      SEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USE
3820      :                                     ONLY DURING SELF TEST)
3821      :
3822      :
3823      :MICRO DIAG TEST DESCRIPTION:
3824      :TEST 40      =TRANSMIT VARIOUS LENGTH FRAME AT 56 KBAUDS ON CHANNEL A
3825      :
3826      :
3827 026270 STARS 1

```

HARDWARE TESTS

```

3829 026270          BGNTST
3830 026270 004737 014400      JSR    PC,CLRKMV      ;CLR REG
3831 026274 004737 014502      JSR    PC,MAINM1     ;SET MAINT MODE
3832 026300 005037 002250      CLR    FLAG
3833
3834
3835 026304 012703 000004          MOV    #4,R3          ;SELECT RANDOM PATTERN
3836 026310 012737 000174 012414      MOV    #KB56,TSPEED  ;SELECT SPEED
3837
3838 026316 012737 000001 012416      TXLTAR: MOV    #1,LENGTH ;START WITH 2 CHARACTERS
3839
3840 026324 013704 012416      TXLBGN: MOV    LENGTH,R4
3841 026330 012702 002370          MOV    #TABLE,R2
3842 026334          BREAK
3843 026336 004737 013160      10$:  JSR    PC,GENER      ;WRITE TX TABLE
3844 026342 013722 012400          MOV    DATA,(R2)+
3845 026346 005304          DEC    R4
3846 026350 001372          BNE    10$
3847
3848
3849 026352 013704 012416          MOV    LENGTH,R4          ;CLEAR RX TABLE
3850 026356 012702 006370          MOV    #RTABLE,R2
3851 026362 005022      20$:  CLR    (R2)+
3852 026364 005304          DEC    R4
3853 026366 001375          BNE    20$
3854
3855
3856
3857
3858
3859
3860 026370 013777 012414 164072      MOV    TSPEED,@KMVP14 ;SEND TX SPEED
3861 026376 012777 002370 164052      MOV    #TABLE,@KMVP02 ; " TX TABLE ADDRESS
3862 026404 013777 012416 164046      MOV    LENGTH,@KMVP04 ; " " " LENGTH
3863 026412 012777 006370 164046      MOV    #RTABLE,@KMVP12 ;SEND RX TABLE ADDRESS
3864 026420 005077 164036      CLR    @KMVP06        ;CLR EXTENDED ADDRESS
3865
3866
3867
3868
3869 026424 004537 014552          JSR    R5,TSTNUB
3870 026430 000040          .WORD 40              ;DO TEST 40= CHA TEST
3871
3872
3873
3874 026432          2$:  WAITB 0.2            ;WAIT FOR TEST EXECUTION
3875
3876
3877 026452 004737 013102          JSR    PC,TSTERR      ;CHECK BSELO
3878
3879 026456 000427          BR    6$              ;TEST OK CHECK RX TABLE
3880 026460 000402          BR    3$              ;TIMEOUT ERROR
3881 026462 000401          JP    3$              ;NO KMV11 ANSWER
3882 026464 000410          BR    4$              ;CHECK SEL16 TO SEE WHICH ONE
3883
3884
3885 026466          3$:  ERRHRD 28,EM0004    ;NO KMV11 ANSWER

```


HARDWARE TESTS

3886	026476	004737	012740		JSR	PC,CHKMAX		;CHECK IF TOO MANY ERROR
3887	026502				ESCAPE	TST		
3888								
3889	026506			4\$:				;ERROR DURING TEST READ ERROR STATUS
3890								;TO CHECK WHICH ONE
3891								
3892	026506	017737	163760	012424	MOV	@KMVP16,STAERR		;READ ERROR STATUS
3893								
3894	026514	017737	163744	012426	MOV	@KMVP10,WRDCNT		;READ WORD COUNT DISCREPANCY
3895								
3896	026522				ERRHRD	29,EH0016,PRSIER		;ERROR WHILE TX,RX FRAMES,GIVE ERROR
3897								;GIVE ERROR STATUS,WORD CNT DISCREPANCY
3898	026532				ESCAPE	TST		
3899								
3900								
3901								
3902								
3903	026536	012702	002370	6\$:	MOV	@TABLE,R2		;LOAD TX TABLE ADDRESS
3904	026542	012705	006370		MOV	@RTABLE,R5		; " RX " "
3905	026546	013704	012416		MOV	LENGTH,R4		; " TX TABLE LENGTH
3906								
3907								
3908	026552	022522			RXLCK:	CMP (R5), (R2)		;CMP TX AND RX TABLE
3909	026554	001015			BNE	RXLERR		;BR IF ERROR
3910	026556	005304			DEC	R4		;ALL DONE
3911	026560	001374			BNE	RXLCK		;NO
3912								
3913	026562	062737	000400	012416	ADD	@400,LENGTH		;CHANGE LENGTH
3914	026570	022737	002000	012416	CMP	@2000,LENGTH		;IS IT MAX?
3915	026576	100252			BPL	TXLBGN		;NO DO TEST AGAIN WITH NEW TABLE
3916								LENGTH
3917								
3918	026600	005303			DEC	R3		;SELECT OTHER PATERNS
3919	026602	001245			BNE	TXLTAR		
3920								
3921	026604	000137	026726		JMP	RXLEND		
3922								
3923								
3924								
3925	026610	162705	000002		RXLERR:	SUB @2,R5		
3926	026614	162702	000002		SUB	@2,R2		
3927								
3928	026620	011237	012410		MOV	(R2),TXDATA		
3929	026624	011537	012412		MOV	(R5),RXDATA		
3930								
3931	026630	005737	002250		TST	FLAG		;LOOK IF 1ST ERROR
3932	026634	001014			BNE	30\$		
3933								
3934	026636				ERRHRD	30,EM0016,PFRAME		;DATA CMP ERROR
3935	026646	005237	002250		INC	FLAG		
3936	026652	062702	000002		ADD	@2,R2		;POINT NEXT ADDRESS
3937	026656	062705	000002		ADD	@2,R5		
3938	026662	000137	025502		JMP	RXCK		
3939								
3940	026666			30\$:	ERRHRD	30,0,PRAMEF		;SHORT REPORT
3941	026676	005237	002250		INC	FLAG		
3942	026702	062702	000002		ADD	@2,R2		

HARDWARE TESTS

3943	026706	062705	000002		ADD	02,R5		;POINT NEXT ADDRESS
3944	026712	022737	000010	002250	CMP	010,FLAG		;LOOK IF 10 REPORT
3945	026720	001314			BNE	RXLCK		
3946								
3947	026722				ESCAPE	TST		
3948								
3949								
3950								
3951								
3952	026726				RXLEND:			
3953	026726				ENDTST			

HARDWARE TESTS

```

3956
3957
3958
3959 026730      BADHEAD
                  ;*****. TEST8 *****
3960              ;TRANSMIT DIFFERENT FRAME OF VARIOUS LENGTH (FROM 2BYTES TO 2K BYTES)
3961              ;AT 56KBAUDS IN INTERNAL MODE ON CHANNEL B (TRANSMISSION WITH INTERRUPT)
3962 026730      BADHEAD
                  ;***** TEST8 *****

3963
3964
3965
3966
3967
3968
3969
3970 026730      STARS 1
3971              ;QBUS WRITE DIFFERENT TX TABLE OF VARIOUS LENGTH, LOAD IN KMV11 CSR'S
3972              ;THE TX AND RX TABLE ADDRESS ,THE TABLE LENGTH AND TRANSFER SPEED
3973              ;
3974              ;
3975              ;
3976              ;DCT11 EXECUTE THE TRANSFER IN INTERNAL MODE ON CHA AND CHB AND WRITE BACK
3977              ;IN RX TABLE
3978              ;QBUS CHECK BSELO TO SEE THE STATUS OF THE TEST AND IF TEST DONE CHECK IF
3979              ;RX TABLE =TX TABLE
3980              ;SPEED=56KBAUDS
3981              ;
3982              ;
3983              ;PARAMETERS SELECTION:
3984              ;      SEL2= TX TABLE ADDRESS
3985              ;      SEL4= TX TABLE LENGTH
3986              ;      BSEL6= EXTENDED ADDRESS OF TX TABLE
3987              ;      BSEL7= " " RX "
3988              ;      SEL12= RX TABLE ADDRESS
3989              ;      SEL14= SPEED SELECTION
3990              ;      SEL16= ERROR STATUS
3991              ;      BSELO= TEST STATUS
3992              ;
3993              ;
3994              ;
3995              ;TEST STATUS DESCRIPTION:
3996              ;      BSELO= 0      =TEST DONE CHECK RX TABLE
3997              ;      BSELO= 200    =TIMEOUT ERROR
3998              ;      BSELO= TSTMB  =NO KMV11 ANSWER
3999              ;      BSELO= 100    =ERROR DURING TEST ,LOOK WHICH ONE BY TESTING BSEL16
4000              ;
4001              ;
4002              ;
4003              ;ERROR STATUS DESCRIPTION:
4004              ;
4005              ;      WHEN BSELO=100,GIVE CONTAINIT OF ERROR STATUS AND WORD COUNT DISCREPANCY
4006              ;
4007              ;
4008              ;      SEL16= BIT14=1 =FCS ERROR
4009              ;      SEL16= BIT13=1 =OVERRUN ERROR
4010              ;      SEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR

```

HARDWARE TESTS

```
4011      :      SEL16= BIT7 =1 =RX ABORT ERROR
4012      :      SEL16= BIT6 =1 =UNDERRUN ERROR
4013      :      SEL16= BIT5 =1 =WORD COUNT DISCREPANCY
4014      :      SEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
4015      :      SEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
4016      :      SEL16= BIT2 =1 =CLOCK PROBLEM (NO BUFFER EMPTY)
4017      :      SEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USED
4018      :                                     ONLY DURING SELF TEST)
4019      :
4020      :
4021      :MICRO DIAG TEST DESCRIPTION:
4022      :TEST 41      =TRANSMIT VARIOUS LENGTH FRAME AT 56 KBAUDS ON CHANNEL B
4023      :
4024      :
4025 026730 STARS 1
```

HARDWARE TESTS

```

4027 026730          BGNTST
4028 026730 004737 014400      JSR      PC,CLRKMV      ;CLR REG
4029 026734 004737 014502      JSR      PC,MAINM1     ;SET MAINT MODE
4030 026740 005037 002250      CLR      FLAG
4031
4032
4033 026744 012703 000004      MOV      #4,R3         ;SELECT RANDOM PATTERN
4034 026750 012737 000174 012414  MOV      #KB56,TSPEED  ;SELECT SPEED
4035
4036 026756 012737 000001 012416  BXL TAR: MOV      #1,LENGTH  ;START WITH 2 CHARACTERS
4037
4038 026764 013704 012416      BXL BGN: MOV      LENGTH,R4
4039 026770 012702 002370      MOV      #TABLE,R2
4040 026774          BREAK
4041 026776 004737 013160      10$:   JSR      PC,GENER     ;WRITE TX TABLE
4042 027002 013722 012400      MOV      DATA,(R2)+
4043 027006 005304          DEC      R4
4044 027010 001372          BNE      10$
4045
4046
4047 027012 013704 012416      MOV      LENGTH,R4     ;CLEAR RX TABLE
4048 027016 012702 006370      MOV      #RTABLE,R2
4049 027022 005022          20$:   CLR      (R2)+
4050 027024 005304          DEC      R4
4051 027026 001375          BNE      20$
4052
4053
4054
4055
4056
4057
4058 027030 013777 012414 163432  MOV      TSPEED,@KMVP14 ;SEND TX SPEED
4059 027036 012777 002370 163412  MOV      #TABLE,@KMVP02 ; " TX TABLE ADDRESS
4060 027044 013777 012416 163406  MOV      LENGTH,@KMVP04 ; " " " LENGTH
4061 027052 012777 006370 163406  MOV      #RTABLE,@KMVP12 ;SEND RX TABLE ADDRESS
4062 027060 005077 163376      CLR      @KMVP06      ;CLR EXTENDED ADDRESS
4063
4064
4065
4066 027064 004537 014552      JSR      R5,TSTNUB     ;DO TEST 41= CHB TEST
4067 027070 000041          .WORD   41
4068
4069
4070 027072          2$:   WAITB   0.2         ;WAIT FOR TEST EXECUTION
4071
4072
4073 027112 004737 013102      JSR      PC,TSTERR     ;CHECK BSELO
4074
4075 027116 000427          BR      6$            ;TEST OK CHECK RX TABLE
4076 027120 000402          BR      3$            ;TIMEOUT ERROR
4077 027122 000401          BR      3$            ;NO KMV11 ANSWER
4078 027124 000410          BR      4$            ;CHECK SEL16 TO SEE WHICH ONE
4079
4080
4081 027126          3$:   ERRHRD  28,EM0004   ;NO KMV11 ANSWER
4082 027136 004737 012740      JSR      PC,CHKMAX     ;CHECK IF TOO MANY ERROR
4083 027142          ESCAPE  TST

```

HARDWARE TESTS

```

4084
4085 027146          4:          ;ERROR DURING TEST READ ERROR STATUS
4086                                     ;TO CHECK WHICH ONE
4087
4088 027146 017737 163320 012424      MOV      @KMVP16,STAERR          ;READ ERROR STATUS
4089
4090 027154 017737 163304 012426      MOV      @KMVP10,WRDCNT        ;READ WORD COUNT DISCREPANCY
4091
4092 027162          ERRHRD 29,EM0116,PRSTER ;ERROR WHILE TX,RX FRAMES,GIVE FRROR
4093                                     ;GIVE ERROR STATUS,WORD CNT DISCREPANCY
4094 027172          ESCAPE TST
4095
4096
4097
4098
4099 027176 012702 002370          6:      MOV      @TABLE,R2          ;LOAD TX TABLE ADDRESS
4100 027202 012705 006370          MOV      @RTABLE,R5          ; "  RX  "  "
4101 027206 013704 012416          MOV      LENGTH,R4          ; "  TX TABLE LENGTH
4102
4103
4104 027212 022522          BXLCK:  CMP      (R5),.(R2),. ;CMP TX AND RX TABLE
4105 027214 001015          BNE      BXLERR             ;BR IF ERROR
4106 027216 005304          DEC      R4                ;ALL DONE
4107 027220 001374          BNE      BXLCK             ;NO
4108
4109 027222 062737 000400 012416      ADD      @400,LENGTH        ;CHANGE LENGTH
4110 027230 022737 002000 012416      CMP      @2000,LENGTH       ;IS IT MAX?
4111 027236 100252          BPL      BXLBGN            ;NO DO TEST AGAIN WITH NEW TABLE
4112                                     ;                               LENGTH
4113
4114 027240 005303          DEC      R3                ;SELECT OTHER PATERNS
4115 027242 001245          BNE      BXLTRAR
4116
4117 027244 000137 027366          JMP      BXLEND
4118
4119
4120
4121 027250 162705 000002          BXLERR: SUB      @2,R5
4122 027254 162702 000002          SUB      @2,R2
4123
4124 027260 011237 012410          MOV      (R2),TXDATA
4125 027264 011537 012412          MOV      (R5),RXDATA
4126
4127 027270 005737 002250          TST      FLAG              ;LOOK IF 1ST ERROR
4128 027274 001014          BNE      30:
4129
4130 027276          ERRHRD 30,EM0116,PFRAME      ;DATA CMP ERROR
4131 027306 005237 002250          INC      FLAG
4132 027312 062702 000002          ADD      @2,R2              ;POINT NEXT ADDRESS
4133 027316 062705 000002          ADD      @2,R5
4134 027322 000137 000000G        JMP      BXCK
4135
4136 027326          30:      ERRHRD 30,0,PRAMEF        ;SHORT REPORT
4137 027336 005237 002250          INC      FLAG
4138 027342 062702 000002          ADD      @2,R2
4139 027346 062705 000002          ADD      @2,R5              ;POINT NEXT ADDRESS
4140 027352 022737 000010 002250      CMP      @10,FLAG          ;LOOK IF 10 REPORT

```

HARDWARE TESTS

4141 027360 001314

BNE BXLCK

4142

4143 027362

ESCAPE TST

4144

4145

4146

4147

4148 027366

BXLEND:

4149 027366

ENDTST

HARDWARE TESTS

```

4151
4152 027370      BADHEAD
                  ;***** TEST9 *****
4153              ;TRANSMIT DIFFERENT FRAMES OF VARIOUS LENGTH IN EXTERNAL LOOP BACK
4154              ;MODE ON CHANNEL A
4155 027370      BADHEAD
                  ;***** TEST9 *****

4156
4157
4158
4159
4160
4161
4162 027370      STARS 1
4163              ;
4164              ;AT BEGINNING OF TEST ,CHECK IF LOOP BACK CONNECTORS ARE INSTALLED
4165              ;OR NOT:IF NOT INSTALLED = EXIT TEST AND GIVE ERROR MESSAGE
4166              ;*****
4167              ;
4168              ;
4169              ;
4170              ;
4171              ;
4172              ;QBUS WRITE DIFFERENT TX TABLE OF VARIOUS LENGTH, LOAD IN KMV11 CSR'S
4173              ;THE TX AND RX TABLE ADDRESS ,THE TABLE LENGTH AND TRANSFER SPEED (56KB)
4174              ;
4175              ;
4176              ;
4177              ;DCT11 EXECUTE THE TRANSFER IN EXTERNAL MODE ON CHA  AND WRITE BACK
4178              ;IN RX TABLE
4179              ;QBUS CHECK BSELO TO SEE THE STATUS OF THE TEST AND IF TEST DONE CHECK IF
4180              ;RX TABLE =TX TABLE
4181              ;
4182              ;
4183              ;PARAMETERS SELECTION:
4184              ;      SEL2=  TX TABLE ADDRESS
4185              ;      SEL4=  TX TABLE LENGTH
4186              ;      BSEL6= EXTENDED ADDRESS OF TX TABLE
4187              ;      BSEL7=  "          "          RX          "
4188              ;      SEL12= RX TABLE ADDRESS
4189              ;      SEL14= SPEED SELECTION
4190              ;      SEL16= ERROR STATUS
4191              ;      BSELO= TEST STATUS
4192              ;      SEL10= RECEIVED BYTE COUNT          DIFFERENCE BETWEEN RX AND TX TABLE
4193              ;                               >0 IF TX>RX,<0 IF TX<RX
4194              ;
4195              ;
4196              ;
4197              ;TEST STATUS DESCRIPTION:
4198              ;      BSELO=  0          =TEST DONE CHECK RX TABLE
4199              ;      BSELO= 200         =TIMEOUT ERROR
4200              ;      BSELO= TSTNB      =NO KMV11 ANSWER
4201              ;      BSELO= 100        =ERROR DURING TEST ,LOOK WHICH ONE BY TESTING BSEL16
4202              ;
4203              ;
4204              ;
4205              ;ERROR STATUS DESCRIPTION:

```


HARDWARE TESTS

```

4206      :
4207      :           WHEN BSELO=100,GIVE CONTAINIT OF ERROR STATUS AND WORD COUNT DISCREPANCY
4208      :
4209      :
4210      :           SEL16= BIT14=1 =FCS ERROR
4211      :           SEL16= BIT13=1 =OVERRUN ERROR
4212      :           SEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR
4213      :           SEL16= BIT7 =1 =RX ABORT ERROR
4214      :           SEL16= BIT6 =1 =UNDERRUN ERROR
4215      :           SEL16= BIT5 =1 =WORD COUNT DISCREPANCY
4216      :           SEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
4217      :           SEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
4218      :           SEL16= BIT2 =1 =CLOCK PROBLEM
4219      :           SEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USE
4220      :                               ONLY DURING SELF TEST)
4221      :
4222      :
4223      :MICRO DIAG TEST DESCRIPTION:
4224      :TEST 42           =TRANSMIT VARIOUS LENGTH FRAME AT 56 KBAUDS SPEED ON CHANNEL A
4225      :                               IN EXTERNAL LOOP BACK MODE
4226      :
4227      :
4228      :
4229      :
4230      :CAUTION:
4231      :-----
4232      :RUN ONLY WITH EXTERNAL LOOP BACK CONNECTOR:
4233      :
4234      :
4235      :NOTE:FOR KMV11-B BOTH CONNECTORS MUST BEINSTALLED
4236      :
4237      :TO BE FULLY TESTED ,KMV11 DIAGNOSTIC MUST BE RUN WITH RS422 AND RS423
4238      :EXTERNAL LOOP BACK CONECTOR
4239      :
4240      :
4241      :
4242      :FOR RS422 PLUG LOOP BACK CONNECTOR 2P-E155A-00 AT THE END OF 2P-E14UA-00
4243      :MODEM CABLE.
4244      :
4245      :FOR RS423 PLUG LOOP BACK CONNECTOR H325 AT THE END OF 2P-E14VA-00
4246      :MODEM CABLE.
4247      :
4248 027370 STARS 1

```

HARDWARE TESTS

```

4250 027370          BGNTST
4251 027370 004737 014400      JSR    PC,CLRKMV      ;CLEAR REGISTERS
4252 027374 004737 014600      JSR    PC,CKKMV      ;LOOK IF LOOP BACK CON INSTALLED?
4253 027400 005737 012474      TST    LOOP          ;IS LOOP BIT=1?
4254 027404 001412              BEQ    BGNTXA        ;YES GO ON TEST
4255 027406              PRINTF  @MLOOP        ;NO LOOP BACK PLUGGED .THE MODULE
4256                                ;WILL NOT BE TESTED IS EXTERNAL LOOP
4257 027426 000137 030064      JMP    RXAEND
4258
4259
4260
4261 027432 004737 014702      BGNTXA: JSR    PC,MAINM1      ;SET MAINT MODE
4262 027436 005037 002250      CLR    FLAG
4263
4264 027442 012703 000004              MOV    @4,R3          ;SELECT RANDOM PATTERN
4265 027446 012737 000174 012414      MOV    @KB56,TSPEED  ;SELECT SPEED
4266
4267 027454 012737 000001 012416      TXATAR: MOV    @1,LENGTH      ;1ST TABLE LENGTH(200 WORDS)
4268
4269 027462 013704 012416      TXABGN: MOV    LENGTH,R4
4270 027466 012702 002370      MOV    @TABLE,R2
4271 027472              BREAK
4272 027474 004737 013160      10$:  JSR    PC,GENER        ;WRITE TABLE
4273 027500 013722 012400      MOV    DATA,(R2)+
4274 027504 005304              DEC    R4
4275 027506 001372              BNE    10$
4276
4277
4278
4279 027510 013704 012416              MOV    LENGTH,R4          ;CLEAR RX TABLE
4280 027514 012702 006370      MOV    @RTABLE,R2
4281 027520 005022      20$:  CLR    (R2)+
4282 027522 005304              DEC    R4
4283 027524 001375              BNE    20$
4284
4285
4286
4287
4288
4289
4290
4291 027526 013777 012414 162734      MOV    TSPEED,@KMVP14      ;SEND TX SPEED
4292 027534 012777 002370 162714      MOV    @TABLE,@KMVP02      ; " TX TABLE ADDRESS
4293 027542 013777 012416 162710      MOV    LENGTH,@KMVP04      ; " " " LENGTH
4294 027550 012777 006370 162710      MOV    @RTABLE,@KMVP12     ;SEND RX TABLE ADDRESS
4295 027556 005077 162700      CLR    @KMVP06            ;CLR EXTENDED ADDRESS
4296
4297
4298
4299
4300
4301 027562 004537 014552      1$:  JSR    R5,TSTNUB        ;DO TEST 42* CHB TEST
4302 027566 000042              .WORD 42
4303
4304
4305
4306 027570      2$:  WAITB 0,3              ;WAIT FOR TEST EXECUTION

```

HARDWARE TESTS

```

4307
4308
4309 027610 004737 013102      JSR      PC,TSTERR      ;CHECK BSELO
4310
4311 027614 000427              BR      6#              ;TEST OK CHECK RX TABLE
4312 027616 000402              BR      3#              ;TIMEOUT ERROR
4313 027620 000401              BR      3#              ;NO KMV11 ANSWER
4314 027622 000410              BR      4#              ;CHECK SEL16 TO SEE WHICH ONE
4315
4316
4317 027624              3#:      ERRHRD  32,EM0004      ;NO KMV11 ANSWER
4318 027634 004737 012740      JSR      PC,CHKMAX      ;TOO MANY ERROR?
4319 027640      ESCAPE  TST
4320
4321
4322 027644              4#:
4323
4324
4325 027644 017737 162622 012424      MOV      @KMVP16,STAERR      ;READ ERROR STATUS
4326
4327 027652 017737 162606 012426      MOV      @KMVP10,WRDCNT      ;READ WORD COUNT DISCREPANCY
4328
4329 027660      ERRHRD  33,EM0017,PRSTER      ;ERROR WHILE TX,RX FRAMES,GIVE ERROR
4330      ESCAPE  TST      ;GIVE ERROR STATUS,WORD CNT DISCREPANCY
4331 027670
4332
4333
4334
4335
4336
4337 027674 012702 002370      6#:      MOV      @TTABLE,R2      ;LOAD TABLE PARAMETERS
4338 027700 012705 006370      MOV      @RTABLE,R5
4339 027704 013704 012416      MOV      LENGTH,R4
4340
4341 027710 022225      RXACK:  CMP      (R2), (R5).      ;CHECK TX AND RX TABLE
4342 027712 001015      BNE     RXAERR
4343 027714 005304      DEC     R4
4344 027716 001374      BNE     RXACK
4345
4346 027720 062737 000400 012416      ADD     @400,LENGTH      ;CHANGE LENGTH
4347 027726 022737 002000 012416      CMP     @2000,LENGTH
4348 027734 100252      BPL     TXABGN
4349 027736 005303      DEC     R3      ;SELECT NEW PATERN
4350 027740 001245      BNE     TXATAR      ;ALL DONE
4351 027742 000137 030064      JMP     RXAEND
4352
4353
4354
4355 027746 162705 000002      RXAERR: SUB     @2,R5
4356 027752 162702 000002      SUB     @2,R2
4357
4358 027756 011237 012410      MOV     (R2),TXDATA
4359 027762 011537 012412      MOV     (R5),RXDATA
4360
4361 027766 005737 002250      TST     FLAG      ;LOOK IF 1ST ERROR
4362 027772 001014      BNE     30#
4363

```

HARDWARE TESTS

```

4364 027774          ERRHRD 34,EM0017,PFRAME      ;DATA CMP ERROR
4365 030004 005237 002250  INC          FLAG
4366 030010 062702 000002  ADD          #2,R2      ;POINT NEXT ADDRFS
4367 030014 062705 000002  ADD          #2,R5
4368 030020 000137 027710  JMP          RXACK
4369
4370 030024          304:  ERRHRD 34,0,PRAMEF      ;SHORT REPORT
4371 030034 005237 002250  INC          FLAG
4372 030040 062702 000002  ADD          #2,R2
4373 030044 062705 000002  ADD          #2,R5      ;POINT NEYT ADDRESS
4374 030050 022737 000010 002250  CMP          #10,FLAG   ;LOOK IF 10 REPORT
4375 030056 001314
4376
4377 030060          ESCAPE TST
4378
4379
4380
4381
4382
4383 030064          RXAEND:
4384 030064          ENDTST

```

HARDWARE TESTS

4386 030066

BADHEAD

:***** TEST10 *****
:TRANSMIT DIFFERENT FRAMES OF VARIOUS LENGTH IN EXTERNAL LOOP BACK
:MODE ON CHANNEL B

4387

4388

4389 030066

BADHEAD

:***** TEST10 *****

4390

4391

4392

4393

4394

4395

4396

4397 030066

STARS 1

:
:AT BEGINNING OF TEST ,CHECK IF LOOP BACK CONNECTORS ARE INSTALLED
:OR NOT:IF NOT INSTALLED = EXIT TEST AND GIVE ERROR MESSAGE

4398

4399

4400

4401

4402

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4440

:*****

: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 (56KB)

: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
: SEL16= ERROR STATUS
: BSELO= TEST STATUS
: SEL10= RECEIVED BYTE COUNT DIFFERENCE BETWEEN RX AND TX TABLE
: >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

HARDWARE TESTS

```

4441 ;ERROR STATUS DESCRIPTION:
4442 ;
4443 ;   WHEN BSELO=100,GIVE CONTAINIT OF ERROR STATUS AND WORD COUNT DISCREPANCY
4444 ;
4445 ;
4446 ;   SEL16= BIT14=1 =FCS ERROR
4447 ;   SEL16= BIT13=1 =OVERRUN ERROR
4448 ;   SEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR
4449 ;   SEL16= BIT7 =1 =RX ABORT ERROR
4450 ;   SEL16= BIT6 =1 =UNDERRUN ERROR
4451 ;   SEL16= BIT5 =1 =WORD COUNT DISCREPANCY
4452 ;   SEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
4453 ;   SEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
4454 ;   SEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USED
4455 ;                                     ONLY DURING SELF TEST)
4456 ;
4457 ;
4458 ;
4459 ;MICRO DIAG TEST DESCRIPTION:
4460 ;TEST 43   =TRANSMIT VARIOUS LENGTHFRAME AT 56 KBAUDS SPEED ON CHANNEL B
4461 ;                                     IN EXTERNAL LOOP BACK MODE
4462 ;
4463 ;
4464 ;
4465 ;
4466 ;CAUTION:
4467 ;-----
4468 ;RUN ONLY WITH EXTERNAL LOOP BACK CONNECTOR:
4469 ;
4470 ;
4471 ;NOTE:FOR KMV11-B BOTH CONNECTORS MUST BEINSTALLED
4472 ;
4473 ;TO BE FULLY TESTED ,KMV11 DIAGNOSTIC MUST BE RUN WITH RS422 AND RS423
4474 ;EXTERNAL LOOP BACK CONECTOR
4475 ;
4476 ;
4477 ;
4478 ;FOR RS422 PLUG LOOP BACK CONNECTOR 2P-E155A-00 AT THE END OF 2P-E14UA-00
4479 ;MODEM CABLE.
4480 ;
4481 ;FOR RS423 PLUG LOOP BACK CONNECTOR H325 AT THE END OF 2P-E14VA-00
4482 ;MODEM CABLE.
4483 ;CAUTION:
4484 ;-----
4485 ;RUN ONLY WITH EXTERNAL LOOP BACK CONNECTOR:
4486 ;
4487 ;
4488 ;NOTE:FOR KMV11-B BOTH CONNECTORS MUST BEINSTALLED
4489 ;
4490 ;TO BE FULLY TESTED ,KMV11 DIAGNOSTIC MUST BE RUN WITH RS422 AND RS423
4491 ;EXTERNAL LOOP BACK CONECTOR
4492 ;
4493 ;
4494 ;
4495 ;FOR RS422 PLUG LOOP BACK CONNECTOR 2P-E155A-00 AT THE END OF 2P E14UA-00
4496 ;MODEM CABLE.
4497 ;

```

HARDWARE TESTS

```
4498          :FOR RS423 PLUG LOOP BACK CONNECTOR H325 AT THE END OF 2P-E14VA-00
4499          :MODEM CABLE.
4500          :
4501          :
4502          :
4503          :
4504 030066    STARS 1
```

HARDWARE TESTS

```

4506 030066          BGNTST
4507 030066 004737 014400      JSR      PC,CLRKMV
4508 030072 004737 014600      JSR      PC,CKKMV          ;LOOK IF LOOP BACK CON INSTALLED?
4509
4510
4511 030076 005737 012474      TST      LOOP          ;IS LOOP BIT=1?
4512 030102 001412          BEQ      BGNTXD        ;YES GO ON TEST
4513 030104          PRINTF  @MLOOP      ;NO LOOP BACK PLUGGED IN.THE MODULE
4514
4515
4516 030124 000137 03055,      JMP      RXDEND
4517
4518
4519
4520 030130 004737 014502      BGNTXD: JSR      PC,MAINM1      ;SET MAINT MODE
4521
4522 030134 012703 000004      MOV      @4,R3          ;SELECT RANDOM PATTERN
4523 030140 012737 000174 012414  MOV      @KB56,TSPEED    ;SELECT SPEED
4524
4525 030146 012737 000001 012416  TXDTAR: MOV      @1,LENGTH    ;1ST TABLE LENGTH
4526
4527 030154 013704 012416      TXDBGN: MOV      LENGTH,R4
4528 030160 012702 002370      MOV      @TABLE,R2
4529 030164          BREAK
4530 030166 004737 013160      10$:   JSR      PC,GENER      ;WRITE TABLE
4531 030172 013722 012400      MOV      DATA,(R2)+
4532 030176 005304          DEC      R4
4533 030200 001372          BNE      10$
4534
4535
4536 030202 013704 012416      MOV      LENGTH,R4      ;CLEAR RX TABLE
4537 030206 012702 006370      MOV      @RTABLE,R2
4538 030212 005022      20$:   CLR      (R2)+
4539 030214 005304          DEC      R4
4540 030216 001375          BNE      20$
4541
4542
4543
4544
4545
4546 030220 013777 012414 162242  MOV      TSPEED,@KMVP14   ;SEND TX SPEED
4547 030226 012777 002370 162222  MOV      @TABLE,@KMVP02   ; " TX TABLE ADDRESS
4548 030234 013777 012416 162216  MOV      LENGTH,@KMVP04   ; " " " LENGTH
4549 030242 012777 006370 162216  MOV      @RTABLE,@KMVP12  ;SEND TX TABLE ADDRESS
4550 030250 005077 162206      CLR      @KMVP06         ;CLR EXTENDED ADDRESS
4551
4552
4553
4554
4555
4556 030254 004537 014552      1$:   JSR      R5,TSTNUB
4557 030260 000043          .WORD   43              ;DO TEST 43- CHB TEST
4558
4559
4560
4561 030262          2$:   WAITB   0,3          ;WAIT FOR TEST EXECUTION
4562

```


HARDWARE TESTS

```

4563
4564 030302 004737 013102          JSR    PC,TSTERR          ;CHECK BSELO
4565
4566 030306 000427          BR     6$                ;TEST OK CHECK RX TABLE
4567 030310 000402          BR     3$                ;TIMEOUT ERROR
4568 030312 000401          BR     3$                ;NO KMV11 ANSWER
4569 030314 000410          BR     4$                ;CHECK SEL16 TO SEE WHICH ONE
4570
4571
4572 030316          3$:  ERRHRD  36,EM0004          ;NO KMV11 ANSWER
4573 030326 004737 012740          JSR    PC,CHKMAX          ;TOO MANY ERROR, DROP IF YES
4574 030332          ESCAPE TST
4575
4576
4577 030336          4$:
4578
4579
4580 030336 017737 162130 012424          MOV    @KMVP16,STAERR          ;READ ERROR STATUS
4581
4582 030344 017737 162114 012426          MOV    @KMVP10,WRDCNT          ;READ WORD COUNT DISCREPANCY
4583
4584 030352          ERRHRD  37,EM0020,PRSTER          ;ERROR WHILE TX,RX FRAMES,GIVE ERROR
4585
4586 030362          ESCAPE TST                ;GIVE ERROR STATUS,WORD CNT DISCREPANCY
4587
4588
4589
4590
4591
4592 030366 012702 002370          6$:  MOV    @TABLE,R2
4593 030372 012705 006370          MOV    @RTABLE,R5
4594 030376 013704 012416          MOV    LENGTH,R4
4595 030402 022225          RXDCK: CMP    (R2), (R5)
4596 030404 001015          BNE    RXDERR
4597 030406 005304          DEC    R4
4598 030410 001374          BNE    RXDCK
4599
4600 030412 062737 000400 012416          ADD    @400,LENGTH
4601 030420 022737 002000 012416          CMP    @2000,LENGTH
4602 030426 100252          BPL    TXDBGN
4603
4604 030430 005303          LEC    R3
4605 030432 001245          BNE    TXDTAR
4606 030434 000137 030556          JMP    RXDEND
4607
4608
4609
4610 030440 162705 000002          RXDERR: SUB   @2,R5
4611 030444 162702 000002          SUB   @2,R2
4612
4613 030450 011237 012410          MOV    (R2),TXDATA
4614 030454 011537 012412          MOV    (R5),RXDATA
4615
4616 030460 005737 002250          TST    FLAG                ;LOOK IF 1ST ERROR
4617 030464 001014          BNE    30$
4618
4619 030466          ERRHRD  38,EM0015,PFRAME          ;DATA CMP ERROR

```

HARDWARE TESTS

4620	030476	005237	002250		INC	FLAG	
4621	030502	062702	000002		ADD	02,R2	;POINT NEXT ADDRESS
4622	030506	062705	000002		ADD	02,R5	
4623	030512	000137	030402		JMP	RXDCK	
4624							
4625	030516			304:	ERRHRD	38,0,PRAMEF	;SHORT REPORT
4626	030526	005237	002250		INC	FLAG	
4627	030532	062702	000002		ADD	02,R2	
4628	030536	062705	000002		ADD	02,R5	;POINT NEXT ADDRESS
4629	030542	022737	000010	002250	CMP	010,FLAG	;LOOK IF 10 REPORT
4630	030550	001314			BNE	RXDCK	
4631							
4632	030552				ESCAPE	TST	
4633							
4634							
4635							
4636							
4637							
4638	030556				RXDEND:		
4639	030556				ENDTST		

HARDWARE TESTS

```

4686 030560          BGNTST
4687 030560 004737 014400      JSR      PC,CLRKMV      ;CLEAR KMV11 REGISTERS
4688 030564 004737 014600      JSR      PC,CKKMV      ;LOOK IF KMV11A OR B AND IF LOOP BACK
4689
4690 030570 005737 012474      TST      LOOP          ;LOOK IF LOOP BACK?
4691 030574 001412                BEQ      MOD108        ;YES GO ON
4692 030576                PRINTF   #MLOOP         ;NO LOOP BACK PLUGGED .THE MODULE
4693                                ;WILL NOT BE TESTED IN EXTERNAL LOOP
4694
4695 030616 000137 031016      JMP      MODEND
4696
4697
4698
4699 030622 004737 014502      MOD108: JSR      PC,MAINM1
4700
4701
4702 030626 012737 000100 030642      MOV      #100,MODWR1+6      ;WRITE TTL 108B
4703
4704
4705
4706 030634 004537 014702      MODWR1: JSR      R5,WRITE      ;WRITE KMV REG ADDRESS 130012
4707 030640 130012                .WORD   130012
4708 030642 000000                .WORD   0                  ;DATA TO WRITE
4709
4710 030644                WAITA   0
4711
4712
4713 030656 004537 014730      JSR      R5,READ          ;READ KMV ADDRESS 130000
4714 030662 130000                .WORD   130000
4715
4716
4717 030664 042737 177767 012374      BIC      #177767,BAD      ;MASK UNUSED BITS
4718 030672 022737 000010 012374      CMP      #10,BAD         ;CMP 108B AND 107B
4719 030700 001036                BNE     MODERB          ;REPORT ERROR IF BAD
4720
4721
4722
4723 030702 012737 000200 030716      MOV      #200,MODWR2+6      ;WRITE TTL 108A
4724
4725
4726
4727 030710 004537 014702      MODWR2: JSR      R5,WRITE      ;WRITE KMV REG ADDRESS 130012
4728 030714 130012                .WORD   130012
4729 030716 000000                .WORD   0                  ;DATA TO WRITE
4730
4731 030720                WAITA   0
4732
4733
4734 030732 004537 014730      JSR      R5,READ          ;READ KMV ADDRESS 130000
4735 030736 130000                .WORD   130000
4736
4737
4738 030740 042737 177737 012374      BIC      #177737,BAD      ;MASK BIT BUT CCITT 107A/B
4739 030746 022737 000040 012374      CMP      #40,BAD         ;CMP 108A AND 107A
4740 030754 001420                BEQ     MODEND          ;OK EXIT TEST
4741
4742

```

HARDWARE TESTS

```
4743
4744
4745
4746 030756          MODERA: ERRHRD  40,EM0030          ;DATA CMP ERROR BETWEEN 107 AND 108
4747                                     JSR      PC,CHKMAX          ; ON CHANNEL A
4748 030766 004737 012740          ESCAPE TST          ;DROP IF TOO MANY ERROR
4749 030772
4750
4751
4752
4753 030776          MODERB: ERRHRD  41,EM0130          ;DATA CMP ERROR BETWEEN 107 AND 108
4754                                     JSR      PC,CHKMAX          ; ON CHANNEL B
4755 031006 004737 012740          ESCAPE TST          ;DROP IF TOO MANY ERROR
4756 031012
4757
4758
4759
4760
4761 031016          MODEND:
4762 031016          ENDTST
```


HARDWARE TESTS

```
4819      ;
4820      ;CAUTION:
4821      ;-----
4822      ;RUN ONLY WITH EXTERNAL LOOP BACK CONNECTOR:
4823      ;
4824      ;
4825      ;NOTE:FOR KMV11-B BOTH CONNECTORS MUST BEINSTALLED
4826      ;
4827      ;TO BE FULLY TESTED ,KMV11 DIAGNOSTIC MUST BE RUN WITH RS422 AND RS423
4828      ;EXTERNAL LOOP BACK CONNECTOR
4829      ;
4830      ;
4831      ;
4832      ;FOR RS422 PLUG LOOP BACK CONNECTOR 2P-E155A-00 AT THE END OF 2P-E14UA-00
4833      ;MODEM CABLE.
4834      ;
4835      ;FOR RS423 PLUG LOOP BACK CONNECTOR H325 AT THE END OF 2P E14VA-00
4836      ;MODEM CABLE.
4837      ;
4838 031020 STARS 1
4839
4840
```

HARDWARE TESTS

```

4842 031020          BGNTST
4843 031020 004737 014400      JSR    PC,CLRKMV      ;CLEAR ALL REGISTERS
4844 031024 004737 014600      JSR    PC,CKKMV      ;TEST IF LOOP BACK CONNECTOR
4845
4846 031030 005737 012474      TST    LOOP
4847 031034 001412              BEQ    1$            ;LOOP BACK PRESENT GO ON
4848
4849 031036          PRINTF  @MLOOP      ;NO LOOP BACK PLUGGED IN .THE MODULE
4850                          ;WILL NOT BE TESTED IS EXTERNAL LOOP
4851
4852 031056 000137 031016      JMP    MODEND        ;GO TO FOLLOWING TEST
4853
4854
4855 031062          1$:
4856 031062          BGNSUB
4857
4858 031064 004737 014502      JSR    PC,MAINM1     ;SET MAINTENANCE MODE
4859 031070 004537 014552      JSR    R5,TSTNUB
4860 031074 000034              .WORD  34            ;SEND TEST 34(MODEM SIGNAL ON CHA)
4861
4862 031076          WAITB   0.2
4863
4864 031116 004737 013102      JSR    PC,TSTERR     ;CHECK TEST RESULT
4865 031122 000432              BR     3$            ;TEST OK GO ON
4866 031124 000402              BR     4$            ;TIMEOUT
4867 031126 000401              BR     4$            ;NO TEST ANSWER
4868 031130 000410              BR     5$            ;ERROR DURING TEST ,LOOK WHICH ONE
4869
4870
4871
4872 031132          4$:
4873 031142 004737 012740      ERRHRD 42,EM0004     ;NO ANSWER
4874 031146          JSR    PC,CHKMAX   ;DROP IF TOO MANY ERROR
4875          ESCAPE SUB
4876 031152 017737 161300 002272 5$:
4877 031160 017737 161274 012374      MOV    @KMVP02,GOOD  ;READ WHICH SIGNAL WAS TESTED
4878 031166 017737 161272 012400      MOV    @KMVP04,BAD   ; " " IS THE RESULT OF TEST
4879                          MOV    @KMVP10,DATA  ;READ SIGAL VALUE
4880 031174          ERRHRD 43,EM0032,PMODEM ;REPORT ERROR
4881 031204          ESCAPE SUB
4882
4883 031210          3$:
4884 031210          ENDSUB
4885
4886
4887 031212          BGNSUB
4888
4889 031214 004737 014502      JSR    PC,MAINM1     ;SET MAINTENANCE MODE
4890 031220 004537 014552      JSR    R5,TSTNUB
4891 031224 000035              .WORD  35            ;SEND TEST 35(MODEM SIGNAL ON CHB)
4892
4893 031226          WAITB   0.2
4894
4895 031246 004737 013102      JSR    PC,TSTERR     ;CHECK TEST RESULT
4896 031252 000432              BR     3$            ;TEST OK GO ON
4897 031254 000402              BR     4$            ;TIMEOUT
4898 031256 000401              BR     4$            ;NO TEST ANSWER

```


HARDWARE TESTS

```

4899 031260 000410          BR      5:          ;ERROR DURING TEST ,LOOK WHICH ONE
4900
4901
4902
4903 031262          4:      ERRHRD  44,EM0004          ;NO ANSWER
4904 031272 004737 012740  JSR      PC,CHKMAX          ;DROP IF TOO MANY ERROR
4905 031276          ESCAPE SUB
4906
4907 031302 017737 161150 002272 5:      MOV      @KMVP02,GOOD          ;READ WHICH SIGNAL WAS TESTED
4908 031310 017737 161144 012374  MOV      @KMVP04,BAD          ; " " IS THE RESULT OF TEST
4909 031316 017737 161142 012400  MOV      @KMVP10,DATA        ;READ SIGNAL VALUE
4910
4911 031324          ERRHRD  45,EM0034,PMODEM          ;REPORT ERROR
4912 031334          ESCAPE SUB
4913
4914 031340          3:
4915 031340          ENDSUB
4916
4917
4918 031342          ENDTST

```

HARDWARE TESTS

4920
 4921
 4922
 4923
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 4935
 4936
 4937
 4938
 4939 031344
 4940
 4941 031346
 4942 031356
 4943 031366
 4944 031400
 4945
 4952
 4953
 4954 031400
 031403
 031406
 031411
 031414
 031417
 031422
 031425
 031430
 4955 031432
 031435
 031440
 031443
 031446
 031451
 031454
 031457
 031462
 031465
 4956 031466
 031471
 031474
 031477
 031502
 031505
 031510
 031513
 031516
 031521

115
 122
 103
 040
 123
 101
 122
 123
 040
 040
 115
 122
 103
 040
 103
 122
 104
 105
 040
 000
 115
 122
 103
 040
 103
 122
 104
 104
 105
 040
 000
 115
 122
 103
 040
 111
 117
 120
 120
 117
 124
 114
 105
 114
 105
 072
 040

.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,0,0,60000,177776,YES
 GPRMA VECTOR,2,0,0,674,YES
 GPRMD PRIRTY,4,0,7000,4,7,YES
 ENDHRD

ADDRES: .ASCIZ /MICRO-CPU CSR ADDRESS : /

VECTOR: .ASCIZ /MICRO-CPU VECTOR ADDRESS : /

PRIRTY: .ASCIZ /MICRO-CPU PRIORITY LEVEL : /

F10

KMV11 B LINE CNT DIAG. MACRO M1200 05-JUN-84 15:56 PACF 80-1

SEQ 0122

HARDWARE PARAMETER CODING SECTION

4957
4958
4959
4960
4961
4962
4963
4964

.EVEN

SOFTWARE PARAMETER CODING SECTION

.SBTTL SOFTWARE PARAMETER CODING SECTION

4966
4967
4968
4969
4970
4971
4972
4973
4974
4975
4976
4977
4978 031522
4979
4988
4989
4990 031524
4991
4992
4999
5000

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

BGNSFT

ENDSFT

SOFTWARE PARAMETER CODING SECTION

```
5002          032000          .=<.!376>+2          ; END OF PAGE
5003
5004
5005 032000          $PATCH::
5006 032000          .BLKW 60
5007
5014
5015 032140          LASTAD
5016 032144          L$LAST::
5017          ENDMOD
5018
```

SOFTWARE PARAMETER CODING SECTION

```
5020
5021
5034
5035 032144      BGNSETUP      1
5036 032144      BGNPTAB
5037 032150 177000 .WORD      177000
5038 032152 000300 .WORD      300
5039 032154 004000 .WORD      4000
5040 032156 000001 .WORD      1
5041 032160
5042 032160      ENDPTAB
5043
5044
5045
5046
5047
504b      000001      .END
      ENDSETUP
```

SYMBOL TABLE

ABORT	023552	CKSELO	013620	DATA1	= 052525	G	F\$END	= 000041	G\$RADA	= 000140	
ADDR	002362	CLRKMV	014400	DATA2	= 125252	G	F\$HARD	= 000004	G\$RADB	= 000000	
ADDRES	031400	COUNT	002356	DELCT1	002266		F\$HW	= 000013	G\$RADD	= 000040	
ADR	= 000020	C\$AU	= 000052	DELCT2	002270		F\$INIT	= 000006	G\$RADL	= 000120	
ASSEMB	= 000010	C\$AUTO	= 000061	DFPTBL	002164	G	F\$JMP	= 000050	G\$RADO	= 000020	
BAD	012374	C\$BRK	= 000022	DIAGMC	= 000000		F\$MOD	= 000000	G\$XFER	= 000004	
BDDAT	002366	C\$BSEG	= 000004	DROPD	023744		F\$MSG	= 000011	G\$YES	= 000010	
BDRGEN	024522	C\$BSUB	= 000002	EF.CON	= 000036	G	F\$PROT	= 000021	HELP	= 000000	
BDROKO	024746	C\$CEFG	= 000045	EF.NEW	= 000035	G	F\$PWR	= 000017	HOE	= 100000	G
BDROK1	025214	C\$CLCK	= 000062	EF.PWR	= 000034	G	F\$RPT	= 000012	IBE	= 010000	G
BGNTXA	027432	C\$CLEA	= 000012	EF.RES	= 000037	G	F\$SEG	= 000003	IDU	= 000040	G
BGNTXD	030130	C\$CLOS	= 000035	EF.STA	= 000040	G	F\$SOFT	= ^00005	IER	= 020000	G
BIT0	= 000001	C\$CLP1	= 000006	EM0001	015120		F\$SRV	= J0010	INIFLG	012432	
BIT00	= 000001	C\$CVEC	= 000036	EM0002	015215		F\$SUB	= 000002	INTFLG	012372	
BIT01	= 000002	C\$DCLN	= 000044	EM0003	015261		F\$SW	= 000014	INTTX	025250	
BIT02	= 000004	C\$DODU	= 000051	EM0004	015347		F\$TEST	= 000001	ISR	= 000100	G
BIT03	= 000010	C\$DRPT	= 000024	EM0006	015376		GDDAT	002364	IXE	= 004000	G
BIT04	= 000020	C\$DU	= 000053	EM0007	015440		GDREV	012430	I\$AU	= 000041	
BIT05	= 000040	C\$EDIT	= 000003	EM0010	015531		GENER	013160	I\$AUTO	= 000041	
BIT06	= 000100	C\$ERDF	= 000055	EM0011	015604		GENER1	013302	I\$CLN	= 000041	
BIT07	= 000200	C\$ERMR	= 000056	EM0012	015664		GENEX	013440	I\$DU	= 000041	
BIT08	= 000400	C\$ERRO	= 000060	EM0013	015762		GENINC	013432	I\$HRD	= 000041	
BIT09	= 001000	C\$ERSF	= 000054	EM0014	016262		GENISH	013310	I\$INIT	= 000041	
BIT1	= 000002	C\$ERSO	= 000057	EM0015	016333		GENO	025174	I\$MOD	= 000041	
BIT10	= 002000	C\$ESCA	= 000010	EM0016	016432		GENOUT	024726	I\$MSG	= 000041	
BIT11	= 004000	C\$ESEG	= 000005	EM0017	016723		GENRAN	013312	I\$PROT	= 000040	
BIT12	= 010000	C\$ESUB	= 000003	EM0020	017020		GENROT	013266	I\$PTAB	= 000041	
BIT13	= 020000	C\$ETST	= 000001	EM0023	017115		GENRO	013254	I\$PWR	= 000041	
BIT14	= 040000	C\$EXIT	= 000032	EM0024	017200		GENR1	013244	I\$RPT	= 000041	
BIT15	= 100000	C\$GETB	= 000026	EM0027	017227		GENSEL	013176	I\$SEG	= 000041	
BIT2	= 000004	C\$GETW	= 000027	EM0030	017301		GENO	013216	I\$SETU	= 000041	
BIT3	= 000010	C\$GMAN	= 000043	EM0032	017473		GEN1	013222	I\$SFT	= 000041	
BIT4	= 000020	C\$GPHR	= 000042	EM0033	016204		GEN25	013236	I\$SRV	= 000041	
BIT5	= 000040	C\$GPLO	= 000030	EM0034	017564		GEN52	013230	I\$SUB	= 000041	
BIT6	= 000100	C\$GPRI	= 000040	EM0035	017655		GETPRM	023350	I\$TST	= 000041	
BIT7	= 000200	C\$INIT	= 000011	EM0112	016034		GOOD	002272	J\$JMP	= 000167	
BIT8	= 000400	C\$INLP	= 000020	EM0113	016132		GOOD0	002274	KB1.2	= 013224	G
BIT9	= 001000	C\$MANI	= 000050	EM0115	016527		GOOD1	002276	KB56	= 000174	G
BOE	= 000400	C\$MEM	= 000031	EM0116	016626		GOOD10	002306	KB64	= 000154	G
BRXCK	026126	C\$MSG	= 000023	EM0130	017376		GOOD12	002310	KB68	= 000146	G
BRXEND	026266	C\$OPEN	= 000034	END	023560		GOOD14	002312	KB70	= 000143	G
BRXERR	026150	C\$PNTB	= 000014	ERRBLK	002230	G	GOOD16	002314	KB72	= 000141	G
BSELO	012376	C\$PNTF	= 000017	ERRCNT	002236	G	GOOD2	002300	KIND	012404	
BSEL1	002340	C\$PNTS	= 000016	ERRMSG	002226	G	GOOD4	002302	KMTLVL	012452	
BTXSTA	025700	C\$PNTX	= 000015	ERRNBR	002224	G	GOOD6	002304	KMVCSR	012454	
BXCK	= *****	C\$QIO	= 000377	ERRTYP	002222	G	G\$CNT0	= 000200	KMVLVL	012442	
BXLBGN	026764	C\$RDBU	= 000007	EVL	= 000004	G	G\$DELM	= 000372	KMVP02	012456	
BXLCK	027212	C\$REFG	= 000047	EXADDR	012370		G\$DISP	= 000003	KMVP04	012460	
BXLEND	027366	C\$RESE	= 000033	E\$END	= 002100		G\$EXCP	= 000400	KMVP06	012462	
BXLERR	027250	C\$REVI	= 000003	E\$LOAD	= 000035		G\$HILI	= 000002	KMVP10	012464	
BXLTR	026756	C\$RFLA	= 000021	FLAG	002250		G\$OLI	= 000001	KMVP12	012466	
CBSELO	013652	C\$RPT	= 000025	FTIME	002252		G\$NO	= 000000	KMVP14	012470	
CHANEL	012406	C\$SEFG	= 000046	F\$AU	= 000015		G\$OFFS	= 000400	KMVP16	012472	
CHKMAX	012740	C\$SPRI	= 000041	F\$AUTO	= 000020		G\$OFSI	= 000376	KMVV00	012440	
CKALL	013710	C\$SVEC	= 000037	F\$BGN	= 000040		G\$PRMA	= 000001	KMVV02	012446	
CKKMV	014600	C\$TPRI	= 000013	F\$CLEA	= 000007		G\$PRMD	= 000002	KMVV04	012444	
CKREG	014156	DATA	012400	F\$DU	= 000016		G\$PRML	= 000000	KMVV06	012450	

SYMBOL TABLE

KMV11C	002000	G	L\$STA	002030	G	MLOOP	017736	PRSELO	021520	G	STAERR	012424
LENGTH	012416		L\$SW	002260		MODEM1	021301	PRSTER	023006	G	SVCGBL	= 000000
LOCK	002232		L\$TEST	002114	G	MODEM2	021345	PRT11V	022526	G	SVCINS	= 177777
LOE	= 040000	G	L\$TIML	002014	G	MODEM3	021404	PSTACK	002242		SVCSUB	= 177777
LOGDEV	002240		L\$UIT	002262		MODEND	031016	PVECT	022470	G	SVCTAG	= 177777
LOKFLG	012434		L\$UNIT	002012	G	MODERA	030756	QV.FLG	012435		SVCTST	= 177777
LOOP	012474		L10001	002174		MODERB	030776	RANCLC	013412		S\$LSYM	= 010000
LOT	= 000010	G	L10002	021554		MODWR1	030634	RANDN	002350		TFM36	015032
L\$ACP	002110	G	L10003	021612		MODWR2	030710	RANEX	013430		TIM	015014
L\$APT	002036	G	L10004	022120		MOD108	030622	RANGEN	013332		TSPEED	012414
L\$AU	023776	G	L10005	022376		MRAMEF	021447	RANMTA	002346		TSTERR	013102
L\$AUT	002070	G	L10006	022434		MREG0	020062	RANSEC	013416		TSTNUB	014552
L\$AUTO	023620	G	L10007	022466		MREG10	020302	RANSEL	002344		TTABLE	002370
L\$CCP	002106	G	L10010	022524		MREG12	020346	RANST	002342		TXABGN	027462
L\$CLEA	023712	G	L10011	022562		MREG14	020412	RAN1	013344		TXATAR	027454
L\$CO	002032	G	L10012	022650		MREG16	020456	RAN2	013362		TXDATA	012410
L\$DEPO	002011	G	L10013	022752		MREG2	020126	RAN4	013420		TXDBGN	030154
L\$DESC	002174	G	L10014	023004		MREG4	020172	READ	014730		TXDTAR	030146
L\$DESP	002076	G	L10015	023062		MREG6	020236	REGADR	012476		TXLBGN	026324
L\$DEVP	002060	G	L10016	023120		MSELO	020014	REVPRO	024132		TXLTAR	026316
L\$DISP	002132	G	L10017	023126		MSTER1	021204	ROMMAP	024000		TXSTAR	025254
L\$DLY	002116	G	L10020	023560		MSTER2	021236	RSTREG	013540		T\$ARGC	= 000001
L\$DTP	002040	G	L10021	023710		MT11V	020761	RTABLE	006370		T\$CODE	= 002032
L\$DTYP	002034	G	L10022	023714		MVECT	020705	RTCLK	024202		T\$ERRN	= 000055
L\$DU	023716	G	L10023	023774		NERRS	013032	RUNNIN	023562		T\$EXCP	= 000000
L\$DUT	002072	G	L10024	023776		NEXT	023270	RXACK	027710		T\$FLAG	= 000040
L\$DVTY	012676	G	L10025	024120		NUB	012420	RXAEND	030064		T\$FREE	= 032160
L\$EF	002052	G	L10026	024170		NUMBER	002360	RXAERR	027746		T\$GMAN	= 000000
L\$ENVI	002044	G	L10027	024500		O\$APTS	= 000000	RXCNT	025502		T\$HILI	= 000007
L\$ERRT	002222	G	L10030	025216		O\$AU	= 000000	RXDATA	012422		T\$LAST	= 000001
L\$ETP	002102	G	L10031	024746		O\$BGMR	= 000000	RXDCK	030412		T\$LOLI	= 000004
L\$EXP1	002046	G	L10032	025214		O\$BGNS	= 000000	RXDEND	030402		T\$LSYM	= 010000
L\$EXP4	002064	G	L10033	025642		O\$DU	= 000001	RXDERR	030556		T\$LTNO	= 000014
L\$EXP5	002066	G	L10034	026266		O\$ERRT	= 000000	RXEND	025642		T\$NEST	= 177777
L\$HARD	031346	G	L10035	026726		O\$GNSW	= 000001	RXERR	025524		T\$NS0	= 000000
L\$HIME	002120	G	L10036	027366		O\$POIN	= 000001	RXLCK	026552		T\$NS1	= 000005
L\$HPCP	002016	G	L10037	030064		O\$SETU	= 000001	RXLEND	026726		T\$NS2	= 000002
L\$HPTP	002022	G	L10040	030556		PADFLT	023064	G	RXLERR	026610	T\$PCNT	= 000000
L\$HW	002164	G	L10041	031016		PBSELO	022400	G	SAVE4	002254	T\$PTAB	= 010050
L\$ICP	002104	G	L10042	031342		PFRAME	022564	G	SAVE6	002256	T\$PTNU	= 000001
L\$INIT	023130	G	L10043	031210		PINTR	022436	G	SAVPC	002246	T\$SAVL	= 177777
L\$LADP	002026	G	L10044	031340		PMODEM	022652	G	SAVPC1	002352	T\$SEGL	= 177777
L\$LAST	032144	G	L10045	031400		PNT	= 001000	G	SAVREG	013460	T\$SIZE	= 000006
L\$LOAD	002100	G	L10046	031524		PRALL	021614	G	SAVSP	002244	T\$SUBN	= 000002
L\$LUN	002074	G	L10047	032150		PRAMEF	022754	G	SAVSTA	002354	T\$TAGL	= 177777
L\$MREV	002050	G	L10051	032160		PRI	= 002000	G	SELO	002316	T\$TAGN	= 010052
L\$NAME	002000	G	MAINM1	014502		PRINT	021556	G	SEL1	002320	T\$TEMP	= 000000
L\$PRIO	002042	G	MAINT0	= 054000	G	PRTY	031466		SEL10	002330	T\$TEST	= 000014
L\$PROT	002122	G	MAINT1	= 044000	G	PRI00	= 000000	G	SEL12	002332	T\$TSTM	= 177777
L\$PRT	002112	G	MAXERR	002234		PRI01	= 000040	G	SEL14	002334	T\$TSTS	= 000001
L\$REPP	002062	G	MAXPRI	= 000300	G	PRI02	= 000100	G	SEL16	002336	T\$\$AU	= 010024
L\$REV	002010	G	MBSELO	020556		PRI03	= 000140	G	SEL2	002322	T\$\$AUT	= 010021
L\$RPT	023122	G	MCLR	= 040000	G	PRI04	= 000200	G	SEL4	002324	T\$\$CLE	= 010022
L\$SOFT	031524	G	MFRAM1	021043		PRI05	= 000240	G	SEL6	002326	T\$\$DAT	= 010051
L\$SPC	002056	G	MFRAM2	021121		PRI06	= 000300	G	SETUP	023262	T\$\$DU	= 010023
L\$SPCP	002020	G	MINT	020522		PRI07	= 000340	G	SSTACK	012676	T\$\$HAR	= 010045
L\$SPTP	002024	G	MINTR	020620		PRREG	022122	G				

SYMBOL TABLE

T\$\$MW = 010001	T\$\$TES= 010042	T4	024502 G	UAM = 000200 G	WRITE 014702
T\$\$INI= 010020	T1 024000 G	T4.1	024502	UNIT 002264	X\$ALWA= 000000
T\$\$MSG= 010016	T10 030066 G	T4.2	024750	UUT 012436	X\$FALS= 000040
T\$\$PC = 000001	T11 030560 G	T5	025220 G	VECT 012402	X\$OFFS= 000400
T\$\$PRO= 010000	T12 031020 G	T6	025644 G	VECTOR 031432	X\$TRUE= 000020
T\$\$PTA= 010050	T12.1 031062	T7	026270 G	WAIT1 012726	\$LSTIN= 000000
T\$\$RPT= 010017	T12.2 031212	T8	026730 G	WAIT2 012706	\$LSTTA= 000000
T\$\$SOF= 010046	T2 024122 G	T9	027370 G	WRDUNI 012426	\$PATCH 032000 G
T\$\$SUB= 010044	T3 024172 G				

. ABS. 032160 000
000000 001

ERRORS DETECTED: 0

VIRTUAL MEMORY USED: 29248 WORDS (115 PAGES)
DYNAMIC MEMORY: 19748 WORDS (75 PAGES)
ELAPSED TIME: 00:09:16
CNKMEA.BIC,CNKMEA.SEQ/CR/-SP=SVC34.MLB/ML,CNKMEA.MAC

SYMBOL CROSS REFERENCE

CREP V02

SYMBOL	VALUE	REFERENCES
ABORT	023552	51-2654 #51-2710
ADDR	002362	#26-1310 49-2472 49-2539 *57-2966
ADDRES	031400	80-4941 #80-4954
ADR	= 000020 G	#24-1191
ASSEMB	= 000010	19-1004 19-1004
BAD	012374	#26-1319 *45-2258 49-2420 49-2508 58-3007 *77-4717 77-4718 *77-4738 77-4739 *79-4877 *79-4908
BDDAT	002366	#26-1312
BDRGEN	024522	#61-3237
BDROKO	024746	61-3240 #61-3294
BDROK1	025214	62-3308 #62-3362
BGNTXA	027432	73-4254 #73-4261
BGNTXD	030130	75-4512 #75-4520
BIT0	= 000001 G	#24-1191
BIT00	= 000001 G	#24-1191 24-1191
BIT01	= 000002 G	#24-1191 24-1191
BIT02	= 000004 G	#24-1191 24-1191
BIT03	= 000010 G	#24-1191 24-1191
BIT04	= 000020 G	#24-1191 24-1191
BIT05	= 000040 G	#24-1191 24-1191
BIT06	= 000100 G	#24-1191 24-1191
BIT07	= 000200 G	#24-1191 24-1191
BIT08	= 000400 G	#24-1191 24-1191
BIT09	= 001000 G	#24-1191 24-1191
BIT1	= 000002 G	#24-1191
BIT10	= 002000 G	#24-1191
BIT11	= 004000 G	#24-1191
BIT12	= 010000 G	#24-1191
BIT13	= 020000 G	#24-1191
BIT14	= 040000 G	#24-1191
BIT15	= 100000 G	#24-1191
BIT2	= 000004 G	#24-1191
BIT3	= 000010 G	#24-1191
BIT4	= 000020 G	#24-1191
BIT5	= 000040 G	#24-1191
BIT6	= 000100 G	#24-1191
BIT7	= 000200 G	#24-1191
BIT8	= 000400 G	#24-1191
BIT9	= 001000 G	#24-1191
BOE	= 000400 G	#24-1191
BRXCK	026126	#66-3713 66-3716 66-3747
BRXEND	026266	66-3725 #66-3752
BRXERR	026150	66-3714 #66-3727
BSELO	012376	#26-1320 *38-1919 38-1920 49-2460
BSEL1	002340	#26-1301
BTXSTA	025700	#66-3643 66-3721
BXCK	= ***** GX	71-4134
BXLBGN	026764	#71-4038 71-4111
BXLCK	027212	#71-4104 71-4107 71-4141
BXLEND	027366	71-4117 #71-4148
BXLERR	027250	71-4105 #71-4121
BXLTAR	026756	#71-4036 71-4115

SYMBOL CROSS REFERENCE

REF V02

SYMBOL	VALUE	REFERENCES
CBSELO	013652	34-1591 34-1596 34-1601 #38-1917
CHANEL	012406	#26-1326
CHKMAX	012740	#33-1536 44-2184 45-2255 49-2414 49-2421 49-2434 49-2450 49-2461 49-2473
		49-2482 49-2490 49-2499 49-2510 49-2533 49-2540 58-3011 59-3105 59-3111
		59-3116 59-3128 59-3135 59-3144 61-3248 61-3259 61-3269 61-3280 61-3289
		62-3316 62-3327 62-3337 62-3348 62-3357 64-3492 66-3689 68-3886 71-4082
		73-4318 75-4573 77-4748 77-4755 79-4873 79-4904
CKALL	013710	#39-1947 41-2066
CKKMV	014600	#44-2170 73-4252 75-4508 77-4688 79-4844
CKREG	014156	#40-1999
CKSELO	013620	#38-1903 42-2103
CLRKMV	014400	#41-2054 44-2170 58-2999 59-3071 61-3231 62-3299 64-3435 66-3633 68-3830
		71-4028 73-4251 75-4507 77-4687 79-4843
COUNT	002356	#26-1308
C\$AU	= 000052	#19-1004 55-2883
C\$AUTO	= 000061	#19-1004 52-2762
C\$BRK	= 000022	#19-1004 31-1478 31-1492 68-3842 71-4040 73-4271 75-4529
C\$BSEG	= 000004	#19-1004
C\$BSUB	= 000002	#19-1004 61-3230 62-3298 79-4856 79-4887
C\$CEFG	= 000045	#19-1004
C\$CLCK	= 000062	#19-1004
C\$CLEA	= 000012	#19-1004 53-2802
C\$CLOS	= 000035	#19-1004
C\$CLP1	= 000006	#19-1004
C\$CVEC	= 000036	#19-1004
C\$DCLN	= 000044	#19-1004 33-1553 51-2710
C\$DODU	= 000051	#19-1004 33-1551 52-2758
C\$DRPT	= 000024	#19-1004
C\$DU	= 000053	#19-1004 54-2856
C\$EDIT	= 000003	#19-1004 20-1056
C\$ERDF	= 000055	#19-1004
C\$ERHR	= 000056	#19-1004 41-2076 42-2106 44-2183 45-2254 57-2968 58-3010 59-3104 59-3110
		59-3115 59-3123 59-3127 59-3134 59-3143 61-3247 61-3258 61-3268 61-3279
		61-3288 62-3315 62-3326 62-3336 62-3347 62-3356 64-3491 64-3504 64-3542
		64-3548 66-3688 66-3701 66-3736 66-3742 68-3885 68-3896 68-3934 68-3940
		71-4081 71-4092 71-4130 71-4136 73-4317 73-4329 73-4364 73-4370 75-4572
		75-4584 75-4619 75-4625 77-4746 77-4753 79-4872 79-4880 79-4903 79-4911
C\$ERRO	= 000060	#19-1004
C\$ERSF	= 000054	#19-1004
C\$ERSO	= 000057	#19-1004
C\$ESCA	= 000010	#19 1004 57-2959 57-2969 57-2974 58-3012 59-3106 59-3112 59-3117 59-3124
		59 3129 59-3136 59-3145 61-3249 61-3260 61-3270 61-3281 61-3290 62-3317
		62 3328 62-3338 62-3349 62-3358 64-3493 64-3506 64-3555 66-3690 66-3703
		66 3749 68-3887 68-3898 68-3947 71-4083 71-4094 71-4143 73-4319 73-4331
		73-4377 75-4574 75-4586 75-4632 77-4749 77-4756 79-4874 79-4881 79-4905
		79-4912
C\$ESEG	= 000005	#19-1004
C\$ESUB	= 000003	#19-1004 61-3295 62-3363 79-4884 79-4915
C\$ETST	= 000001	#19-1004 57-2976 58-3014 59-3151 62-3364 64-3562 66-3756 68-3953 71-4149
		73-4384 75-4639 77-4762 79-4918
C\$EXIT	= 000032	#19-1004 51-2706 51-2711
C\$GETB	= 000026	#19-1004

SYMBOL CROSS REFERENCE

CRE# V02

SYMBOL	VALUE	REFERENCES
C\$GETW	= 000027	019-1004
C\$GMAN	= 000043	019-1004
C\$GPHR	= 000042	019-1004 51-2660
C\$GPLO	= 000030	019-1004
C\$GPRI	= 000040	019-1004 36-1805 37-1874
C\$INIT	= 000011	019-1004 51-2714
C\$INLP	= 000020	019-1004 33-1536
C\$MANI	= 000050	019-1004
C\$MEM	= 000031	019-1004
C\$MSG	= 000023	019-1004 49-2415 49-2422 49-2435 49-2451 49-2462 49-2474 49-2483 49-2491 49-2500 49-2511 49-2521 49-2534 49-2541
C\$OPEN	= 000034	019-1004
C\$PNTB	= 000014	019-1004 49-2413 49-2420 49-2426 49-2427 49-2428 49-2429 49-2430 49-2431 49-2432 49-2433 49-2443 49-2444 49-2445 49-2446 49-2447 49-2448 49-2449 49-2460 49-2472 49-2481 49-2489 49-2497 49-2498 49-2507 49-2508 49-2509 49-2520 49-2531 49-2532 49-2539
C\$PNTF	= 000017	019-1004 33-1550 51-2657 54-2844 73-4255 75-4513 77-4692 79-4849
C\$PNTS	= 000016	019-1004
C\$PNTX	= 000015	019-1004
C\$QIO	= 000377	019-1004
C\$RDBU	= 000007	019-1004
C\$REFG	= 000047	019-1004 51-2641 51-2644 51-2647
C\$RESE	= 000033	019-1004 019-1004 53-2800
C\$REVI	= 000003	019-1004 20-1056
C\$RFLA	= 000021	019-1004 33-1540
C\$RPT	= 000025	019-1004 50-2572
C\$SEFG	= 000046	019-1004
C\$SPRI	= 000041	019-1004 36-1806 36-1817 37-1875 37-1886
C\$SVEC	= 000037	019-1004 51-2625
C\$TPRI	= 000013	019-1004
DATA	012400	026-1321 *35-1747 49-2509 64-3449 66-3647 68-3844 71-4042 73-4273 75-4531 *79-4878 *79-4909
DATA1	= 052525 G	024-1199
DATA2	= 125252 G	024-1200
DELCT1	002266	026-1280 *31-1475 *31-1490 *41-2057 *42-2100 *43-2130 *59-3076 *61-3237 *62-3305 *64-3480 *66-3677 *68-3874 *71-4070 *73-4306 *75-4561 *77-4710 *77-4731 *79-4862 *79-4893
DELCT2	002270	026-1281 *31-1480 *42-2101 *59-3076 *61-3237 *62-3305 *64-3480 *66-3677 *68-3874 *71-4070 *73-4306 *75-4561 *79-4862 *79-4893
DFPTBL	002164 G	023-1133
DIAGMC	= 000000	19-1004 19-1004
DROPD	023744	54-2844 054-2852
EF.CON	= 000036 G	024-1191 51-2644
EF.NEW	= 000035 G	024-1191 51-2647
EF.PWR	= 000034 G	024-1191
EF.RES	= 000037 G	024-1191
EF.STA	= 000040 G	024-1191 51-2641
EM0001	015120	42-2106 047-2303
EM0002	015215	41-2076 047-2305
EM0003	015261	047-2307
EM0004	015347	44-2183 45-2254 047-2309 59-3110 61-3247 62-3315 64-3491 66-3688 68-3885 71 4081 73-4317 75-4572 79-4872 79-4903

SYMBOL CROSS REFERENCE

CRE+ V02

SYMBOL	VALUE	REFERENCES
EM0006	015376	047-2311 59-3104
EM0007	015440	047-2313 59-3123
EM0010	015531	047-2315
EM0011	015604	047-2317 59-3115
EM0012	015664	047-2319 59-3127 61-3258
EM0013	015762	047-2321 61-3268
EM0014	016262	047-2329 61-3288 62-3356
EM0015	016333	047-2331 64-3504 64-3542 75-4619
EM0016	016432	047-2333 68-3896 68-3934
EM0017	016723	047-2339 73-4329 73-4364
EM0020	017020	047-2341 75-4584
EM0023	017115	047-2343 59-3134
EM0024	017200	047-2345 59-3143 61-3279 62-3347
EM0027	017227	047-2347
EM0030	017301	047-2349 77-4746
EM0032	017473	047-2353 79-4880
EM0033	016204	047-2327
EM0034	017564	047-2355 79-4911
EM0035	017655	047-2357 58-3010
EM0112	016034	047-2323 62-3326
EM0113	016132	047-2325 62-3336
EM0115	016527	047-2335 66-3701 66-3736
EM0116	016626	047-2337 71-4092 71-4130
EM0130	017376	047-2351 77-4753
END	023560	51-2645 051-2714
ERRBLK	002230	G 025-1253
ERRCNT	002236	025-1263 *33-1545 33-1546 *51-2705
ERRMSG	002226	G 025-1253
ERRNBR	002224	G 025-1253
ERRTYP	002222	G 025-1253
EVL	* 000004	G 024-1191
EXADDR	012370	026-1317
E\$END	* 002100	019-1004
E\$LOAD	* 000035	019-1004 20-1056
FLAG	002250	025-1268 *64-3436 64-3539 *64-3543 *64-3549 64-3552 *66-3634 66-3733 *66-3737 *66-3743 66-3746 *68-3832 68-3931 *68-3935 *68-3941 68-3944 *71-4030 71-4127 *71-4131 *71-4137 71-4140 *73-4262 73-4361 *73-4365 *73-4371 73-4374 75-4616 *75-4620 *75-4626 75-4629
FTIME	002252	025-1269 51-2633 *51-2637
F\$AU	* 000015	019-1004 55-2882 55-2883
F\$AUTO	* 000020	019-1004 52-2734 52-2762
F\$BGN	* 000040	019-1004 19-1010 21-1077 49-2412 49-2419 49-2425 49-2442 49-2459 49-2471 49-2480 49-2488 49-2496 49-2506 49-2519 49-2530 49-2538 50-2555 51-2583 51-2706 51-2711 52-2734 53-2775 54-2816 55-2882 57-2952 57-2959 57-2969 57-2974 57-2976 58-2998 58-3012 58-3014 59-3070 59-3106 59-3112 59-3117 59-3124 59-3129 59-3136 59-3145 59-3151 61-3229 61-3230 61-3230 61-3249 61-3260 61-3270 61-3281 61-3290 61-3295 62-3298 62-3298 62-3317 62-3328 62-3338 62-3349 62-3358 62-3363 62-3364 64-3434 64-3493 64-3506 64-3555 64-3562 66-3632 66-3690 66-3703 66-3749 66-3756 68-3829 68-3887 68-3898 68-3947 68-3953 71-4027 71-4083 71-4094 71-4143 71-4149 73-4250 73-4319 73-4331 73-4377 73-4384 75-4506 75-4574 75-4586 75-4632 75-4639 77-4686 77-4749 77-4756 77-4762 79-4842 79-4856 79-4856 79-4874 79-4881 79-4884

SYMBOL CROSS REFERENCE

CRE+ V02

SYMBOL	VALUE	REFERENCES
GENROT	013266	35-1706 35-1709 #35-1712
GENRO	013254	35-1693 #35-1708
GENR1	013244	35-1692 #35-1705
GENSEL	013176	35-1687 #35-1688
GENO	013216	35-1688 #35-1696
GEN1	013222	35-1689 #35-1698
GEN25	013236	35-1691 #35-1703
GEN52	013230	35-1690 #35-1701
GETPRM	023350	#51-2664
GOOD	002272	#26-1282 35-1743 #35-1745 35-1747 #38-1903 38-1905 #38-1917 #38-1918 38-1920 49-2413 49-2420 49-2460 49-2481 49-2489 49-2507 #59-3122 #79-4876 #79-4907
G0000	002274	#26-1283 #39-1947 39-1972 49-2426
G0001	002276	#26-1284
G00010	002306	#26-1288 #39-1951 39-1980 #40-2002 40-2031 49-2430 49-2446
G00012	002310	#26-1289 #39-1952 39-1982 #40-2003 40-2033 49-2431 49-2447
G00014	002312	#26-1290 #39-1953 39-1984 #40-2004 40-2035 49-2432 49-2448
G00016	002314	#26-1291 #39-1954 39-1986 #40-2005 40-2037 49-2433 49-2449
G0002	002300	#26-1285 #39-1948 39-1974 #40-1999 40-2025 49-2427 49-2443
G0004	002302	#26-1286 #39-1949 39-1976 #40-2000 40-2027 49-2428 49-2444
G0006	002304	#26-1287 #39-1950 39-1978 #40-2001 40-2029 49-2429 49-2445
G\$CNT0	= 000200	#19-1004
G\$DELM	= 000372	#19-1004
G\$DISP	= 000003	#19-1004
G\$EXCP	= 000400	#19-1004
G\$HILI	= 000002	#19-1004
G\$LOLI	= 000001	#19-1004
G\$NO	= 000000	#19-1004
G\$OFFS	= 000400	#19-1004 80-4941 80-4942 80-4943
G\$OF SI	= 000776	#19-1004 80-4941 80-4942 80-4943
G\$PRMA	= 000001	#19-1004 80-4941 80-4942
G\$PRMD	= 000002	#19-1004 80-4943
G\$PRML	= 000000	#19-1004
G\$RADP	= 000140	#19-1004
G\$R\$JB	= 000000	#19-1004
G\$RADD	= 000040	#19-1004
G\$RADL	= 000120	#19-1004
G\$RADO	= 000020	#19-1004 80-4941 80-4942 80-4943
G\$XFER	= 000004	#19-1004
G\$YES	= 000010	#19-1004 80-4941 80-4942 80-4943
HELP	= 000000	#19-991 20-1038 20-1059 21-1084 22-1111 23-1135 24-1165 24-1176 25-1226 25-1240 29-1428 50-2557 50-2565 51-2586 51-2609 52-2736 53-2778 53-2786 54-2820 54-2830 55-2873 56-2902 56-2909 56-2917 56-2925 56-2940 80-4946 81-4980 81-4993 82-5008 83-5022
HOE	= 100000	G #24-1191
IBE	= 010000	G #24-1191
IDU	= 000040	G #24-1191 33-1541
IER	= 020000	G #24-1191
INIFLG	012432	#28-1362
INTFLG	012372	#26-1318
INTTX	025250	#64-3442
ISR	= 000100	G #24-1191
IXE	= 004000	G #24-1191

SYMBOL CROSS REFERENCE

CREP V02

SYMBOL	VALUE	REFERENCES
I\$AU	= 000041	019-1004 055-2882 055-2883
I\$AUTO	= 000041	019-1004 052-2734 052-2762
I\$CLN	= 000041	019-1004 053-2775 053-2802
I\$DU	= 000041	019-1004 054-2816 054-2856
I\$HRD	= 000041	080-4939 080-4944
I\$INIT	= 000041	019-1004 051-2583 51-2706 51-2711 051-2714
I\$MOD	= 000041	019-1004 19-1010 019-1010 82-5016 082-5016
I\$MSG	= 000041	019-1004 049-2412 049-2415 049-2419 049-2422 049-2425 049-2435 049-2442 049-2451 049-2459 049-2462 049-2471 049-2474 049-2480 049-2483 049-2488 049-2491 049-2496 049-2500 049-2506 049-2511 049-2519 049-2521 049-2530 049-2534 049-2538 049-2541
I\$PROT	= 000040	019-1004 021-1077
I\$PTAB	= 000041	019-1004 83-5036 083-5036 83-5041 083-5041
I\$PWR	= 000041	019-1004
I\$RPT	= 000041	019-1004 050-2555 050-2572
I\$SEG	= 000041	019-1004 57-2952 58-2998 59-3070 61-3229 61-3230 62-3298 64-3434 66-3632 68-3829 71-4027 73-4250 75-4506 77-4686 79-4842 79-4856 79-4887
I\$SETU	= 000041	019-1004 83-5035 083-5035 83-5036 83-5042 083-5042
I\$SFT	= 000041	081-4978 081-4990
I\$SRV	= 000041	019-1004
I\$SUB	= 000041	019-1004 57-2952 58-2998 59-3070 61-3229 61-3230 061-3230 61-3249 61-3260 61-3270 61-3281 61-3290 61-3295 061-3295 061-3295 62-3298 062-3298 62-3317 62-3328 62-3338 62-3349 62-3358 62-3363 062-3363 062-3363 64-3434 66-3632 68-3829 71-4027 73-4250 75-4506 77-4686 79-4842 79-4856 079-4856 79-4874 79-4881 79-4884 079-4884 79-4884 79-4887 079-4887 79-4905 79-4912 79-4915 079-4915 079-4915
I\$TST	= 000041	019-1004 57-2952 057-2952 57-2959 57-2969 57-2974 57-2976 057-2976 057-2976 58-2998 058-2998 58-3012 58-3014 058-3014 058-3014 59-3070 059-3070 59-3106 59-3112 59-3117 59-3124 59-3129 59-3136 59-3145 59-3151 059-3151 059-3151 61-3229 061-3229 61-3230 62-3298 62-3364 062-3364 062-3364 64-3434 064-3434 64-3493 64-3506 64-3555 64-3562 064-3562 064-3562 66-3632 066-3632 66-3690 66-3703 66-3749 66-3756 066-3756 066-3756 68-3829 068-3829 68-3887 68-3898 68-3947 68-3953 068-3953 068-3953 71-4027 071-4027 71-4083 71-4094 71-4143 71-4149 071-4149 071-4149 73-4250 073-4250 73-4319 73-4331 73-4377 73-4384 073-4384 073-4384 75-4506 075-4506 75-4574 75-4586 75-4632 75-4639 075-4639 075-4639 77-4686 077-4686 77-4749 77-4756 77-4762 077-4762 077-4762 79-4842 079-4842 79-4856 79-4887 79-4918 079-4918 079-4918
J\$JMP	= 000167	019-1004 50-2563 54-2846
KB1.2	= 013224	G 024-1201
KB56	= 000174	G 024-1203 64-3440 66-3632 68-3836 71-4034 73-4265 75-4523
KB64	= 000154	G 024-1202
KB68	= 000146	G 024-1204
KB70	= 000143	G 024-1205
KB72	= 000141	G 024-1206
KIND	012404	026-1325 044-2189 044-2190
KMTLVL	012452	028-1381 051-2701
KMVCSE	012454	028-1382 38-1904 38-1919 39-1956 41-2055 41-2056 41-2062 42-2099 43-2129 051-2666 52-2746 57-2953
KMVLVL	012442	028-1377 051-2700
KMVP02	012456	028-1383 39-1958 40-2008 44-2187 45-2226 45-2240 051-2668 051-2669 64-3465 66-3663 68-3861 71-4059 73-4292 75-4547 79-4876 79-4907
KMVP04	012460	028-1384 39-1960 40-2010 44-2189 45-2227 45-2241 45-2258 051-2671 051-2672 59-3121 64-3466 66-3664 68-3862 71-4060 73-4293 75-4548 79-4877 79-4908

SYMBOL CROSS REFERENCE

CREF V02

SYMBOL	VALUE	REFERENCES
KMVP06	012462	028-1385 39-1962 40-2012 45-2228 45-2242 *51-2674 *51-2675 59-3085 59-3088 59-3091 59-3096 61-3254 62-3322 64-3468 66-3666 68-3864 71-4062 73-4295 75-4550
KMVP10	012464	028-1387 39-1964 40-2014 *51-2677 *51-2678 64-3502 66-3699 68-3894 71-4090 73-4327 75-4582 79-4878 79-4909
KMVP12	012466	028-1388 39-1966 40-2016 *51-2680 *51-2681 64-3467 66-3665 68-3863 71-4061 73-4294 75-4549
KMVP14	012470	028-1389 39-1968 40-2018 *51-2683 *51-2684 64-3464 66-3662 68-3860 71-4058 73-4291 75-4546
KMVP16	012472	028-1390 39-1970 40-2020 *51-2686 *51-2687 64-3500 66-3697 68-3892 71-4088 73-4325 75-4580
KMVV00	012440	028-1376 *51-2689
KMVV02	012446	028-1379 *51-2691 *51-2692
KMVV04	012444	028-1378 *51-2694 *51-2695
KMVV06	012450	028-1380 *51-2697 *51-2698
KMV11R	002000	G 019-1010
LENGTH	012416	026-1331 49-2498 *64-3438 64-3446 64-3455 64-3466 64-3517 *66-3636 66-3644 66-3653 66-3564 66-3711 *68-3838 68-3840 68-3849 68-3862 68-3905 *68-3913 68-3914 *71-4036 71-4038 71-4047 71-4060 71-4101 *71-4109 71-4110 *73-4267 73-4269 73-4279 73-4293 73-4339 *73-4346 73-4347 *75-4525 75-4527 75-4536 75-4548 75-4594 *75-4600 75-4601
LOCK	002232	025-1261
LOE	= 040000	G 024-1191
LOGDEV	002240	025-1264 52-2758
LOKFLG	012434	028-1364
LOOP	012474	028-1392 *44-2187 *44-2188 *51-2703 73-4253 75-4511 77-4690 79-4846
LOT	= 000010	G 024-1191
L\$ACP	002110	G 020-1056
L\$APT	002036	G 020-1056
L\$AU	023776	G 055-2882
L\$AUT	002070	G 020-1056
L\$AUTO	023620	G 20-1056 052-2734
L\$CCP	002106	G 020-1056
L\$CLEA	023712	G 20-1056 053-2775
L\$CO	002032	G 020-1056
L\$DEPO	002011	G 020-1056
L\$DECC	002174	G 20-1056 025-1236
L\$DESP	002076	G 020-1056
L\$DEVP	002060	G 020-1056
L\$DISP	002132	G 20-1056 022-1109
L\$DLY	002116	G 020-1056
L\$DTP	002040	G 020-1056
L\$DTYP	002034	G 020-1056
L\$DU	023716	G 20-1056 054-2816
L\$DUT	002072	G 020-1056
L\$DVTY	012676	G 20-1056 029-1421
L\$EF	002052	G 020-1056
L\$ENVI	002044	G 020-1056
L\$ERRT	002222	G 025-1253
L\$ETP	002102	G 020-1056
L\$EXP1	002046	G 020-1056
L\$EXP4	002064	G 020-1056

SYMBOL CROSS REFERENCE

CRE+ V02

SYMBOL	VALUE		REFERENCES			
L\$EXPS	002066	G	020-1056			
L\$HARD	031346	G	20-1056	80-4939	080-4939	
L\$HIME	002120	G	020-1056			
L\$HPCP	002016	G	020-1056			
L\$HPTP	002022	G	020-1056			
L\$HW	002164	G	20-1056	23-1133	023-1133	
L\$ICP	002104	G	020-1056			
L\$INIT	023130	G	20-1056	051-2583		
L\$LADP	002026	G	020-1056			
L\$LAST	032144	G	20-1056	082-5015	83-5042	
L\$LOAD	002100	G	020-1056			
L\$LUN	002074	G	020-1056			
L\$MREV	002050	G	020-1056			
L\$NAME	002000	G	020-1056			
L\$PRIO	002042	G	020-1056			
L\$PROT	002122	G	20-1056	021-1077		
L\$PRT	002112	G	020-1056			
L\$REPP	002062	G	020-1056			
L\$REV	002010	G	020-1056			
L\$RPT	023122	G	050-2555			
L\$SOFT	031524	G	81-4978	081-4978		
L\$SPC	002056	G	020-1056			
L\$SPCP	002020	G	020-1056			
L\$SPTP	002024	G	020-1056			
L\$STA	002030	G	020-1056			
L\$SW	002260		20-1056	025-1272		
L\$TEST	002114	G	020-1056			
L\$TIML	002014	G	020-1056			
L\$UIT	002262		025-1273	51-2653		
L\$UNIT	002012	G	020-1056			
L10001	002174		23-1133	023-1150		
L10002	021554		049-2415			
L10003	021612		049-2422			
L10004	022120		049-2435			
L10005	022376		049-2451			
L10006	022434		049-2462			
L10007	022466		049-2474			
L10010	022524		049-2483			
L10011	022562		049-2491			
L10012	022650		049-2500			
L10013	022752		049-2511			
L10014	023004		049-2521			
L10015	023062		049-2534			
L10016	023120		049-2541			
L10017	023126		50-2563	050-2572		
L10020	023560		51-2706	51-2711	051-2714	
L10021	023710		052-2762			
L10022	023714		053-2802			
L10023	023774		54-2846	054-286		
L10024	023776		055-2883			
L10025	024120		57-2959	57-2969	57-2974	057-2976
L10026	024170		58-3012	058-3014		

SYMBOL CROSS REFERENCE

CRE+ V02

SYMBOL	VALUE	REFERENCES
L10027	024500	59-3106 59-3112 59-3117 59-3124 59-3129 59-3136 59-3145 #59-3151
L10030	025216	#62-3364
L10031	024746	61-3249 61-3260 61-3270 61-3281 61-3290 #61-3295
L10032	025214	62-3317 62-3328 62-3338 62-3349 62-3358 #62-3363
L10033	025642	64-3493 64-3506 64-3555 #64-3562
L10034	026266	66-3690 66-3703 66-3749 #66-3756
L10035	026726	68-3887 68-3898 68-3947 #68-3953
L10036	027366	71-4083 71-4094 71-4143 #71-4149
L10037	030064	73-4319 73-4331 73-4377 #73-4384
L10040	030556	75-4574 75-4586 75-4632 #75-4639
L10041	031016	77-4749 77-4756 #77-4762
L10042	031342	#79-4918
L10043	031210	79-4874 79-4881 #79-4884
L10044	031340	79-4905 79-4912 #79-4915
L10045	031400	80-4939 #80-4944
L10046	031524	81-4978 #81-4990
L10047	032150	#83-5036
L10051	032160	83-5036 #83-5041
MAINM1	014502	#42-2099 44-2171 58-3000 59-3072 61-3232 62-3300 64-3437 66-3635 68-3831
		71-4029 73-4261 75-4520 77-4699 79-4858 79-4889
MAINT0	= 054000	G #24-1196 41-2056
MAINT1	= 044000	G #24-1197 42-2099
MAXERR	002234	#25-1262 33-1546 33-1550
MAXPRI	= 000300	G #24-1195 36-1806 37-1875
MSELO	020556	#48-2379 49-2460
MCLR	= 040000	G #24-1198
MFRAM1	021043	#48-2390 49-2497
MFRAM2	021121	#48-2391 49-2498
MINT	020522	#48-2378 49-2420
MINTR	020620	#48-2381 49-2472
MLOOP	017736	#48-2363 73-4255 75-4513 77-4692 79-4849
MODEM1	021301	#48-2397 49-2507
MODEM2	021345	#48-2398 49-2508
MODEM3	021404	#48-2399 49-2509
MODEND	031016	77-4695 77-4740 #77-4761 79-4852
MODERA	030756	#77-4746
MODERB	030776	77-4719 #77-4753
MODWR1	030634	*77-4702 #77-4706
MODWR2	030710	*77-4723 #77-4727
MOD108	030622	77-4691 #77-4699
MRAMEF	021447	#48-2400 49-2520
MREG0	020062	#48-2367 49-2426
MREG10	020302	#48-2371 49-2430 49-2446
MREG12	020346	#48-2372 49-2431 49-2447
MREG14	020412	#48-2373 49-2432 49-2448
MREG16	020456	#48-2374 49-2433 49-2449
MREG2	020126	#48-2368 49-2427 49-2443
MREG4	020172	#48-2369 49-2428 49-2444
MREG6	020236	#48-2370 49-2429 49-2445
MSELO	020014	#48-2365 49-2413
MSTER1	021204	#48-2394 49-2531
MSTER2	021236	#48-2395 49-2532

SYMBOL CROSS REFERENCE

CREP V02

SYMBOL	VALUE	REFERENCES
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MVECT	020705	048-2383 49-2481
NERRS	013032	33-1550 033-1561
NEXT	023270	51-2648 051-2652 51-2661
NUB	012420	026-1332 043-2128 43-2129
NUMBER	002360	026-1309
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O\$AU	= 000000	019-1004 20-1056
O\$BGNR	= 000000	019-1004 20-1056
O\$BGNS	= 000000	019-1004 20-1056
O\$DU	= 000001	019-1004 020-1034 20-1056
O\$ERRT	= 000000	019-1004 20-1056
O\$GNSW	= 000001	019-1004 020-1034 20-1056
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PADFLT	023064 G	049-2538 57-2968
PBSELO	022400 G	049-2459
PFRAME	022564 G	049-2496 64-3542 66-3736 68-3934 71-4130 73-4364 75-4619
PINTR	022436 G	049-2471 59-3123
PMODEM	022652 G	049-2506 79-4880 79-4911
PNT	= 001000 G	024-1191
PRALL	021614 G	41-2076 049-2425
PRAMEF	022754 G	049-2519 64-3548 66-3742 68-3940 71-4136 73-4370 75-4625
PRI	= 002000 G	024-1191
PRINT	021556 G	049-2419
PRIPTY	031466	80-4943 080-4956
PRI00	= 000000 G	024-1191
PRI01	= 000040 G	024-1191
PRI02	= 000100 G	024-1191
PRI03	= 000140 G	024-1191
PRI04	= 000200 G	024-1191
PRI05	= 000240 G	024-1191
PRI06	= 000300 G	024-1191
PRI07	= 000340 G	024-1191
PRREG	022122 G	049-2442
PRSELO	021520 G	42-2106 049-2412
PRSTER	023006 G	049-2530 64-3504 66-3701 68-3896 71-4092 73-4329 75-4584
PRT11V	022526 G	049-2488
PSTACK	002242	025-1265 051-2632
PVECT	022470 G	049-2480
QV.FLG	012435	028-1365
RANCLC	013412	35-1731 35-1734 035-1736
RANDN	002350	026-1305 35-1720 35-1722 35-1729 035-1739
RANEX	013430	035-1742
RANGEN	013332	35-1719 035-1722
RANMTA	002346	026-1304 35-1730 35-1733
RANSEC	013416	35-1735 35-1738
RANSEL	002344	026-1307 35-1718 35-1725 035-1727 35-1728
RANST	002342	026-1307 35-1724
RAN1	013344	35-1723 035-1725
RAN2	013362	35-1726 035-1728 35-1741
RAN4	013420	35-1737 035-1739

SYMBOL CROSS REFERENCE

CRE+ V02

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SYMBOL CROSS REFERENCE

CRE+ V02

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SYMBOL CROSS REFERENCE

REF V02

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		#79-4918 #80-4944 #81-4990
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TSTERR	013102	#34-1591 44-2175 45-2248 59-3079 61-3239 62-3307 64-3483 66-3680 68-3877
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TSTNUB	014552	#43-2128 44-2172 45-2230 45-2244 59-3073 61-3233 62-3301 64-3475 66-3672
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		75-4592
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TXATAR	027454	#73-4267 73-4350
TXDATA	012410	#26-1328 49-2497 49-2520 *64-3536 *66-3730 *68-3928 *71-4124 *73-4358 *75-4613
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TXDTAR	030146	#75-4525 75-4605
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TXLTAR	026316	#68-3838 68-3919
TXSTAR	025254	#64-3445 64-3527
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SYMBOL CROSS REFERENCE

CRE# V02

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T\$LTNO	= 000014	#82-5015
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T\$NS0	= 000000	#19-1010 82-5016
T\$NS1	= 000005	#21-1077 21-1099 #23-1133 23-1150 #49-2412 49-2415 #49-2419 49-2422 #49-2425 49-2435 #49-2442 49-2451 #49-2459 49-2462 #49-2471 49-2474 #49-2480 49-2483 #49-2488 49-2491 #49-2496 49-2500 #49-2506 49-2511 #49-2519 49-2521 #49-2530 49-2534 #49-2538 49-2541 #50-2555 50-2572 #51-2583 51-2714 #52-2734 52-2762 #53-2775 53-2802 #54-2816 54-2856 #55-2882 55-2883 #57-2952 57-2976 #58-2998 58-3014 #59-3070 59-3151 #61-3229 61-3295 #62-3364 62-3363 #64-3434 64-3562 #66-3632 66-3756 #68-3829 68-3953 #71-4027 71-4149 #73-4250 73-4384 #75-4506 75-4639 #77-4686 77-4686 77-4686 77-4686 77-4686 77-4686 #77-4686 79-4842 #79-4842 79-4842 79-4856 #79-4856 79-4856 79-4884 79-4884 79-4884 #79-4884 79-4887 #79-4887 79-4887 79-4915 79-4915 79-4915 79-4915 #79-4915 79-4918 79-4918 #79-4918 80-4939 #80-4939 80-4939 80-4939 80-4939 80-4939 #80-4939 81-4978 #81-4978 81-4978 81-4978 81-4978 81-4978 81-4978 #81-4978 82-5016 82-5016 #82-5016 82-5016
T\$NS2	= 000002	#61-3230 61-3295 #62-3298 62-3363 #79-4856 79-4884 #79-4887 79-4915
T\$PCNT	= 000000	#83-5035 83-5036 #83-5036 83-5036
T\$PTAB	= 010050	#83-5036 83-5036
T\$PTHV	= 000001	20-1056 #83-5042
T\$PTMJ	= 000001	#19-1004 83-5036 #83-5036 83-5042 83-5042

SYMBOL CROSS REFERENCE

CREI V02

SYMBOL	VALUE	REFERENCES
T\$TEST	= 000014	80-4943 #80-4944 80-4944 #81-4930 81-4990 #82-5016 82-5016 #19-1004 57-2947 57-2950 57-2952 #57-2952 57-2952 58-2981 58-2983 58-2998 #58-2998 58-2998 59-3018 59-3020 #59-3070 59-3070 59-3070 60-3156 60-3158 61-3229 #61-3229 61-3229 61-3230 62-3298 63-3366 63-3369 64-3434 #64-3434 64-3434 65-3564 65-3567 66-3632 #66-3632 66-3632 67-3761 67-3764 68-3829 #68-3829 68-3829 70-3959 70-3962 71-4027 #71-4027 71-4027 72-4152 72-4155 73-4250 #73-4250 73-4250 74-4386 74-4389 75-4506 #75-4506 75-4506 76-4643 76-4645 77-4686 #77-4686 77-4686 78-4765 78-4767 79-4842 #79-4842 79-4842 79-4856 79-4887 82-5015
T\$TSTM	= 177777	#19-1004 31-1478 31-1492 33-1536 33-1540 33-1550 33-1551 33-1553 36-1805 36-1806 36-1817 37-1874 37-1875 37-1886 41-2076 42-2106 44-2183 45-2254 49-2413 49-2415 49-2420 49-2422 49-2426 49-2427 49-2428 49-2429 49-2430 49-2431 49-2432 49-2433 49-2435 49-2443 49-2444 49-2445 49-2446 49-2447 49-2448 49-2449 49-2451 49-2460 49-2462 49-2472 49-2474 49-2481 49-2483 49-2489 49-2491 49-2497 49-2498 49-2500 49-2507 49-2508 49-2509 49-2511 49-2520 49-2521 49-2531 49-2532 49-2534 49-2539 49-2541 50-2572 51-2625 51-2641 51-2644 51-2647 51-2657 51-2660 51-2706 51-2710 51-2711 51-2714 52-2758 52-2762 53-2800 53-2802 54-2844 54-2856 55-2883 57-2959 57-2968 57-2969 57-2974 57-2976 58-3010 58-3012 58-3014 59-3104 59-3106 59-3110 59-3112 59-3115 59-3117 59-3123 59-3124 59-3127 59-3129 59-3134 59-3136 59-3143 59-3145 59-3151 61-3230 61-3247 61-3249 61-3258 61-3260 61-3268 61-3270 61-3279 61-3281 61-3288 61-3290 61-3295 62-3298 62-3315 62-3317 62-3326 62-3328 62-3336 62-3338 62-3347 62-3349 62-3356 62-3358 62-3363 62-3364 64-3491 64-3493 64-3504 64-3506 64-3542 64-3548 64-3555 64-3562 66-3688 66-3690 66-3701 66-3703 66-3736 66-3742 66-3749 66-3756 68-3842 68-3885 68-3887 68-3896 68-3898 68-3934 68-3940 68-3947 68-3953 71-4040 71-4081 71-4083 71-4092 71-4094 71-4130 71-4136 71-4143 71-4149 73-4255 73-4271 73-4317 73-4319 73-4329 73-4331 73-4364 73-4370 73-4377 73-4384 75-4513 75-4529 75-4572 75-4574 75-4584 75-4586 75-4619 75-4625 75-4632 75-4639 77-4692 77-4746 77-4749 77-4753 77-4756 77-4762 79-4849 79-4856 79-4872 79-4874 79-4880 79-4881 79-4884 79-4887 79-4903 79-4905 79-4911 79-4912 79-4915 79-4918
T\$TSTS	= 000001	#19-1004 #57-2952 #58-2998 #59-3070 #61-3229 #64-3434 #66-3632 #68-3829 #71-4027 #73-4250 #75-4506 #77-4686 #79-4842
T\$\$AU	= 010024	#55-2882 55-2883
T\$\$AUT	= 010021	#52-2734 52-2762
T\$\$CLE	= 010022	#53-2775 53-2802
T\$\$DAT	= 010051	#83-5036 83-5036
T\$\$DU	= 010023	#54-2816 54-2846
T\$\$HAR	= 010045	#80-4939 80-4939 80-4944
T\$\$HW	= 010001	#23-1133 23-1133 23-1150
T\$\$INI	= 010020	#51-2583 51-2706 51-2711 51-2714
T\$\$MSG	= 010016	#49-2412 49-2415 #49-2419 49-2422 #49-2425 49-2435 #49-2442 49-2451 #49-2459 49-2462 #49-2471 49-2474 #49-2480 49-2483 #49-2488 49-2491 #49-2496 49-2500 #49-2506 49-2511 #49-2519 49-2521 #49-2530 49-2534 #49-2538 49-2541
T\$\$PC	= 000001	#83-5035 83-5042
T\$\$PRO	= 010000	#21-1077
T\$\$PTA	= 010050	#83-5035 83-5036 #83-5036
T\$\$RPT	= 010017	#50-2555 50-2563 50-2572
T\$\$SOF	= 010046	#81-4978 81-4978 81-4990
T\$\$SUB	= 010044	#61-3230 61-3249 61-3260 61-3270 61-3281 61-3290 61-3295 #62-3298 62-3317 62-3328 62-3338 62-3349 62-3358 #79-4856 79-4874 79-4881 79-4884

SYMBOL CROSS REFERENCE

CRE# V02

SYMBOL	VALUE		REFERENCES
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T1	024000	G	22-1109 #57-2952
T10	030066	G	22-1109 #75-4506
T11	030560	G	22-1109 #77-4686
T12	031020	G	22-1109 #79-4842
T12.1	031062		#79-4856
T12.2	031212		#79-4887
T2	024122	G	22-1109 #58-2998
T3	024172	G	22-1109 #59-3070
T4	024502	G	22-1109 #61-3229
T4.1	024502		#61-3230
T4.2	024750		#62-3298
T5	025220	G	22-1109 #64-3434
T6	025644	G	22-1109 #66-3632
T7	026270	G	22-1109 #68-3829
T8	026730	G	22-1109 #71-4027
T9	027370	G	22-1109 #73-4250
UAM	= 000200	G	#24-1191
UNIT	002264		#25-1274 49-2539 #51-2656 51-2657 #57-2967
UUT	012436		#28-1367 33-1550 33-1551 #51-2650 #51-2652 51-2653 51-2656 51-2660 57-2967
VECT	012402		#26-1322 49-2481 49-2489 #59-3121
VECTOR	031432		80-4942 #80-4955
WAIT1	012726		#31-1490 31-1491 41-2057 43-2131 77-4710 77-4731
WAIT2	012706		#31-1475 31-1476 31-1481 42-2102 59-3076 61-3237 62-3305 64-3480 66-3677
			68-3874 71-4070 73-4306 75-4561 79-4862 79-4893
WRDCNT	012426		#26-1335 49-2532 #64-3502 #66-3699 #68-3894 #71-4090 #73-4327 #75-4582
WRITE	014702		#45-2226 77-4706 77-4727
X\$ALWA	= 000000		#19-1004
X\$FALS	= 000040		#19-1004
X\$OFFS	= 000400		#19-1004
X\$TRUE	= 000020		#19-1004
\$LSTIN	= 000000		#19-1013
\$LSTTA	= 000000		#19-1014
\$PATCH	032000	G	#82-5005

MACRO CROSS REFERENCE

CREP V02

MACRO NAME REFERENCES

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	59-3127	59-3134	59-3143	61-3247	61-3258	61-3268	61-3279	61-3288	62-3315	62-3326
	62-3336	62-3347	62-3356	64-3491	64-3504	64-3542	64-3548	66-3688	66-3701	66-3736
	66-3742	68-3885	68-3896	68-3934	68-3940	71-4081	71-4092	71-4130	71-4136	73-4317
	73-4329	73-4364	73-4370	75-4572	75-4584	75-4619	75-4625	77-4746	77-4753	79-4872
	79-4880	79-4903	79-4911							
ERRTBL	25-1253									
ESCAPE	57-2959	57-2969	57-2974	58-3012	59-3106	59-3112	59-3117	59-3124	59-3129	59-3136
	59-3145	61-3249	61-3260	61-3270	61-3281	61-3290	62-3317	62-3328	62-3338	62-3349
	62-3358	64-3493	64-3506	64-3555	66-3690	66-3703	66-3749	68-3887	68-3898	68-3947
	71-4083	71-4094	71-4143	73-4319	73-4331	73-4377	75-4574	75-4586	75-4632	77-4749
	77-4756	79-4874	79-4881	79-4905	79-4912					
EXIT	50-2503	51-2706	51-2711	54-2846						
GETPRI	36-1805	37-1874								
GPHARD	51-2660									
GPRMA	80-4941	80-4942								
GPRMD	80-4943									
HEADER	20-1056									
INLOOP	33-1536									
LASTAD	82-5015									
M\$BYTE	020-1056	20-1056	20-1056							
M\$CHEC	050-2563	50-2563	051-2706	51-2706	051-2711	51-2711	054-2846	54-2846		
M\$CNTD	080-4941	80-4941	080-4942	80-4942	080-4943	80-4943				
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	49-2426	49-2426	049-2427	49-2427	49-2427	049-2428	49-2428	49-2428	049-2429	49-2429
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	49-2481	49-2481	049-2489	49-2489	49-2489	049-2497	49-2497	49-2497	049-2498	49-2498
	49-2498	049-2507	49-2507	049-2508	49-2508	049-2509	49-2509	049-2520	49-2520	49-2520
	049-2531	49-2531	049-2532	49-2532	049-2539	49-2539	49-2539	051-2657	51-2657	054-2844
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M\$DATA	020-1056	20-1056	20-1056	20-1056	20-1056	20-1056	20-1056	20-1056	20-1056	20-1056
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	25-1236	029-1421	29-1421							025-1236
M\$DECR	021-1099	21-1099	023-1150	23-1150	049-2415	49-2415	049-2422	49-2422	049-2435	49-2435
	049-2451	49-2451	049-2462	49-2462	049-2474	49-2474	049-2483	49-2483	049-2491	49-2491
	049-2500	49-2500	049-2511	49-2511	049-2521	49-2521	049-2534	49-2534	049-2541	49-2541
	050-2572	50-2572	051-2714	51-2714	052-2762	52-2762	053-2802	53-2802	054-2856	54-2856
	055-2883	55-2883	057-2976	57-2976	058-3014	58-3014	059-3151	59-3151	061-3295	61-3295
	062-3363	62-3363	062-3364	62-3364	064-3562	64-3562	066-3756	66-3756	068-3953	68-3953
	071-4149	71-4149	073-4384	73-4384	075-4639	75-4639	077-4762	77-4762	079-4884	79-4884
	079-4915	79-4915	079-4918	79-4918	080-4944	80-4944	081-4990	81-4990	082-5016	82-5016
	083-5036	83-5036								
M\$DEFA	080-4941	80-4941	080-4942	80-4942	080-4943	80-4943				
M\$ENDE	023-1150	049-2415	049-2422	049-2435	049-2451	049-2462	049-2474	049-2483	049-2491	049-2500
	049-2511	049-2521	049-2534	049-2541	050-2572	051-2714	052-2762	053-2802	054-2856	055-2883
	057-2976	058-3014	059-3151	061-3295	062-3363	062-3364	064-3562	066-3756	068-3953	071-4149

MACRO CROSS REFERENCE

CRE# V02

MACRO NAME	REFERENCES									
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	081-4990	81-4990	082-5015	82-5015	083-5036	83-5036	083-5041	83-5041		
M\$GETS	021-1099	21-1099	023-1150	23-1150	049-2415	49-2415	049-2422	49-2422	049-2435	49-2435
	049-2451	49-2451	049-2462	49-2462	049-2474	49-2474	049-2483	49-2483	049-2491	49-2491
	049-2500	49-2500	049-2511	49-2511	049-2521	49-2521	049-2534	49-2534	049-2541	49-2541
	050-2572	50-2572	051-2714	51-2714	052-2762	52-2762	053-2802	53-2802	054-2856	54-2856
	055-2883	55-2883	057-2976	57-2976	058-3014	58-3014	059-3151	59-3151	061-3295	61-3295
	062-3363	62-3363	062-3364	62-3364	064-3562	64-3562	066-3756	66-3756	068-3953	68-3953
	071-4149	71-4149	073-4384	73-4384	075-4639	75-4639	077-4762	77-4762	079-4884	79-4884
M\$GETT	079-4915	79-4915	079-4918	79-4918	080-4944	80-4944	081-4990	81-4990	082-5016	82-5016
	050-2563	051-2706	051-2711	054-2846	057-2959	057-2969	057-2974	058-3012	059-3106	059-3112
	059-3117	059-3124	059-3129	059-3136	059-3145	061-3249	061-3260	061-3270	061-3281	061-3290
	062-3317	062-3328	062-3338	062-3349	062-3358	064-3493	064-3506	064-3555	066-3690	066-3703
	066-3749	068-3887	068-3898	068-3947	071-4083	071-4094	071-4143	073-4319	073-4331	073-4377
	075-4574	075-4586	075-4632	077-4749	077-4756	079-4874	079-4881	079-4905	079-4912	
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MACRO CROSS REFERENCE

CRE# V02

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MACRO CROSS REFERENCE

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