

DMV 11

DMV-11 LN UNT STC 1
CVDMCCO

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AH-F268C-MC
FICHE 01 OF 02

FEB 1985

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Made In USA

The microfiche card displays a grid of 120 frames, arranged in 10 rows and 12 columns. Each frame contains a small, high-contrast image of a document page, likely a form or report, with various fields and text. The frames are arranged in a regular grid pattern across the card.

DMV 11

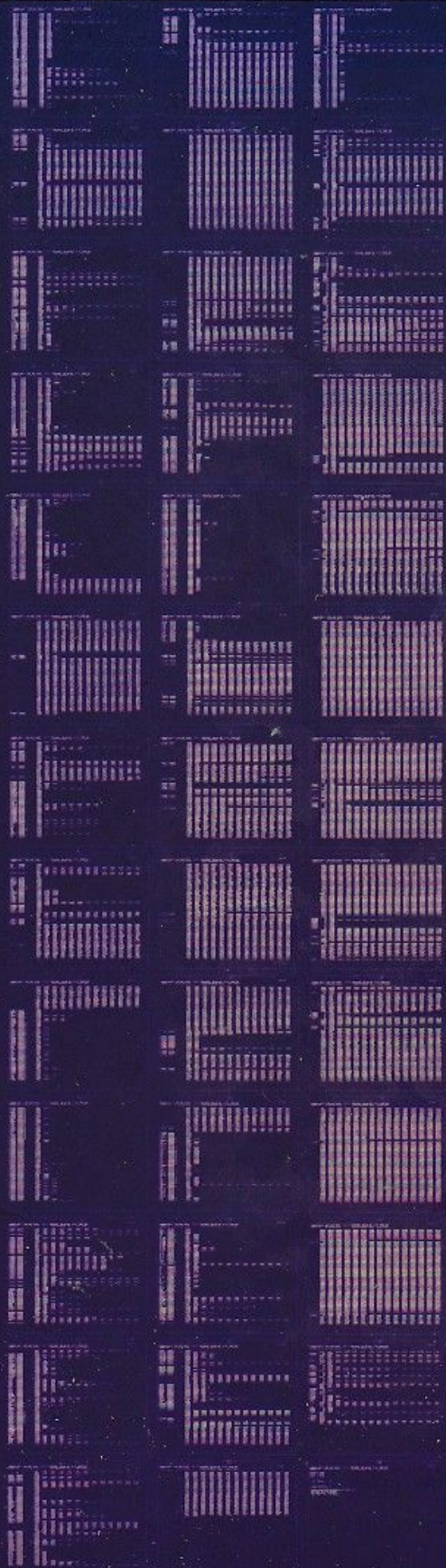
DMV-11 LN UNT STC 1
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A vertical strip on the left side of the microfilm frame containing a grid of small, illegible frames. Each frame appears to contain a small table or data set, but the text is too small to read. The grid consists of approximately 15 rows and 3 columns of frames.

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.TITLE CVDNCCO DMV11 LINE UNIT DIAG1
.SBTTL PROGRAM DOCUMENT
.REM ?

IDENTIFICATION

PRODUCT CODE: AC-F267C-MC
PRODUCT NAME: CVDNCCO DMV-11 LINE UNIT STATIC DIAGNOSTIC PART 1
PRODUCT DATE: AUGUST 1984
MAINTAINER: DIAGNOSTICS MERRIMACK CC:38P
AUTHORS: CHRIS BRIEMEN
 DAVE HOFFMAN
 RAY MARSHALL
PURPOSE: THIS DIAGNOSTIC IS DESIGNED TO PERFORM STATIC LOGIC TESTS FOR
 THE M8053 OR M8064 (HEREAFTER REFERRED TO AS THE DMV OR DMV-11)

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HISTORY

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DATE

REASON

A
B
C

14-JAN-81
11-JUL-83
28-JUL-84

INITIAL RELEASE.
INSTALL OUTSTANDING PATCHES.
INCREASED MANY OF THE TIMING
PARAMETERS TO ALLOW PROGRAM TO
RUN ON A J-11 PROCESSOR(ORION).
(CHANGED BY NICK MCCAMY)

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1.0 INTRODUCTION

THE M8053 AND M8064 ARE SINGLE-LINE SYNCHRONOUS, MICRO-PROCESSOR BASED COMMUNICATIONS INTERFACES WHICH CAN SUPPORT BOTH CHARACTER-ORIENTED (DDCMP, BSC, ETC.) AND BIT-ORIENTED (SDLC, HDLC, ETC.) PROTOCOLS. THE PURPOSE OF THIS PROGRAM IS TO PERFORM BASIC DIAGNOSTIC TESTING OF THE VIA, FIFO, AND USYRT (BCP/BOP MODES) ON THESE BOARDS. THE FOLLOWING FUNCTIONS WILL BE PERFORMED: USYRT REGISTER ADDRESSING, USYRT REGISTER STATIC BIT INTERACTION AND READ/WRITE TESTING, AND BASIC BOP AND BCP TX TESTING (USING THE TSO STATUS BIT).

THE STATIC LOGIC TESTS WILL PROVIDE EXTENSIVE TROUBLESHOOTING CAPABILITIES, SUCH AS TIGHT SCOPE LOOPS, SWITCH OPTIONS, AND ABILITY TO "LOCK" ONTO INTERMITTENT ERRORS. IN ADDITION TESTS ARE DESIGNED AND STRUCTURED TO ACHIEVE MAXIMUM FAULT RESOLUTION AND FACILITATE REPLACEMENT OF THE SMALLEST FIELD REPLACEABLE UNIT.

THIS PROGRAM IS IMPLEMENTED USING THE DIAGNOSTIC SUPERVISOR AND A STRUCTURED PROGRAMMING APPROACH. BECAUSE THE DESIGN CONFORMS TO THE SUPERVISOR (STANDALONE VERSION) THE PROGRAM IS COMPATIBLE WITH ACT, APT, XXDP+, AND SLIDE.

THROUGH DIALOGUE WITH THE OPERATOR, THE PROGRAM ALLOWS MODIFICATION OF DEVICE PARAMETERS, SUCH AS LSI-BUS ADDRESS, VECTOR ADDRESSES AND DEVICE PRIORITY. IN ADDITION, THE OPERATOR CAN SPECIFY PARTICULAR TESTS TO BE RUN AND A VARIETY OF LOOPING, RUNNING, AND REPORTING MODES.

DEVICE ERRORS WILL BE REPORTED AS THEY OCCUR. THE REPORT WILL INCLUDE A TEST NUMBER AND DESCRIPTION OF THE ERROR, GOOD AND BAD TEST DATA, AND APPLICABLE DEVICE REGISTER CONTENTS.

2.0 HARDWARE REQUIREMENTS

THE FOLLOWING HARDWARE IS REQUIRED TO RUN THE M8053/8064 STATIC LOGIC TESTS:

PDP-11/03 OR PDP-11/23
16K WORDS OF MEMORY
CONSOLE TERMINAL
M8053 OR M8064 COMMUNICATIONS INTERFACE

3.0 PRELIMINARY PROGRAM REQUIREMENTS

THIS PROGRAM (CVDNCC) SHOULD BE THE THIRD OF THE FIVE DMV-11 STATIC DIAGNOSTICS TO BE RUN (CVDMA/CVDMB SHOULD BE RUN FIRST). ERRORS FOUND IN THIS PROGRAM SHOULD BE CORRECTED BEFORE RUNNING ANY OF THE OTHER LINE UNIT DIAGNOSTICS (CVDND OR CVDNE).

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4.0 GENERAL PROGRAM CONSIDERATIONS

4.1 DIAGNOSTIC SUPERVISOR

THIS PROGRAM IS COMPATIBLE WITH THE STANDALONE DIAGNOSTIC SUPERVISOR, AND MUST BE LOADED TO BE CO-RESIDENT WITH THE SUPERVISOR, OR BE PREVIOUSLY COMBINED WITH THE SUPERVISOR AND LOADED AS A SINGLE FILE. IN EITHER CASE, THE COMBINED PROGRAM WILL NOT EXCEED 16K OF MEMORY.

4.2 EXECUTION TIME

THE MAXIMUM TIME REQUIRED TO RUN THIS PROGRAM IS ABOUT 30 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.

4.7 ERROR LOGGING

AT THE END OF EACH PASS ON ALL UNITS, THE PROGRAM PRINTS OUT THE CUMULATIVE TOTAL NUMBER OF ERRORS SINCE THE LAST START OR RESTART COMMAND.

5.0 PROGRAM LOAD MEDIA

THIS PROGRAM CAN BE LOADED FROM PAPER TAPE USING THE ABSOLUTE LOADER OR FROM ACT, SLIDE, OR APT SYSTEMS, OR FROM ANY MEDIA SUPPORTED BY XXDP.. WHEN USING THE PAPER TAPE ABSOLUTE LOADER, THE PROGRAM SHOULD BE LOADED FIRST, FOLLOWED BY THE DIAGNOSTIC SUPERVISOR. WHEN USING XXDP., THE

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DIAGNOSTIC SUPERVISOR SHOULD BE LOADED FIRST, FOLLOWED BY
THE DIAGNOSTIC PROGRAM.

6.0 OPERATING INSTRUCTIONS

6.1 LOADING AND STARTING PROCEDURES

6.1.1 LOADING PROCEDURES

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

6.1.2 STARTING PROCEDURES

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

6.1.3 STEPS FOR QUICK AND SIMPLE EXECUTION

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

- A) LOAD AND START DIAGNOSTIC USING RUN COMMAND
- B) RECEIVE DIAGNOSTIC SUPERVISOR IDENTIFICATION AND PROMPT (DRS-C>)
- C) ENTER STA<CR>
- D) ANSWER HARDWARE AND SOFTWARE QUESTIONS
- E) GET END OF PASS MESSAGES OR ERROR MESSAGES
- F) TO END EXECUTION, ENTER CONTROL/C

6.2 INITIAL DIALOGUE

AFTER THE PROGRAM AND THE SUPERVISOR ARE LOADED AND THE PROGRAM
IS STARTED, THE FOLLOWING IDENTIFICATION IS TYPED :

DRS LOADED
DIAG. RUN-TIME SERVICES
CVDMC-C-0
DMV-11 LINE UNIT TESTS - PART 1 OF 3
UNIT IS M8053 OR M8064
DR>

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

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6.3.1 START COMMAND

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

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

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

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

<PASS-CNT> IS A DECIMAL NUMBER INDICATING THE DESIRED NUMBER OF PASSES. A PASS IS DEFINED AS THE EXECUTION OF THE FULL DIAGNOSTIC (ALL SELECTED TESTS) AGAINST ALL UNITS SUBMITTED. THE DEFAULT IS NON-ENDING EXECUTION. IN THIS CASE EXIT FROM THE PROGRAM IS ACCOMPLISHED EITHER BY TYPING A CONTROL/C OR BY OCCURANCE OF AN ERROR WITH THE HALT ON ERROR FLAG BEING SET. THE EXIT IS A RETURN TO COMMAND MODE. SEE EXAMPLE AT END OF 6.3.1.5.

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

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

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

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

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

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

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

6.3.1.5 EFFECT OF START COMMAND

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

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

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

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

EXAMPLE:

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

THIS COMMAND WILL CAUSE THREE PASSES TO BE MADE, EACH PASS CONSISTING OF TESTS 1,2,3,4,6,8,9, AND 10 EXECUTED AGAINST

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ALL UNITS. THERE IS NO DIFFERENCE BETWEEN SAYING <FLAG> AND SAYING <FLAG=1>. THE NOTATION <FLAG=0> IS MEANINGFUL ONLY ON A COMMAND OTHER THAN START TO CLEAR A FLAG THAT WAS PREVIOUSLY SET. NOTE THAT ON ALL COMMANDS ONLY THE FIRST THREE LETTERS ARE SCANNED.

6.3.2 RESTART COMMAND

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

6.3.2.1 TESTS, PASS, AND FLAGS SWITCHES

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

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

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

6.3.2.3 EFFECT OF RESTART COMMAND

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

6.3.3 CONTINUE COMMAND

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

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

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

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

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

6.3.3.3 EFFECT OF CONTINUE COMMAND

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

6.3.4 PROCEED COMMAND

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

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

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

6.3.4.2 EFFECT OF PROCEED COMMAND

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

6.3.5 ADD COMMAND

ADD/UNITS:<UNIT-LIST>

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

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

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6.3.5.2 EFFECT OF ADD COMMAND

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

6.3.6 DROP COMMAND

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

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

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

6.3.6.2 EFFECT OF DROP COMMAND

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

6.3.7 PRINT COMMAND

PRI(NT)

6.3.7.1 EFFECT OF PRINT COMMAND

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

6.3.8 DISPLAY COMMAND

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

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

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

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6.3.8.2 EFFECT OF DISPLAY COMMAND

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

6.3.9 FLAGS COMMAND

FLA(GS)

6.3.9.1 EFFECT OF FLAGS COMMAND

THE CURRENT SETTINGS OF ALL FLAGS ARE PRINTED.

6.3.10 ZFLAGS COMMAND

ZFL(AGS)

6.3.10.1 EFFECT OF ZFLAGS COMMAND

ALL FLAGS ARE CLEARED.

6.3.11 CONTROL CHARACTERS

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

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

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

6.3.12 HARDWARE PARAMETERS

THE FOLLOWING 3 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.

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1. DEVICE CSR ADDRESS : (0) 160020?

THIS IS THE ADDRESS AT WHICH THE CSR REGISTERS (SELO) RESIDE ON THE LSI-BUS. THE ALLOWABLE RANGE IS 160020-177760 (OCTAL), AND THE DEFAULT VALUE IS 160020.

2. DEVICE VECTOR ADDRESS : (0) 300 ?

THIS IS THE ADDRESS OF THE INPUT INTERRUPT VECTOR FOR THIS DEVICE. THE ALLOWABLE RANGE IS 000-674 (OCTAL), AND THE DEFAULT VALUE IS 300.

3. DEVICE PRIORITY LEVEL : (0) 4 ?

THIS IS THE CPU PRIORITY AT WHICH THE INTERRUPT HANDLERS OF THIS DEVICE WILL BE EXECUTED. THE ALLOWABLE RANGE IS 0-7, AND THE DEFAULT VALUE IS 4.

4. SWITCH PACK # 1 (BOOT ADDRESS): (0) 0 ?

5. SWITCH PACK # 2 (DDCMP ADDRESS): (0) 0 ?

THESE REPRESENT THE TWO USER MODIFIABLE 8 POSITION DIP-SWITCHES. THE ALLOWABLE RANGES FOR BOTH ARE 000-377 (OCTAL), AND THE DEFAULTS ARE BOTH 0.

6. BOARD TYPE (0=M8064, 1=M8053-V35, 2=M8053-EIA) : (0) 0 ?

THIS IS THE TYPE OF DMV-11 CURRENTLY INSTALLED. NOTE THAT THE M8053 IS SWITCH SELECTABLE BETWEEN V.35 AND EIA.

7. BAUD RATE (0=LOW (19.2K), 1=HIGH (56K)):

THIS IS THE SPEED AT WHICH THE DMV TRANSMITS AND RECEIVES DATA. IN THE UNIT IS AN M8064, THE ANSWER IS IGNORED (DEFAULTS TO 56K). IF THE UNIT IS AN M8053, THEN THE ANSWER SHOULD BE BASED ON THE "SPEED SELECT SWITCH" LOCATED ON THE BOARD.

6.3.13 SOFTWARE PARAMETERS

NO SOFTWARE PARAMETER QUESTIONS ARE ASKED BY PART 1 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.

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

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

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

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

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

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

THE FOLLOWING DIALOGUE WOULD ACCOMPLISH THIS GOAL:

```

0 UNITS (0) ? 16
UNIT 0
<QUESTION 1> ? 75
<QUESTION 2> ? 0-6
<QUESTION 3> ? 76

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

```

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

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

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

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7.0 TEST DESCRIPTIONS

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:*****
:  TEST 1 <TBMT MICROCODE INTERRUPT TEST>
:
:  THIS TEST CHECKS THE OPERATION OF THE TBMT (IRQ) INTERRUPT.
:  THIS IS DONE BY ISSUEING THE "SET MAINTENANCE INTERRUPT FLAG AND CLEAR
:  INTERRUPT DISABLE IN PROCESSOR STATUS" COMMAND WHILE IN THE MAINTENANCE
:  LOOP AND THEN CHECKING FOR BIT 7 OF BSEL3 TO BE SET (THE BIT IS SET
:  BY THE MICROCODE WHEN THE TBMT INTERRUPT OCCURS).
:*****

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:*****
:  TEST 2 <SWITCH SETTING TEST>
:
:  SUBTEST #1:
:  THE TWO READABLE SWITCH PACKS WILL BE SAMPLED AND COMPARED AGAINST THE 2
:  VALUES IN THE P-TABLE. AN ERROR IS REPORTED ON A MISMATCH.
:
:  SUBTEST #2:
:  THE SPEED SELECT SWITCH (SPDSEL) IS READ VIA THE VIAORA REGISTER (BIT PA4)
:  AND COMPARED AGAINST THE BAUD RATE VALUE IN THE P-TABLE. IF A MISMATCH
:  OCCURS IT WILL BE REPORTED. NOTE: THIS SUBROUTINE IS NOT RUN IF AN M8064
:  BOARD IS BEING TESTED (IT ONLY RUNS 56K... MAKING A SPEED SWITCH USELESS).
:
:  THIS TEST IS ONLY RUN ON THE FIRST PASS AFTER A "START" OR "RESTART".
:  ALL SUCCESSIVE PASSES WILL SKIP THIS TEST.
:*****

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:*****
:  TEST 3 <USYRT MASTER CLEAR TEST>
:
:  ALL REGISTERS ARE LOADED WITH PATTERN E IN THE SAME SEQUENCE AS FOR
:  PATTERN F BELOW. THE USYRT IS THEN CLEARED BY A MASTER CLEAR
:  (BIT 6 OF BSEL 1). ALL REGISTERS ARE THEN CHECKED FOR THE PROPER CONTENTS.
:  THE INITIALIZED STATE OF THE REGISTERS IS CHECKED AGAINST DATA PATTERN F.
:
:  PATTERN E: 377, 377, 377, 377, 377, 377, 377, 366.
:  PATTERN F: 000, 000, 000, 000, 000, 000, 000, 110.
:
:  SEQUENCE OF REGISTERS AS USED WITH PATTERNS E & F:
:
:  RDSRL, RDSRH, TDSRL, TDSRH, PCSARL, PCSARH, PCR, USYRT STATUS REG
:*****

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:*****
:  TEST 4 <USYRT PROGRAM RESET TEST>
:
:  ALL REGISTERS ARE LOADED WITH PATTERN E IN THE SAME SEQUENCE AS FOR
:  PATTERN F BELOW. THE USYRT IS THEN RESET BY ASSERTING PROGRAM RESET

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;* (BIT 0 @ A000) IN THE 6522 VIA. ALL REGISTERS ARE THEN CHECKED FOR
;* THE PROPER CONTENTS. THE INITIALIZED STATE OF THE REGISTERS IS CHECKED
;* AGAINST DATA PATTERN F.

;* PATTERN E: 377, 377, 377, 377, 377, 377, 377, 366.
;* PATTERN F: 000, 000, 000, 000, 000, 000, 000, 110.

;* SEQUENCE OF REGISTERS AS USED WITH PATTERNS E & F:

;* RDSRL, RDSRH, TDSRL, TDSRH, PCSARL, PCSARH, PCR, USYRT STATUS REG

;* TEST 5 <USYRT REGISTER ADDRESSING TEST>

;* FIRST, A MASTER CLEAR IS ISSUED, TO INITIALIZE THE USYRT REGS TO
;* PATTERN F. THEN, EACH REGISTER IS WRITTEN WITH A BYTE OF PATTERN J,
;* AND AFTER EACH IS WRITTEN, ALL ARE READ AND COMPARED TO THE CURRENT
;* EXPECTED VALUES. THIS IS PERFORMED FOR ALL REGISTERS -- INCLUDING THE
;* READ ONLY REGS -- IN ORDER TO MAKE SURE THAT EACH REGISTER ONLY RESPONDS
;* TO ITS OWN ADDRESS.

;* PATTERN F: 000, 000, 000, 000, 000, 000, 000, 110
;* PATTERN J: 000, 000, 001, 002, 004, 020, 040, 010

;* SEQUENCE OF REGISTERS AS USED WITH PATTERNS F & J:

;* RDSRL, RDSRH, TDSRL, TDSRH, PCSARL, PCSARH, PCR, USYRT STATUS REG

;* TEST 6 <R/W BIT TEST OF PCSAR HIGH BYTE>

;* WRITE, READ, AND COMPARE EACH WORD OF DATA PATTERN G.

;* PATTERN G: 000, 001, 003, 004, 005, 007, 100, 101, 103, 104, 105,
;* 107, 000, 017, 027, 041, 200, 277, 103, 144, 115, 157, 000.

;* TEST 7 <R/W BIT TEST OF S/AR REGISTER>

;* WRITE, READ, AND COMPARE EACH WORD OF DATA PATTERN H.

;* PATTERN H: 125, 252, 000, 377, 000, 001, 002, 004, 010, 020, 040, 100,
;* 200, 000, 377, 376, 375, 373, 367, 357, 337, 277, 177, 377,
;* 000

;* TEST 8 <R/W BIT TEST OF PCR REGISTER>

;* PATTERN I IS LOADED INTO PCR (HIGH) AND THE DATA READ BACK AND

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;* CHECKED.
;*
;* PATTERN I: 000, 041, 102, 143, 204, 245, 306, 347, 000, 001, 002,
;* 004, 040, 100, 200, 000, 346, 345, 343, 307, 247, 147, 347, 242,
;* 105, 347, 010, 020, 367, 357, 030, 027, 377.
;*
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*****
;* TEST 9 <R/W BIT TEST OF TDSR REGISTER'S HIGH BYTE>
;*
;* PATTERN K IS LOADED INTO TDSR (HIGH) AND THE DATA READ BACK IS
;* COMPARED AGAINST PATTERN L. (UNPREDICTABLE BITS ARE MASKED OFF TO 0
;* WHEN READING FOR COMPARISON.)
;*
;* PATTERN K: 000, 377, 376, 375, 373, 376, 177, 377, 000, 001, 002,
;* 004, 010, 200, 125, 252, 000.
;*
;* PATTERN L: 000, 017, 016, 015, 013, 016, 017, 017, 000, 001, 002,
;* 004, 010, 000, 005, 012, 000.
;*
;* NOTE THAT THE UNDEFINED BITS (12, 13, & 14) ARE MASKED OFF TO 0'S
;* FOR THE COMPARISON. ALSO THAT BIT 15 IS A READ/ONLY BIT AND CAN'T BE
;* SET -- THEREFORE SHOULD ALWAYS BE READ AS A 0 BY THIS TEST.
;*
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*****
;* TEST 10 <R/W BIT TEST OF TXDB REGISTER>
;*
;* WRITE, READ, AND COMPARE EACH WORD OF DATA PATTERN H.
;*
;* PATTERN H: 000, 001, 002, 004, 010, 020, 040, 100, 200, 000, 377,
;* 376, 375, 373, 367, 357, 337, 277, 177, 377, 000
;*
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*****
;* TEST 11 <PSEUDO R/W BIT TEST OF RXDB>
;*
;* WRITE, READ (BUT NO COMPARE) OF EACH WORD IN DATA PATTERN H. THIS IS
;* PRIMARILY TO PROVIDE A SCOPE LOOP FUNCTION ON THIS REGISTER.
;*
;* PATTERN H: 000, 001, 002, 004, 010, 020, 040, 100, 200, 000, 377,
;* 376, 375, 373, 367, 357, 337, 277, 177, 377, 000
;*
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*****
;* TEST 12 <PSEUDO R/W BIT TEST OF RDSR'S HIGH BYTE>
;*
;* WRITE, READ (BUT NO COMPARE) OF EACH WORD IN DATA PATTERN H. THIS IS
;* PRIMARILY TO PROVIDE A SCOPE LOOP FUNCTION ON THIS REGISTER.
;*
;* PATTERN H: 000, 001, 002, 004, 010, 020, 040, 100, 200, 000, 377,
;*
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;* 376, 375, 373, 367, 357, 337, 277, 177, 377, 000
;*****

;*****
;* TEST 13 <NULL CLOCK TEST>
;*****
;* FIRST, A MASTER CLEAR IS DONE TO INIT THE DMV. THEN, THE T1 TIMER ON THE
;* VIA CHIP IS PROGRAMMED FOR SQUARE WAVE CLOCK GENERATION ON PB7 (BIT 7
;* OF VIA OUTPUT REG B), WITH A BAUD RATE = 56 KBAUD. THIS IS THE MODE OF
;* VIA OPERATION WHICH IS USED TO GENERATE THE NULL CLOCK. THEN, THE PROGRAM
;* SCANS ORB REPEATEDLY TO MONITOR THE NULL CLOCK BIT, IN THE FOLLOWING
;* SEQUENCE :
;* - THE PROGRAM REPEATEDLY CHECKS THE NULL CLOCK BIT FOR THE 1 STATE, AND
;* IF IT IS NOT FOUND WITHIN SEVERAL HUNDRED MICRO-SEC (A GROSS TIMEOUT
;* INTERVAL), AN ERROR IS REPORTED. (AT 56 KBAUD, THE CLOCK SHOULD
;* HAVE A PERIOD OF ABOUT 18 MICRO-SEC.)
;* - THE PROGRAM NEXT REPEATEDLY CHECKS THE NULL CLOCK BIT FOR THE 0 STATE,
;* AND IF IT IS NOT FOUND WITHIN SEVERAL HUNDRED MICRO-SEC, AN ERROR IS
;* REPORTED.
;* - THE PROGRAM NEXT REPEATEDLY CHECKS THE NULL CLOCK BIT FOR THE 1 STATE
;* AGAIN, AND IF IT IS NOT FOUND WITHIN SEVERAL HUNDRED MICRO-SEC,
;* AN ERROR IS REPORTED.
;*****

;*****
;* TEST 14 <BCP TX RESET W/IDLE = 0>
;*****
;* THE USYRT IS INITIALIZED FOR "BYTE-CONTROL PROTOCOL" (BCP) WITH IDLE
;* SET TO ZERO AND A 125 SYNC CHARACTER IS LOADED INTO S/AR. A 226 SYNC
;* CHARACTER IS LOADED INTO TXDB SO THAT THE SOURCE OF SYNC CHARACTERS
;* CAN BE LATER DETERMINED. THE VALID STATE OF THE USYRT REGISTERS IS
;* READ AND CHECKED. TXE IS ASSERTED TO ENABLE THE TRANSMITTER LOGIC.
;* THEN, TSOM IS ASSERTED AND TXC IS MANUALLY STEPPED WHILE OBSERVING
;* TXA -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
;* (TXBE SHOULD GO HIGH; AT THIS TIME THE S/AR'S SYNC CHARACTER SHOULD
;* BE LOADED INTO TXSO AND TSOM IS AGAIN SET -- DRIVING TXBE LOW.)
;* THREE SYNC CHARACTERS ARE SENT/RECEIVED; THE FIRST TWO SYNCHRONIZE
;* THE RECEIVER, THE THIRD IS DIRECTLY READ (STRIP SYNC IS OFF) AND
;* COMPARED AGAINST 125 (THE S/AR SYNC CHARACTER).
;* IF VALUE READ IS 226, THEN TXDB PROVIDED THE SYNC (IE: ERROR).
;* THE USYRT IS THEN RESET AND REGISTERS ARE AGAIN READ AND CHECKED.
;* THIS TEST WILL GO NO FURTHER INTO THE TRANSMIT SEQUENCE SO THAT ONLY
;* ONE MARK AND THREE SYNC CHARACTERS (FROM THE S/AR) IS TRANSMITTED.
;* ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN THE
;* SEQUENCE.
;*****

;*****
;* TEST 15 <BCP TX RESET W/IDLE = 1>
;*****
;* THE USYRT IS INITIALIZED FOR "BYTE-CONTROL PROTOCOL" (BCP) WITH IDLE
;* SET TO ONE AND A 226 SYNC CHARACTERS LOADED INTO S/AR AND TXDB.
;* THE VALID STATE OF THE USYRT REGISTERS IS READ AND CHECKED. TXE IS

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;* ASSERTED TO ENABLE THE TRANSMITTER LOGIC.
;* THEN, TSOM IS ASSERTED AND TXC IS MANUALLY STEPPED WHILE OBSERVING
;* TXA -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
;* (TXBE SHOULD GO HIGH; AT THIS TIME THE TXDB SYNC CHARACTER SHOULD
;* BE LOADED INTO TXSO AND TSOM IS AGAIN SET -- DRIVING TXBE LOW.)
;* AFTER THE RECEIVER IS SYNCHRONIZED (TWO SYNC CHARACTERS), TXDB IS
;* LOADED WITH A 125 AND, WITH TSOM STILL = 1 (SYNC SOURCE = TXDB), THE
;* USYRT IS AGAIN CLOCKED.
;* AT THIS POINT, IF THE IDLE BIT WORKED, THE VALUE 125 WILL BE READ
;* BY THE RECEIVER. OTHERWISE A 226 WILL BE READ, INDICATING TXDB WASN'T
;* PROVIDING THE SYNC CHARACTERS.
;* WHEN TXBE GOES HIGH AGAIN, THE USYRT IS RESET.
;* ALL REGISTERS ARE AGAIN READ AND CHECKED.
;* THIS TEST WILL GO NO FURTHER INTO THE TRANSMIT SEQUENCE SO THAT ONLY
;* ONE MARK AND THREE SYNCs (226,226,125 FROM TXDB) ARE TRANSMITTED.
;* ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN THE
;* SEQUENCE.
;*****

;*****
;* TEST 16 <BCP TX UNDERRUN W/TSOM TERMINATION>
;*****
;* THE USYRT IS INITIALIZED FOR BCP WITH IDLE = 1 AND TXC IS MANUALLY
;* CONTROLLED UNTIL TWO SYNC CHARACTERS AND ONE DATA CHARACTER (000)
;* HAVE BEEN TRANSMITTED. AT THIS TIME WHEN TXBE IS ASSERTED BY THE
;* USYRT, NO DATA IS LOADED INTO TXDB -- FORCING AN UNDER RUN
;* CONDITION. TXU AND TERR ARE CHECKED BOTH BEFORE AND AFTER THEIR
;* EXPECTED ASSERTIONS. AFTER THE FIRST NON-DATA CHARACTER (WHICH
;* SHOULD BE THE MARK CHARACTER) HAS BEEN STARTED, IDLE IS SET TO 0.
;* THIS SHOULD FORCE THE NEXT NON-DATA CHARACTER TO BE A SYNC CHARACTER
;* FROM S/AR. WHILE THIS SYNC CHARACTER IS BEING TRANSMITTED, TSOM IS
;* ASSERTED (CLEARING TXU AND TERR) -- IDLE IS LEFT AT 0. TXBE IS THEN
;* CYCLED THROUGH AT LEAST ONE MORE SYNC CHARACTER AND THE TEST IS
;* ABORTED. ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS
;* WITHIN THE SEQUENCE.
;* NOTE: BITS SHIFT OUT OF TX LSB FIRST.
;*****

;*****
;* TEST 17 <BCP TX UNDERRUN W/RESET TERMINATION>
;*****
;* THE USYRT IS INITIALIZED FOR BCP WITH IDLE = 1 AND TXC IS MANUALLY
;* CONTROLLED UNTIL TWO SYNC CHARACTERS AND ONE DATA CHARACTER HAVE
;* BEEN TRANSMITTED. AT THIS TIME WHEN TXBE IS ASSERTED BY THE USYRT,
;* NO DATA IS LOADED INTO TXDB -- FORCING AN UNDER RUN CONDITION. TXU
;* AND TERR ARE CHECKED BOTH BEFORE AND AFTER THEIR EXPECTED
;* ASSERTIONS. AFTER THE FIRST NON-DATA CHARACTER (WHICH SHOULD BE THE
;* MARK CHARACTER) HAS BEEN STARTED, IDLE IS SET TO 0. THIS SHOULD
;* FORCE THE NEXT NON-DATA CHARACTER TO BE A SYNC CHARACTER.
;* IMMEDIATELY AFTER THIS SYNC CHARACTER HAS BEING TRANSMITTED, A
;* PROGRAM RESET IS ISSUED AND ALL REGISTERS ARE CHECKED. ERROR
;* LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN THE
;* SEQUENCE.
;*****

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*****
;*      TEST 18 <BCP TX DISABLE TEST>
;*
;*  THE USYRT IS INITIALIZED FOR BCP AND A MESSAGE IS STARTED. ONCE THE
;*  SECOND DATA CHARACTER IS LOADED INTO TXDB TXE IS DROPPED. TXSO IS
;*  WATCHED TO ASSURE THAT THE CHARACTER BEING TRANSMITTED IS COMPLETED.
;*  WHEN IT IS, THE USYRT SHOULD DROP TXA AND STOP TRANSMITTING -- THE
;*  LAST CHARACTER LOADED INTO TXDB SHOULD BE LOST.
;*
;*      CHARACTERS LOADED: 125 252
;*      CHARACTERS TRANSMITTED: 125
*****

```

```

*****
;*      TEST 19 <FIFO STACKING CHARACTERS TEST>
;*
;*  THE USYRT IS SETUP FOR BCP MODE WITH NO ERROR DETECTION.
;*  THIS TEST BEGINS BY SYNCHRONIZING THE RECEIVER AND THEN PROCEEDS
;*  TO FILL THE 8 CHARACTER RECEIVER FIFO WITH THE CHARACTERS:
;*      1/2(SYNCH),000,377,125,252,347,030,303,1/2(074).
;*  THESE CHARACTERS ARE THEN READ OFF OF THE FIFO AND CHECKED. NOTE
;*  THAT NO CLOCKS ARE PROVIDED WHEN RECEIVING THE CHARACTERS SINCE THEY
;*  ARE SUPPLIED BY THE FIFO SUPPORT LOGIC IN GROUPS OF 4 TICKS (WHEN
;*  RDA = 0).
;*  ALSO NOTE THAT DUE TO FIFO TIMING, TWO 'HALF CHARACTERS' ARE LOADED
;*  INTO THE FIFO (THE 1ST AND LAST CHARACTERS).
;*
*****

```

```

*****
;*      TEST 20 <BCP CHARACTER LENGTH TEST>
;*
;*  THE USYRT IS INITIALIZED FOR BCP WITH NO ERROR CHECKING. TXC IS MANUALLY
;*  CONTROLLED UNTIL TWO SYNC CHARACTERS HAVE BEEN TRANSMITTED. THEN 3
;*  SUBTESTS FOLLOW, EACH ONE USING A DIFFERENT TRANSMIT CHARACTER LENGTH
;*  STARTING AT FIVE (5) AND ENDING WITH SEVEN (7).
;*
;*      TEST PATTERN: 111 222 333 044 155 266 377
*****

```

```

*****
;*      TEST 21 <BOP TX TABORT/(IDLE = 0) TEST>
;*
;*  THE USYRT IS INITIALIZED FOR "BIT-ORIENTED PROTOCOL" (BOP) WITH IDLE
;*  SET TO ZERO. TXE AND TSM IS ASSERTED AND TXC IS MANUALLY STEPPED WHILE
;*  OBSERVING TXA -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
;*  NEXT, TXBE SHOULD GO HIGH; AT THIS TIME AN ALL ZEROS CHARACTER WILL BE
;*  LOADED INTO TXDB DRIVING TXBE LOW. THE TRANSMITTER IS CLOCKED THROUGH
;*  ONE CHARACTER. WHEN TXBE GOES HIGH AGAIN, TABORT IS ASSERTED CAUSING
;*  ABORT TO BE TRANSMITTED. ALL CHARACTERS ARE CHECKED AT TXSO.
;*  THIS TEST WILL GO NO FURTHER INTO THE TRANSMIT SEQUENCE SO THAT ONLY TWO

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1123
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1125
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1128
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;* FLAGS, ONE ZERO CHARACTER, AND ONE ABORT CHARACTER IS SENT (INTO THE BIT
;* BUCKET). ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN
;* THE SEQUENCE.
;*****

;*****
;* TEST 22 <BOP TX TABORT/(IDLE = 1) TEST>
;*
;* THE USYRT IS INITIALIZED FOR "BIT-ORIENTED PROTOCOL" (BOP) WITH IDLE
;* SET TO ONE. TXE AND TSOM IS ASSERTED AND TXC IS MANUALLY STEPPED WHILE
;* OBSERVING TXA -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
;* NEXT, TXBE SHOULD GO HIGH; AT THIS TIME AN ALL ZEROS CHARACTER WILL BE
;* LOADED INTO TXDB DRIVING TXBE LOW. THE TRANSMITTER IS CLOCKED THROUGH
;* ONE CHARACTER. WHEN TXBE GOES HIGH AGAIN, TABORT IS ASSERTED CAUSING
;* ABORT TO BE TRANSMITTED. ALL CHARACTERS ARE CHECKED AT TXSO.
;* THIS TEST WILL GO NO FURTHER INTO THE TRANSMIT SEQUENCE SO THAT ONLY TWO
;* FLAGS, ONE ZERO CHARACTER, AND ONE FLAG CHARACTER IS SENT (INTO THE BIT
;* BUCKET). ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN
;* THE SEQUENCE.
;*****

;*****
;* TEST 23 <BOP TX TXGA (TRANSMIT GO-AHEAD) TEST>
;*
;* THE USYRT IS INITIALIZED FOR BOP AND TXE IS ASSERTED. TSOM IS ASSERTED
;* AND TXA OBSERVED -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
;* NEXT, TXBE SHOULD GO HIGH; AT THIS TIME AN ALL ZEROS CHARACTER WILL BE
;* LOADED INTO TXDB DRIVING TXBE LOW. WHEN TXBE GOES HIGH AGAIN, TXGA
;* IS ASSERTED CAUSING GA TO BE TRANSMITTED. THE SEQUENCE OF EVENTS IS
;* CONTINUALLY MONITORED WHILE TXC IS MANUALLY CONTROLLED AND ALL
;* CHARACTERS ARE CHECKED AT TXSO. THIS TEST WILL GO NO FURTHER INTO
;* THE TRANSMIT SEQUENCE SO THAT ONLY TWO FLAGS, ONE ZERO CHARACTER
;* AND ONE GA CHARACTER IS SENT (INTO THE BIT BUCKET).
;* ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN
;* THE SEQUENCE.
;*****

;*****
;* TEST 24 <BOP TX MESSAGE WITHOUT CRC>
;*
;* THE USYRT IS INITIALIZED FOR BOP MODE WITH NO ERROR DETECTION. TXC IS THEN
;* MANUALLY CONTROLLED UNTIL TWO FLAG CHARACTERS HAVE BEEN TRANSMITTED. THEN
;* A 5 CHARACTER MESSAGE IS TRANSMITTED, RECEIVED, CHECKED, AND TERMINATED
;* (WITH TECH). A CHECK IS MADE TO ASCERTAIN THAT NO CRC OR VRC IS GENERATED
;* -- FLAG CHARACTERS SHOULD FOLLOW THE DATA.
;* (NOTE: NO BIT STUFFING OCCURS IN THIS TEST)
;*
;* TEST MESSAGE: FLAG FLAG 000 307 125 252 201 FLAG
;*****

;*****
;* TEST 25 <BOP RX CHARACTER LENGTH TEST>

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;*
;* THE USYRT IS INITIALIZED FOR BOP WITH CRC-CCITT PRESET TO 1'S. TXC
;* IS MANUALLY CONTROLLED UNTIL TWO FLAG CHARACTERS HAVE BEEN
;* TRANSMITTED. THEN 6 SUBTESTS FOLLOW, EACH ONE USING A DIFFERENT
;* TRANSMIT CHARACTER LENGTH STARTING AT TWO (2) AND ENDING WITH SEVEN
;* (7). IN EACH SUBTEST, TWO 8 BIT CHARACTERS WILL BE TRANSMITTED
;* BEFORE TXCL IS CHANGED TO THE CHARACTER LENGTH BEING TESTED. THIS
;* CORRESPONDS TO NORMAL USAGE WHERE EITHER:
;*
;*     1 -- A MESSAGE OF CHARACTERS WHICH ARE LESS THEN 8 BITS IS
;*           SENT AS A STREAM OF 8 BIT CHARACTERS AND THE REMAINING
;*           BITS ARE SENT AS A CHARACTER OF LESS THEN 8 BITS OR
;*
;*     2 -- A HEADER OF TWO 8 BIT CHARACTERS IS SENT FOLLOWED BY A
;*           DATA STREAM OF DATA CHARACTERS WHICH MAY BE LESS THEN 8
;*           BITS IN LENGTH (I.E. 2, 3, 4, 5, 6, OR 7 BIT
;*           CHARACTERS).
;*
;*     THE TEST PATTERN IS: 123 321 111 222 333 044 155 266 377
;*****
;*****
;* TEST 26 <TX "SPACING SEQUENCE">
;*
;* THE TRANSMITTER IS INITIALIZED AND THE "SPACING SEQUENCE" IS FORCED
;* BY ASSERTING BOTH TSON & TEOM AT THE SAME TIME -- CHECK THE BIT
;* STREAM FOR ACCURACY (SPACES) AND COMPLETNESS (16 OF THEM). WHEN TXBE
;* GOES HIGH (= 1) A SMALL MESSAGE IS SENT.
;*****
;*****
;* TEST 27 <FIFO OVERRUN INTEGRITY TEST>
;*
;* THIS TEST BEGINS BY SYNCHRONIZING THE RECEIVER AND THEN PROCEEDS TO FILL
;* THE 8 CHARACTER RECEIVER FIFO UNTIL RXOR WITH THE CHARACTERS:
;* (SYNCH),000,377,125,252,347,030,303,074,125.
;* THESE CHARACTERS ARE THEN READ OFF OF THE FIFO AND CHECKED. OF IMPORTANCE
;* IS THE INTEGRITY OF THE LAST OVERRUN-CAUSING FIFO CHARACTER (IT SHOULD
;* REMAIN INTACT).
;* NOTE THAT NO CLOCKS ARE PROVIDED WHEN RECEIVING THE CHARACTERS SINCE THEY
;* ARE SUPPLIED BY THE FIFO SUPPORT LOGIC IN GROUPS OF 4 TICKS (WHEN
;* RDA = 0).
;*****
;*****
;* TEST 28 <BCP RX OVERRUN SET AND CLEAR TEST>
;*
;* THE USYRT IS INITIALIZED AND THREE SUBTESTS ARE PERFORMED.
;*
;*     1 -- AN OVERRUN CONDITION IS FORCED, RECEIVER STATUS REGISTER IS
;*           READ TWICE: ONCE TO VERIFY ROR BIT = 1, AND AGAIN TO VERIFY
;*           THAT THE FIRST READ CLEARED ROR .

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;*
;* 2 -- AN OVERRUN CONDITION IS FORCED (BY THE SAME TECHNIQUE USED IN
;* (2), THE USYRT IS RESET AND THE PROPER STATE OF ALL REGISTERS
;* IS VERIFIED.
;*
;* 3 -- AN OVERRUN CONDITION IS FORCED (AS ABOVE). RXE IS THEN DROPPED
;* AND A DELAY IS PROVIDED TO ALLOW TIME FOR THE FIFO TO FLUSH
;* (CAUSED BY RDA GOING LOW). RXE IS THEN RE-INITIALIZED AND ROR
;* IS CHECKED = 0. THE RECEIVER IS THEN RE-SYNCHED AND THE TEST IS
;* TERMINATED.
;*
;*****

```

```

;*****
;* TEST 29 <BCP RX SYNC CHARACTER RECOGNITION>
;*
;* THE FOLLOWING MESSAGE IS INITIATED WITHOUT ASSERTING RXE AND ONCE
;* THE DATA IS BEING TRANSMITTED, RXE IS ASSERTED (IE: *):
;*
;* SYNC * SYNC DATA DATA DATA SYNC SYNC SYNC SYNC SYNC DATA DATA DATA
;* SYNC SYNC DATA DATA DATA SYNC SYNC
;*
;* THE RECEIVER SHOULD IGNORE THE FIRST STRING OF DATA CHARACTERS, USE
;* THE NEXT TWO SYNC CHARACTERS FOR SYNCHRONIZATION, THEN PASS THE REST
;* OF THE MESSAGE (7 SYNC AND 6 DATA CHARACTERS) THROUGH RXDB REGISTER.
;*****

```

```

;*****
;* TEST 30 <BCP RX STRIP-SYNC TEST>
;*
;* THE USYRT IS INITIALIZED WITH THE STRIP-SYNC CONTROL BIT ASSERTED.
;* THE FOLLOWING MESSAGE IS THEN INITIATED WITHOUT ASSERTING RXE AND
;* ONCE THE DATA IS BEING TRANSMITTED, RXE IS ASSERTED (IE: *):
;*
;* SYNC * SYNC DATA DATA DATA SYNC SYNC SYNC SYNC SYNC DATA DATA DATA
;* SYNC SYNC DATA DATA DATA SYNC SYNC
;*
;* THE RECEIVER SHOULD IGNORE THE FIRST STRING OF DATA CHARACTERS, USE
;* THE NEXT TWO SYNC CHARACTERS FOR SYNCHRONIZATION, IGNORE THE NEXT
;* THREE SYNC CHARACTERS, AND PASS THE REST OF THE MESSAGE (4 SYNC AND
;* 6 DATA CHARACTERS) THROUGH RXDB REGISTER.
;*****

```

```

;*****
;* TEST 31 <BCP RX LOST RXE TEST>
;*
;* THE USYRT IS INITIALIZED (CRC16,STRIPS,BCP MODE) AND A MESSAGE IS STARTED.
;* WHILE IN THE MIDDLE OF TEXT, RXE IS DROPPED AND THE REACTION OF THE
;* RECEIVER IS MONITORED.
;*
;*****

```

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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.

THE FOLLOWING EXAMPLE PROVIDES A TYPICAL ERROR REPORT, WHICH DESCRIBES A "MASTER CLEAR FAILURE" ERROR, AND PROVIDES THE PC OF THE ERROR CALL AND THE DEVICE REGISTER CONTENTS :

CVDMB DVC FTL ERR 00001 ON UNIT 00 TST 002 SUB 000 PC: 021122
MASTER CLEAR FAILURE

THE CONTENTS OF ALL BYTE SELECT REG'S ARE:

BSEL0	BSEL1	BSEL2	BSEL3
000	000	000	000
BSEL4	BSEL5	BSEL6	BSEL7
000	000	121	000
BSEL10	BSEL11	BSEL12	BSEL13
000	000	000	000
BSEL14	BSEL15	BSEL16	BSEL17
000	000	000	000

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

IF EXTENDED ERROR INFORMATION HAD BEEN INHIBITED USING THE IXE FLAG PRIOR TO RUNNING THE TEST, THE ABOVE ERROR WOULD HAVE BEEN REPORTED IN THE FOLLOWING SHORTENED FORM :

CVDMB DVC FTL ERR 00001 ON UNIT 00 TST 002 SUB 000 PC: 021122
MASTER CLEAR FAILURE

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GENERAL EQUATES AND DS INVOCATION & SETUP

.SBTTL GENERAL EQUATES AND DS INVOCATION & SETUP

```

1288
1289
1290
1291          000000          HELP=0          ; CONTROL LISTING OF HELP INFORMATION
1292                                     ;
1293                                     ; HELP=0    NO LIST
1294                                     ; HELP=1    LIST
1295
1296          002000          .-2000
1297
1298          .MCALL SVC
1299 002000          SVC          ; INITIALIZE SUPERVISOR MACROS
1300
1301
1302 002000          BGNMOD LU1MOD
1303
1304
1305          000001          #LSTIN= 1
1306          000001          #LSTTAG= 1
1307          000001          SVCINS= 1          ; LIST INSTRUCTIONS, SHIFTED RIGHT
1308          000001          SVCTST= 1         ; LIST TEST TAGS, SHIFTED RIGHT
1309          000001          SVCSUB= 1        ; LIST SUBTEST TAGS, SHIFTED RIGHT
1310          000001          SVCGBL= 1       ; LIST GLOBAL TAGS, SHIFTED RIGHT
1311          000001          SVCTAG= 1       ; LIST OTHER TAGS, SHIFTED RIGHT
1312
1313          ; CHANGE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
1314          ; TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS. CHANGE THE
1315          ; SYMBOLS TO BE MINUS-ONE TO NOT LIST THE EXPANSIONS. YOU MAY
1316          ; CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.

```

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1323	002000	
1324		
1325		
1326	002000	
1327	002000	
1328	002000	103
1329	002001	126
1330	002002	104
1331	002003	115
1332	002004	103
1333	002005	000
1334	002006	000
1335	002007	000
1336	002010	
1337	002010	103
1338	002011	
1339	002011	060
1340	002012	
1341	002012	000000
1342	002014	
1343	002014	000012
1344	002016	
1345	002016	036646
1346	002020	
1347	002020	000000
1348	002022	
1349	002022	002224
1350	002024	
1351	002024	000000
1352	002026	
1353	002026	037434
1354	002030	
1355	002030	000000
1356	002032	
1357	002032	000000
1358	002034	
1359	002034	000000
1360	002036	
1361	002036	000000
1362	002040	
1363	002040	002124
1364	002042	
1365	002042	000000
1366	002044	
1367	002044	000000
1368	002046	
1369	002046	000000
1370	002050	
1371	002050	003
1372	002051	003

.SBTTL PROGRAM HEADER

```

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

POINTER BGN AU,BGNDU,ERRTBL

HEADER CVDNC.C.0.10..0

```

L$NAME::
        .ASCII /C/
        .ASCII /V/
        .ASCII /D/
        .ASCII /M/
        .ASCII /C/
        .BYTE 0
        .BYTE 0
        .BYTE 0
L$REV::
        .ASCII /C/
L$DEPO::
        .ASCII /O/
L$UNIT::
        .WORD 0
L$TIML::
        .WORD 10.
L$HPCP::
        .WORD L$HARD
L$SPCP::
        .WORD 0
L$HPTP::
        .WORD L$HW
L$SPTP::
        .WORD 0
L$LADP::
        .WORD L$LAST
L$STA::
        .WORD 0
L$CO::
        .WORD 0
L$DTYP::
        .WORD 0
L$APT::
        .WORD 0
L$DTP::
        .WORD L$DISPATCH
L$PRIO::
        .WORD 0
L$ENVI::
        .WORD 0
L$EXP1::
        .WORD 0
L$HREV::
        .BYTE C$REVISION
        .BYTE C$EDIT
    
```


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1373	002052	
1374	002052	000000
1375	002054	000000
1376	002056	
1377	002056	000000
1378	002060	
1379	002060	003306
1380	002062	
1381	002062	000000
1382	002064	
1383	002064	000000
1384	002066	
1385	002066	000000
1386	002070	
1387	002070	021554
1388	002072	
1389	002072	021550
1390	002074	
1391	002074	000000
1392	002076	
1393	002076	003326
1394	002100	
1395	002100	104035
1396	002102	
1397	002102	002246
1398	002104	
1399	002104	021100
1400	002106	
1401	002106	021546
1402	002110	
1403	002110	021422
1404	002112	
1405	002112	021072
1406	002114	
1407	002114	000000
1408	002116	
1409	002116	000000
1410	002120	
1411	002120	000000
1412		
1413		
1414		

.EVEN

L\$EF::	.WORD	0
	.WORD	0
L\$SPC::	.WORD	0
L\$DEVP::	.WORD	L\$DVTYP
L\$REPP::	.WORD	0
L\$EXP4::	.WORD	0
L\$EXPS::	.WORD	0
L\$AUT::	.WORD	L\$AU
L\$DUT::	.WORD	L\$DU
L\$LUN::	.WORD	0
L\$DESP::	.WORD	L\$DESC
L\$LOAD::	EMT	E\$LOAD
L\$ETP::	.WORD	L\$ERRTBL
L\$ICP::	.WORD	L\$INIT
L\$CCP::	.WORD	L\$CLEAN
L\$ACP::	.WORD	L\$AUTO
L\$PRT::	.WORD	L\$PROT
L\$TEST::	.WORD	0
L\$DLY::	.WORD	0
L\$HIME::	.WORD	0

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DISPATCH TABLE

.SBTTL DISPATCH TABLE

SLASH

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

DISPATCH 31.

1415		
1416		
1417	002122	
1418		
1419		
1420		
1421	002122	
1422		
1423		
1424	002122	
1425	002122	000037
1426	002124	
1427	002124	021556
1428	002126	021736
1429	002130	022736
1430	002132	023122
1431	002134	023206
1432	002136	023432
1433	002140	023524
1434	002142	023616
1435	002144	023710
1436	002146	024040
1437	002150	024132
1438	002152	024206
1439	002154	024262
1440	002156	024604
1441	002160	024736
1442	002162	025120
1443	002164	025626
1444	002166	026226
1445	002170	026434
1446	002172	026712
1447	002174	027422
1448	002176	027616
1449	002200	030012
1450	002202	030206
1451	002204	030564
1452	002206	033506
1453	002210	034064
1454	002212	034450
1455	002214	035052
1456	002216	035530
1457	002220	036264
1458		

	.WORD	31
L#DISPATCH::		
	.WORD	T1
	.WORD	T2
	.WORD	T3
	.WORD	T4
	.WORD	T5
	.WORD	T6
	.WORD	T7
	.WORD	T8
	.WORD	T9
	.WORD	T10
	.WORD	T11
	.WORD	T12
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	.WORD	T30
	.WORD	T31

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DEFAULT HARDWARE P-TABLE

.SBTTL DEFAULT HARDWARE P-TABLE

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

1459
1460
1461
1462
1463
1464
1465
1466
1467 002222
1468 002222 000010
1469 002224
1470 002224
1471
1472 002224 160020
1473 002226 000300
1474 002230 004000
1475 002232 000000
1476 002234 000000
1477 002236 000000
1478 002240 000000
1479 002242 000001
1480
1481
1482
1483 002244
1484 002244

BGNHW DFPTBL

.WORD L10000-L#HW/2

L#HW::
DFPTBL::

.WORD 160020
.WORD 300
.WORD 4000
.WORD 000
.WORD 000
.WORD 0
.WORD 0
.WORD 1

;DMV11 CSR UNIBUS ADDRESS
;DMV11 INTERRUPT VECTOR
;DMV11 INTERRUPT PRIORITY LEVEL = 4
;SWITCH REG. #1 (BOOT ADDRESS)
;SWITCH REG. #2 (DDCMP ADDRESS)
;MODULE IS M8064
;H3254&H3255 USED
;BAUD RATE = 56 K
; 0 = 19.2 K
; 1 = 56 K

ENDHW

L10000:

CVDNCCO DMV11 LINE UNIT DIAG1
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GLOBAL EQUATES SECTION -- BASIC EQUATES

1555	000140	PRI03== 140
1556	000100	PRI02== 100
1557	000040	PRI01== 40
1558	000000	PRI00== 0
1559		;
1560		;OPERATOR FLAG BITS
1561		;
1562	000004	EVL== 4
1563	000010	LOT== 10
1564	000020	ADR== 20
1565	000040	IDU== 40
1566	000100	ISR== 100
1567	000200	UAM== 200
1568	000400	BOE== 400
1569	001000	PNT== 1000
1570	002000	PRI== 2000
1571	004000	IXE== 4000
1572	010000	IBE== 10000
1573	020000	IER== 20000
1574	040000	LOE== 40000
1575	100000	HDE== 100000

CVDNCCO DMV11 LINE UNIT DIAG1
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REGISTER DEFINITIONS -- MAINTENANCE REGISTERS -- SELN & BSELN

.SBTTL REGISTER DEFINITIONS -- MAINTENANCE REGISTERS -- SELN & BSELN

```

1576
1577
1578
1579
1580
1581      000020
1582      000001
1583
1584
1585
1586
1587
1588
1589
1590
1591
1592      000200
1593      000100
1594      000001
1595      000301
1596
1597
1598
1599
1600      000200
1601
1602
1603
1604
1605      000001
1606      000002
1607      000003
1608      000004
1609      000005
1610      000007
1611
1612

```

```

*****
;* MAINTENANCE REGISTER # 0 - BSEL0
*****
IEO      = BIT4      ;"INTERRUPT ENABLE OUT"
IEI      = BIT0      ;"INTERRUPT ENABLE IN"

; BIT 7 IS ALSO USED BY THE MICROCODE. ITS LABEL IS "RQI" WHICH STANDS FOR
; "REQUIST IN". IT'S PART OF THE HANDSHAKING FOR USING THE SEL & BSEL REG'S.
; HOWEVER, THE MAINT. LOOP DOES NOT MAKE USE OF THIS BIT AND IT IS THEREFORE
; UNNECESSARY TO DEFINE IT HERE.

*****
;* MAINTENANCE REGISTER # 1 - BSEL1
*****
RUN      = BIT7      ;"RUN" & ALSO CONTROLS 6502 MICROPROCESSOR'S RDY STATE
MCLR     = BIT6      ;MASTER CLEAR
MREQ     = BIT0      ;M-LOOP ACCESS
STRMLOP= RUN!MCLR!MREQ ;INITIATE M-LOOP

*****
;* MAINTENANCE REGISTER # 2 - BSEL2
*****
MRDY     = BIT7      ;M-LOOP READY

*****
;* MAINTENANCE LOOP COMMAND DEFINITIONS
*****
REDLOC   = 1        ;READ LOC. W/IN DMV-11 ---- (SEL4) ==> BSEL6
WRILOC   = 2        ;WRITE LOC. W/IN DMV-11 --- BSEL6 ==> (SEL4)
REDPAG   = 3        ;READ BLOCK W/IN DMV-11 --- (SEL6) ==> (SEL4)
WRIPAG   = 4        ;WRITE BLOCK W/IN DMV-11 -- (SEL4) ==> (SEL6)
EXECUT   = 5        ;SET 6502'S PC AND EXECUTE -- SEL6 ==> PC
DOTBMT   = 7        ;SET MAINTENANCE INTERRUPT DISABLE IN PROCESSOR
;STATUS --- [KB7] ==> BSEL3

```

CVDHCCO DMV11 LINE UNIT DIAG1
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REGISTER DEFINITIONS -- USYRT

.SBTTL REGISTER DEFINITIONS -- USYRT

```

1613
1614
1615
1616      120400      USYRT = 120400      ;USYRT BASE ADDRESS = A100 (HEX)
1617
1618      ;*****
1619      ;* USYRT "RECEIVER DATA BUFFER" REGISTER -- READ ONLY
1620      ;*****
1621
1622      120400      RDSRL = 120400      ;ADDRESS OF THIS REG
1623
1624      ;*****
1625      ;* USYRT "RECEIVER STATUS" REGISTER -- READ ONLY
1626      ;*****
1627
1628      120401      RDSRH = 120401      ;ADDRESS OF THIS REG
1629
1630      ;BIT DEFINITIONS ON BYTE BASIS :
1631      000200      RERR = BIT7      ;ERROR CHECK
1632      000160      ABC = BIT6:BIT5:BIT4 ;ASSEMBLED BIT COUNT
1633      000010      ROR = BIT3      ;RECEIVER OVER RUN
1634      000004      RABGA = BIT2      ;RECEIVED ABORT/GA CHARACTER
1635      000002      REOM = BIT1      ;RECEIVED END-OF-MESSAGE
1636      000001      RSOM = BIT0      ;RECEIVED START-OF-MESSAGE
1637
1638      ;BIT DEFINITIONS ON WORD BASIS :
1639      100000      RXERR = BIT15      ;RECEIVED CRC/VRC ERROR
1640      004000      RXOR = BIT11      ;RECEIVER OVER RUN
1641      002000      RXABGA = BIT10      ;RECEIVED ABORT/GO AHEAD CHARACTER
1642      001000      RXEOM = BIT9      ;RECEIVED END-OF-MESSAGE
1643      000400      RXSOM = BIT8      ;RECEIVED START-OF-MESSAGE
1644
1645      000001      RERCHK = BIT0      ;FLAG TO INVOKE RERR CHK IN SUBROUTINE RXCHAR
1646
1647      ;*****
1648      ;* USYRT "TRANSMITTER DATA BUFFER" REGISTER
1649      ;*****
1650
1651      120402      TDSRL = 120402      ;ADDRESS OF THIS REG
1652
1653      ;*****
1654      ;* USYRT "TX STATUS AND CONTROL" REGISTER
1655      ;*****
1656
1657      120403      TDSRH = 120403      ;ADDRESS OF THIS REG
1658
1659      ;BIT DEFINITIONS ON BYTE BASIS :
1660      000200      TERR = BIT7      ;TRANSMITTER UNDERRUN ERROR
1661      000010      TGA = BIT3      ;TRANSMIT GO AHEAD
1662      000004      TAB = BIT2      ;TRANSMIT ABORT
1663      000002      TEOM = BIT1      ;TRANSMIT END-OF-MESSAGE
1664      000001      TSOM = BIT0      ;TRANSMIT START-OF-MESSAGE
1665
1666      ;BIT DEFINITIONS ON WORD BASIS :
1667      100000      TXERR = BIT15      ;TRANSMITTER UNDERRUN ERROR
1668      004000      TXGA = BIT11      ;TRANSMIT GO AHEAD

```


CVDNCCO DMV11 LINE UNIT DIAG1
CVDNCC.P11 12-JUL-84 16:09

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REGISTER DEFINITIONS -- USYRT

```

1669      002000      TXAB      = BIT10      ; TRANSMIT ABORT
1670      001000      TXEOM     = BIT9       ; TRANSMIT END-OF-MESSAGE
1671      000400      TXSOM     = BIT8       ; TRANSMIT START-OF-MESSAGE
1672
1673      ;*****
1674      ;* USYRT "SYNC/SECONDARY ADDRESS" REGISTER
1675      ;*****
1676
1677      120404      PCSARL    = 120404      ; ADDRESS OF THIS REG
1678      000226      SYNCH     = 226        ; STANDARD SYNCH CHARACTER
1679
1680      ;*****
1681      ;* USYRT "MODE CONTROL"
1682      ;*****
1683
1684      120405      PCSARH    = 120405      ; ADDRESS OF THIS REG
1685
1686      ;BIT DEFINITIONS ON BYTE BASIS:
1687
1688      000200      APA       = BIT7       ; "ALL PARTIES ADDRESS" ENABLE
1689      000100      PROTO    = BIT6       ; SPECIFIES BOP/CCP PROTOCOL -- 0 = BOP
1690      000040      STRIP    = BIT5       ; STRIP EXTRA SYNC'S IN CCP MODE, SEE GA CHARS IN BOP
1691      000020      SECAD    = BIT4       ; SECONDARY ADDRESS MODE -- BOP MODE ONLY
1692      000010      IDLE     = BIT3       ; IDLE & SYNC CHAR. TRANSMISSION CONTROL
1693      000007      XYZ      = BIT2!BIT1!BIT0 ; CRC/PARITY SELECTION CONTROL
1694
1695      ;BIT DEFINITIONS ON WORD BASIS:
1696
1697      100000      APAD     = BIT15      ; "ALL PARTIES ADDRESS" ENABLE
1698      040000      DDCMP    = BIT14      ; CODE FOR DDCMP MODE
1699      020000      STRIPS   = BIT13      ; STRIP EXTRA SYNC'S IN CCP MODE, SEE GA CHARS IN BOP
1700      010000      SECADR   = BIT12      ; SECONDARY ADDRESS MODE -- BOP MODE ONLY
1701      004000      IDLES    = BIT11      ; IDLE & SYNC CHAR. TRANSMISSION CONTROL
1702      001400      CRC16    = BIT9!BIT8   ; CODE FOR CRC-16 SELECTION
1703      003400      NOCHK    = BIT10!BIT9!BIT8 ; CODE FOR NO ERROR CHECKING
1704      002400      EVRC     = BIT10!BIT8   ; CODE FOR VRC EVEN CHECK
1705      002000      OVRC     = BIT10      ; CODE FOR VRC ODD CHECK
1706
1707      ;*****
1708      ;* USYRT "DATA LENGTH SELECT" REGISTER
1709      ;*****
1710
1711      120407      PCR      = 120407      ; ADDRESS OF THIS REG
1712
1713      ;BIT DEFINITIONS:
1714
1715      000340      TXDL     = BIT7!BIT6!BIT5 ; TRANSMIT DATA LENGTH SELECTION
1716      000020      EXADD    = BIT4       ; EXTENDED ADDRESS FIELD -- NOT USED OR TESTED
1717      000010      EXCON    = BIT3       ; EXTENDED CONTROL FIELD -- NOT USED OR TESTED
1718      000007      RXDL     = BIT2!BIT1!BIT0 ; RECEIVER DATA LENGTH SELECTION
1719
1720      ;*****
1721      ;* USYRT STATUS REGISTER (ADDR. A400)
1722      ;*****
1723      122000      USTATR   = 122000      ; USYRT STATUS REGISTER ADDRESS = A400 (HEX)
1724

```

CVDHCCO DMV11 LINE UNIT DIAG1
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REGISTER DEFINITIONS -- USYRT

;BIT DEFINITIONS:

1725				
1726				
1727	000200	RDA	= BIT7	;RECEIVER DATA AVAILABLE
1728	000100	TBMT	= BIT6	;TRANSMITTER BUFFER EMPTY
1729	000040	RXACT	= BIT5	;RECEIVER ACTIVE
1730	000020	RSA	= BIT4	;RECEIVER STATUS AVAILABLE
1731	000010	TSO	= BIT3	;TRANSMITTER SERIAL OUTPUT
1732	000004	TXACT	= BIT2	;TRANSMITTER ACTIVE
1733	000002	TXU	= BIT1	;TRANSMITTER UNDERRUN
1734	000001	SFR	= BIT0	;SYNC/FLAG RECEIVED

CVDMCCO DMV11 LINE UNIT DIAG1
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REGISTER DEFINITIONS -- 6522 VIA CHIP

```
.SBTTL REGISTER DEFINITIONS -- 6522 VIA CHIP

1735
1736
1737      120000      VIA      = 120000      ;VIA BASE ADDRESS = A000 (HEX)
1738
1739      ;*****
1740      ;* MODEM & MAINTENANCE CONTROL -- "ORB" 8 BIT PORT B -- WRITE ONLY
1741      ;*****
1742
1743      120000      VIAORB = 120000      ;ADDRESS OF THIS REGISTER -- HEX = A0X0
1744
1745      000200      NULCLK = BIT7      ;"NULL CLK L" -- NULL CLOCK
1746      000100      RXEN   = BIT6      ;"RXENL" -- USYRT RECEIVER ENABLE
1747      000040      TXEN   = BIT5      ;"TXENL" -- USYRT TRANSMITTER ENABLE
1748      000020      DTR    = BIT4      ;"DTR" -- DATA TERMINAL READY
1749      000010      RTSND  = BIT3      ;"RTSND" -- REQUEST TO SEND
1750      000004      HDX    = BIT2      ;"HDX" -- HALF DUPLEX
1751      000002      TTLOOP = BIT1      ;"SELECT TTL LEVEL LOOPBACK"
1752      000001      PRESET = BIT0      ;"PRESET H" --
1753      000000      DTRL   = 0        ;DTR IS ASSERTED LOW
1754
1755      ;*****
1756      ;* MODEM STATUS REGISTER -- "ORA" 8 BIT PORT A -- READ ONLY
1757      ;*****
1758
1759      120001      VIAMS  = 120001      ;ADDRESS OF THIS REGISTER -- HEX = A0X1
1760
1761      000200      RING   = BIT7      ;"RING H" --
1762      000100      CARRIER = BIT6      ;"CARRIER H" --
1763      000040      MDMDY   = BIT5      ;"MODEM RDY H" --
1764      000020      SPEED  = BIT4      ;"BAUD RATE SWITCH -- (19.2K/56K)
1765      000010      CTS    = BIT3      ;"CTS H -- CLEAR TO SEND
1766      000004      TM     = BIT2      ;"TEST MODE H" --
1767      000002      RCVDAT = BIT1      ;"RCV DATA H" --
1768      000001      UMAINT = BIT0      ; SELECT USYRT INT LOOPBACK **SELECT BIT**
1769
1770
1771      ;*****
1772      ;* DATA DIRECTION FOR PORT B -- "DDRB" -- READ/WRITE
1773      ;*****
1774
1775      120002      VIADPB = 120002      ;ADDRESS OF THIS REGISTER -- HEX = A0X2
1776
1777      ; ALL BITS ARE DEFINED THE SAME:
1778      ; THE BIT SETTING DEFINED THE DIRECTION OF ITS RELATED BIT IN BIT PORT B
1779
1780      ; INITIALIZED TO 377 (HEX = FF) -- PORT B IS READ/WRITE
1781
1782
1783      ;*****
1784      ;* DATA DIRECTION FOR PORT A -- "DDRA" -- READ/WRITE
1785      ;*****
1786
1787      120003      VIADPA = 120003      ;ADDRESS OF THIS REGISTER -- HEX = A0X3
1788
1789      ; ALL BITS ARE DEFINED THE SAME:
1790      ; THE BIT SETTING DEFINED THE DIRECTION OF ITS RELATED BIT IN BIT PORT A
```

CVDMCCO DMV11 LINE UNIT DIAG1
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REGISTER DEFINITIONS -- 6522 VIA CHIP

```

1791
1792
1793
1794
1795
1796
1797
1798
1799
1800
1801      120004
1802
1803
1804
1805
1806
1807
1808
1809
1810
1811
1812
1813      120005
1814
1815
1816
1817
1818
1819
1820
1821
1822
1823
1824
1825
1826      120006
1827
1828
1829
1830
1831
1832
1833
1834
1835
1836
1837      120007
1838
1839
1840
1841
1842
1843
1844
1845
1846

```

```

;      INITIALIZED TO 001 (HEX = 01) -- PORT A IS READ ONLY (EXCEPT FOR
;      BIT0 WHICH ENABLES USYRT INTERNAL LOOPBACK).

;*****
;* TIMER 1 LOW ORDER (LATCH & COUNTER) -- "T1L-L" & "T1C-L" -- WRITE & READ
;*****
VIAT1A = 120004      ;ADDRESS OF THIS REGISTER -- HEX = A0X4
; WHEN WRITING, LOW ORDER LATCH IS LOADED.
; WHEN READING, LOW ORDER COUNTER IS READ.

;*****
;* TIMER 1 HIGH ORDER COUNTER & TRIGGER -- "T1L-H AND TRIGGER" & "T1C-H"
;* -- WRITE & READ
;*****
VIAT1B = 120005      ;ADDRESS OF THIS REGISTER -- HEX = A0X5
; WHEN WRITING; HIGH ORDER LATCH IS LOADED, BOTH LOW & HIGH ORDER LATCHES
; ARE LOADED INTO THE COUNTER, AND THE COUNTER IS STARTED.
; WHEN READING, THE HIGH ORDER COUNTER IS READ.

;*****
;* TIMER 1 LOW ORDER LATCH -- "T1L-L" -- READ/WRITE
;*****
VIAT1C = 120006      ;ADDRESS OF THIS REGISTER -- HEX = A0X6
; THE LOW ORDER LATCH IS READ OR LOADED. THIS LATCH IS USED TO LOAD THE
; COUNTER WHEN T1MODE (IN VIAACR) = 3

;*****
;* TIMER 1 HIGH ORDER LATCH -- "T1L-H" -- READ/WRITE
;*****
VIAT1D = 120007      ;ADDRESS OF THIS REGISTER -- HEX = A0X7
; THE HIGH ORDER LATCH IS READ OR LOADED. THIS LATCH IS USED TO LOAD THE
; COUNTER WHEN T1MODE (IN VIAACR) = 3

;*****
;* TIMER 2 LOW ORDER (LATCH & COUNTER) -- "T2L-L" & "T2C-L" -- WRITE & READ
;*****

```


CVDHCCO DMV11 LINE UNIT DIAG1
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REGISTER DEFINITIONS -- 6522 VIA CHIP

```

1847
1848      120010      VIAT2A = 120010      ;ADDRESS OF THIS REGISTER -- HEX = A0X8
1849
1850      ; WHEN WRITING, LOW ORDER LATCH IS LOADED.
1851      ; WHEN READING, LOW ORDER COUNTER IS READ.
1852
1853
1854
1855      ;:*****
1856      ;* TIMER 2 HIGH ORDER COUNTER & TRIGGER -- "T2L-H AND TRIGGER" & "T2C-H"
1857      ;* -- WRITE & READ
1858      ;:*****
1859
1860      120011      VIAT2B = 120011      ;ADDRESS OF THIS REGISTER -- HEX = A0X9
1861
1862      ; WHEN WRITING; HIGH ORDER LATCH IS LOADED, BOTH LOW & HIGH ORDER LATCHES
1863      ; ARE LOADED INTO THE COUNTER, AND THE COUNTER IS STARTED.
1864
1865      ; WHEN READING, THE HIGH ORDER COUNTER IS READ.
1866
1867      ;:*****
1868      ;* SHIFT REGISTER -- "SR" -- READ/WRITE
1869      ;:*****
1870
1871      120012      VIASR = 120012      ;ADDRESS OF THIS REGISTER -- HEX = A0XA
1872
1873      ; SHIFTING IS CONTROLLED BY THE SETTING OF VIASRC (ACR2 ---> ACR4) IN VIAACR
1874
1875
1876
1877      ;:*****
1878      ;* AUXILIARY CONTROL REGISTER -- "ACR" -- READ/WRITE
1879      ;:*****
1880
1881      120013      VIAACR = 120013      ;ADDRESS OF THIS REGISTER -- HEX = A0XB
1882
1883      000300      T1MODE = BIT7!BIT6      ;CONTROL THE MODE OF TIMER # 1
1884
1885      ;BIT 7:
1886      ; 0      PB7 DISABLED -- ONLY T1TO IN VIAIFR REFLECTS TIMEOUT
1887      ; 1      PB7 & T1TO REFLECT TIMEOUT
1888
1889      ;BIT 6:
1890      ; 0      TIMER 1 IN ONE-SHOT MODE
1891      ; 1      TIMER 1 IN CONTINUOUS SQUARE WAVE MODE
1892
1893      000040      T2MODE = BITS      ;CONTROLS THE MODE OF TIMER # 1
1894
1895      ; 0      PULSE COUNTING MODE
1896      ; 1      INTERVAL TIMER MODE
1897
1898      000034      SRMODE = BIT4!BIT3!BIT2      ;CONTROLS THE MODE OF THE SHIFT REGISTER
1899
1900      ; 0      SR DISABLED
1901      ; 1      SHIFT IN UNDER CONTROL OF T2, SHFT PULSES GEN'D ON CB1
1902      ; 2      SHIFT IN AT SYS. CLOCK RATE, SHFT PULSES GEN'D ON CB1

```

CVDNCCO DMV11 LINE UNIT DIAG1
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REGISTER DEFINITIONS -- 6522 VIA CHIP

```

1903                                     | 3   SHIFT IN UNDER CONTROL OF EXTERNAL INPUT PULSES
1904                                     | 4   SHIFT OUT -- FREE RUNNING -- RATE CONTROLLED BY T2
1905                                     | 5   SHIFT OUT -- RATE CONTROLLED BY T2 -- PULSES ON CB1
1906                                     | 6   SHIFT OUT -- SYS. CLOCK RATE -- PULSES ON CB1
1907                                     | 7   SHIFT OUT -- UNDER CONTROL OF PULSES APPLIED TO CB1
1908
1909         000002         PBLNB  = BIT1         ;PB LATCH CONTROL -- 1 ENABLES LATCH
1910         000001         PALENB = BIT0         ;PA LATCH CONTROL -- 1 ENABLES LATCH
1911
1912
1913
1914
1915         ;:*****
1916         ;* PERIPHERAL CONTROL REGISTER -- "PCR" -- READ/WRITE
1917         ;:*****
1918
1919         120014         VIAPCR = 120014         ;ADDRESS OF THIS REGISTER -- HEX = A0XC
1920
1921         000340         CB2CTL = BIT7!BIT6!BIT5 ;CB2 MODE SELECT
1922         000020         CB1CTL = BIT4         ;CB1 MODE SELECT
1923         000016         CA2CTL = BIT3!BIT2!BIT1 ;CA2 MODE SELECT
1924         000001         CA1CTL = BIT0         ;CA1 MODE SELECT
1925
1926
1927
1928         ;:*****
1929         ;* INTERRUPT FLAG REGISTER -- "IFR" -- READ ONLY
1930         ;:*****
1931
1932         120015         VIAIFR = 120015         ;ADDRESS OF THIS REGISTER -- HEX = A0XD
1933
1934         000200         FLGIRQ = BIT7         ;SET WHEN A FLAG IN THIS REG. GOES HIGH AND
1935                                     ;ITS CORRESPONDING BIT IN VIAIER IS SET.
1936                                     ;(I.E. VIAIER IS THE ENABLE REGISTER FOR THE
1937                                     ;FOR THE SETTING OF IRQ AND THE ISSUANCE OF
1938                                     ;AN INTERRUPT TO THE 6502 WHEN IRQ IS SET.)
1939
1940         000100         FLGT1  = BIT6         ;TIMEOUT OF TIMER 1
1941         000040         FLGT2  = BIT5         ;TIMEOUT OF TIMER 2
1942         000020         FLGCB1  = BIT4         ;ACTIVE TRANSITION OF PIN 18 (CB1)
1943         000010         FLGCB2  = BIT3         ;ACTIVE TRANSITION OF PIN 19 (CB2)
1944         000004         FLGSR   = BIT2         ;COMPLETION OF 8 SHIFTS
1945         000002         FLGCA1  = BIT1         ;ACTIVE TRANSITION OF PIN 40 (CA1)
1946         000001         FLGCA2  = BIT0         ;ACTIVE TRANSITION OF PIN 39 (CA2)
1947
1948
1949
1950         ;:*****
1951         ;* INTERRUPT ENABLE REGISTER -- "IER" -- READ/WRITE
1952         ;:*****
1953
1954         120016         VIAIER  = 120016         ;ADDRESS OF THIS REGISTER -- HEX = A0XE
1955
1956         000200         INTSC   = BIT7         ;CONTROLS THE SETTING OR CLEARING OF BITS IN
1957                                     ;THE REST OF IER. IF = 0 THE OTHER BITS IN
1958                                     ;THIS REG., IF SET, WILL CLEAR THEIR RESPECTIVE

```


CVDNCCO DMV11 LINE UNIT DIAG1
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REGISTER DEFINITIONS -- 6522 VIA CHIP

;BITS IN THE INT. ENAB. REG.. IF = 1, THE
;RESPECTIVE BITS WILL BE SET.

1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983

; WHEN WRITING THIS REG., THE COMMENT ABOVE HOLDS.
; WHEN READING THIS REG., THE CURRENT STATE OF THE INT. ENABLE REG. IS RETURNED.
; THE BIT ASSIGNMENTS ARE THE SAME AS FOR VIAIFR AS DEFINED ABOVE.

;;*****
;* OUTPUT REGISTER A -- "ORA" -- READ ONLY (OR READ/WRITE UNDER CONTROL OF "DDPA")
;;*****

120017

VIAORA = 120017 ;ADDRESS OF THIS REGISTER -- HEX = A0XF
; THIS ADDRESS ACCESSES THE SAME DATA AS "VIAMS" EXCEPT THAT NO "HANDSHAKING"
; WILL TAKE PLACE (I.E. THERE IS NO CHANGE IN IRQ OR CA2 AS A RESULT OF
; READING ORA THROUGH THIS ADDRESS)
;THE BIT ASSIGNMENTS ARE THE SAME AS FOR "VIAMS" ABOVE.

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REGISTER DEFINITIONS -- MISC

.SBTTL REGISTER DEFINITIONS -- MISC

```

1984
1985
1986
1987
1988
1989
1990      121000
1991      121400
1992
1993
1994
1995      100000
1996      001000
1997
1998      000002
1999      000001
2000
2001      040000
2002      001000
2003
2004      000200
2005
2006      100000
2007      040000
2008      020000
2009

;*****
;* SWITCH PACKS
;*****

SWPBOT = 121000      ;"BOOT ADDRESS" SWITCH PACK [A200]
SWPDDCHP = 121400   ;"DDCHP ADDRESS" SWITCH PACK [A300]

;MISCELLANEOUS EQUATES

TCCHEK = BIT15      ;FLAG TO REQUEST M3254,5 CHECK
RAMADR = 001000     ;STARTING ADRS OF RAM PAGE 2 (ADRS C200 HEX)

EIAV35 = BIT1       ;SELECT V.35 OR EIA 423/232C
INTGRL = BIT0       ;SELECT INTEGRAL MODEM

NORXEN = BIT14      ;KILL RXEN DURING "INITRN"
NOLOOP = BIT9       ;KILL TTLOOP DURING "INITRN"

NCTBMT = BIT7       ;DISABLE INITIAL TBMT=0 CHECK IN TXCHAR

NOCRDA = BIT15      ;DISABLE INITIAL RDA=0 CHECK IN RXCHAR
NFCRDA = BIT14      ;DISABLE FINAL RDA=1 CHECK IN RXCHAR
NCRACT = BIT13      ;DISABLE RXACT=1 CHECK AFTER CLOCKING (RXCHAR)

```


CVDHCCO DMV11 LINE UNIT DIAG1
CVDHCC.P11 12-JUL-84 16:09

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GLOBAL DATA SECTION

.SBTTL GLOBAL DATA SECTION

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

; CONTROL BLOCK FOR STACKED ERROR MESSAGES

2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021 002246
2022 002246
2023 002246 000000
2024 002250 000000
2025 002252 000000
2026 002254 000000
2027
2028
2029
2030
2031 002256
2032 002256 000000
2033 002260
2034 002260 000000
2035 002262
2036 002262 000000
2037 002264
2038 002264 000000
2039 002266
2040 002266 000000
2041 002270
2042 002270 000000
2043 002272
2044 002272 000000
2045 002274
2046 002274 000000
2047 002276 000000
2048 002300 000000
2049 002302 000000
2050 002304 000000
2051 002306 000000
2052 002310 000000
2053 002312 000000
2054 002314 000000
2055
2056 002316 000010
2057
2058
2059 002336 000020

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

L#ERRTBL: :

; STORAGE FOR DEVICE REGISTERS

WSR0: ; STORAGE FOR DEVICE CSR REGISTERS
BSR0: .WORD 0
WSR2: .WORD 0
BSR1: .WORD 0
WSR4: .WORD 0
BSR2: .WORD 0
WSR6: .WORD 0
BSR3: .WORD 0
WSR10: .WORD 0
BSR4: .WORD 0
WSR12: .WORD 0
BSR5: .WORD 0
WSR14: .WORD 0
BSR6: .WORD 0
WSR16: .WORD 0
BSR7: .WORD 0
BSR10: .WORD 0
BSR11: .WORD 0
BSR12: .WORD 0
BSR13: .WORD 0
BSR14: .WORD 0
BSR15: .WORD 0
BSR16: .WORD 0
BSR17: .WORD 0

UREGS: .BLKW 8.
VREGS: .BLKW 16.

; THE FIRST 7 ARE FOR THE USYRT'S ACTUAL
; REGISTERS. THE LAST ONE IS FOR THE STATUS
; REG. (USTATR).
; STORAGE FOR VIA REGISTERS FOR PRINTOUT

CVDMCCO DMV11 LINE UNIT DIAG1
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GLOBAL DATA SECTION

```

2060 ;*****
2061 ;* MISCELLANEOUS STORAGE
2062 ;*****
2063 002376 000000 TDATA: .WORD 0 ; TEST DATA
2064 002400 000000 GDATA: .WORD 0 ; GOOD DATA
2065 002402 000000 BDATA: .WORD 0 ; BAD DATA
2066 002404 000000 XDATA: .WORD 0 ; EXCLUSIVE-OR BETWEEN GOOD AND BAD DATA
2067 002406 000000 SCRACH: .WORD 0 ; GEN'L PURPOSE SCRATCH WORD
2068 002410 000000 LOGDEV: .WORD 0 ; LOGICAL DEVICE NUMBER
2069 002412 000000 REGNUM: .WORD 0 ; CONTAINS A DEVICE REGISTER NUMBER
2070 002414 000000 PSTACK: .WORD 0 ; CONTAINS BASE LEVEL PROGRAM STACK POINTER
2071 002416 000000 PRIOR: .WORD 0 ; CPU PRIORITY FOR PRINTOUT
2072 002420 000000 SUBRPC: .WORD 0 ; PC OF SUBR CALL FOR ERROR REPORTS
2073 002422 000000 INTFLG: .WORD 0 ; INTERRUPT RECEIVED FLAGS
2074 ; BIT 0 FOR TX, BIT 1 FOR RCV
2075 002424 000000 ERRFLG: .WORD 0 ; SUBROUTINE ERROR FLAG
2076 002426 000000 TIMFLG: .WORD 0 ; EVENT TIME-OUT FLAG
2077 002430 000000 RETADR: .WORD 0 ; SUBR ERROR RETURN ADDRESS
2078 002432 000000 REDBYT: .WORD 0 ; LO BYTE CONTAINS BYTE READ FROM LU REG
2079 002434 000000 WRIBYT: .WORD 0 ; LO BYTE CONTAINS BYTE TO LOAD INTO LU REG
2080 002436 000000 LOADAT: .WORD 0 ; CONTAINS TEST DATA LOADED INTO REG
2081 002440 000000 GOODAT: .WORD 0 ; STORAGE FOR EXPECTED DATA
2082 002442 000000 BADDAT: .WORD 0 ; STORAGE FOR ACTUAL DATA
2083 002444 000000 FRSTIM: .WORD 0 ; FLAG=0 IF PROGRAM JUST LOADED
2084 002446 000000 SAVE4: .WORD 0 ; SAVE LOC 4 HERE (ERROR TRAP VECTOR)
2085 002450 000000 SAVE6: .WORD 0 ; SAVE LOC 6 HERE (ERROR TRAP VECTOR)
2086 002452 000000 ERROR1: .WORD 0 ; SUBR ERR. BIT FLAGS (DEF'D IN GLOBAL EQUATES)
2087 002454 000000 CHPTYP: .WORD 0 ; USYRT CHIP TYPE, =0 FOR SMC, ELSE =1
2088 002456 000000 SAVLEN: .WORD 0 ; SAVED TX AND RCV CHAR LENGTHS
2089 002460 000000 DEVMAP: .WORD 0 ; BIT MAP OF ACTIVE DEVICES
2090 002462 000000 DEVPTR: .WORD 0 ; DEVICE MAP BIT POINTER
2091 002464 000000 UNIT: .WORD 0 ; CONTAINS UNIT NO. (1 TO N)
2092 002466 000000 STARES: .WORD 0 ; FLAG TO SHOW NO. OF PASSES SINCE STA OR RES
2093 002470 000000 TSTNUM: .WORD 0 ; NO. OF CURRENT TEST (FOR SOME TESTS)
2094

```


CVDNCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 47
 CVDNCC.P11 12-JUL-84 16:09 - GLOBAL DATA SECTION

```

2095      ;***** CURRENT DEVICE PARAMETERS *****
2096 002472 BSEL0:
2097 002472 SEL0:
2098 002472 160020 MPCR: .WORD 160020 ; POINTER TO DMV11 CSR'S
2099 002474 160021 BSEL1: .WORD 160021 ; POINTER TO BSEL1
2100 002476 BSEL2:
2101 002476 160022 SEL2: .WORD 160022 ; POINTER TO SEL2
2102 002500 160023 BSEL3: .WORD 160023 ; POINTER TO BSEL3
2103 002502 BSEL4:
2104 002502 160024 SEL4: .WORD 160024 ; POINTER TO SEL4
2105 002504 160025 BSEL5: .WORD 160025 ; POINTER TO BSEL5
2106 002506 BSEL6:
2107 002506 160026 SEL6: .WORD 160026 ; POINTER TO SEL6
2108 002510 160027 BSEL7: .WORD 160027 ; POINTER TO BSEL7
2109 002512 BSEL10:
2110 002512 160030 SEL10: .WORD 160030 ; POINTER TO SEL10
2111 002514 160031 BSEL11: .WORD 160031 ; POINTER TO BSEL11
2112 002516 BSEL12:
2113 002516 160032 SEL12: .WORD 160032 ; POINTER TO SEL12
2114 002520 160033 BSEL13: .WORD 160033 ; POINTER TO BSEL13
2115 002522 BSEL14:
2116 002522 160034 SEL14: .WORD 160034 ; POINTER TO SEL14
2117 002524 160035 BSEL15: .WORD 160035 ; POINTER TO BSEL15
2118 002526 BSEL16:
2119 002526 160036 SEL16: .WORD 160036 ; POINTER TO SEL16
2120 002530 160037 BSEL17: .WORD 160037 ; POINTER TO BSEL17
2121
2122 002532 000300 MPIVEC: .WORD 300 ; DMV11 INPUT INTERRUPT VECTOR
2123 002534 000304 MPOVEC: .WORD 304 ; DMV11 OUTPUT INTERRUPT VECTOR
2124 002536 000240 MPRIOR: .WORD 240 ; DMV11 DEVICE PRIORITY
2125 002540 000000 LUSW1: .WORD 0 ; LINE UNIT SWITCH PACK #1
2126 002542 000000 LUSW2: .WORD 0 ; LINE UNIT SWITCH PACK #2
2127 002544 000000 BRDTYP: .WORD 0 ; 0-M8064, 1-M8053/V.35, 2-M8053/EIA
2128 002546 000000 TSTCON: .WORD 0 ; TEST CONNECTOR INDICATOR
2129 002550 000001 BDRATE: .WORD 1 ; BAUD RATE = 56 K
2130 ;           0 = 19.2 K
2131 ;           1 = 56 K

```

CVDNCCO DMV11 LINE UNIT DIAG1
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GLOBAL DATA SECTION

2132			;TABLE OF USYRT REGISTER ADDRESSES	
2133	002552	120400	USYREG: .WORD	120400 ;ADDRESS OF RDSRL
2134	002554	120401	.WORD	120401 ;ADDRESS OF RDSRH
2135	002556	120402	.WORD	120402 ;ADDRESS OF TDSRL
2136	002560	120403	.WORD	120403 ;ADDRESS OF TDSRH
2137	002562	120404	.WORD	120404 ;ADDRESS OF PCSARL
2138	002564	120405	.WORD	120405 ;ADDRESS OF PCSARH
2139	002566	120407	.WORD	120407 ;ADDRESS OF PCR
2140	002570	122000	.WORD	122000 ;ADDRESS OF USYRT STATUS REG
2141				
2142			;***** STORAGE FOR DATA READ IN ADDRESS TESTS *****	
2143	002572	000010	REDDAT: .BLKB	8.
2144				
2145			;***** GEN'L PURPOSE SCRATCH STORAGE *****	
2146	002602	000000	REG0: .WORD	0
2147	002604	000000	REG1: .WORD	0
2148	002606	000000	REG2: .WORD	0
2149	002610	000000	REG3: .WORD	0
2150	002612	000000	REG4: .WORD	0
2151	002614	000000	REG5: .WORD	0
2152	002616	000000	REG6: .WORD	0
2153	002620	000000	REG7: .WORD	0
2154				
2155			;***** SCRATCH STORAGE FOR MESSAGE REPORTING *****	
2156	002622	000000	TMP0: .WORD	0
2157	002624	000000	TMP1: .WORD	0
2158	002626	000000	TMP2: .WORD	0
2159	002630	000000	TMP3: .WORD	0
2160	002632	000000	TMP4: .WORD	0
2161	002634	000000	TMP5: .WORD	0
2162	002636	000000	TMP6: .WORD	0
2163	002640	000000	TMP7: .WORD	0
2164				
2165			;***** INBUS LU REG BIT MASKS FOR UNPREDICTABLE BITS *****	
2166	002642		UPBITS: .BYTE	377 ;MASK FOR RDBR
2167	002642	377	.BYTE	000 ;MASK FOR RDSR
2168	002643	000	.BYTE	000 ;MASK FOR TDBR
2169	002644	000	.BYTE	360 ;MASK FOR TDSR
2170	002645	360	.BYTE	000 ;MASK FOR SSAR
2171	002646	000	.BYTE	000 ;MASK FOR PCSAR
2172	002647	000	.BYTE	000 ;MASK FOR PCR
2173	002650	347	.BYTE	347
2174				
2175	002651	200	TDSRNRW: .BYTE	200 ;TDSR NON-R/W BITS

CVDNCCO DMV11 LINE UNIT DIAG1
 CVDNCC.P11 12-JUL-84 16:09

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 DATA TEST PATTERNS

2176
 2177
 2178 002652
 2179 002652 377
 2180 002653 377
 2181 002654 377
 2182 002655 377
 2183 002656 377
 2184 002657 377
 2185 002660 377
 2186 002661 366
 2187
 2188
 2189 002662
 2190 002662 000
 2191 002663 000
 2192 002664 000
 2193 002665 000
 2194 002666 000
 2195 002667 000
 2196 002670 000
 2197 002671 110
 2198
 2199
 2200 002672
 2201 002672 000
 2202 002673 001
 2203 002674 003
 2204 002675 004
 2205 002676 005
 2206 002677 007
 2207 002700 100
 2208 002701 101
 2209 002702 103
 2210 002703 104
 2211 002704 105
 2212 002705 107
 2213 002706 000
 2214 002707 017
 2215 002710 027
 2216 002711 041
 2217 002712 200
 2218 002713 277
 2219 002714 103
 2220 002715 144
 2221 002716 115
 2222 002717 157
 2223 002720 000
 2224
 2225
 2226 002722 002722
 2227 002722
 2228 002722 125
 2229 002723 252
 2230 002724 000
 2231 002725 377

.SBTTL DATA TEST PATTERNS
 ;***** DATA PATTERN E *****
 PATE:

.BYTE 377
 .BYTE 377
 .BYTE 377
 .BYTE 377
 .BYTE 377
 .BYTE 377
 .BYTE 377
 .BYTE 366

;***** DATA PATTERN F *****
 PATF:

.BYTE 000
 .BYTE 000
 .BYTE 000
 .BYTE 000
 .BYTE 000
 .BYTE 000
 .BYTE 000
 .BYTE 110

;***** DATA PATTERN G *****
 PATG:

.BYTE 000
 .BYTE 001
 .BYTE 003
 .BYTE 004
 .BYTE 005
 .BYTE 007
 .BYTE 100
 .BYTE 101
 .BYTE 103
 .BYTE 104
 .BYTE 105
 .BYTE 107
 .BYTE 000
 .BYTE 017
 .BYTE 027
 .BYTE 041
 .BYTE 200
 .BYTE 277
 .BYTE 103
 .BYTE 144
 .BYTE 115
 .BYTE 157
 .BYTE 000

;***** DATA PATTERN H *****
 .EVEN
 PATH:

.BYTE 125
 .BYTE 252
 .BYTE 000
 .BYTE 377

CVDNCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 50
 CVDNCC.P11 12-JUL-84 16:09 DATA TEST PATTERNS

2232	002726	000	.BYTE	000
2233	002727	001	.BYTE	001
2234	002730	002	.BYTE	002
2235	002731	004	.BYTE	004
2236	002732	010	.BYTE	010
2237	002733	020	.BYTE	020
2238	002734	040	.BYTE	040
2239	002735	100	.BYTE	100
2240	002736	200	.BYTE	200
2241	002737	000	.BYTE	000
2242	002740	377	.BYTE	377
2243	002741	376	.BYTE	376
2244	002742	375	.BYTE	375
2245	002743	373	.BYTE	373
2246	002744	367	.BYTE	367
2247	002745	357	.BYTE	357
2248	002746	337	.BYTE	337
2249	002747	277	.BYTE	277
2250	002750	177	.BYTE	177
2251	002751	377	.BYTE	377
2252	002752	000	.BYTE	000

***** DATA PATTERN I *****
 PATI:

2253				
2254				
2255	002753			
2256	002753	000	.BYTE	000
2257	002754	041	.BYTE	041
2258	002755	102	.BYTE	102
2259	002756	143	.BYTE	143
2260	002757	204	.BYTE	204
2261	002760	245	.BYTE	245
2262	002761	306	.BYTE	306
2263	002762	347	.BYTE	347
2264	002763	000	.BYTE	000
2265	002764	001	.BYTE	001
2266	002765	002	.BYTE	002
2267	002766	004	.BYTE	004
2268	002767	040	.BYTE	040
2269	002770	100	.BYTE	100
2270	002771	200	.BYTE	200
2271	002772	000	.BYTE	000
2272	002773	346	.BYTE	346
2273	002774	345	.BYTE	345
2274	002775	343	.BYTE	343
2275	002776	307	.BYTE	307
2276	002777	247	.BYTE	247
2277	003000	147	.BYTE	147
2278	003001	347	.BYTE	347
2279	003002	242	.BYTE	242
2280	003003	105	.BYTE	105
2281	003004	347	.BYTE	347
2282	003005	010	.BYTE	010
2283	003006	020	.BYTE	020
2284	003007	367	.BYTE	367
2285	003010	357	.BYTE	357
2286	003011	030	.BYTE	030
2287	003012	027	.BYTE	027

CVDNCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 51
 CVDNCC.P11 12-JUL-84 16:09 DATA TEST PATTERNS

2288 003013 377 .BYTE 377

2289

2290

***** DATA PATTERN J *****

2291 003014

PATJ:

.BYTE 000

2292 003014 000

.BYTE 000

2293 003015 000

.BYTE 001

2294 003016 001

.BYTE 002

2295 003017 002

.BYTE 004

2296 003020 004

.BYTE 020

2297 003021 020

.BYTE 040

2298 003022 040

.BYTE 010

2299 003023 010

2300

***** DATA PATTERN K *****

2301

PATK:

.BYTE 000

2302 003024

.BYTE 377

2303 003024 000

.BYTE 376

2304 003025 377

.BYTE 375

2305 003026 376

.BYTE 373

2306 003027 375

.BYTE 376

2307 003030 373

.BYTE 177

2308 003031 376

.BYTE 377

2309 003032 177

.BYTE 000

2310 003033 377

.BYTE 001

2311 003034 000

.BYTE 002

2312 003035 001

.BYTE 004

2313 003036 002

.BYTE 010

2314 003037 004

.BYTE 200

2315 003040 010

.BYTE 125

2316 003041 200

.BYTE 252

2317 003042 125

.BYTE 000

2318 003043 252

2319 003044 000

***** DATA PATTERN L *****

2320

PATL:

.BYTE 000

2321

.BYTE 017

2322 003045

.BYTE 016

2323 003045 000

.BYTE 015

2324 003046 017

.BYTE 013

2325 003047 016

.BYTE 016

2326 003050 015

.BYTE 017

2327 003051 013

.BYTE 017

2328 003052 016

.BYTE 000

2329 003053 017

.BYTE 001

2330 003054 017

.BYTE 002

2331 003055 000

.BYTE 004

2332 003056 001

.BYTE 010

2333 003057 002

.BYTE 000

2334 003060 004

.BYTE 005

2335 003061 010

.BYTE 012

2336 003062 000

.BYTE 000

2337 003063 005

2338 003064 012

2339 003065 000

.BYTE 000

CVDNCCO DMV11 LINE UNIT DIAG1
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DATA TEST PATTERNS

2340
 2341
 2342 003066 000
 2343 003067 003
 2344 003070 014
 2345 003071 060
 2346 003072 001
 2347 003073 C07
 2348 003074 037
 2349 003075 177
 2350
 2351
 2352 003076 000
 2353 003077 140
 2354 003100 030
 2355 003101 006
 2356 003102 100
 2357 003103 160
 2358 003104 174
 2359 003105 177
 2360 003106
 2361

***** DATA PATTERN Q *****

PATQ: .BYTE 000
 .BYTE 003
 .BYTE 014
 .BYTE 060
 .BYTE 001
 .BYTE 007
 .BYTE 037
 .BYTE 177

***** DATA PATTERN INVERTED Q *****

PATQB: .BYTE 000 ;INVERTED 000 (7 BIT)
 .BYTE 140 ;INVERTED 003 (7 BIT)
 .BYTE 030 ;INVERTED 014 (7 BIT)
 .BYTE 006 ;INVERTED 060 (7 BIT)
 .BYTE 100 ;INVERTED 001 (7 BIT)
 .BYTE 160 ;INVERTED 007 (7 BIT)
 .BYTE 174 ;INVERTED 037 (7 BIT)
 .BYTE 177 ;INVERTED 177 (7 BIT)

ENDPAT:
.EVEN

CVDMCCO DMV11 LINE UNIT DIAG1
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DATA TEST PATTERNS

2362
2363
2364
2365
2366
2367
2368
2369
2370

003106 000100

;*** RECEIVED DATA BUFFER (64. WORDS) ***
RCVBUF: .BLKW 64.

CVDHCCO DMV11 LINE UNIT DIAG1
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GLOBAL TEXT SECTION

.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
: *****
DEV TYP <M8053 OR M8064>

L#DVTYP::
.ASCIZ /M8053 CR M8064/

.EVEN

: * TITLE OF PROGRAM
: *****

.RADIX 10.
DESCRIPT <DMV-11 LINE UNIT TESTS - PART 1 OF 3>

L#DESC::
.ASCIZ /DMV-11 LINE UNI

.EVEN

.RADIX 8.

2371				
2372				
2373				
2374				
2375				
2376				
2377				
2378				
2379				
2380				
2381				
2382	003306			
2383	003306			
2384	003306	034115	032460	020063
2385	003314	051117	046440	030070
2386	003322	032066	000	
2387		003326		
2388				
2389				
2390				
2391				
2392				
2393		000012		
2394	003326			
2395	003326			
2396	003326	046504	026526	030461
2397	003334	046040	047111	020105
2398	003342	047125	052111	052040
2399	003350	051505	051524	026440
2400	003356	050040	051101	020124
2401	003364	020061	043117	031440
2402	003372	000		
2403		003374		
2404		000010		
2405				
2406				

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GLOBAL SUBROUTINE SECTION

.SBTTL GLOBAL SUBROUTINE SECTION

2407
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2451
2452

.SBTTLM-LOOP -- MSTCLR -- MASTER CLEAR AND ENTER M-LOOP

.....

: MSTCLR -- MASTER CLEAR & ENTER M-LOOP

:

: CALLING SEQUENCE:

:

: JSR PC,MSTCLR

: BCC N#

: ERROR

: <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. C/LOOP)>

:

: N#: <RESUMPTION OF NORMAL PROCESSING>

:

MSTCLR: MOVB @RUN!MCLR!MREQ,BSSEL1 ;INITIATE M-LOOP

MOV R3,-(SP)

MOV @24.,R3

SOB R3,1#

MOV (SP)+,R3

;WAIT FOR THE M-LOOP TO FINISH THE OPERATION

BITB @RDY,BSSEL2

BNE S#

JSR PC,GETWSR

MOV @RUN!MCLR!MREQ,GDATA

GTDF EMS,ERR4

;DID THE M-LOOP FINISH

;YES, GOOD. RETURN

;GET BYTE SELECT REGISTERS

;IDENTIFY REQUESTED FUNCTION

; "RDY" TIMEOUT

; QUEUE "DEVICE FATAL" ERROR # 1

MOV @T.EDF,ERRTYP

MOV @1.ERRMR

MOV @EMS.ERRMSG

MOV @ERR4,ERRBLK

SEC

BR 9#

5#: CLC

9#: RTS PC

;SET CARRY TO INDICATE ERROR

;EXIT WITH THE "ERROR" FLAG (CARRY BIT) SET

;CLEAR C BIT FOR NO ERRORS

;RETURN

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....M-LOOP -- READ

2453
2454
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2495
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2497
2498

```
.SBTTL ....M-LOOP -- READ
;.....
; READ - READ THE SPECIFIED ADDRESS WITHIN THE DMV-11 (M8053)
;
; CALLING SEQUENCE:
;
; JSR R5,READ
; .WORD <ADDRESS OF REGISTER WITHIN DMV-11>
; .WORD <DESTINATION ADDRESS WITHIN LSI-11>
; BCC N# ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE
; ERROR ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT
; <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>
;
; N#: <RESUMPTION OF NORMAL PROCESSING>
;
;-----
```

```
READ: MOV (R5),BSEL4 ;SETUP SOURCE POINTER
MOVB @REDLOC,BSEL2 ;TELL M-LOOP TO GIVE US THE REQUESTED DATA
;
; MOV R3,-(SP)
; MOV @1000.,R3 ;WAIT FOR THE M-LOOP TO FINISH THE OPERATION
1#: SOB R3,1#
MOV (SP)+,R3
;
; BITB @MRDY,BSEL2 ;DID THE M-LOOP FINISH
; BNE 5# ;YES. GOOD. RETURN
;
; JSR PC,GETMSR ;GET BYTE SELECT REGISTERS
; MOV @REDLOC,GDATA ;IDENTIFY REQUESTED FUNCTION
; GTDF EM4,ERR4 ;"MRDY" TIMEOUT
; ; QUEUE "DEVICE FATAL" ERROR # 2
; MOV @T.EDF,ERRTYP
; MOV @2,ERRNBR
; MOV @EM4,ERRMSG
; MOV @ERR4,ERRBLK
;
; SEC ;INDICATE AN ERROR HAS BEEN STACKED
; BR 6# ;RETURN WITH THAT INDICATION
;
; 5#: CLC ;INDICATE "NO ERROR"
; 6#: MOVB BSEL6,@(R5)+ ;PUT DATA WHERE CALLER WANTS IT
; RTS R5 ;RETURN
```

```
003476 012577 177000
003502 112777 000001 176766
003510 010346
003512 012703 001750
003516 077301
003520 012603
003522 132777 000200 176746
003530 001023
003532 004737 004210
003536 012737 000001 002400
003544
003544 012737 000001 002246
003552 012737 000002 002250
003560 012737 013235 002252
003566 012737 017030 002254
003574 000261
003576 000401
003600 000241
003602 117735 176700
003606 000205
```


CVDMCCO DMV11 LINE UNIT DIAG1
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....M-LOOP -- READ IMMEDIATE

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.SBTTLM-LOOP -- READ IMMEDIATE
:*****
: READI - READ IMMEDIATE THE SPECIFIED ADDRESS WITHIN THE DMV-11 (M8053)
:
: CALLING SEQUENCE:
:
: JSR R5,READI
: .WORD <ADDRESS OF REGISTER WITHIN DMV-11>
: .WORD <DESTINATION -- CONTENTS OF REG. IS PUT HERE>
: BCC N# ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE
: ERROR ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT
: <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>
:
: N#: <RESUMPTION OF NORMAL PROCESSING>
:*****

READI:
MOV (R5)+,BSEL4 ;SETUP SOURCE POINTER
MOVB #REDLOC,BSEL2 ;TELL M-LOOP TO GIVE US THE REQUESTED DATA

MOV R3,-(SP)
MOV #1000.,R3 ;WAIT FOR THE M-LOOP TO FINISH THE OPERATION
1#: SOB R3,1#
MOV (SP)+,R3

BITB #RDY,BSEL2 ;DID THE M-LOOP FINISH
BNE 5# ;YES, GOOD. RETURN

JSR PC,GETWSR ;GET BYTE SELECT REGISTERS
MOV #REDLOC,GDATA ;IDENTIFY REQUESTED FUNCTION
GDFD EM4,ERR4 ;"RDY" TIMEOUT
; QUEUE "DEVICE FATAL" ERROR # 3
MOV #T.EDF,ERRTYP
MOV #S.ERRNR
MOV #EM4,ERRMSG
MOV #ERR4,ERRBLK

SEC ;INDICATE AN ERROR HAS BEEN STACKED
BR 6# ;RETURN WITH THAT INDICATION

5#: CLC ;INDICATE "NO ERROR"
6#: MOV BSEL6,(R5)+ ;PUT DATA WHERE CALLER WANTS IT
RTS R5 ;RETURN

003610
003610 012577 176666
003614 112777 000001 176654

003622 010346
003624 012703 001750
003630 077301
003632 012603

003634 132777 000200 176634
003642 001023

003644 004737 004210
003650 012737 000001 002400
003656

003656 012737 000001 002246
003664 012737 000003 002250
003672 012737 013235 002252
003700 012737 017030 002254
003706 000261
003710 000401

003712 000241
003714 017725 176566
003720 000205

CVDNCCO DMV11 LINE UNIT DIAG1
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M-LOOP -- WRITE

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```
.SBTTL ....M-LOOP -- WRITE
;*****
; WRITE - WRITE THE SPECIFIED DATA INTO THE SPECIFIED DMV-11 ADDRESS
;
; CALLING SEQUENCE:
;
;     JSR     R5,WRITE
;     .WORD  <ADDRESS OF REGISTER WITHIN DMV-11>
;     .WORD  <ADDRESS OF DATA BYTE>
;     BCC    N#           ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE
;     ERROR  N#           ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT
;     <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>
;
; N#:  <RESUMPTION OF NORMAL PROCESSING>
;
;-----*****
```

003722 012577 176554
 003726 113577 176554
 003732 000404

```
WRITE:  MOV    (R5)+,BSEL4 ;SETUP SOURCE POINTER
        MOVB  B(R5)+,BSEL6 ;MAKE DATA AVAILABLE TO M-LOOP
        BR    MLWRI       ;THE REST OF THIS ROUTINE IS THE SAME AS "WRITEI"
```


CVDNCCO DMV11 LINE UNIT DIAG1
CVDNCC.P11 12-JUL-84 16:09

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....M-LOOP -- WRITE IMMEDIATE

```

2570 .SBTTL ....M-LOOP -- WRITE IMMEDIATE
2571 ;*****
2572 ; WRITEI - WRITE IMMEDIATE THE SPECIFIED DATA INTO THE SPECIFIED DMV-11 ADDRESS
2573 ;
2574 ; CALLING SEQUENCE:
2575 ;
2576 ; JSR R5,WRITEI
2577 ; .WORD <ADDRESS OF REGISTER WITHIN DMV-11>
2578 ; .WORD <DATA FIELD -- DATA TO BE WRITTEN IN DMV-11>
2579 ; BCC N# ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE
2580 ; ERROR ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT
2581 ; <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>
2582 ;
2583 ; N#: <RESUMPTION OF NORMAL PROCESSING>
2584 ;
2585 ;-----*****
2586
2587 003734 WRITEI:
2588 003734 012577 176542 MOV (R5),@SEL4 ;SETUP SOURCE POINTER
2589 003740 012577 176542 MOV (R5),@SEL6 ;MAKE DATA AVAILABLE TO M-LOOP
2590 003744 112777 000002 176524 MLWRI: MOVB @MRILOC,@SEL2 ;TELL M-LOOP TO WRITE THE DATA
2591
2592 003752 010346 MOV R3,-(SP)
2593 003754 012703 001750 MOV @1000.,R3 ;WAIT FOR THE M-LOOP TO FINISH THE OPERATION
2594 003760 077301 1#: SOB R3,1#
2595 003762 012603 MOV (SP),R3
2596
2597 003764 132777 000200 176504 BITB @MRDY,@SEL2 ;DID THE M-LOOP FINISH
2598 003772 001023 BNE 5# ;YES, GOOD. RETURN
2599 003774 004737 004210 JSR PC,GETWSR ;GET BYTE SELECT REGISTERS
2600 004000 012737 000002 002400 MOV @MRILOC,GDATA ;IDENTIFY REQUESTED FUNCTION
2601 004006 GTDF EM4,ERR4 ;"MRDY" TIMEOUT
2602 ; QUEUE "DEVICE FATAL" ERROR # 4
2603 004006 012737 000001 002246 MOV @T.EDF,ERRTYP
2604 004014 012737 000004 002250 MOV @4,ERRNBR
2605 004022 012737 013235 002252 MOV @EM4,ERRMSG
2606 004030 012737 017030 002254 MOV @ERR4,ERRBLK
2607 004036 000261 SEC ;INDICATE AN ERROR HAS BEEN STACKED
2608 004040 000401 BR 6# ;RETURN WITH THAT INDICATION
2609
2610 004042 000241 5#: CLC ;INDICATE "NO ERROR"
2611 004044 000205 6#: RTS R5 ;RETURN
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```

CVDHCCO DMV11 LINE UNIT DIAG1
CVDHCC.P11 12-JUL-84 16:09

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....GETBSR -- GET BYTE SELECT REGISTERS

```

.SBTTL ....GETBSR -- GET BYTE SELECT REGISTERS
:-----
:
:   GET THE CONTENTS OF ALL CONTROL AND STATUS REGISTERS
:
:   FUNCTION - THIS SUBROUTINE COLLECTS THE CONTENTS OF THE
:             BYTE SELECT REGISTERS FOR THE PURPOSE OF DISPLAY.
:
:   ENTRY CONDITIONS - NONE      **  *  ****  *  **  *
:
:   EXIT CONDITIONS - NONE      *  *  *  *  *  *  *  *
:
:   REGISTERS DESTROYED - NONE  **  ****  ****  *  *  *
:-----

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2631
2632 004046 117737 176420 002256 GETBSR: MOVB 8BSEL0,BSR0 ;PUT THE CURRENT CSR VALUES INTO THE PRINT-OUT
2633 004054 117737 176414 002260          MOVB 8BSEL1,BSR1 ;TABLE
2634 004062 117737 176410 002262          MOVB 8BSEL2,BSR2
2635 004070 117737 176404 002264          MOVB 8BSEL3,BSR3
2636 004076 117737 176400 002266          MOVB 8BSEL4,BSR4
2637 004104 117737 176374 002270          MOVB 8BSEL5,BSR5
2638 004112 117737 176370 002272          MOVB 8BSEL6,BSR6
2639 004120 117737 176364 002274          MOVB 8BSEL7,BSR7
2640 004126 117737 176360 002276          MOVB 8BSEL10,BSR10
2641 004134 117737 176354 002300          MOVB 8BSEL11,BSR11
2642 004142 117737 176350 002302          MOVB 8BSEL12,BSR12
2643 004150 117737 176344 002304          MOVB 8BSEL13,BSR13
2644 004156 117737 176340 002306          MOVB 8BSEL14,BSR14
2645 004164 117737 176334 002310          MOVB 8BSEL15,BSR15
2646 004172 117737 176330 002312          MOVB 8BSEL16,BSR16
2647 004200 117737 176324 002314          MOVB 8BSEL17,BSR17
2648 004206 000207          RTS      PC      ;RETURN TO CALLER
2649

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2651
2652

```

.SBTTL ....GETWSR -- GET WORD SELECT REGISTERS
; "WORD" VERSION OF ABOVE SUBROUTINE

```

```

2653 004210 017737 176256 002256 GETWSR: MOV 8SEL0,WSR0 ;MOVE THE 4 WORD REGISTERS TO THE OTHERWISE
2654 004216 017737 176254 002260          MOV 8SEL2,WSR2 ;BYTE TABLE
2655 004224 017737 176252 002262          MOV 8SEL4,WSR4
2656 004232 017737 176250 002264          MOV 8SEL6,WSR6
2657 004240 017737 176246 002266          MOV 8SEL10,WSR10
2658 004246 017737 176244 002270          MOV 8SEL12,WSR12
2659 004254 017737 176242 002272          MOV 8SEL14,WSR14
2660 004262 017737 176240 002274          MOV 8SEL16,WSR16
2661 004270 000207          RTS      PC      ;RETURN TO CALLER

```


CVDHCCO DMV11 LINE UNIT DIAG1
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....STUREG -- STATIC TEST OF SPECIFIED USYRT REGISTER

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```
.SBTTL ....STUREG -- STATIC TEST OF SPECIFIED USYRT REGISTER
;*****
; STUREG -- PERFORM A STATIC TEST OF THE SPECIFIED USYRT REGISTER
;
; CALLING SEQUENCE:
;
;   <R0 CONTAINS THE ADDRESS OF THE REGISTER TO BE TESTED>
;   <"TDATA" CONTAINS THE TEST BYTE>
;   <"GDATA" CONTAINS THE EXPECTED DATA>
;   <"REGNUM" CONTAINS REG INDEX FOR POSSIBLE ERRORS>
;
;   JSR    PC,STUREG
;   BCC    N#           ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE
;   ERROR  ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT
;   <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>
;
; N#:  <RESUMPTION OF NORMAL PROCESSING>
;
;-----
```

```
STUREG: MOV    R0,2#           ;PUT SPECIFIED REGISTER'S ADDRESS IN I/O CALLS
        MOV    R0,4#
        JSR    R5,WRITE       ;WRITE IT
2#:     .WORD  0               ;*** MODIFIED FROM ABOVE ***
        .WORD  TDATA
        BCS    10#           ;ON ERROR, EXIT
        CLR    BDATA         ;CLEAR BOTH BYTES -- JUST IN CASE....
        JSR    R5,READ        ;READ IT BACK AGAIN
4#:     .WORD  0               ;*** MODIFIED FROM ABOVE ***
        .WORD  BDATA
        BCS    10#           ;ON ERROR, EXIT
        CHPB   GDATA,BDATA   ;DID WE READ WHAT WE WROTE?
        CLC                    ; (THIS ISN'T NEEDED FOR THE ERROR TEST BUT
; MUST BE CLEARED ON EXIT IF NO ERROR OCCURED)
        BEQ    10#           ;YES, EXIT FROM SUBTEST
        GTDF   EM25,ERR7A    ;REPORT READ/WRITE ERROR
;           QUEUE "DEVICE FATAL" ERROR # 5
;                               MOV    #T.EDF,ERRTYP
;                               MOV    #5,ERRNBR
;                               MOV    #EM25,ERRMSG
;                               MOV    #ERR7A,ERRBLK
10#:    SEC
        RTS    PC           ;INDICATE THAT AN ERROR WAS DETECTED
```

```
004272 010037 004306
004276 010037 004324
004302 004537 003722
004306 000000
004310 002376
004312 103431
004314 005037 002402
004320 004537 003476
004324 000000
004326 002402
004330 103422
004332 123737 002400 002402
004340 000241
004342 001415
004344
004344 012737 000001 002246
004352 012737 000005 002250
004360 012737 013366 002252
004366 012737 017252 002254
004374 000261
004376 000207
```

CVDMCCO DMV11 LINE UNIT DIAG1
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....STALL -- DELAY FOR 10.5 MICRO-SEC'S (ON LSI-11)

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004400 000207

.SBTTLSTALL -- DELAY FOR 10.5 MICRO-SEC'S (ON LSI-11)
;*****
; STALL -- THIS SUBROUTINE STALLS FOR ABOUT 10.5 MICRO-SECONDS
;--*****
STALL: RTS PC

CVDMCCO DMV11 LINE UNIT DIAG1
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```

2720          .SBTTL
2721
2722          ;*****
2723          ;* GETURS - LOAD INTO THE 8 WORD STORAGE AREA (UREGS) THE CONTENTS OF THE
2724          ;*          VARIOUS USYRT REGISTERS
2725          ;*
2726          ;*          CALLING SEQUENCE:
2727          ;*
2728          ;*****
2729 004402 012737 002316 004444 GETURS: MOV    #UREGS,5#      ;INIT POINTER TO REG STORAGE TABLE
2730 004410 012737 120400 004442      MOV    #USYRT,4#      ;INIT POINTER TO REGISTER ADDRESSES
2731
2732 004416 005037 002334          CLR    UREGS+14.      ;CLEAR STORAGE WORD
2733 004422 004537 003476          JSR    R5,READ        ;READ THE USYRT STATUS REGISTER
2734 004426 122000          .WORD  USTATR        ;STATUS REGISTER'S ADDRESS WITHIN DMV-11
2735 004430 002334          .WORD  UREGS+14.      ;ADDRESS ALLOCATED TO THAT REG. W/IN "UREGS"
2736
2737 004432 005077 000006 3#:    CLR    85#          ;CLEAR STORAGE WORD
2738 004436 004537 003476          JSR    R5,READ        ;READ A LINE UNIT REG
2739 004442 000000          4#:    .WORD  0          ;REGISTER ADDRESS GOES HERE
2740 004444 000000          5#:    .WORD  0          ;STORAGE ADRS IN TABLE GOES HERE
2741
2742 004446 005237 004442 6#:    INC    4#          ;INCREMENT REG NO.
2743 004452 023727 004442 120406      CMP    4#,#USYRT+6    ;THIS IS NOT A VALID REGISTER ADDRESS
2744 004460 001772          BEQ    6#          ;SO IT MUST BE BYPASSED
2745
2746 004462 062737 000002 004444      ADD    #2,5#          ;ADVANCE ADDRESS OF STORAGE AREA POINTER
2747 004470 023727 004442 120410      CMP    4#,#USYRT+10  ;SEE IF ALL REGS READ YET
2748 004476 001355          BNE    3#          ;BR IF NOT
2749
2750 004500 000207          RTS    PC            ;RETURN
2751
2752
2753
2754          ;*****
2755          ;* GETVRS: - LOAD INTO THE 16 WORD STORAGE AREA (VREGS) THE CONTENTS OF THE
2756          ;*          VARIOUS VIA REGISTERS.
2757          ;*
2758          ;*          CALLING SEQUENCE :
2759          ;*
2760          ;*****
2760 004502 012737 002336 004530 GETVRS: MOV    #VREGS,5#      ;INIT POINTER TO REG STORAGE TABLE
2761 004510 012737 120000 004526      MOV    #VIA,4#        ;INIT POINTER TO REGISTER ADDRESSES
2762 004516 005077 000006 3#:    CLR    85#          ;CLEAR STORAGE WORD
2763 004522 004537 003476          JSR    R5,READ        ;READ A VIA REG
2764 004526 000000          4#:    .WORD  0          ;REGISTER ADDRESS GOES HERE
2765 004530 000000          5#:    .WORD  0          ;STORAGE ADRS IN TABLE GOES HERE
2766 004532 005237 004526 6#:    INC    4#          ;INCREMENT REG NO.
2767 004536 062737 000002 004530      ADD    #2,5#          ;INCREMENT STORAGE ADRS
2768 004544 023727 004526 120020      CMP    4#,#VIA+16.    ;SEE IF ALL VIA REGS READ YET
2769 004552 001361          BNE    3#          ;BR IF NOT
2770 004554 000207          RTS    PC            ;RETURN
    
```

CVDHCCO DMV11 LINE UNIT DIAG1
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....INITT1 -- INITIALIZE TIMER #1

```

2771 .SBTTL ....INITT1 -- INITIALIZE TIMER #1
2772 ;*****
2773 ;* INITT1 - INITIALIZE TIMER # 1
2774 ;*
2775 ;*      CALLING SEQUENCE:
2776 ;*
2777 ;*      JSR      R5,INITT1
2778 ;*      .WORD    <VALUE LOADED INTO THE T1 LATCH @ VIAT1C & VIAT1D>
2779 ;*      .WORD    <VALUE LOADED INTO "T1L-L" & "T1C-H">
2780 ;*      .BYTE    <BITS 6 & 7 WILL BE LOADED INTO "ACR", BIT 5 WILL BE
2781 ;*              USED TO SET OR CLEAR BIT 6 ("T1") OF THE INTERRUPT
2782 ;*              ENABLE REGISTER ("IER")>
2783 ;*      .BYTE    <UNUSED>
2784 ;*
2785 ;*
2786 ;* NOTE:
2787 ;*
2788 ;* BEFORE LOADING AND STARTING THE COUNTER, THE LATCH REGISTER (ACCESSED THRU
2789 ;* "VIAT1C") IS LOADED. THEN, T1L-L IS LOADED AND NEXT, T1C-H. THIS LAST
2790 ;* LOAD WILL RESET THE TIMEOUT BIT AND COUNTER LOGIC. IT IS EXPECTED AT THIS
2791 ;* TIME (5/25/79) THAT THE INTERRUPT FACILITY OF THE VIA CHIP WILL NOT BE USED
2792 ;* -- HOWEVER, ACCESS TO THE INTERRUPT ENABLE BIT IS GIVEN THROUGH THE THIRD
2793 ;* PARAMETER IN THE CALLING SEQUENCE (BIT 5 = 0 WILL CAUSE THIS ROUTINE TO
2794 ;* CLEAR THE ENABLE BIT ("T1") IN "IER".)
2795 ;*
2796 ;*****
2797
2798 004556 010146          INITT1: MOV      R1,-(SP)          ;SAVE THE REGISTER WE WILL BE USING
2799 004560 012537 004702  MOV      (R5)+,7#        ;SETUP VALUE TO BE WRITTEN IN LATCH
2800 004564 012537 004730  MOV      (R5)+,10#       ;SETUP VALUE TO BE WRITTEN IN COUNTER
2801 004570 111501          MOV      (R5),R1         ;GET & PROCESS BITS FOR ACR 6 & 7
2802 004572 143701 000077  BICB    077,R1
2803 004576 010137 004672  MOV      R1,4#
2804 004602 112501          MOV      (R5)+,R1
2805
2806 004604 106301          ASLB    R1               ;SETUP CALL SET ACR'S BITS 6 & 7
2807 004606 106301          ASLB    R1               ;NOW, GET THE BIT TO BE USED IN SETTING OR
2808                                     ;CLEARING BIT 6 OF "IER"
2809                                     ;THE PASSED BIT IS IN THE WRONG POSITION
2810                                     ;BUT, THE PASSED BIT SHOULD CONTROL THE OPERATION.
2811                                     ;WE KNOW WE ARE SETTING OR CLEARING BIT 6 --
2812                                     ;THUS, THE PASSED BIT WILL BECOME THE CONTROLLING
2813                                     ;BIT 7 AND WE WILL "OR" IN THE BIT WE WISH TO
2814                                     ;BE CONTROLLED (BIT 6).
2815                                     ;FIRST, MAKE SURE ALL UNWANTED BITS ARE CLEARED
2816 004610 143701 000177  BICB    177,R1          ;THEN SET BIT 6
2817 004614 153701 000100  BISB    100,R1          ;THE CALL WILL NOW WRITE THE APPROPRIATE VALUE
2818 004620 010137 004632  MOV      R1,2#
2819
2820 004624 004537 003734  JSR      R5,WRITEI      ;WRITE TO
2821 004630 120016          VIAIER          ;THE VIA'S IER
2822 004632 000000 2#: .WORD    0           ;INTERRUPT ENABLE/DISABLE INFORMATION
2823
2824 004634 004537 003610  JSR      R5,READI       ;READ THE CURRENT SETTING OF
2825 004640 120013          VIAACR          ;THE VIA'S ACR
2826 004642 000000 3#: .WORD    0           ;INTO "3#"
2827
2828 004644 013701 004642  MOV      3#,R1          ;GET THAT VALUE
2829 004650 143701 000300  BICB    300,R1          ;CLEAR THE CURRENT SETTING OF BITS 6 & 7
2830 004654 053701 004672  BIS     4#,R1           ;SET THEM ACCORDING TO THE PASSED VALUES

```


CVDHCCO DMV11 LINE UNIT DIAG1
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....INITT1 -- INITIALIZE TIMER #1

```

2827 004660 010137 004672          MOV    R1,4#           ;PASS THE NEW REG. SETTING TO APPROPRIATE CALL
2828
2829 004664 004537 003734          JSR    R5,WRITEI      ;WRITE TO
2830 004670 120013                    VIAACR                ;THE VIA'S ACR
2831 004672 000000          4#:   .WORD    0       ;THE NEW REGISTER SETTING
2832
2833 004674 004537 003734          JSR    R5,WRITEI      ;WRITE TO
2834 004700 120006                    VIAT1C                ;LOW ORDER LATCH REGISTER (T1L-L)
2835 004702 000000          7#:   .WORD    0       ;THE VALUE PASSED
2836
2837 004704 113737 004703 004720    MOVB   7#+1,8#       ;SETUP FOR AND
2838 004712 004537 003734          JSR    R5,WRITEI      ;WRITE TO
2839 004716 120007                    VIAT1D                ;HIGH ORDER LATCH REGISTER (T1L-H)
2840 004720 000000          8#:   .WORD    0       ;THE VALUE PASSED
2841
2842 004722 004537 003734          JSR    R5,WRITEI      ;WRITE TO
2843 004726 120004                    VIAT1A                ;LOW ORDER LATCH & COUNTER (T1L-L & T1C-L)
2844 004730 000000          10#:  .WORD    0       ;THE VALUE PASSED
2845
2846 004732 113737 004731 004746    MOVB   10#+1,11#     ;SETUP FOR AND
2847 004740 004537 003734          JSR    R5,WRITEI      ;WRITE TO
2848 004744 120005                    VIAT1B                ;HIGH ORDER COUNTER (T1C-H) <ALSO STARTS CTR>
2849 004746 000000          11#:  .WORD    0       ;THE VALUE PASSED
2850
2851          ; DON'T WAIT AROUND FOR ANYTHING TO HAPPEN -- JUST RETURN!
2852
2853 004750 012601          MOV    (SP)+,R1      ;BUT FIRST RESTORE R1
2854 004752 005205          INC    R5             ;AND PUT R5 BACK ON A WORD BOUNDARY (THE LAST
2855                                     ;PASSED PARAM. WAS A BYTE, NOT A WORD!)
2856
2857 004754 000205          RTS    R5             ;NOW, RETURN
2858
2859

```

CVDNCCO DMV11 LINE UNIT DIAG1
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....INITT2 -- INITIALIZE TIMER #2

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```
.SBTTL ....INITT2 -- INITIALIZE TIMER #2
;*****
;* INITT2 - INITIALIZE TIMER # 2
;*
;*      CALLING SEQUENCE:
;*
;*          JSR      R5,INITT2
;*          .WORD   <VALUE LOADED INTO "T2L-L" & "T2C-H">
;*          .BYTE   <BIT 5 WILL BE LOADED INTO "ACR", BIT 4 WILL BE USED
;*                  TO SET OR CLEAR BIT 5 ("T2") OF THE INTERRUPT ENABLE
;*                  REGISTER ("IER")>
;*          .BYTE   <UNUSED>
;*
;* NOTE:
;*
;* FIRST T2L-L IS LOADED, THEN T2C-H. THIS SECOND LOAD WILL RESET THE TIMEOUT
;* BIT AND COUNTER LOGIC. IT IS EXPECTED AT THIS TIME (5/25/79) THAT THE
;* INTERRUPT FACILITY OF THE VIA CHIP WILL NOT BE USED -- HOWEVER, ACCESS TO
;* THE INTERRUPT ENABLE BIT IS GIVEN THROUGH THE SECOND PARAMETER IN THE
;* CALLING SEQUENCE (BIT 4 = 0 WILL CAUSE THIS ROUTINE TO CLEAR THE ENABLE BIT
;* ("T2") IN "IER".)
;*****
```

```
INITT2: MOV      R1,-(SP)      ;SAVE THE REGISTER WE WILL BE USING
        MOV      (R5)+,100 ;SETUP VALUE TO BE WRITTEN IN COUNTER
        MOVB    (R5),R1   ;GET & PROCESS BIT FOR ACR 5
        BICB    337,R1
        MOV     R1,4#
        MOVB    (R5)+,R1
        ASLB    R1
        ASLB    R1
        ASLB    R1
        BICB    177,R1
        BISB    040,R1
        MOV     R1,2#
        JSR     R5,WRITEI  ;WRITE TO
        VIAIER  ;THE VIA'S IER
24:     .WORD   0          ;INTERRUPT ENABLE/DISABLE INFORMATION
        JSR     R5,READI  ;READ THE CURRENT SETTING OF
        VIAACR  ;THE VIA'S ACR
34:     .WORD   0          ;INTO "34"
        MOV     34,R1
        BICB    040,R1
        BIS     44,R1
        MOV     R1,4#
        ;GET THAT VALUE
        ;CLEAR THE CURRENT SETTING OF BIT 5
        ;SET IT ACCORDING TO THE PASSED VALUE
        ;PASS NEW REG. SETTING TO APPROPRIATE CALL
```

```
004756 010146
004760 012537 005100
004764 111501
004766 143701 000337
004772 010137 005070
004776 112501
005000 106301
005002 106301
005004 106301
005006 143701 000177
005012 153701 000040
005016 010137 005030
005022 004537 003734
005026 120016
005030 000000
005032 004537 003610
005036 120013
005040 000000
005042 013701 005040
005046 143701 000040
005052 053701 005070
005056 010137 005070
```


CVDHCCO DMV11 LINE UNIT DIAG1
CVDHCC.P11 12-JUL-84 16:09

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....INITT2 -- INITIALIZE TIMER #2

```

2916 005062 004537 003734          JSR    R5,WRITEI      ;WRITE TO
2917 005066 120013                   VIAACR                   ;THE VIA'S ACR
2918 005070 000000          40:    .WORD    0          ;THE NEW REGISTER SETTING
2919
2920 005072 004537 003734          JSR    R5,WRITEI      ;WRITE TO
2921 005076 120010                   VIAT2A                   ;LOW ORDER LATCH & COUNTER (T2L-L & T2C-L)
2922 005100 000000          100:  .WORD    0          ;THE VALUE PASSED
2923
2924 005102 113737 005101 005116    MOVB   100+1,110      ;SETUP FOR AND
2925 005110 004537 003734          JSR    R5,WRITEI      ;WRITE TO
2926 005114 120011                   VIAT2B                   ;HIGH ORDER COUNTER (T2C-H) <ALSO STARTS CTR>
2927 005116 000000          110:  .WORD    0          ;THE VALUE PASSED
2928
2929          ; DON'T WAIT AROUND FOR ANYTHING TO HAPPEN -- JUST (JEST) RETURN!
2930
2931 005120 012601          MOV    (SP)+,R1      ;BUT FIRST RESTORE R1
2932 005122 005205          INC    R5            ;AND PUT R5 BACK ON A WORD BOUNDARY (THE LAST
2933                                     ;PASSED PARAM. WAS A BYTE, NOT A WORD!)
2934
2935 005124 000205          RTS    R5            ;THEN RETURN
2936

```

CVDHCCO DMV11 LINE UNIT DIAG1
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....RSTCHK -- RESET USYRT/VERIFY ALL USYRT REGS @ RESET STATE

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```
.SBTTL ....RSTCHK -- RESET USYRT/VERIFY ALL USYRT REGS @ RESET STATE
;.....
; RSTCHK - MANUALLY RESET THE USYRT AND VERIFY THAT ALL USYRT REGISTERS
; ARE IN THEIR RESET STATE. AN ERROR MESSAGE IDENTIFYING THE
; FAILING REGISTER IS STACKED IF ONE IS ENCOUNTERED.
;
; CALLING SEQUENCE:
; JSR RS,RSTCHK
;.....
```

```
RSTCHK:
MOV R1,-(SP) ;SAVE R1
MOV R2,-(SP) ;SAVE R2
JSR RS,WRITEI ;SET PROGRAM RESET BIT IN VIA ORB REG
VIAORB
DTR!RTSND!PRESET
JSR RS,WRITEI ;CLEAR PROGRAM RESET BIT IN VIA ORB REG
VIAORB
DTR!RTSND
CLR R1 ;INIT USYRT REG ADRS PTR
MOV #PATF,R2 ;INIT DATA PATTERN POINTER
MOV USYREG(R1),R1 ;SET USYRT READ ADDRESS
JSR RS,READI ;READ A USYRT REG
;USYRT REG ADRS GOES HERE
;DATA READ IS RETURNED HERE
CMPB R1,(R2) ;SEE IF REG CONTAINS EXPECTED DATA
BEQ 91 ;BR IF MATCH
MOV R1,REGNUM ;SET USYRT REG NO. FOR PRINTOUT
ASR REGNUM ;GET WORD OFFSET
CLR GDATA ;GET EXPECTED DATA
MOVB -1(R2),GDATA
MOV R1,BDATA ;GET ACTUAL DATA
;STACK "USYRT NOT CLEARED BY PROGRAM RESET" MSG
GDF EM2,ERR10
; QUEUE "DEVICE FATAL" ERROR @ 6
MOV #T.EDF,ERRTYP
MOV #6,ERRNBR
MOV #EM2,ERRMSG
MOV #ERR10,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 101 ;TAKE ERROR EXIT
91: ADD #2,R1 ;INCR USYRT REG ADRS PTR
CMP R1,#16. ;SEE IF ALL REGS READ YET
BLT 61 ;BR IF NOT
CLC ;** CLEAR C BIT FOR NO ERRORS
101: MOV (SP),R2 ;RESTORE R2
MOV (SP),R1 ;RESTORE R1
RTS R5 ;** RETURN
```


CVDHCCO DMV11 LINE UNIT DIAG1
 CVDHCC.P11 12-JUL-84 16:09

MACY11 30A(1052) 23-JUL-84 14:02 PAGE 69
RSTCHK -- RESET USYRT/VERIFY ALL USYRT REGS @ RESET STATE

2991
 2992
 2993
 2994 005312 010146
 2995 005314 012701 000005
 2996 005320 077101
 2997 005322 012601
 2998 005324 000207
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 3000
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 3016
 3017 005326
 3018 005326 004537 003734
 3019 005332 120002
 3020 005334 000377
 3021 005336 004537 003734
 3022 005342 120003
 3023 005344 000001
 3024 005346 004537 003734
 3025 005352 120017
 3026 005354 000000
 3027 005356 004537 003734
 3028 005362 120000
 3029 005364 000030
 3030 005366 004537 003734
 3031 005372 120013
 3032 005374 000350
 3033 005376 004537 003734
 3034 005402 120014
 3035 005404 000022
 3036 005406 004537 003734
 3037 005412 120016
 3038 005414 000177
 3039 005416 000207
 3040
 3041

```

;*****
;* WAIT50 - THIS SUBROUTINE STALLS FOR AT LEAST 50 MICRO-SEC, AND THEN RETURNS.
;*****
WAIT50: MOV     R1, -(SP)      ;SAVE R1
        MOV     #5, R1      ;INIT COUNTER
34:     SOB     R1, 34      ;DELAY HERE FOR 23.8 MICRO-SEC'S
        MOV     (SP)+, R1    ;RESTORE R1
        RTS     PC          ;RETURN

; OVERHEAD (JSR, MOV, MOV, MOV, & RTS) ADD UP TO 25.25 MICRO-SEC'S
; THEREFORE, ACTUAL TOTAL DELAY IS 49.35 MICRO-SECONDS
    
```

```

.SBTTL ....SETVIA -- SET UP VIA REGISTERS
;*****
;* SETVIA - SET UP THE VIA REGISTERS
;*
;* THIS SUBROUTINE PROGRAMS THE VIA REGISTERS FOR NORMAL OPERATION, BY
;* LOADING THE DORB, DDRA, ORB, ACR, PCR, IER.
;*
;* CALLING SEQUENCE :
;* JSR PC,SETVIA
;*****
    
```

```

SETVIA: JSR     RS,WRITEI      ;SET PORT B FOR OUTPUT MODE
        VIADPB
        377
        JSR     RS,WRITEI      ;SET PORT A FOR INPUT MODE
        VIADPA                ; (BIT0 IS ONLY OUTPUT BIT)
        001
        JSR     RS,WRITEI      ;DISABLE USYRT INTERNAL LOOPBACK
        VIAORA
        000
        JSR     RS,WRITEI      ;INIT PORT B
        VIAORB
        DTR!RTSND
        JSR     RS,WRITEI      ;SET ACR FOR : T1 SQUARE WAVE OUTPUT MODE,
        VIAACR                ; T2 ONE-SHOT OUTPUT MODE,
        350                    ; SR AT SYS CLOCK RATE ON CB1
        JSR     RS,WRITEI      ;SET PCR FOR : CB1 NEG TRANS INPUT MODE,
        VIAPCR                ; CA2 NEG TRANS INPUT MODE,
        022                    ; CA1 NEG TRANS INPUT MODE
        JSR     RS,WRITEI      ;DISABLE ALL MICRO-INTRPTS
        VIAIER
        177
        RTS     PC            ;RETURN
    
```

CVDMCCO DMV11 LINE UNIT DIAG1
CVDMCC.P11 12-JUL-84 16:09

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....INIDMV -- INIT DMV (MCLR, VIA SETUP)

```

3042 .SBTTL ....INIDMV -- INIT DMV (MCLR, VIA SETUP)
3043 ;*****
3044 ;* INIDMV - THIS SUBROUTINE INITIALIZES THE DMV-11, BY DOING A MASTER CLEAR,
3045 ;* ENTERING THE M-LOOP, AND PROGRAMMING THE VIA REGS FOR DEFAULT
3046 ;* OPERATION.
3047 ;*
3048 ;* CALLING SEQUENCE :
3049 ;* JSR PC,INIDMV
3050 ;*****
3051 005420 004737 003374 INIDMV: JSR PC,MSTCLR ;MASTER CLR, M-LOOP
3052 005424 004737 005326 JSR PC,SETVIA ;PROGRAM VIA
3053 005430 000207 RTS PC ;RETURN
3054
3055
3056
3057 .SBTTL ....CKUSTS -- CHECK USYRT STATUS REGISTERS
3058 ;*****
3059 ;* CKUSTS - THIS SUBROUTINE CHECKS THE USYRT STATUS BY READING THE USYRT
3060 ;* STATUS REGISTER AND COMPARING IT TO THE LOW BYTE OF THE WORD FOLLOWING
3061 ;* THE CALL. IF THERE IS A MISMATCH, THE SUBROUTINE STACKS THE ERROR
3062 ;* INFORMATION, AND SETS THE "C" BIT AND RETURNS.
3063 ;*
3064 ;*****
3065 005432 CKUSTS:
3066 005432 004537 003610 JSR R5,READI ;READ USYRT STATUS REGISTER
3067 005436 122000 USTATR
3068 005440 000000 1#: .WORD 0
3069 005442 122537 005440 CMPB (R5)+,1# ;SEE IF STATUS MATCHES EXPECTED
3070 005446 000241 CLC ;CLEAR C BIT
3071 005450 001430 BEQ 2# ;BR IF STATUS OK
3072 005452 012737 000007 002412 MOV #7,REGNUM ;SET USYRT REG NO. FOR PRINTOUT
3073 005460 016537 177777 002400 MOV -1(R5),GDATA ;GET EXPECTED DATA
3074 005466 005037 002402 CLR BDATA ;GET ACTUAL DATA
3075 005472 113737 005440 002402 MOVB 1#,BDATA
3076 ;STACK "USYRT STATUS INCORRECT" ERROR
3077 005500 GTDF EM68,ERR10
3078 ; QUEUE "DEVICE FATAL" ERROR # 7
3079 005500 012737 000001 002246 MOV #T.EDF,ERRTYP
3080 005506 012737 000007 002250 MOV #7,ERRNR
3081 005514 012737 013760 002252 MOV #EM68,ERRMSG
3082 005522 012737 017372 002254 MOV #ERR10,ERRBLK
3083 005530 000261
3084 005532 005205 2#: SEC ;SET C BIT FOR ERROR
3085 005534 000205 INC R5 ;INCREMENT R5 PAST ARGUMENT
3086 RTS R5 ;RETURN
3087
3088
3089

```


CVDHCCO DMV11 LINE UNIT DIAG1
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MACY11 30A(1052) 23-JUL-84 14:02 PAGE 71
....CKTACT -- CHECK TRANSMITTER ACTIVE (TXACT)

```

3090 .SBTTL ....CKTACT -- CHECK TRANSMITTER ACTIVE (TXACT)
3091 ;*****
3092 ;* CKTACT - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF TXACT IN THE USYRT
3093 ;* STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
3094 ;* STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
3095 ;*
3096 ;* CALLING SEQUENCE :
3097 ;* JSR R5,CKTACT
3098 ;* .WORD <BIT 0 IS EXPECTED VALUE OF TXACT>
3099 ;*****
3100 CKTACT:
3101 005536 012737 000007 002412 MOV #7,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
3102 005544 004537 003610 JSR R5,READI ;READ USYRT STATUS
3103 005550 122000 USTATR
3104 005552 000000 1$: .WORD 0
3105 005554 032725 000001 BIT #BIT0,(R5) ;GET EXPECTED STATE OF TXACT
3106 005560 001422 BEQ 2$ ;BR IF EXPECTED TXACT = 0
3107 005562 132737 000004 005552 BITB #TXACT,1$ ;SEE IF TXACT = 1
3108 005570 001040 BNE 3$ ;BR IF TXACT = 1
3109 ;STACK "TXACT NOT SET" MSG
3110 005572 GTDF EM69,ERR12
3111 ; QUEUE "DEVICE FATAL" ERROR # 8
3112 005572 012737 000001 002246 MOV #T.EDF,ERRTYP
3113 005600 012737 000010 002250 MOV #8,ERRNBR
3114 005606 012737 014007 002252 MOV #EM69,ERRMSG
3115 005614 012737 017722 002254 MOV #ERR12,ERRBLK
3116 005622 000261 SEC ;SET C BIT TO FLAG ERROR
3117 005624 000423 BR 4$ ;TAKE ERROR EXIT
3118 005626 132737 000004 005552 2$: BITB #TXACT,1$ ;SEE IF TXACT = 0
3119 005634 001416 BEQ 3$ ;BR IF TXACT = 0
3120 ;STACK "TXACT NOT CLEARED" MSG
3121 005636 GTDF EM70,ERR12
3122 ; QUEUE "DEVICE FATAL" ERROR # 9
3123 005636 012737 000001 002246 MOV #T.EDF,ERRTYP
3124 005644 012737 000011 002250 MOV #9,ERRNBR
3125 005652 012737 014025 002252 MOV #EM70,ERRMSG
3126 005660 012737 017722 002254 MOV #ERR12,ERRBLK
3127 005666 000261 SEC ;SET C BIT TO FLAG ERROR
3128 005670 000401 BR 4$ ;TAKE ERROR EXIT
3129 005672 000241 3$: CLC ;CLEAR C BIT FOR NO ERRORS
3130 005674 000205 4$: RTS R5 ;RETURN
3131
3132
3133
3134

```

CVDHCCO DMV11 LINE UNIT DIAG1
CVDHCC.P11 12-JUL-84 16:09

MACY11 30A(1052) 23-JUL-84 14:02 PAGE 72
....CKRACT -- CHECK RECEIVER ACTIVE (RXACT)

```

3135 .SBTTL ....CKRACT -- CHECK RECEIVER ACTIVE (RXACT)
3136 ;*****
3137 ;* CKRACT - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF RXACT IN THE USYRT
3138 ;* STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
3139 ;* STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
3140 ;*
3141 ;* CALLING SEQUENCE :
3142 ;* JSR R5,CKRACT
3143 ;* .WORD <BIT 0 IS EXPECTED VALUE OF RXACT>
3144 ;*****
3145 CKRACT:
3146 005676 012737 000007 002412      MOV    #7,REGNUM      ;SET REG NO. FOR POSSIBLE ERROR REPORT
3147 005704 004537 003610          JSR    R5,READI      ;READ USYRT STATUS
3148 005710 122000          USTATR
3149 005712 000000          1#:   .WORD    0
3150 005714 032725 000001          BIT    #BIT0,(R5)   ;GET EXPECTED STATE OF RXACT
3151 005720 001422          BEQ    2#           ;BR IF EXPECTED RXACT = 0
3152 005722 132737 000040 005712    BITB   #RXACT,1#    ;SEE IF RXACT = 1
3153 005730 001040          BNE    3#           ;BR IF RXACT = 1
3154 ;STACK "RXACT NOT SET" MSG
3155 005732          GTDF   EM71,ERR12
3156 ;
3157 005732 012737 000001 002246      MOV    #T.EDF,ERRTYP
3158 005740 012737 000012 002250      MOV    #10,ERRNBR
3159 005746 012737 014047 002252      MOV    #EM71,ERRMSG
3160 005754 012737 017722 002254      MOV    #ERR12,ERRBLK
3161 005762 000261          SEC
3162 005764 000423          BR     4#           ;SET C BIT TO FLAG ERROR
3163 005766 132737 000040 005712    2#:   BITB   #RXACT,1# ;TAKE ERROR EXIT
3164 005774 001416          BEQ    3#           ;SEE IF RXACT = 0
3165 ;STACK "RXACT NOT CLEARED" MSG
3166 005776          GTDF   EM72,ERR12
3167 ;
3168 005776 012737 000001 002246      MOV    #T.EDF,ERRTYP
3169 006004 012737 000013 002250      MOV    #11,ERRNBR
3170 006012 012737 014065 002252      MOV    #EM72,ERRMSG
3171 006020 012737 017722 002254      MOV    #ERR12,ERRBLK
3172 006026 000261          SEC
3173 006030 000401          BR     4#           ;SET C BIT TO FLAG ERROR
3174 006032 000241          3#:   CLC
3175 006034 000205          4#:   RTS    R5
3176
3177
3178
3179 ;RETURN

```


CVDHCCO DMV11 LINE UNIT DIAG1
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....CKTBMT -- CHECK TRANSMIT BUFFER EMPTY

```

3180 .SBTTL ....CKTBMT -- CHECK TRANSMIT BUFFER EMPTY
3181 ;*****
3182 ;* CKTBMT - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF TBMT IN THE USYRT
3183 ;* STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
3184 ;* STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
3185 ;*
3186 ;* CALLING SEQUENCE :
3187 ;* JSR R5,CKTBMT
3188 ;* .WORD <BIT 0 IS EXPECTED VALUE OF TBMT>
3189 ;*****
3190 CKTBMT:
3191 006036 012737 000007 002412 MOV #7,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
3192 006044 004537 003610 JSR R5,READI ;READ USYRT STATUS
3193 006050 122000 USTATR
3194 006052 000000 1#: .WORD 0
3195 006054 032725 000001 BIT #BIT0,(R5) ;GET EXPECTED STATE OF TBMT
3196 006060 001422 BEQ 2# ;BR IF EXPECTED TBMT = 0
3197 006062 132737 000100 006052 BITB #TBMT,1# ;SEE IF TBMT = 1
3198 006070 001040 BNE 3# ;BR IF TBMT = 1
3199 ;STACK "TBMT NOT SET" MSG
3200 006072 GTDF EM73,ERR12
3201 ; QUEUE "DEVICE FATAL" ERROR # 12
3202 006072 012737 000001 002246 MOV #T.EDF,ERRTYP
3203 006100 012737 000014 002250 MOV #12,ERRNBR
3204 006106 012737 014107 002252 MOV #EM73,ERRMSG
3205 006114 012737 017722 002254 MOV #ERR12,ERRBLK
3206 006122 000261 SEC ;SET C BIT TO FLAG ERROR
3207 006124 000423 BR 4# ;TAKE ERROR EXIT
3208 006126 132737 000100 006052 2#: BITB #TBMT,1# ;SEE IF TBMT = 0
3209 006134 001416 BEQ 3# ;BR IF TBMT = 0
3210 ;STACK "TBMT NOT CLEARED" MSG
3211 006136 GTDF EM74,ERR12
3212 ; QUEUE "DEVICE FATAL" ERROR # 13
3213 006136 012737 000001 002246 MOV #T.EDF,ERRTYP
3214 006144 012737 000015 002250 MOV #13,ERRNBR
3215 006152 012737 014124 002252 MOV #EM74,ERRMSG
3216 006160 012737 017722 002254 MOV #ERR12,ERRBLK
3217 006166 000261 SEC ;SET C BIT TO FLAG ERROR
3218 006170 000401 BR 4# ;TAKE ERROR EXIT
3219 006172 000241 3#: CLC ;CLEAR C BIT FOR NO ERRORS
3220 006174 000205 4#: RTS R5 ;RETURN
3221
3222
3223
3224

```

CVDNCCO DMV11 LINE UNIT DIAG1
CVDNCC.P11 12-JUL-84 16:09

MACY11 30A(1052) 23-JUL-84 14:02 PAGE 74
....CKRDA -- CHECK RECEIVE DATA AVAILABLE

```

3225 .SBTTL ....CKRDA -- CHECK RECEIVE DATA AVAILABLE
3226 ;*****
3227 ;* CKRDA - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF RDA IN THE USYRT
3228 ;* STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
3229 ;* STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
3230 ;*
3231 ;* CALLING SEQUENCE :
3232 ;* JSR R5,CKRDA
3233 ;* .WORD <BIT 0 IS EXPECTED VALUE OF RDA>
3234 ;*****
3235 CKRDA:
3236 006176 012737 000007 002412 MOV #7,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
3237 006204 004537 003610 JSR R5,READI ;READ USYRT STATUS
3238 006210 122000 USTATR
3239 006212 000000 1#: .WORD 0
3240 006214 032725 000001 BIT #BIT0,(R5) ;GET EXPECTED STATE OF RDA
3241 006220 001422 BEQ 2# ;BR IF EXPECTED RDA = 0
3242 006222 132737 000200 006212 BITB #RDA,1# ;SEE IF RDA = 1
3243 006230 001040 BNE 3# ;BR IF RDA = 1
3244 ;STACK "RDA NOT SET" MSG
3245 006232 GTDF EM75,ERR12
3246 ; QUEUE "DEVICE FATAL" ERROR # 14
3247 006232 012737 000001 002246 MOV #T.EDF,ERRTYP
3248 006240 012737 000016 002250 MOV #14,ERRNBR
3249 006246 012737 014145 002252 MOV #EM75,ERRMSG
3250 006254 012737 017722 002254 MOV #ERR12,ERRBLK
3251 006262 000261 SEC ;SET C BIT TO FLAG ERROR
3252 006264 000423 BR 4# ;TAKE ERROR EXIT
3253 006266 132737 000200 006212 2#: BITB #RDA,1# ;SEE IF RDA = 0
3254 006274 001416 BEQ 3# ;BR IF RDA = 0
3255 ;STACK "RDA NOT CLEARED" MSG
3256 006276 GTDF EM76,ERR12
3257 ; QUEUE "DEVICE FATAL" ERROR # 15
3258 006276 012737 000001 002246 MOV #T.EDF,ERRTYP
3259 006304 012737 000017 002250 MOV #15,ERRNBR
3260 006312 012737 014161 002252 MOV #EM76,ERRMSG
3261 006320 012737 017722 002254 MOV #ERR12,ERRBLK
3262 006326 000261 SEC ;SET C BIT TO FLAG ERROR
3263 006330 000401 BR 4# ;TAKE ERROR EXIT
3264 006332 000241 3#: CLC ;CLEAR C BIT FOR NO ERRORS
3265 006334 000205 4#: RTS R5 ;RETURN
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```


CVDHCCO DMV11 LINE UNIT DIAG1
CVDHCC.P11 12-JUL-84 16:09

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....CKRSA -- CHECK RECEIVER STATUS AVAILABLE

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006336
006336 012737 000007 002412
006344 004537 003610
006350 122000
006352 000000
006354 032725 000001
006360 001422
006362 132737 000020 006352
006370 001040
006372
006372 012737 000001 002246
006400 012737 000020 002250
006406 012737 014201 002252
006414 012737 017722 002254
006422 000261
006424 000423
006426 132737 000020 006352
006434 001416
006436
006436 012737 000001 002246
006444 012737 000021 002250
006452 012737 014215 002252
006460 012737 017722 002254
006466 000261
006470 000401
006472 000241
006474 000205

```
.SBTTL ....CKRSA -- CHECK RECEIVER STATUS AVAILABLE
;*****
;* CKRSA - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF RSA IN THE USYRT
;* STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
;* STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
;*
;* CALLING SEQUENCE :
;* JSR R5,CKRSA
;* .WORD <BIT 0 IS EXPECTED VALUE OF RSA>
;*****
CKRSA:
MOV #7,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
JSR R5,READI ;READ USYRT STATUS
USTATR
10: .WORD 0
BIT #BIT0,(R5) ;GET EXPECTED STATE OF RSA
BEQ 20 ;BR IF EXPECTED RSA = 0
BITB #RSA,10 ;SEE IF RSA = 1
BNE 30 ;BR IF RSA = 1
;STACK "RSA NOT SET" MSG
GTFD EM77,ERR12
; QUEUE "DEVICE FATAL" ERROR # 16
MOV #T.EDF,ERRTYP
MOV #16,ERRNBR
MOV #EM77,ERRMSG
MOV #ERR12,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 40 ;TAKE ERROR EXIT
20: BITB #RSA,10 ;SEE IF RSA = 0
BEQ 30 ;BR IF RSA = 0
;STACK "RSA NOT CLEARED" MSG
GTFD EM78,ERR12
; QUEUE "DEVICE FATAL" ERROR # 17
MOV #T.EDF,ERRTYP
MOV #17,ERRNBR
MOV #EM78,ERRMSG
MOV #ERR12,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 40 ;TAKE ERROR EXIT
30: CLC ;CLEAR C BIT FOR NO ERRORS
40: RTS R5 ;RETURN
```

CVDNCCO DMV11 LINE UNIT DIAG1
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....CKROR -- CHECK RECEIVER OVERRUN

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3313 .SBTTL ....CKROR -- CHECK RECEIVER OVERRUN
3314 ;*****
3315 ;* CKROR - THIS SUBROUTINE CHECKS FOR THE OCCURANCE OF RECEIVER OVERRUN IN THE
3316 ;* USYRT RECEIVER STATUS REGISTER (RDSRH), AND REPORTS AN ERROR IF IT IS
3317 ;* NOT PROPERLY SET TO THE STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
3318 ;*
3319 ;* CALLING SEQUENCE :
3320 ;* JSR R5,CKROR
3321 ;* .WORD <BIT 0 IS EXPECTED VALUE OF ROR>
3322 ;*****
3323 CKROR:
3324 006476 012737 000001 002412 MOV #1,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
3325 006504 004537 003610 JSR R5,READI ;READ RECEIVER STATUS
3326 006510 120401 RDSRH
3327 006512 000000 1#: .WORD 0
3328 006514 032725 000001 BIT #BIT0,(R5) ;GET EXPECTED STATE OF ROR
3329 006520 001422 BEQ 2# ;BR IF EXPECTED ROR = 0
3330 006522 132737 000010 006512 BITB #ROR,1# ;SEE IF ROR = 1
3331 006530 001040 BNE 3# ;BR IF ROR = 1
3332 ;STACK "RECEIVER OVRN NOT SET" MSG
3333 006532 GTDF EM90,ERR12
3334 ; QUEUE "DEVICE FATAL" ERROR # 18
3335 006532 012737 000001 002246 MOV #T.EDF,ERRTYP
3336 006540 012737 000022 002250 MOV #18,ERRNBR
3337 006546 012737 014235 002252 MOV #EM90,ERRMSG
3338 006554 012737 017722 002254 MOV #ERR12,ERRBLK
3339 006562 000261 SEC ;SET C BIT TO FLAG ERROR
3340 006564 000423 BR 4# ;TAKE ERROR EXIT
3341 006566 132737 000010 006512 2#: BITB #ROR,1# ;SEE IF ROR = 0
3342 006574 001416 BEQ 3# ;BR IF ROR = 0
3343 ;STACK "ROR NOT CLEARED" MSG
3344 006576 GTDF EM91,ERR12
3345 ; QUEUE "DEVICE FATAL" ERROR # 19
3346 006576 012737 000001 002246 MOV #T.EDF,ERRTYP
3347 006604 012737 000023 002250 MOV #19,ERRNBR
3348 006612 012737 014266 002252 MOV #EM91,ERRMSG
3349 006620 012737 017722 002254 MOV #ERR12,ERRBLK
3350 006626 000261 SEC ;SET C BIT TO FLAG ERROR
3351 006630 000401 BR 4# ;TAKE ERROR EXIT
3352 006632 000241 3#: CLC ;CLEAR C BIT FOR NO ERRORS
3353 006634 000205 4#: RTS R5 ;RETURN
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3356

```


CVDNCCO DMV11 LINE UNIT DIAG1
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....CKSEOM -- CHECK RSOM, REOM

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3357 .SBTTL ....CKSEOM -- CHECK RSOM, REOM
3358 ;*****
3359 ;* CKSEOM - THIS SUBROUTINE CHECKS FOR THE PROPER STATES OF RSOM, REOM IN THE
3360 ;* USYRT RECEIVER STATUS REG (RDSRH) AND REPORTS AN ERROR IF THEY ARE NOT
3361 ;* PROPERLY SET TO THE STATES OF BITS 0,1 IN THE WORD FOLLOWING THE CALL.
3362 ;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
3363 ;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
3364 ;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
3365 ;*
3366 ;* CALLING SEQUENCE :
3367 ;* JSR R5,CKSEOM
3368 ;* <BIT 0 IS EXPECTED VALUE OF RSOM, BIT 1 IS VALUE OF REOM>
3369 ;*****
3370 CKSEOM:
3371 006636 012737 000007 002412      MOV     #7,REGNUM      ;SET REG NO. FOR POSSIBLE ERROR REPORT
3372 006644 004537 003610          JSR     R5,READI      ;READ USYRT RECEIVER STATUS
3373 006650 120401                    RDSRH
3374 006652 000000          1$:   .WORD    0
3375 006654 032725 000001          BIT     @BIT0,(R5)    ;GET EXPECTED STATE OF RSOM
3376 006660 001422          BEQ     2$           ;BR IF EXPECTED RSOM = 0
3377 006662 132737 000001 006652    BITB   @RSOM,1$      ;SEE IF RSOM = 1
3378 006670 001040          BNE     3$           ;BR IF RSOM = 1
3379 ;STACK "RSOM NOT SET" MSG
3380 006672          GTDF   EM29,ERR12
3381 ;
3382 006672 012737 000001 002246          ;
3383 006700 012737 000024 002250          MOV     #T.EDF,ERRTYP
3384 006706 012737 013520 002252          MOV     #20,ERRNBR
3385 006714 012737 017722 002254          MOV     #EM29,ERRMSG
3386 006722 000261                    MOV     #ERR12,ERRBLK
3387 006724 000473                    SEC
3388 006726 132737 000001 006652    2$:   BR     6$           ;SET C BIT TO FLAG ERROR
3389 006734 001416          BITB   @RSOM,1$      ;TAKE ERROR EXIT
3390 ;STACK "RSOM NOT CLEARED" MSG
3391 006736          GTDF   EM28,ERR12
3392 ;
3393 006736 012737 000001 002246          ;
3394 006744 012737 000025 002250          MOV     #T.EDF,ERRTYP
3395 006752 012737 013477 002252          MOV     #21,ERRNBR
3396 006760 012737 017722 002254          MOV     #EM28,ERRMSG
3397 006766 000261                    MOV     #ERR12,ERRBLK
3398 006770 000451                    SEC
3399 006772 032765 000002 177776    3$:   BR     6$           ;SET C BIT TO FLAG ERROR
3400 007000 001422          BIT     @BIT1,-2(R5) ;TAKE ERROR EXIT
3401 007002 132737 000002 006652    BEQ     4$           ;GET EXPECTED STATE OF REOM
3402 007010 001040          BITB   @REOM,1$      ;BR IF EXPECTED REOM = 0
3403 ;STACK "REOM NOT SET" MSG
3404 007012          GTDF   EM31,ERR12
3405 ;
3406 007012 012737 000001 002246          ;
3407 007020 012737 000026 002250          MOV     #T.EDF,ERRTYP
3408 007026 012737 013556 002252          MOV     #22,ERRNBR
3409 007034 012737 017722 002254          MOV     #EM31,ERRMSG
3410 007042 000261                    MOV     #ERR12,ERRBLK
3411 007044 000423                    SEC
3412 007046 132737 000002 006652    4$:   BR     6$           ;SET C BIT TO FLAG ERROR
          BITB   @REOM,1$ ;TAKE ERROR EXIT
          ;SEE IF REOM = 0

```

CVDHCCO DMV11 LINE UNIT DIAG1
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MACY11 30A(1052) 23-JUL-84 14:02 PAGE 78
....CKSEOM -- CHECK R50M, REOM

```

3413 007054 001416          BEQ      5:          ;BR IF REOM = 0
3414                          ;STACK "REOM NOT CLEARED" MSG
3415 007056          GTDF      EM30,ERR12
3416                          ;          QUEUE "DEVICE FATAL" ERROR # 23
3417 007056 012737 000001 002246          MOV      @T,EDF,ERRTYP
3418 007064 012737 000027 002250          MOV      @23,ERRADR
3419 007072 012737 013535 002252          MOV      @EM30,ERRMSG
3420 007100 012737 017722 002254          MOV      @ERR12,ERRBLK
3421 007106 000261          SEC
3422 007110 000401          BR      6:          ;SET C BIT TO FLAG ERROR
3423 007112 000241          5:      CLC          ;TAKE ERROR EXIT
3424 007114 000205          6:      RTS      R5          ;CLEAR C BIT FOR NO ERRORS
3425                          ;RETURN
3426

```


CVDHCCO DMV11 LINE UNIT DIAG1
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MACY11 30A(1052) 23-JUL-84 14:02 PAGE 79
....CHKTSO -- CHECK TRANSMIT SERIAL OUT BIT

```

3427 .SBTTL ....CHKTSO -- CHECK TRANSMIT SERIAL OUT BIT
3428 ;*****
3429 ;* CHKTSO - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF TSO IN THE USYRT
3430 ;* STATUS REGISTER, AND SETS THE "C" BIT IF IT IS NOT SET TO THE STATE
3431 ;* OF BIT 0 IN THE WORD FOLLOWING THE CALL.
3432 ;*
3433 ;* CALLING SEQUENCE :
3434 ;* JSR R5,CHKTSO
3435 ;* .WORD <BIT 0 IS EXPECTED VALUE OF TSO>
3436 ;*****
3437 007116          CHKTSO:
3438 007116 012737 000007 002412      MOV    #7,REGNUM      ;SET REG NO. FOR POSSIBLE ERROR REPORT
3439 007124 004537 003610          JSR    R5,READI      ;READ USYRT STATUS
3440 007130 122000          USTATR
3441 007132 000000          1$: .WORD    0
3442 007134 032725 000001          BIT    @BIT0,(R5)    ;GET EXPECTED STATE OF TSO
3443 007140 001422          BEQ    2$            ;BR IF EXPECTED TSO = 0
3444 007142 132737 000010 007132    BITB   @TSO,1$      ;SEE IF TSO = 1
3445 007150 001040          BNE    3$            ;BR IF TSO = 1
3446 ;*** STACK "TSO NOT SET" ERROR ***
3447 007152          GTDF   EM100,ERR12
3448 ;
3449 007152 012737 000001 002246      MOV    @T.EDF,ERRTYP
3450 007160 012737 000030 002250      MOV    @24,ERRNBR
3451 007166 012737 014425 002252      MOV    @EM100,ERRMSG
3452 007174 012737 017722 002254      MOV    @ERR12,ERRBLK
3453 007202 000261          SEC
3454 007204 000423          BR     4$            ;SET C BIT TO FLAG ERROR
3455 ;
3456 007206 132737 000010 007132    2$: BITB   @TSO,1$      ;SEE IF TSO = 0
3457 007214 001416          BEQ    3$            ;BR IF TSO = 0
3458 ;*** STACK "TSO NOT CLEARED" ERROR ***
3459 007216          GTDF   EM101,ERR12
3460 ;
3461 007216 012737 000001 002246      MOV    @T.EDF,ERRTYP
3462 007224 012737 000031 002250      MOV    @25,ERRNBR
3463 007232 012737 014445 002252      MOV    @EM101,ERRMSG
3464 007240 012737 017722 002254      MOV    @ERR12,ERRBLK
3465 007246 000261          SEC
3466 007250 000401          BR     4$            ;SET C BIT TO FLAG ERROR
3467 007252 000241          3$: CLC
3468 007254 000205          4$: RTS    R5
3469 ;
3470 ;

```

CVDHCCO DMV11 LINE UNIT DIAG1
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MACY11 30A(1052) 23-JUL-84 14:02 PAGE 80
....SERIAL -- READ/CHECK TX CHARACTER VIA TSO BIT

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3483 007256
3484 007256 010146
3485 007260 010246
3486 007262 010346
3487
3488 007264 005001
3489 007266 012502
3490
3491 007270 006301
3492 007272 004537 011614
3493 007276 000001
3494
3495 007300 004537 007116
3496 007304 000001
3497 007306 103401
3498 007310 005201
3499 007312 077212
3500
3501 007314 012503
3502 007316 020103
3503 007320 001422
3504
3505 007322 010337 002400
3506 007326 010137 002402
3507
3508 007332
3509
3510 007332 012737 000001 002246
3511 007340 012737 000032 002250
3512 007346 012737 014471 002252
3513 007354 012737 020036 002254
3514 007362 000261
3515 007364 000401
3516
3517 007366 000241
3518 007370 012603
3519 007372 012602
3520 007374 012601
3521 007376 000205
3522
3523

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.SBTTL ....SERIAL -- READ/CHECK TX CHARACTER VIA TSO BIT
;.....
; SERIAL - THIS SUBROUTINE SERIALLY READS/CLOCKS/CHECKS A CHARACTER FROM
; THE TRANSMIT SERIAL OUT (TSO) BIT OF THE USYRT STATUS REGISTER,
; AND STACKS MESSAGE/SETS "C" BIT IF AN INCORRECT CHARACTER IS READ.
; NOTE: "EXPECTED VALUE" ARGUMENT IS ALWAYS READ RIGHT-TO-LEFT.
;
; CALLING SEQUENCE :
; JSR    R5,SERIAL
; .WORD  <# OF BITS TO BE READ>
; .WORD  <EXPECTED VALUE OF SERIAL BIT STREAM>
;.....
SERIAL:
MOV     R1,-(SP)      ;SAVE R1
MOV     R2,-(SP)      ;SAVE R2 (TICKS)
MOV     R3,-(SP)      ;SAVE R3 (EXPECTED_WORD)
;
CLR     R1            ;CLEAR ASSEMBLED_WORD
MOV     (R5),R2       ;GET # OF TICKS
;
14:    ASL     R1       ;SHIFT ASSEMBLED_WORD
        JSR    R5,STEPLU ;CLOCK USYRT ONCE
        1
;
        JSR    R5,CHKTSO ;CHECK FOR TSO=1
        1
        BCS   24
        INC   R1         ;TSO=1: SET LSB OF ASSEMBLED_WORD
24:    SOB   R2,14      ;LOOP UNTIL NO MORE TICKS
;
        MOV   (R5),R3    ;GET EXPECTED_WORD
        CMP   R1,R3      ;COMPARE EXPECTED_ AND ASSEMBLED_WORD
        BEQ  34
;
        MOV   R3,GDATA   ;EXPECTED_WORD => GDATA
        MOV   R1,BDATA   ;ASSEMBLED_WORD => BDATA
;*** STACK "TRANSMISSION ERROR" MSG ***
        GTDF EM102,ERR13
;
;        QUEUE "DEVICE FATAL" ERROR # 26
;
;MOV   @T.EDF,ERRTYP
;MOV   @26,ERRRBR
;MOV   @EM102,ERRMSG
;MOV   @ERR13,ERRBLK
;
        SEC
        BR   .+4
;
34:    CLC
        MOV   (SP),R3
        MOV   (SP),R2
        MOV   (SP),R1
44:    RTS   R5
;RETURN

```


CVDHCCO DMV11 LINE UNIT DIAG1
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MACY11 30A(1052) 23-JUL-84 14:02 PAGE 81
....INITRN -- INIT TRANSMISSION OF A MESSAGE

3524				
3525				
3526				
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3531				
3532				
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3536				
3537				
3538				
3539				
3540				
3541	007400			
3542	007400	010146		
3543	007402	004537	003734	
3544	007406	120000		
3545	007410	000031		
3546	007412	004537	003734	
3547	007416	120000		
3548	007420	000030		
3549	007422	112537	007434	
3550	007426	004537	003734	
3551	007432	120404		
3552	007434	000000		
3553	007436	112537	007450	
3554	007442	004537	003734	
3555	007446	120405		
3556	007450	000000		
3557	007452	112537	007476	
3558	007456	005037	002456	
3559	007462	113737	007476	002456
3560	007470	004537	003734	
3561	007474	120407		
3562	007476	000000		
3563	007500	004537	003734	
3564	007504	120013		
3565	007506	000200		
3566	007510	004537	003734	
3567	007514	120006		
3568	007516	000300		
3569	007520	004537	003734	
3570	007524	120007		
3571	007526	000000		
3572	007530	004537	005432	
3573	007534	000110		
3574	007536	103454		
3575				
3576	007540	013737	007674	007560
3577	007546	142537	007560	
3578				
3579	007552	004537	003734	

```

.SBTTL ....INITRN -- INIT TRANSMISSION OF A MESSAGE
;.....
; * INITRN - THIS SUBROUTINE INITIATES TRANSMISSION OF A MESSAGE, BY LOADING
; * THE USYRT PCSARL,H AND THE PCR WITH THE DATA PASSED IN THE 2 WORDS
; * FOLLOWING THE CALL , LOADING AND CLOCKING 1 SOM UNTIL THE FIRST
; * SYNCH OR FLAG HAS BEEN SERIALIZED IN THE USYRT. THE PROGRAM MONITORS
; * ALL THE FLAGS IN THE USYRT STATUS REGISTER THROUGHOUT THE PROCESS.
; * IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION IS STACKED
; * AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE DISCRETION
; * OF THE CALLING ROUTINE OR SUBROUTINE.
;
; CALLING SEQUENCE :
; JSR RS,INITRN
; .WORD <VALUE TO LOAD INTO USYRT PCSARL,H>
; .WORD <VALUE TO LOAD INTO USYRT PCR (PASSED IN LO BYTE)>
; <SPECIAL VIAORB MASKING VALUE (PASSED IN HI BYTE)>
;.....
INITRN:
MOV R1,-(SP) ;SAVE R1
JSR RS,WRITEI ;RESET THE USYRT
VIAORB
RTSND!DTR!PRESET
JSR RS,WRITEI ;CLEAR USYRT RESET BIT
VIAORB
RTSND!DTR
MOV (RS),10 ;GET VALUE TO LOAD INTO USYRT PCSARL
JSR RS,WRITEI ;LOAD USYRT PCSARL
10: .WORD 0
MOV (RS),20 ;GET VALUE TO LOAD INTO PCSARM
JSR RS,WRITEI ;LOAD USYRT PCSARM
20: .WORD 0
MOV (RS),30 ;GET VALUE TO LOAD INTO PCR
CLR SAVLEN
MOV 30,SAVLEN ;SAVE CHAR LENGTH BITS
JSR RS,WRITEI ;LOAD USYRT PCR
30: .WORD 0
JSR RS,WRITEI ;SET ACR FOR T1 ONE-SHOT MODE
VIAACR
200
JSR RS,WRITEI ;LOAD VIA T1L-L
VIAT1C
300
JSR RS,WRITEI ;LOAD VIA T1L-H
VIAT1D
000
JSR RS,CKUSTS ;CHK USYRT STATUS FOR INIT'D STATE
110 ; TBMT = 1, TSO = 1
BCS 70 ;IF ERROR, EXIT SUBROUTINE
MOV 200,130 ; * SET UP DEFAULT VIAORB PARAMETERS
BICB (RS),130 ; * CLEAR ANY SPECIFIED VIAORB BITS.
JSR RS,WRITEI ;SET UP USYRT

```

CVDNCCO DMV11 LINE UNIT DIAG1
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....INITRN -- INIT TRANSMISSION OF A MESSAGE

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3580 007556 120000
3581 007560 000142
3582
3583 007562 004537 003734
3584 007566 120403
3585 007570 000001
3586 007572 004537 003734
3587 007576 120402
3588 007600 000226
3589 007602 004537 006036
3590 007606 000000
3591 007610 103427
3592 007612 005001
3593 007614 004537 011614
3594 007620 000001
3595 007622 004537 003610
3596 007626 122000
3597 007630 000000
3598 007632 132737 000100 007630
3599 007640 001010
3600 007642 005201
3601 007644 020127 000003
3602 007650 002761
3603 007652 004537 006036
3604 007656 000001
3605 007660 103403
3606 007662 004537 005536
3607 007666 000001
3608 007670 012601
3609 007672 000205
3610
3611 007674 000142
3612
3613

```

```

VIAORB
130: TXEN!RXEN!TTLOOP ;* THIS VALUE MIGHT BE MODIFIED ABOVE
      JSR R5,WRITEI ;SET TSOM IN USYRT
      TDSRH
      TSOM
      JSR R5,WRITEI ;LOAD SYNCH CHAR INTO TX BUF
      TDSRL
      SYNCH
      JSR R5,CKTBMT ;CHK FOR TBMT = 0
      0
      BCS 70 ;IF ERROR, EXIT SUBROUTINE
      CLR R1 ;INIT CYCLE COUNTER
40: JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
      1
      JSR R5,READI ;READ USYRT STATUS REG
      USTATR
50: .WORD 0
      BITB @TBMT,50 ;SEE IF TBMT IS SET YET
      BNE 60 ;BR IF YES
      INC R1 ;INCR CYCLE COUNTER
      CMP R1,#3 ;SEE IF 3 CYCLES DONE YET
      BLT 40 ;BR IF LESS THAN 3 CYCLES
      JSR R5,CKTBMT ;GO STACK "TBMT NOT SET" MSG
      1
      BCS 70 ;IF ERROR, EXIT SUBROUTINE
60: JSR R5,CKTACT ;CHK FOR TXACT = 1
      1
70: MOV (SP)+,R1 ;RESTORE R1
      RTS R5 ;RETURN (IF C = 1, WE HAD AN ERROR)
200: TXEN!RXEN!TTLOOP ;DEFAULT VALUE FOR VIAORB: ENABLE
      ;TX AND RX ON USYRT, ASSERT RTS, DTR

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CVDMCCO DMV11 LINE UNIT DIAG1
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....TXCHAR -- TRANSMIT A CHARACTER

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3614 .SBTTL ....TXCHAR -- TRANSMIT A CHARACTER
3615 ;*****
3616 ;* TXCHAR - THIS SUBROUTINE INITIATES TRANSMISSION OF A CHAR BY LOADING
3617 ;* THE USYRT TDSRL WITH THE DATA PASSED IN THE LO BYTE OF THE WORD
3618 ;* FOLLOWING THE CALL, AND CLOCKS THE LINE UNIT WITH THE NUMBER OF CYCLES
3619 ;* PASSED IN THE SECOND WORD FOLLOWING THE CALL. THE PROGRAM CONTINUALLY
3620 ;* MONITORS TBMT AND TXACT THROUGHOUT THE PROCESS.
3621 ;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
3622 ;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
3623 ;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
3624 ;*
3625 ;* CALLING SEQUENCE :
3626 ;* JSR R5,TXCHAR
3627 ;* .WORD <DATA FOR TDSRL IN LO BYTE>
3628 ;* .WORD <NUMBER OF CYCLES TO CLOCK (IN LO BYTE)>
3629 ;* <SWITCH TO DISABLE INITIAL TBMT=0 CHECK (MSB IN HI BYTE)>
3630 ;*****
3631 TXCHAR:
3632 007676 010146 MOV R1,-(SP) ;SAVE R1
3633 007700 010246 MOV R2,-(SP) ;SAVE R2
3634 007702 012537 007714 MOV (R5)+,1# ;GET DATA FOR TDSRL
3635 007706 004537 003734 JSR R5,WRITEI ;LOAD DATA INTO TDSRL
3636 007712 120402 TDSRL
3637 007714 000000 1#: .WORD 0
3638 007716 005001 CLR R1 ;INIT CYCLE COUNT AND CLEAR C BIT
3639 007720 005002 CLR R2 ;CLEAR REQ'D CYCLE COUNT
3640 007722 112502 MOVB (R5)+,R2 ;GET DESIRED NO. OF CYCLES
3641 007724 001425 BEQ 6# ;BR IF NO CLOCKING DONE
3642 007726 004537 005536 3#: JSR R5,CKTACT ;CHECK TXACT = 1
3643 007732 000001 1
3644 007734 103421 BCS 6# ;BR TO EXIT IF ERROR
3645 007736 020102 CMP R1,R2 ;SEE IF REQUIRED CYCLES DONE YET
3646 007740 001414 BEQ 5# ;BR IF YES
3647
3648 007742 131527 000200 BITB (R5),#NCTBMT ;* CHECK FOR "TBMT=0 CHECK" DISABLE
3649 007746 001004 BNE 7# ;* BR IF MSB IS NOT SET
3650
3651 007750 004537 006036 JSR R5,CKTBMT ;CHECK FOR TBMT = 0
3652 007754 000000 0
3653 007756 103410 BCS 6# ;BR TO EXIT IF ERROR
3654 007760 004537 011614 7#: JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
3655 007764 000001 1
3656 007766 005201 INC R1 ;INCR CYCLE COUNT
3657 007770 000736 BR 3# ;KEEP CLOCKING
3658 007772 004537 006036 5#: JSR R5,CKTBMT ;CHK TBMT = 1
3659 007776 000001 1
3660 010000 012602 6#: MOV (SP)+,R2 ;RESTORE R2
3661 010002 012601 MOV (SP)+,R1 ;RESTORE R1
3662 010004 005205 INC R5 ;ADJUST R5 FOR SAME RETURN
3663 010006 000205 RTS R5 ;RETURN (WITH C BIT = 1 IF ERROR)
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CVDHCCO DMV11 LINE UNIT DIAG1
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....TXCTRL -- CONTROL MESSAGE TRANSMISSION (TDSRH)

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010010		
010010	010146	
010012	010246	
010014	012537	010026
010020	004537	003734
010024	120403	
010026	000000	
010030	005001	
010032	012502	
010034	001422	
010036	004537	005536
010042	000001	
010044	103416	
010046	020102	
010050	001411	
010052	004537	006036
010056	000000	
010060	103410	
010062	004537	011614
010066	000001	
010070	005201	
010072	000761	
010074	004537	006036
010100	000001	
010102	012602	
010104	012601	
010106	000205	

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.SBTTL ....TXCTRL -- CONTROL MESSAGE TRANSMISSION (TDSRH)
;*****
;* TXCTRL - THIS SUBROUTINE ALLOWS CONTROL OF MESSAGE TRANSMISSION BY LOADING
;* THE USYRT TDSRH WITH THE DATA PASSED IN THE LO BYTE OF THE WORD
;* FOLLOWING THE CALL, AND CLOCKS THE LINE UNIT WITH THE NUMBER OF CYCLES
;* PASSED IN THE SECOND WORD FOLLOWING THE CALL. THE PROGRAM CONTINUALLY
;* MONITORS TBMT AND TXACT THROUGHOUT THE PROCESS.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;*
;* CALLING SEQUENCE :
;* JSR R5,TXCTRL
;* .WORD <DATA FOR TDSRH IN LO BYTE>
;* .WORD <NUMBER OF CYCLES TO CLOCK>
;*****
TXCTRL:
MOV R1,-(SP) ;SAVE R1
MOV R2,-(SP) ;SAVE R2
MOV (R5),R2 ;GET DATA FOR TDSRH
JSR R5,WRITEI ;LOAD DATA INTO TDSRH
TDSRH
2: .WORD 0
CLR R1 ;INIT CYCLE COUNT AND CLEAR C BIT
MOV (R5),R2 ;GET DESIRED NO. OF CYCLES
BEQ 6: ;BR IF NO CLOCKING DONE
3: JSR R5,CKTACT ;CHECK TXACT = 1
1
BCS 6: ;BR TO EXIT IF ERROR
CMP R1,R2 ;SEE IF REQUIRED CYCLES DONE YET
BEQ 5: ;BR IF YES
JSR R5,CKTBMT ;CHECK FOR TBMT = 0
0
BCS 6: ;BR TO EXIT IF ERROR
JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
1
INC R1 ;INCR CYCLE COUNT
BR 3: ;KEEP CLOCKING
5: JSR R5,CKTBMT ;CHK TBMT = 1
1
6: MOV (SP),R2 ;RESTORE R2
MOV (SP),R1 ;RESTORE R1
RTS R5 ;RETURN (WITH C BIT = 1 IF ERROR)

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3731 010110
3732 010110 010146
3733 010112 010246
3734 010114 004537 003610
3735 010120 120401
3736 010122 000000 24:
3737 010124 004537 003610
3738 010130 120400
3739 010132 000000 14:
3740 010134 111501
3741 010136 042701 177400
3742 010142 023727 002456 000347
3743 010150 001005
3744 010152 142737 000200 010132
3745 010160 142701 000200
3746 010164 123701 010132 34:
3747 010170 001462
3748 010172 004537 003610
3749 010176 122000
3750 010200 000000 44:
3751 010202 132737 000002 010200
3752 010210 001421
3753 010212 012737 000007 002412
3754
3755 010220
3756
3757 010220 012737 000001 002246
3758 010226 012737 000033 002250
3759 010234 012737 013717 002252
3760 010242 012737 017722 002254
3761 010250 000137 011350
3762 010254 005037 002412 54:
3763 010260 005037 002400
3764 010264 110137 002400
3765 010270 005037 002402
3766 010274 113737 010132 002402
3767

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.SBTTL ....RXCHAR -- RECEIVE A CHARACTER
;*****
;* RXCHAR - THIS SUBROUTINE READS THE USYRT RDSR AND CHECKS THE CONTENTS
;* AGAINST THE DATA PASSED IN THE WORD FOLLOWING THE CALL.
;* IF BIT0 = 0 IN THE SECOND WORD FOLLOWING THE CALL, THE RERR BIT IS
;* NOT CHECKED AGAINST THE EXPECTED VALUE. THEN, IT CLOCKS
;* THE LINE UNIT FOR THE NO. OF CYCLES PASSED IN THE THIRD WORD
;* FOLLOWING THE CALL. THE PROGRAM CONTINUALLY MONITORS RDA AND RXACT.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;*
;* CALLING SEQUENCE :
;* JSR R5,RXCHAR
;* .WORD <EXPECTED RDSRL IN LO BYTE, RDSRH IN HI BYTE>
;* .WORD <=0 FOR NO RERR CHK, =1 FOR RERR CHK>
;* .WORD <NUMBER OF CYCLES TO CLOCK (IN LO BYTE)>
;* <SPECIAL DISABLE SWITCHES: NOCRDA,NFCRDA,NCRACK(IN HI BYTE)>
;*****
RXCHAR:
MOV R1,-(SP) ;SAVE R1
MOV R2,-(SP) ;SAVE R2
JSR R5,READI ;READ RDSRH
RDSRH
24: .WORD 0
JSR R5,READI ;READ RDSRL
RDSRL
14: .WORD 0
MOVB (R5),R1 ;GET EXPECTED RDSRL
BIC #177400,R1 ;MASK OFF UNUSED BITS
CMP SAVLEN,#TXDL!RXDL ;SEE IF 7-BIT CHARS BEING USED
BNE 34 ;BR IF NOT 7-BIT CHARS
BICB #BIT7,14 ;CLEAR 8TH BIT FOR COMPARE
BICB #BIT7,R1
34: CPB 14,R1 ;COMPARE RCV'D CHAR TO EXPECTED
BEQ 64 ;BR IF MATCH
JSR R5,READI ;READ USYRT STATUS REG
USTATR
44: .WORD 0
BITB #TXU,44 ;SEE IF TX UNDERRUN OCCURRED
BEQ 54 ;BR IF NOT
MOV #7,REGNUM ;SET USYRT REG NO. FOR STATUS REG
;STACK "TX UNDERRUN" ERROR
GDF EM54,ERR12
; QUEUE "DEVICE FATAL" ERROR # 27
MOV #T.EDF,ERRTYP
MOV #27,ERRNDR
MOV #EM54,ERRMSG
MOV #ERR12,ERRBLK
54: JMP 204 ;TAKE ERROR EXIT
CLR REGNUM ;SET USYRT REG NO. FOR RDSRL
CLR GDATA ;SET EXPECTED DATA
MOVB R1,GDATA
CLR BDATA ;SET ACTUAL DATA
MOVB 14,BDATA
;STACK "RCV'D DATA MISCOMPARE" ERROR

```

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3768 010302          GTDF      EM34,ERR10
3769
3770 010302 012737 000001 002246          ;
3771 010310 012737 000034 002250          ;   QUEUE "DEVICE FATAL" ERROR # 28
3772 010316 012737 013573 002252          ;   MOV      #T.EDF,ERRTYP
3773 010324 012737 017372 002254          ;   MOV      #28,ERRNBR
3774 010332 000137 011350          ;   MOV      #EM34,ERRMSG
3775 010336 116501 000001          ;   MOV      #ERR10,ERRBLK
3776 010342 042701 177400          ;
3777 010346 123701 010122          ;   JMP      20#
3778 010352 001016          ;   ;TAKE ERROR EXIT
3779 010354 000137 011234          ;   ;GET RDSRH
3780 010360 012737 000001 002412          ;   ;GET RDSRH
3781 010366 005037 002400          ;   ;MASK OFF UNUSED BITS
3782 010372 110137 002400          ;   ;COMPARE RCV'D STATUS TO EXPECTED
3783 010376 005037 002402          ;   ;BR IF MISMATCH
3784 010402 113737 010122 002402          ;   ;CONTINUE
3785 010410 012737 000001 002412          ;   ;SET USYRT REG NO. FOR RDSRH
3786 010416 032765 000001 000002          ;   ;SET EXPECTED DATA
3787 010424 001447          ;   ;SET ACTUAL DATA
3788          ;CHECK RERR BIT
3789 010426 132701 000200          ;   ;SEE IF EXPECTED BIT = 1
3790 010432 001022          ;   ;BR IF YES
3791 010434 132737 000200 010122          ;   ;SEE IF ACTUAL BIT = 0
3792 010442 001440          ;   ;BR IF YES
3793          ;STACK "RERR NOT CLEARED" MSG
3794 010444          GTDF      EM35,ERR12
3795
3796 010444 012737 000001 002246          ;
3797 010452 012737 000035 002250          ;   QUEUE "DEVICE FATAL" ERROR # 29
3798 010460 012737 013621 002252          ;   MOV      #T.EDF,ERRTYP
3799 010466 012737 017722 002254          ;   MOV      #29,ERRNBR
3800 010474 000137 011350          ;   MOV      #EM35,ERRMSG
3801 010500 132737 000200 010122          ;   MOV      #ERR12,ERRBLK
3802 010506 001016          ;
3803          ;STACK "RERR NOT SET" MSG
3804 010510          GTDF      EM36,ERR12
3805
3806 010510 012737 000001 002246          ;
3807 010516 012737 000036 002250          ;
3808 010524 012737 013642 002252          ;
3809 010532 012737 017722 002254          ;
3810 010540 000137 011350          ;
3811          ;CHECK ROR BIT
3812 010544 132701 000010          ;9#: ;SEE IF EXPECTED BIT = 1
3813 010550 001022          ;   ;BR IF YES
3814 010552 132737 000010 010122          ;   ;SEE IF ACTUAL BIT = 0
3815 010560 001440          ;   ;BR IF YES
3816          ;STACK "ROR NOT CLEARED" MSG
3817 010562          GTDF      EM16,ERR12
3818
3819 010562 012737 000001 002246          ;
3820 010570 012737 000037 002250          ;
3821 010576 012737 013346 002252          ;
3822 010604 012737 017722 002254          ;
3823 010612 000137 011350          ;   JMP      20#
3824          ;TAKE ERROR EXIT
    
```


CVDNCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 87
 CVDNCC.P11 12-JUL-84 16:09RXCHAR -- RECEIVE A CHARACTER

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3824 010616 132737 000010 010122 104: BITB @ROR,24 ;SEE IF ACTUAL BIT = 1
3825 010624 001016 BNE 114 ;BR IF YES
3826 ;STACK "ROR NOT SET" MSG
3827 010626 GTDF EM14,ERR12
3828 ;
3829 010626 012737 000001 002246 ; QUEUE "DEVICE FATAL" ERROR # 32
3830 010634 012737 000040 002250 MOV @T.EDF,ERRTYP
3831 010642 012737 013332 002252 MOV @32,ERRNBR
3832 010650 012737 017722 002254 MOV @EM14,ERRMSG
3833 010656 000137 011350 MOV @ERR12,ERRBLK
3834 ;
3835 010662 132701 000004 ;CHECK RABGA BIT
3836 010666 001022 114: BITB @RABGA,R1 ;SEE IF EXPECTED BIT = 1
3837 010670 132737 000004 010122 BNE 124 ;BR IF YES
3838 010676 001440 BITB @RABGA,24 ;SEE IF ACTUAL BIT = 0
3839 ;STACK "RABGA NOT CLEARED" MSG BEQ 134 ;BR IF YES
3840 010700 GTDF EM39,ERR12
3841 ;
3842 010700 012737 000001 002246 ; QUEUE "DEVICE FATAL" ERROR # 33
3843 010706 012737 000041 002250 MOV @T.EDF,ERRTYP
3844 010714 012737 013657 002252 MOV @33,ERRNBR
3845 010722 012737 017722 002254 MOV @EM39,ERRMSG
3846 010730 000137 011350 MOV @ERR12,ERRBLK
3847 010734 132737 000004 010122 124: JMP 204 ;TAKE ERROR EXIT
3848 010742 001016 BITB @RABGA,24 ;SEE IF ACTUAL BIT = 1
3849 ;STACK "RABGA NOT SET" MSG BNE 134 ;BR IF YES
3850 010744 GTDF EM40,ERR12
3851 ;
3852 010744 012737 000001 002246 ; QUEUE "DEVICE FATAL" ERROR # 34
3853 010752 012737 000042 002250 MOV @T.EDF,ERRTYP
3854 010760 012737 013701 002252 MOV @34,ERRNBR
3855 010766 012737 017722 002254 MOV @EM40,ERRMSG
3856 010774 000137 011350 MOV @ERR12,ERRBLK
3857 ;
3858 011000 132701 000002 ;CHECK REOM BIT
3859 011004 001022 134: BITB @REOM,R1 ;SEE IF EXPECTED BIT = 1
3860 011006 132737 000002 010122 BNE 144 ;BR IF YES
3861 011014 001440 BITB @REOM,24 ;SEE IF ACTUAL BIT = 0
3862 ;STACK "REOM NOT CLEARED" MSG BEQ 154 ;BR IF YES
3863 011016 GTDF EM30,ERR12
3864 ;
3865 011016 012737 000001 002246 ; QUEUE "DEVICE FATAL" ERROR # 35
3866 011024 012737 000043 002250 MOV @T.EDF,ERRTYP
3867 011032 012737 013535 002252 MOV @35,ERRNBR
3868 011040 012737 017722 002254 MOV @EM30,ERRMSG
3869 011046 000137 011350 MOV @ERR12,ERRBLK
3870 011052 132737 000002 010122 144: JMP 204 ;TAKE ERROR EXIT
3871 011060 001016 BITB @REOM,24 ;SEE IF ACTUAL BIT = 1
3872 ;STACK "REOM NOT SET" MSG BNE 154 ;BR IF YES
3873 011062 GTDF EM31,ERR12
3874 ;
3875 011062 012737 000001 002246 ; QUEUE "DEVICE FATAL" ERROR # 36
3876 011070 012737 000044 002250 MOV @T.EDF,ERRTYP
3877 011076 012737 013556 002252 MOV @36,ERRNBR
3878 011104 012737 017722 002254 MOV @EM31,ERRMSG
3879 011112 000137 011350 MOV @ERR12,ERRBLK
3879 ;
3879 JMP 204 ;TAKE ERROR EXIT

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CVDHCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 88
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3880 ;CHECK RSOM BIT
3881 011116 132701 000001 15: BITB #RSOM,R1 ;SEE IF EXPECTED BIT = 1
3882 011122 001022 BNE 16: ;BR IF YES
3883 011124 132737 000001 010122 BITB #RSOM,2# ;SEE IF ACTUAL BIT = 0
3884 011132 001440 BEQ 17: ;BR IF YES
3885 ;STACK "RSOM NOT CLEARED" MSG
3886 011134 GTDF EM28,ERR12
3887 ; QUEUE "DEVICE FATAL" ERROR # 37
3888 011134 012737 000001 002246 MOV #T.EDF,ERRTYP
3889 011142 012737 000045 002250 MOV #37,ERRNBR
3890 011150 012737 013477 002252 MOV #EM28,ERRMSG
3891 011156 012737 017722 002254 MOV #ERR12,ERRBLK
3892 011164 000137 011350 JMP 20: ;TAKE ERROR EXIT
3893 011170 132737 000001 010122 16: BITB #RSOM,2# ;SEE IF ACTUAL BIT = 1
3894 011176 001016 BNE 17: ;BR IF YES
3895 ;STACK "RSOM NOT SET" MSG
3896 011200 GTDF EM29,ERR12
3897 ; QUEUE "DEVICE FATAL" ERROR # 38
3898 011200 012737 000001 002246 MOV #T.EDF,ERRTYP
3899 011206 012737 000046 002250 MOV #38,ERRNBR
3900 011214 012737 013520 002252 MOV #EM29,ERRMSG
3901 011222 012737 017722 002254 MOV #ERR12,ERRBLK
3902 011230 000137 011350 JMP 20: ;TAKE ERROR EXIT
3903
3904 011234 116502 000004 17: MOVB 4(R5),R2 ;GET DESIRED NO. OF CYCLES
3905 011240 005001 CLR R1 ;INIT CYCLE COUNT
3906
3907 011242 136527 000005 000040 18: BITB 5(R5),#BIT5 ;* IS RXACT CHECK TO BE DISABLED ?
3908 011250 001004 BNE 31: ;* BR IF YES
3909 011252 004537 005676 JSR R5,CKRACT ;CHK FOR RACT = 1
3910 011256 000001 1 BCS 20: ;BR TO EXIT IF ERROR
3911 011260 103433
3912
3913 011262 020102 31: CMP R1,R2 ;SEE IF REQUIRED CYCLES DONE YET
3914 011264 001415 BEQ 19: ;BR IF YES
3915
3916 011266 136527 000005 000200 BITB 5(R5),#BIT7 ;* SEE IF INITIAL RDA CHECK DESIRED
3917 011274 001004 BNE 22: ;* BR IF NO
3918 011276 004537 006176 JSR R5,CKRDA ;CHK FOR RDA = 0
3919 011302 000000 0 BCS 20: ;BR TO EXIT IF ERROR
3920 011304 103421
3921
3922 011306 004537 011614 22: JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
3923 011312 000001 1 INC R1 ;INCR CYCLE COUNT
3924 011314 005201 BR 18: ;CONTINUE CLOCKING
3925 011316 000751
3926
3927 011320 136527 000005 000100 19: BITB 5(R5),#BIT6 ;* IS FINAL RDA CHECK TO BE SKIPPED ?
3928 011326 001004 BNE 30: ;* BR IF YES
3929 011330 004537 006176 JSR R5,CKRDA ;CHK RDA = 1
3930 011334 000001 1 BCS 20: ;BR IF ERROR
3931 011336 103404
3932
3933 011340 062705 000006 30: ADD #6,R5 ;FIX UP RETURN ADRS
3934 011344 000241 CLC ;SET C = 0 FOR NO ERROR
3935 011346 000403 BR 21: ;TAKE ERROR-FREE EXIT

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3936	011350	062705	000006	204:	ADD	#6,R5	;FIX UP RETURN ADDRESS
3937	011354	000261			SEC		;SET C BIT FOR ERROR
3938	011356	012602		214:	MOV	(SP)+,R2	;RESTORE R2
3939	011360	012601			MOV	(SP)+,R1	;RESTORE R1
3940	011362	000205			RTS	R5	;RETURN

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....RCV1ST -- RECEIVE FIRST CHARACTER OF MESSAGE

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3956 011364
3957 011364 010146
3958 011366 010246
3959 011370 005001
3960 011372 012502
3961 011374 062702 000003
3962 011400 004537 005676
3963 011404 000000
3964 011406 103446
3965 011410 004537 006176
3966 011414 000000
3967 011416 103442
3968 011420 004537 006636
3969 011424 000000
3970 011426 103436
3971 011430 004537 011614
3972 011434 000001
3973 011436 005201
3974 011440 004537 003610
3975 011444 122000
3976 011446 000000
3977 011450 132737 000200 011446
3978 011456 001006
3979 011460 020102
3980 011462 002762
3981 011464 004537 006176
3982 011470 000001
3983 011472 103414
3984 011474 020165 177776
3985 011500 002004
3986 011502 004537 006176
3987 011506 000000
3988 011510 103405
3989 011512 004537 005676
3990 011516 000001
3991 011520 103401
3992 011522 000241
3993 011524 012602
3994 011526 012601
3995 011530 000205

```
.SBTTL ....RCV1ST -- RECEIVE FIRST CHARACTER OF MESSAGE
;*****
;* RCV1ST - THIS SUBROUTINE RECEIVES THE FIRST CHAR OF A MESSAGE AND MONITORS
;* THE STATUS OF THE RECEIVER. FIRST, A CHECK IS MADE FOR RXACT = 0,
;* RDA = 0, RSA = 0, RSOM = 0. THEN, THE LINE UNIT IS CLOCKED UNTIL
;* RDA = 1. THE PROGRAM CHECKS FOR THIS TO OCCUR WITHIN 3 CYCLES AFTER
;* THE NO. OF CYCLES PASSED IN THE SECOND WORD FOLLOWING THE CALL.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;*
;* CALLING SEQUENCE :
;* JSR R5,RCV1ST
;* .WORD <EXPECTED RECEIVER CYCLE COUNT>
;*****
RCV1ST:
MOV R1,-(SP) ;SAVE R1
MOV R2,-(SP) ;SAVE R2
CLR R1 ;INIT CYCLE COUNT
MOV (R5)+,R2 ;GET CYCLE COUNT LIMIT
ADD #3,R2
JSR R5,CKRACT ;CHK FOR RXACT = 0
0
BCS 6# ;BR TO EXIT IF ERROR
JSR R5,CKRDA ;CHK FOR RDA = 0
0
BCS 6# ;BR TO EXIT IF ERROR
JSR R5,CKSEOM ;CHK FOR RSOM = 0, REOM = 0
0
BCS 6# ;BR TO EXIT IF ERROR
JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
1
INC R1 ;INCREMENT CYCLE COUNT
JSR R5,READI ;READ USYRT STATUS REG
USTATR
.WORD 0
2# BITB #RDA,2# ;SEE IF RDA SET YET
BNE 3# ;BR IF YES
CMP R1,R2 ;SEE IF LIMIT EXCEEDED
BLT 1# ;BR IF NOT YET
JSR R5,CKRDA ;GO STACK "RDA NOT SET" MSG
1
BCS 6# ;BR TO EXIT IF ERROR
3# CMP R1,-2(R5) ;SEE IF LESS THAN REQUIRED CYCLES
BGE 4# ;BR IF NOT
JSR R5,CKRDA ;GO STACK "RDA NOT CLEARED" MSG
0
BCS 6# ;BR TO EXIT IF ERROR
4# JSR R5,CKRACT ;CHK FOR RXACT = 1
1
BCS 6# ;BR TO EXIT IF ERROR
5# CLC ;CLEAR C BIT FOR NO ERRORS
6# MOV (SP)+,R2 ;RESTORE R2
MOV (SP)+,R1 ;RESTORE R1
RTS R5 ;RETURN (WITH C BIT = 1 IF ERROR)
```


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ENDTRN -- SHUT DOWN TRANSMITTER/RECEIVER

3996
 3997
 3998
 3999
 4000
 4001
 4002
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 4004
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 4007
 4008
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 4010
 4011 011532
 4012 011532 012537 011572
 4013 011536 004537 005536
 4014 011542 000001
 4015 011544 103422
 4016 011546 004537 005676
 4017 011552 000001
 4018 011554 103416
 4019 011556 004537 003734
 4020 011562 120000
 4021 011564 000002
 4022 011566 004537 011614
 4023 011572 000000
 4024 011574 004537 005536
 4025 011600 000000
 4026 011602 103403
 4027 011604 004537 005676
 4028 011610 000000
 4029 011612 000205
 4030
 4031

```

.SBTTL ....ENDTRN -- SHUT DOWN TRANSMITTER/RECEIVER
;*****
;* ENDTRN - THIS SUBROUTINE TERMINATES A MESSAGE BY CLEARING TXEN AND RXEN,
;* CLOCKING THE LINE UNIT FOR THE NUMBER OF CYCLES PASSED IN THE WORD
;* FOLLOWING THE CALL, AND CHECKING FOR THE USYRT TRANSMITTER AND
;* RECEIVER TO BE SHUT DOWN.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;* NOTE: THIS ROUTINE ASSUMES THAT TTLOOP MODE SHOULD BE ENABLED.
;*
;* CALLING SEQUENCE :
;* JSR R5,ENDTRN
;* <NO. OF CYCLES TO CLOCK>
;*****
ENDTRN:
MOV (R5),2# ;GET DESIRED NO. OF CYCLES TO CLOCK
JSR R5,CKTACT ;CHK FOR TXACT = 1
1
BCS 6# ;BR IF ERROR
JSR R5,CKRACT ;CHK FOR RXACT = 1
1
BCS 6#
JSR R5,WRITEI ;CLEAR TXEN AND RXEN IN USYRT
VIAORB ;** AND KEEP TTLOOP ENABLED **
TTLOOP
JSR R5,STEPLU ;CLOCK LU FOR DESIRED NO. OF CYCLES
2#: .WORD 0
JSR R5,CKTACT ;CHK FOR TXACT = 0
0
BCS 6# ;BR IF ERROR
JSR R5,CKRACT ;CHK FOR RXACT = 0
0
6#: RTS R5
    
```

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STEPLU -- CLOCK THE USYRT N TIMES

```

4032 .SBTTL ....STEPLU -- CLOCK THE USYRT N TIMES
4033 ;*****
4034 ;* STEPLU - THIS SUBROUTINE CLOCKS THE LINE UNIT FOR THE NUMBER OF CYCLES
4035 ;* PASSED IN THE WORD FOLLOWING THE CALL. THE VIA ACR MUST BE PREVIOUSLY
4036 ;* SET UP FOR T1 ONE-SHOT MODE, AND THE T1 LATCHES MUST BE PREVIOUSLY SET
4037 ;* TO CONTROL THE WIDTH OF THE CLOCK PULSE. ALL THAT THIS SUBROUTINE
4038 ;* DOES IS TO LOAD 000 INTO THE HI BYTE OF THE T1 COUNTER, FOR THE
4039 ;* DESIRED NUMBER OF TIMES.
4040 ;*
4041 ;* CALLING SEQUENCE :
4042 ;* JSR RS,STEPLU
4043 ;* .WORD <NUMBER OF CYCLES TO CLOCK>
4044 ;*****
4045 STEPLU:
4046 011614 010146 MOV R1,-(SP) ;SAVE R1
4047 011616 012501 MOV (R5)+,R1 ;INIT CYCLE COUNTER
4048 011620 004537 003734 JSR RS,WRITEI ;LOAD TIC-H, START COUNTER, CLOCK 1 CYCLE
4049 011624 120005 VIAT1B
4050 011626 000000 000
4051 011630 005301 DEC R1 ;DECR CYCLE COUNTER
4052 011632 001372 BNE 14 ;BR IF ALL CYCLES NOT DONE YET
4053 011634 012601 MOV (SP)+,R1 ;RESTORE R1
4054 011636 000205 RTS R5 ;RETURN
4055
4056
4057
4058
4059
4060
    
```


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GLOBAL ERROR REPORT SECTION

.SBTTL GLOBAL ERROR REPORT SECTION

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

4061
4062
4063
4064
4065
4066
4067
4068

				.NLIST	BEX		
011640	047045	047045	000	ENDEMB:	.ASCIZ	/NNN/	
011645	045	000116		NEMLIN:	.ASCIZ	/NN/	USED TO TERMINATE ERROR MESSAGES
011650	047045	040445	040506	FHT2:	.ASCIZ	/NNAF FAILING REG = #T#ASEL#01/	
011705	045	022516	020101	FHT3:	.ASCIZ	/NNA EXPECTED: #03#A ACTUAL: #03#A XOR: #03/	
011771	045	022516	052101	FHT4:	.ASCIZ	/NNA THE CONTENTS OF ALL#T#NT/	
012027	045	022516	030523	FHT4A:	.ASCIZ	/NNS1#03#SS#03#SS#03#SS#03/	
012062	047045	052045	000	FHT4B:	.ASCIZ	/NNT/	
012067	045	022516	032523	FHT4C:	.ASCIZ	/NNS#03#SS#03#SS#03#SS#03/	
012122	047045	040445	020040	FHT5:	.ASCIZ	/NNA WHEN #03#A LOADED INTO BSEL1/	
012165	045	022516	020101	FHT5A:	.ASCIZ	/NNA ATTEMPTING "N-LOOP" FUNCTION CODE #02#A (#T#A)/	
012252	047045	040445	020040	FHT10:	.ASCIZ	/NNA EXPECTED: #08#A ACTUAL: #08#A XOR: #08/	
012326	040445	020040	051514	FHT10A:	.ASCIZ	/NA LSI ADDR: #08/	
012347	045	022516	034117	FHT11:	.ASCIZ	/N#08#08#08#08/	
012366	040445	020040	042504	FHT15:	.ASCIZ	/NA DETECTED IN #T#T#A --/	
012420	040445	020040	042504	FHT15A:	.ASCIZ	/NA DETECTED @ TEST PATTERN ELEMENT @ #02/	
012472	047045	040445	042524	FHT19:	.ASCIZ	/NNA TEST #02#A NOT RUN#N/	
012523	045	022524	033117	FHT21:	.ASCIZ	/NT#06#N/	
012533	045	022516	043101	FHT22:	.ASCIZ	/NNAF FAILING REG: /	
012555	045	042501	050130	FHT23:	.ASCIZ	/NA EXPECTED: #03#SS#A ACTUAL: #03#SS#A XOR: #03#N/	
012634	047045	052045	047045	FHT24:	.ASCIZ	/NNT#NT#N/	
012647	045	031517	051445	FHT25:	.ASCIZ	/N#03#SS#03#SS#03#SS#03#N/	
012677	045	032123	047445	FHT26:	.ASCIZ	/NS#03#SS#03#SS#03#SS#03#N/	
012732	052045	052045	047045	FHT27:	.ASCIZ	/NT#T#N/	
012741	045	022524	000116	FHT29:	.ASCIZ	/NT#N/	
012746	047045	040445	047506	FHT30:	.ASCIZ	/NNA FOR BAUD RATE SPECIFIED./	
013003	045	022516	044501	FHT31:	.ASCIZ	/NNA ID PROPER CONNECTOR TYPE SPECIFIED/	
013051	045	022516	043101	FHT32:	.ASCIZ	/NNA FOR OPTION SPECIFIED./	
013103	122	043505	047040	EM1:	.ASCIZ	/REG NOT INITIALIZED BY MST CLR/	
013142	051525	051131	020124	EM2:	.ASCIZ	/USVRT NOT INITIALIZED BY PROGRAM RESET/	
013211	115	041511	047522	EM3:	.ASCIZ	/MICRO-DIAG. FAILURE/	
013235	115	042122	020131	EM4:	.ASCIZ	/RDY TIMEOUT/	
013252	052516	046114	041440	EM5:	.ASCIZ	/NULL CLK BIT STUCK AT 0/	
013302	052516	046114	041440	EM6:	.ASCIZ	/NULL CLK BIT STUCK AT 1/	
013332	047522	020122	047516	EM14:	.ASCIZ	/ROR NOT SET/	
013346	047522	020122	047516	EM16:	.ASCIZ	/ROR NOT CLEARED/	
013366	042522	042101	053457	EM25:	.ASCIZ	'READ/WRITE DATA ERROR'	
013414	047111	047503	051122	EM26:	.ASCIZ	/INCORRECT DATA CHAR RCV'D/	
013446	047111	047503	051122	EM27:	.ASCIZ	/INCORRECT CRC BYTE RCV'D/	
013477	122	047523	020115	EM28:	.ASCIZ	/RSON NOT CLEARED/	
013520	051522	046517	047040	EM29:	.ASCIZ	/RSON NOT SET/	
013535	122	047505	020115	EM30:	.ASCIZ	/RECI NOT CLEARED/	
013556	042522	046517	047040	EM31:	.ASCIZ	/RECI NOT SET/	
013573	122	053103	042047	EM34:	.ASCIZ	/RCV'D DATA MISCOMPARE/	
013621	122	051105	020122	EM35:	.ASCIZ	/RERR NOT CLEARED/	

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013642	042522	051122	047040	EM36:	.ASCIZ	/RERR NOT SET/
013657	122	041101	040507	EM39:	.ASCIZ	/RABGA NOT CLEARED/
013701	122	041101	040507	EM40:	.ASCIZ	/RABGA NOT SET/
013717	124	020130	047125	EM54:	.ASCIZ	/TX UNDERRUN ERROR/
013741	122	043505	046740	EM66:	.ASCIZ	/REG MISCOMPARE/
013760	051525	051131	020124	EM68:	.ASCIZ	/USYRT STATUS INCORRECT/
014007	124	040530	052103	EM69:	.ASCIZ	/TXACT NOT SET/
014025	124	040530	052103	EM70:	.ASCIZ	/TXACT NOT CLEARED/
014047	122	040530	052103	EM71:	.ASCIZ	/RXACT NOT SET/
014065	122	040530	052103	EM72:	.ASCIZ	/RXACT NOT CLEARED/
014107	124	040502	020124	EM73:	.ASCIZ	/TBMT NOT SET/
014124	041124	052115	047040	EM74:	.ASCIZ	/TBMT NOT CLEARED/
014145	122	040504	047040	EM75:	.ASCIZ	/RDA NOT SET/
014161	122	040504	047040	EM76:	.ASCIZ	/RDA NOT CLEARED/
014201	122	040523	047040	EM77:	.ASCIZ	/RSA NOT SET/
014215	122	040523	047040	EM78:	.ASCIZ	/RSA NOT CLEARED/
014235	122	041505	044505	EM90:	.ASCIZ	/RECEIVER OVERRUN NOT SET/
014266	042522	042503	053111	EM91:	.ASCIZ	/RECEIVER OVERRUN NOT CLEARED/
014323	124	046502	020124	EM92:	.ASCIZ	/TBMT INTERRUPT TEST FAILURE/
014357	124	051105	020122	EM98:	.ASCIZ	/TERR BIT NOT CLEARED/
014404	042524	051122	041040	EM99:	.ASCIZ	/TERR BIT NOT SET/
014425	124	047523	041040	EM100:	.ASCIZ	/TSO BIT NOT SET/
014445	124	047523	041040	EM101:	.ASCIZ	/TSO BIT NOT CLEARED/
014471	124	040522	051516	EM102:	.ASCIZ	/TRANSMISSION ERROR (AS READ BY TSO BIT)/

.SBTTLTEXT STRINGS FOR ERROR HANDLERS -- "TXT_..."

..... TEXT USED BY ERROR HANDLERS

014541	102	042523	030114	TXT1:	.ASCIZ	/BSEL0 BSEL1 BSEL2 BSEL3/
014577	040	020040	041040	TXT2:	.ASCIZ	/ BSEL4 BSEL5 BSEL6 BSEL7/
014641	102	042523	030514	TXT2A:	.ASCIZ	/BSEL10 BSEL11 BSEL12 BSEL13/
014700	020040	020040	051502	TXT2B:	.ASCIZ	/ BSEL14 BSEL15 BSEL16 BSEL17/
014743	040	054502	042524	TXT3:	.ASCIZ	/ BYTE SELECT REG'S ARE:/
014773	040	020040	042523	TXT4:	.ASCIZ	/ SEL0 SEL2 SEL4 SEL6/
015033	040	020040	042523	TXT4A:	.ASCIZ	/ SEL10 SEL12 SEL14 SEL16/
015074	000102			TXT5:	.ASCIZ	/B/
015076	051440	046105	041505	TXT6:	.ASCIZ	/ SELECT REG'S ARE:/
015121	040	042522	044507	TXT7:	.ASCIZ	/ REGISTERS ORB ORA DDRB DDRA T1CL T1CH T1LL T1LH /
015211	040	020040	020040	TXT7A:	.ASCIZ	/ T2CL T2CH SR ACR PCR IFR IER ORA /
015301	040	054105	042520	TXT8:	.ASCIZ	/ EXPECTED: /
015321	040	041501	052524	TXT9:	.ASCIZ	/ ACTUAL: /
015341	040	047530	035122	TXT10:	.ASCIZ	/ XOR: /
015361	040	047040	020040	TXT11:	.ASCIZ	/ N P R R E G I S T E R S:/
015433	040	020040	020040	TXT11A:	.ASCIZ	/ CONTROL DATA/
015471	040	020040	020040	TXT11B:	.ASCIZ	/ OUT ADDR. IN ADDR./
015541	104	053105	041511	TXT12:	.ASCIZ	/DEVICE CSR ADDRESS : /
015567	125	054523	052122	TXT13:	.ASCIZ	/USYRT REGS :/
015604	042122	051123	020114	TXT14:	.ASCIZ	/RDSRL RDSRH TDSRL TDSRH/
015642	020040	020040	041520	TXT15:	.ASCIZ	/ PCSARL PCSARM PCR USTAT/
015704	044526	020101	042522	TXT16:	.ASCIZ	/VIA REGS :/
015717	117	041122	020040	TXT17:	.ASCIZ	/ORB ORA DDRB DDRA/
015754	020040	020040	030524	TXT18:	.ASCIZ	/ T1CL T1CH T1LL T1LH/

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016015      124  041462  020114  TXT19: .ASCIZ /T2CL T2CH SR ACR/
016051      040  020040  050040  TXT20: .ASCIZ / PCR IFR IER ORA/

016111      021    000          TXTNUL: .BYTE 21.0 ;CTL-Q -- THIS (WE HOPE) IS HARMLESS

016113      116  050117    000          TXTML0: .ASCIZ /NOP/
016117      122  040505  020104  TXTML1: .ASCIZ /READ 1 BYTE/
016133      127  044522  042524  TXTML2: .ASCIZ /WRITE 1 BYTE/
016150     050116  026522  052517  TXTML3: .ASCIZ /NPR-OUT 256 BYTES/
016172     050116  026522  047111  TXTML4: .ASCIZ /NPR-IN 256 BYTES/
016213      123  052105  046440  TXTML5: .ASCIZ /SET MICROPROCESSOR'S PC/
016243      125  042116  043105  TXTML6: .ASCIZ /UNDEFINED/
016255      101  046114  053517  TXTML7: .ASCIZ /ALLOW U-PROCESSOR INTERRUPTS/

016312     044526  020101  042522  TXTVR: .ASCIZ /VIA REGISTER /
016330     051117  000102          TXTVR0: .ASCIZ /ORB/
016334     051117  000101          TXTVR1: .ASCIZ /ORA/
016340     042104  041122    000          TXTVR2: .ASCIZ /DORB/
016345      104  051104  000101  TXTVR3: .ASCIZ /DORA/
016352     030524  046103    000          TXTVR4: .ASCIZ /T1CL/
016357      124  041461  000110  TXTVR5: .ASCIZ /T1CH/
016364     030524  046114    000          TXTVR6: .ASCIZ /T1LL/
016371      124  046061  000110  TXTVR7: .ASCIZ /T1LH/
016376     031124  046103    000          TXTVR8: .ASCIZ /T2CL/
016403      124  041462  000110  TXTVR9: .ASCIZ /T2CH/
016410     051123    000          TXTVRA: .ASCIZ /SR/
016413      101  051103    000          TXTVRB: .ASCIZ /ACR/
016417      120  051103    000          TXTVRC: .ASCIZ /PCR/
016423      111  051106    000          TXTVRD: .ASCIZ /IFR/
016427      111  051105    000          TXTVRE: .ASCIZ /IER/
016433      117  040522    000          TXTVRF: .ASCIZ /ORA/

016437      116  051120  000040  TXTNP: .ASCIZ /NPR /
016444     047503  052116  047522  TXTNP0: .ASCIZ /CONTROL/
016454     040504  040524  044040  TXTNP1: .ASCIZ /DATA HI/
016464     040504  040524  046040  TXTNP2: .ASCIZ /DATA LO/
016474     042101  051104  020056  TXTNP3: .ASCIZ /ADDR. OUT EX/
016511      101  042104  027122  TXTNP4: .ASCIZ /ADDR. OUT HI/
016526     042101  051104  020056  TXTNP5: .ASCIZ /ADDR. OUT LO/
016543      101  042104  027122  TXTNP6: .ASCIZ /ADDR. IN EX/
016557      101  042104  027122  TXTNP7: .ASCIZ /ADDR. IN HI/
016573      101  042104  027122  TXTNP8: .ASCIZ /ADDR. IN LO/

016607      125  054523  052122  TXTUR: .ASCIZ /USYRT REG /
016622     042122  051123  000114  TXTUR0: .ASCIZ /RDSRL/
016630     042122  051123  000110  TXTUR1: .ASCIZ /RDSRH/
016636     042124  051123  000114  TXTUR2: .ASCIZ /TDSRL/
016644     042124  051123  000110  TXTUR3: .ASCIZ /TDSRH/
016652     041520  040523  046122  TXTUR4: .ASCIZ /PCSARL/
016661      120  051503  051101  TXTUR5: .ASCIZ /PCSARH/
016670     041520  000122          TXTUR6: .ASCIZ /PCR/
016674     051525  040524  000124  TXTUR7: .ASCIZ /USTAT/
                                .LIST BEX
                                .EVEN

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4069
 4070
 4071

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....TEXT ADDRESS TABLES FOR ERROR HANDLERS -- "TXT__T"

.SBTTLTEXT ADDRESS TABLES FOR ERROR HANDLERS -- "TXT__T"

----- TEXT ADDRESS TABLES USED BY ERROR HANDLERS -----

4072						
4073						
4074						
4075						
4076						
4077	016702	016113	016117	016133	TXTMLT: .WORD	TXTML0,TXTML1,TXTML2,TXTML3,TXTML4,TXTML5,TXTML6,TXTML7
4078	016710	016150	016172	016213		
4079	016716	016243	016255			
4080						
4081	016722	016312				
4082	016724	016330	016334	016340	TXTVRT: .WORD	TXTVR0,TXTVR1,TXTVR2,TXTVR3,TXTVR4,TXTVR5,TXTVR6,TXTVR7
4083	016732	016345	016352	016357		
4084	016740	016364	016371			
4085	016744	016376	016403	016410	.WORD	TXTVR8,TXTVR9,TXTVRA,TXTVRB,TXTVRC,TXTVRD,TXTVRE,TXTVRF
4086	016752	016413	016417	016423		
4087	016760	016427	016433			
4088						
4089	016764	016437				
4090	016766	016444	016454	016464	TXTNPT: .WORD	TXTNP0,TXTNP1,TXTNP2,TXTNP3,TXTNP4,TXTNP5,TXTNP6,TXTNP7,TXTNP8
4091	016774	016474	016511	016526		
4092	017002	016543	016557	016573		
4093	017010	016622	016630	016636	TXTURT: .WORD	TXTUR0,TXTUR1,TXTUR2,TXTUR3,TXTUR4,TXTUR5,TXTUR6,TXTUR7
4094	017016	016644	016652	016661		
4095	017024	016670	016674			
4096						
4097						

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....TEXT ADDRESS TABLES FOR ERROR HANDLERS -- "TXT__T"

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4098
4099
4100
4101 017030
4102 017030
4103 017030 105037 002401
4104 017034 010146
4105 017036 013701 002400
4106 017042 022701 000017
4107 017046 002012
4108 017050
4109 017050 010146
4110 017052 012746 012122
4111 017056 012746 000002
4112 017062 010600
4113 017064 104415
4114 017066 062706 000006
4115 017072 000424
4116
4117 017074 001001
4118 017076 005001
4119 017100 022701 000007
4120 017104 002002
4121 017106 012701 000006
4122 017112 006301
4123 017114
4124 017114 016146 016702
4125 017120 013746 002400
4126 017124 012746 012165
4127 017130 012746 000003
4128 017134 010600
4129 017136 104415
4130 017140 062706 000010
4131
4132 017144 012601
4133 017146 004737 020160
4134 017152
4135 017152
4136 017152 104423
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4140 017154
4141 017154
4142 017154
4143 017154 013746 002412
4144 017160 012746 015074
4145 017164 012746 011650
4146 017170 012746 000003
4147 017174 010600
4148 017176 104414
4149 017200 062706 000010
4150 017204 004737 020134
4151 017210
4152 017210 013746 002404
4153 017214 013746 002402

```

```

-----
.SBTTL ....ERROR HANDLER -- ERR4 -- M-LOOP TIMEOUT ERROR HANDLING
-----
      BGNMSG  ERR4
                                ERR4::
                                ;MAKE SURE BIT 8 DOESN'T PRINT!
                                ;SAVE THE WORKING REGISTER
                                ;SAVE THIS FOR LATER
                                ;WAS THIS AN M-LOOP REQUEST?
                                ;YES, THEN REPORT THE FUNCTION CODE
                                ;NO, THEN IT MUST BE A BSEL1 SETTING
                                MOV      R1,-(SP)
                                MOV      @FMT5,-(SP)
                                MOV      @2,-(SP)
                                MOV      SP,RO
                                TRAP     C#PNTX
                                ADD      @6,SP
                                BR        20#
5#:   BNE     6#
                                ;IF IT WAS A 17, THIS IS A "NOP" AND
                                ; THE TEXT POINTER MUST SO REFLECT.
6#:   CMP     @7,R1
                                ;IS FUNCTION CODE > 7?
                                BGE     7#
                                ;NO, THAN WE CAN HANDLE IT
                                ;YES, THAN IT'S UNDEFINED -- SAY SO
7#:   ASL     R1
                                ;CONVERT TO A WORD OFFSET
                                PRINTX  @FMT5A,GDATA,TEXTMLT(R1) ;REPORT THE FAILING FUNCTION
                                MOV      TXTMLT(R1),-(SP)
                                MOV      GDATA,-(SP)
                                MOV      @FMT5A,-(SP)
                                MOV      @3,-(SP)
                                MOV      SP,RO
                                TRAP     C#PNTX
                                ADD      @10,SP
20#:  MOV     (SP)+,R1
                                ;RESTORE THE WORKING REGISTER
                                JSR     PC,ERR5#
                                ;DUMP THE SELECT REGISTERS
                                ENDMSG
                                L10002: TRAP     C#MSG
-----
.SBTTL ....ERROR HANDLER -- ERR5 -- WORD SELECT REG. ERRORS
-----
      BGNMSG  ERR5
                                ERR5::
                                PRINTB  @FMT2,@TXT5,REGNUM
                                MOV      REGNUM,-(SP)
                                MOV      @TXT5,-(SP)
                                MOV      @FMT2,-(SP)
                                MOV      @3,-(SP)
                                MOV      SP,RO
                                TRAP     C#PNTB
                                ADD      @10,SP
                                JSR     PC,XORGB
                                PRINTB  @FMT10,GDATA,BDATA,XDATA
                                MOV      XDATA,-(SP)
                                MOV      BDATA,-(SP)

```

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....ERROR HANDLER -- ERR5 -- WORD SELECT REG. ERRORS

```

4154 017220 013746 002400      MOV      GDATA,-(SP)
4155 017224 012746 012252      MOV      @FMT10,-(SP)
4156 017230 012746 000004      MOV      @4,-(SP)
4157 017234 010600                MOV      SP,R0
4158 017236 104414                TRAP     C#PNTB
4159 017240 062706 000012      ADD      @12,SP
4160 017244 004737 020160      JSR      PC,ERR5#           ;DUMP THE SELECT REGISTERS
4161 017250                ENDMSG
4162 017250                L10003:
4163 017250 104423                TRAP     C#MSG
4164
4165 ;-----
4166 ;.SBTTL ....ERROR HANDLER -- ERR7A -- USYRT REGISTER ERRORS
4167 ;-----
4167 017252                BGNMSG  ERR7A
4168 017252                ERR7A::
4169 017252 113701 002412      MOVB     REGNUM,R1
4170 017256 006301      ASL     R1           ;AS PASSED, THIS WAS A BYTE OFFSET
4171 017260                PRINTB  @FMT15,@TXTUR,TXTURT(R1)
4172 017260 016146 017010      MOV      TXTURT(R1),-(SP)
4173 017264 012746 016607      MOV      @TXTUR,-(SP)
4174 017270 012746 012366      MOV      @FMT15,-(SP)
4175 017274 012746 000003      MOV      @3,-(SP)
4176 017300 010600                MOV      SP,R0
4177 017302 104414                TRAP     C#PNTB
4178 017304 062706 000010      ADD      @10,SP
4179 017310 004737 020134      JSR      PC,XORGB
4180 017314                PRINTB  @FMT3,GDATA,BDATA,XDATA
4181 017314 013746 002404      MOV      XDATA,-(SP)
4182 017320 013746 002402      MOV      BDATA,-(SP)
4183 017324 013746 002400      MOV      GDATA,-(SP)
4184 017330 012746 011705      MOV      @FMT3,-(SP)
4185 017334 012746 000004      MOV      @4,-(SP)
4186 017340 010600                MOV      SP,R0
4187 017342 104414                TRAP     C#PNTB
4188 017344 062706 000012      ADD      @12,SP
4189 017350                PRINTB  @ENDEMB
4190 017350 012746 011640      MOV      @ENDEMB,-(SP)
4191 017354 012746 000001      MOV      @1,-(SP)
4192 017360 010600                MOV      SP,R0
4193 017362 104414                TRAP     C#PNTB
4194 017364 062706 000004      ADD      @4,SP
4195 017370                ENDMSG
4196 017370                L10004:
4197 017370 104423                TRAP     C#MSG
4198
4199 ;-----
4200 ;.SBTTL ....ERROR HANDLER -- ERR10 -- USYRT REG ERROR (XOR, REG PRINTOUT)
4201 ;-----
4202 017372                BGNMSG  ERR10
4203 017372                ERR10::
4204 017372                PRINTB  @FMT21,@TXT12,MPCSR
4205 017372 013746 002472      MOV      MPCSR,-(SP)
4206 017376 012746 015541      MOV      @TXT12,-(SP)
4207 017402 012746 012523      MOV      @FMT21,-(SP)
4208 017406 012746 000003      MOV      @3,-(SP)
4209 017412 010600                MOV      SP,R0

```


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....ERROR HANDLER -- ERR10 -- USYRT REG ERROR (XOR, REG PRINTOUT)

```

4210 017414 104414                                TRAP      C#PNTB
4211 017416 062706 000010                        ADD       #10,SP
4212 017422                                PRINTB    #FMT22
4213 017422 012746 012533                        MOV       #FMT22,-(SP)
4214 017426 012746 000001                        MOV       #1,-(SP)
4215 017432 010600                                MOV       SP,RO
4216 017434 104414                                TRAP      C#PNTB
4217 017436 062706 000004                        ADD       #4,SP
4218 017442 013701 002412                        MOV       REGNUM,R1
4219 017446 006301                                ASL      R1
4220 017450                                PRINTB    #FMT27,#TXTUR,TXTURT(R1) ;GET PTR TO USYRT REG ASCII
4221 017450 016146 017010                        MOV       TXTURT(R1),-(SP)
4222 017454 012746 016607                        MOV       #TXTUR,-(SP)
4223 017460 012746 012732                        MOV       #FMT27,-(SP)
4224 017464 012746 000003                        MOV       #3,-(SP)
4225 017470 010600                                MOV       SP,RO
4226 017472 104414                                TRAP      C#PNTB
4227 017474 062706 000010                        ADD       #10,SP
4228 017500 004737 020134                        JSR      PC,XORGB ;COMPUTE XOR OF GOOD AND BAD DATA
4229 017504                                PRINTB    #FMT23,GDATA,BDATA,XDATA
4230 017504 013746 002404                        MOV       XDATA,-(SP)
4231 017510 013746 002402                        MOV       BDATA,-(SP)
4232 017514 013746 002400                        MOV       GDATA,-(SP)
4233 017520 012746 012555                        MOV       #FMT23,-(SP)
4234 017524 012746 000004                        MOV       #4,-(SP)
4235 017530 010600                                MOV       SP,RO
4236 017532 104414                                TRAP      C#PNTB
4237 017534 062706 000012                        ADD       #12,SP
4238 017540 004737 020710                        JSR      PC,ERR12# ;GET & PRINT USYRT REGISTERS
4239 017544                                ENDMMSG
4240 017544                                L10005:
4241 017544 104423                                TRAP      C#MSG
4242
4243
4244 :-----:
4245 :.SBTTL ....ERROR HANDLER -- ERR11 -- VIA REG ERROR (XOR, REG PRINTOUT)
4246 :-----:
4247 017546                                BGNMSG    ERR11
4248 017546                                ERR11::
4249 017546                                PRINTB    #FMT21,#TXT12,MPCSR
4250 017546 013746 002472                        MOV       MPCSR,-(SP)
4251 017552 012746 015541                        MOV       #TXT12,-(SP)
4252 017556 012746 012523                        MOV       #FMT21,-(SP)
4253 017562 012746 000003                        MOV       #3,-(SP)
4254 017566 010600                                MOV       SP,RO
4255 017570 104414                                TRAP      C#PNTB
4256 017572 062706 000010                        ADD       #10,SP
4257 017576                                PRINTB    #FMT22
4258 017576 012746 012533                        MOV       #FMT22,-(SP)
4259 017602 012746 000001                        MOV       #1,-(SP)
4260 017606 010600                                MOV       SP,RO
4261 017610 104414                                TRAP      C#PNTB
4262 017612 062706 000004                        ADD       #4,SP
4263 017616 013701 002412                        MOV       REGNUM,R1
4264 017622 006301                                ASL      R1
4265 017624                                PRINTB    #FMT27,#TXTVR,TXTVRT(R1) ;GET PTR TO VIA REG ASCII

```

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....ERROR HANDLER -- ERR11 -- VIA REG ERROR (XOR, REG PRINTOUT)

4266	017624	016146	016724				MOV	TXTVRT(R1),-(SP)
4267	017630	012746	016312				MOV	@TXTVR, -(SP)
4268	017634	012746	012732				MOV	#FMT27, -(SP)
4269	017640	012746	000003				MOV	#3, -(SP)
4270	017644	010600					MOV	SP, R0
4271	017646	104414					TRAP	C#PNTB
4272	017650	062706	000010				ADD	#10, SP
4273	017654	004737	020134					
4274	017660			JSR	PC, XORG8			
4275	017660	013746	002404	PRINTB	#FMT23, GDATA, BDATA, XDATA			
4276	017664	013746	002402					
4277	017670	013746	002400					
4278	017674	012746	012555					
4279	017700	012746	000004					
4280	017704	010600						
4281	017706	104414						
4282	017710	062706	000012					
4283	017714	004737	020356	JSR	PC, ERR11#			
4284	017720			ENDMSG				
4285	017720							
4286	017720	104423						
4287								
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4292	017722							
4293	017722							
4294	017722							
4295	017722	013746	002472					
4296	017726	012746	015541					
4297	017732	012746	012523					
4298	017736	012746	000003					
4299	017742	010600						
4300	017744	104414						
4301	017746	062706	000010					
4302	017752							
4303	017752	012746	012533					
4304	017756	012746	000001					
4305	017762	010600						
4306	017764	104414						
4307	017766	062706	000004					
4308	017772	013701	002412					
4309	017776	006301						
4310	020000							
4311	020000	016146	017010					
4312	020004	012746	016607					
4313	020010	012746	012732					
4314	020014	012746	000003					
4315	020020	010600						
4316	020022	104414						
4317	020024	062706	000010					
4318	020030	004737	020710					
4319	020034							
4320	020034							
4321	020034	104423						

;COMPUTE XOR OF GOOD AND BAD DATA
 ;GET & PRINT VIA REGISTERS
 L10006: TRAP C#MSG

 .SBTTLERROR HANDLER -- ERR12 -- USYRT REG ERROR (USYRT PRINTOUT)

 BGNMSG ERR12
 ERR12::
 PRINTB #FMT21, @TXT12, MPCSR
 MOV MPCSR, -(SP)
 MOV @TXT12, -(SP)
 MOV #FMT21, -(SP)
 MOV #3, -(SP)
 MOV SP, R0
 TRAP C#PNTB
 ADD #10, SP
 MOV #FMT22, -(SP)
 MOV #1, -(SP)
 MOV SP, R0
 TRAP C#PNTB
 ADD #4, SP
 MOV REGNUM, R1
 ASL R1
 PRINTB #FMT27, @TXTUR, TXTURT(R1)
 ;GET PTR TO USYRT REG ASCII
 MOV TXTURT(R1), -(SP)
 MOV @TXTUR, -(SP)
 MOV #FMT27, -(SP)
 MOV #3, -(SP)
 MOV SP, R0
 TRAP C#PNTB
 ADD #10, SP
 JSR PC, ERR12#
 ;GET & PRINT USYRT REGISTERS
 L10007: TRAP C#MSG

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....ERROR HANDLER -- ERR12 -- USYRT REG ERROR (USYRT PRINTOUT)

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020036
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020036
020036 013746 002472
020042 012746 015541
020046 012746 012523
020052 012746 000003
020056 010600
020060 104414
020062 062706 000010
020066 004737 020134
020072
020072 013746 002404
020076 013746 002402
020102 013746 002400
020106 012746 012555
020112 012746 000004
020116 010600
020120 104414
020122 062706 000012
020126 004737 020710
020132
020132 104423
020132
020136 010146
020136 013701 002400
020142 013737 002402 002404
020150 074137 002404
020154 012601
020156 000207
020160
020160
020160 012746 014773
020164 012746 015076

;SBTTLERROR HANDLER -- ERR13 -- TRANSMISSION/TSO ERROR (XOR, REG PRINTOUT)

```
BGNMSG ERR13
PRINTB #FMT21,@TXT12,MPCSR
ERR13::
MOV MPCSR,-(SP)
MOV @TXT12,-(SP)
MOV #FMT21,-(SP)
MOV #3,-(SP)
MOV SP,R0
TRAP C#PNTB
ADD #10,SP
JSR PC,XORGB ;COMPUTE XOR OF GOOD AND BAD DATA
PRINTB #FMT23,GDATA,BDATA,XDATA
MOV XDATA,-(SP)
MOV BDATA,-(SP)
MOV GDATA,-(SP)
MOV #FMT23,-(SP)
MOV #4,-(SP)
MOV SP,R0
TRAP C#PNTB
ADD #12,SP
JSR PC,ERR12# ;GET & PRINT USYRT REGISTERS
ENDMSG
L10010: TRAP C#MSG
```

;SBTTLERROR HANDLER SUBROUTINES

;----- SUBROUTINES USED ONLY BY ERROR HANDLERS -----

```
;SBTTL .....ERROR HANDLER SUBROUTINE -- XORGB
; PERFORM EXCLUSIVE OR BETWEEN "GDATA" & "BDATA" PUTTING
; THE RESULT IN "XDATA"
XORGB: MOV R1,-(SP) ;PRESERVE WORKING REGISTER
MOV GDATA,R1 ;GET "GOOD" DATA
MOV BDATA,XDATA ;AND "BAD" DATA
XOR R1,XDATA ;PERFORM EXCLUSIVE OR
MOV (SP)+,R1 ;RESTORE R1
RTS PC ;RETURN
```

```
-----
;SBTTL .....ERROR HANDLER SUBROUTINE -- ERR5#
;-----
; COMMON ERROR SUBROUTINE TO PRINT SELECT REGISTERS
ERR5#: PRINTX #FMT4,@TXT6,@TXT4
MOV @TXT4,-(SP)
MOV @TXT6,-(SP)
```

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.....ERROR HANDLER SUBROUTINE: -- ERR54

4378	020170	012746	011771		MOV	#FMT4,-(SP)
4379	020174	012746	000003		MOV	#3,-(SP)
4380	020200	010600			MOV	SP,R0
4381	020202	104415			TRAP	C#PNTX
4382	020204	062706	000010		ADD	#10,SP
4383	020210			PRINTX	#FMT11,WSR0,WSR2,WSR4,WSR6 ;DUMP THE SELECT REGISTERS	
4384	020210	013746	002264		MOV	WSR6,-(SP)
4385	020214	013746	002262		MOV	WSR4,-(SP)
4386	020220	013746	002260		MOV	WSR2,-(SP)
4387	020224	013746	002256		MOV	WSR0,-(SP)
4388	020230	012746	012347		MOV	#FMT11,-(SP)
4389	020234	012746	000005		MOV	#5,-(SP)
4390	020240	010600			MOV	SP,R0
4391	020242	104415			TRAP	C#PNTX
4392	020244	062706	000014		ADD	#14,SP
4393	020250			PRINTX	#FMT4B,#TXT4A	
4394	020250	012746	015033		MOV	#TXT4A,-(SP)
4395	020254	012746	012062		MOV	#FMT4B,-(SP)
4396	020260	012746	000002		MOV	#2,-(SP)
4397	020264	010600			MOV	SP,R0
4398	020266	104415			TRAP	C#PNTX
4399	020270	062706	000006		ADD	#6,SP
4400	020274			PRINTX	#FMT11,WSR10,WSR12,WSR14,WSR16 ;DUMP THE SELECT REGISTERS	
4401	020274	013746	002274		MOV	WSR16,-(SP)
4402	020300	013746	002272		MOV	WSR14,-(SP)
4403	020304	013746	002270		MOV	WSR12,-(SP)
4404	020310	013746	002266		MOV	WSR10,-(SP)
4405	020314	012746	012347		MOV	#FMT11,-(SP)
4406	020320	012746	000005		MOV	#5,-(SP)
4407	020324	010600			MOV	SP,R0
4408	020326	104415			TRAP	C#PNTX
4409	020330	062706	000014		ADD	#14,SP
4410	020334			PRINTB	#ENDEMB	
4411	020334	012746	011640		MOV	#ENDEMB,-(SP)
4412	020340	012746	000001		MOV	#1,-(SP)
4413	020344	010600			MOV	SP,R0
4414	020346	104414			TRAP	C#PNTB
4415	020350	062706	000004		ADD	#4,SP
4416	020354	000207		RTS	PC	
4417						
4418						
4419						
4420						
4421						
4422						
4423	020356	004737	004502	ERR114:	JSR	PC,GETVRS ;GET VIA REGS FOR PRINTOUT
4424	020362				PRINTX	#FMT24,#TXT16,#TXT17
4425	020362	012746	015717		MOV	#TXT17,-(SP)
4426	020366	012746	015704		MOV	#TXT16,-(SP)
4427	020372	012746	012634		MOV	#FMT24,-(SP)
4428	020376	012746	000003		MOV	#3,-(SP)
4429	020402	010600			MOV	SP,R0
4430	020404	104415			TRAP	C#PNTX
4431	020406	062706	000010		ADD	#10,SP
4432	020412			PRINTX	#FMT25,VREGS+0,VREGS+2,VREGS+4,VREGS+6	
4433	020412	013746	002344		MOV	VREGS+6,-(SP)

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.....ERROR HANDLER SUBROUTINE -- ERR114

4434	020416	013746	002342		MOV	VREGS+4,-(SP)
4435	020422	013746	002340		MOV	VREGS+2,-(SP)
4436	020426	013746	002336		MOV	VREGS+0,-(SP)
4437	020432	012746	012647		MOV	#FMT25,-(SP)
4438	020436	012746	000005		MOV	#5,-(SP)
4439	020442	010600			MOV	SP,RO
4440	020444	104415			TRAP	C#PNTX
4441	020446	062706	000014		ADD	#14,SP
4442	020452			PRINTX	#FMT29	#TXT18
4443	020452	012746	015754		MOV	#TXT18,-(SP)
4444	020456	012746	012741		MOV	#FMT29,-(SP)
4445	020462	012746	000002		MOV	#2,-(SP)
4446	020466	010600			MOV	SP,RO
4447	020470	104415			TRAP	C#PNTX
4448	020472	062706	000006		ADD	#6,SP
4449	020476			PRINTX	#FMT26,VREGS+8.,VREGS+10.,VREGS+12.,VREGS+14.	
4450	020476	013746	002354		MOV	VREGS+14,-(SP)
4451	020502	013746	002352		MOV	VREGS+12,-(SP)
4452	020506	013746	002350		MOV	VREGS+10,-(SP)
4453	020512	013746	002346		MOV	VREGS+8,-(SP)
4454	020516	012746	012677		MOV	#FMT26,-(SP)
4455	020522	012746	000005		MOV	#5,-(SP)
4456	020526	010600			MOV	SP,RO
4457	020530	104415			TRAP	C#PNTX
4458	020532	062706	000014		ADD	#14,SP
4459	020536			PRINTX	#FMT29,#TXT19	
4460	020536	012746	016015		MOV	#TXT19,-(SP)
4461	020542	012746	012741		MOV	#FMT29,-(SP)
4462	020546	012746	000002		MOV	#2,-(SP)
4463	020552	010600			MOV	SP,RO
4464	020554	104415			TRAP	C#PNTX
4465	020556	062706	000006		ADD	#6,SP
4466	020562			PRINTX	#FMT25,VREGS+16.,VREGS+18.,VREGS+20.,VREGS+22.	
4467	020562	013746	002364		MOV	VREGS+22,-(SP)
4468	020566	013746	002362		MOV	VREGS+20,-(SP)
4469	020572	013746	002360		MOV	VREGS+18,-(SP)
4470	020576	013746	002356		MOV	VREGS+16,-(SP)
4471	020602	012746	012647		MOV	#FMT25,-(SP)
4472	020606	012746	000005		MOV	#5,-(SP)
4473	020612	010600			MOV	SP,RO
4474	020614	104415			TRAP	C#PNTX
4475	020616	062706	000014		ADD	#14,SP
4476	020622			PRINTX	#FMT29,#TXT20	
4477	020622	012746	016051		MOV	#TXT20,-(SP)
4478	020626	012746	012741		MOV	#FMT29,-(SP)
4479	020632	012746	000002		MOV	#2,-(SP)
4480	020636	010600			MOV	SP,RO
4481	020640	104415			TRAP	C#PNTX
4482	020642	062706	000006		ADD	#6,SP
4483	020646			PRINTX	#FMT26,VREGS+24.,VREGS+26.,VREGS+28.,VREGS+30.	
4484	020646	013746	002374		MOV	VREGS+30,-(SP)
4485	020652	013746	002372		MOV	VREGS+28,-(SP)
4486	020656	013746	002370		MOV	VREGS+26,-(SP)
4487	020662	013746	002366		MOV	VREGS+24,-(SP)
4488	020666	012746	012677		MOV	#FMT26,-(SP)
4489	020672	012746	000005		MOV	#5,-(SP)

CVDHCCO DMV11 LINE UNIT DIAG1
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.....ERROR HANDLER SUBROUTINE -- ERR11#

4490	020676	010600				MOV	SP,RO
4491	020700	104415				TRAP	C#PNTX
4492	020702	062706	000014			ADD	#14,SP
4493	020706	000207		RTS	PC		
4494							
4495				:-----			
4496				:SBTTLERROR HANDLER SUBROUTINE -- ERR12#			
4497				:-----			
4498				: COMMON ERROR ROUTINE TO GET AND PRINTOUT USYRT REGISTERS			
4499							
4500	020710	004737	004402	ERR12#:	JSR PC,GETURS		;GET USYRT REGS FOR PRINTOUT
4501	020714				PRINTX	#FMT24,#TXT13,#TXT14	
4502	020714	012746	015604			MOV	#TXT14,-(SP)
4503	020720	012746	015567			MOV	#TXT13,-(SP)
4504	020724	012746	012634			MOV	#FMT24,-(SP)
4505	020730	012746	000003			MOV	#3,-(SP)
4506	020734	010600				MOV	SP,RO
4507	020736	104415				TRAP	C#PNTX
4508	020740	062706	000010			ADD	#10,SP
4509	020744			PRINTX	#FMT25,UREGS+0,UREGS+2,UREGS+4,UREGS+6		
4510	020744	013746	002324			MOV	UREGS+6,-(SP)
4511	020750	013746	002322			MOV	UREGS+4,-(SP)
4512	020754	013746	002320			MOV	UREGS+2,-(SP)
4513	020760	013746	002316			MOV	UREGS+0,-(SP)
4514	020764	012746	012647			MOV	#FMT25,-(SP)
4515	020770	012746	000005			MOV	#5,-(SP)
4516	020774	010600				MOV	SP,RO
4517	020776	104415				TRAP	C#PNTX
4518	021000	062706	000014			ADD	#14,SP
4519	021004			PRINTX	#FMT29,#TXT15		
4520	021004	012746	015642			MOV	#TXT15,-(SP)
4521	021010	012746	012741			MOV	#FMT29,-(SP)
4522	021014	012746	000002			MOV	#2,-(SP)
4523	021020	010600				MOV	SP,RO
4524	021022	104415				TRAP	C#PNTX
4525	021024	062706	000006			ADD	#6,SP
4526	021030			PRINTX	#FMT26,UREGS+10,UREGS+12,UREGS+14,UREGS+16		
4527	021030	013746	002334			MOV	UREGS+16,-(SP)
4528	021034	013746	002332			MOV	UREGS+14,-(SP)
4529	021040	013746	002330			MOV	UREGS+12,-(SP)
4530	021044	013746	002326			MOV	UREGS+10,-(SP)
4531	021050	012746	012677			MOV	#FMT26,-(SP)
4532	021054	012746	000005			MOV	#5,-(SP)
4533	021060	010600				MOV	SP,RO
4534	021062	104415				TRAP	C#PNTX
4535	021064	062706	000014			ADD	#14,SP
4536	021070	000207		RTS	PC		
4537							
4538							

CVDNCCO DMV11 LINE UNIT DIAG1
CVDNCC.P11 12-JUL-84 16:09

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LOAD DEVICE PROTECTION TABLE

.SBTTL LOAD DEVICE PROTECTION TABLE

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

4539
4540
4541
4542
4543
4544
4545
4546 021072
4547 021072
4548 021072 177777
4549 021074 177777
4550 021076 177777
4551 021100

BGNPROT

.WORD -1 ;DON'T CHK CSR ADRS
.WORD -1 ;DON'T CHK MASSBUS UNIT NO.
.WORD -1 ;DON'T CHK DRIVE NO.
ENDPROT

L\$PROT::

CVDNCCO DMV11 LINE UNIT DIAG1
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INITIALIZE SECTION

.SBTTL INITIALIZE SECTION

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

```

4552
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4555
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4558
4559 021100          BGNINIT
4560 021100          L#INIT::
4561
4562 021100 010637 002414      MOV      SP,PSTACK      ;SAVE BASE-LEVEL STACK POINTER
4563 021104 005037 002420      CLR      SUBRPC        ;CLEAR SUBR CALL PC
4564 021110 005037 002454      CLR      CHPTYP       ;CLEAR USYRT CHIP TYPE INDICATOR
4565 021114 005037 002452      CLR      ERROR1      ;CLEAR ERROR FLAG
4566 021120 005037 002456      CLR      SAVLEN      ;CLEAR CHAR LENGTH FROM SETUP
4567 021124 005737 002444      TST     FRSTIM       ;SEE IF FIRST TIME THROUGH AFTER LOAD
4568 021130 001007          BNE     6#           ;BR IF NOT
4569 021132 013737 000004 002446  MOV     0#4,SAVE4     ;SAVE ERROR TRAP VECTOR
4570 021140 013737 000006 002450  MOV     0#6,SAVE6
4571 021146 000406          BR      9#
4572
4573 021150 013737 002446 000004 6#:   MOV     SAVE4,0#4     ;RESTORE ERROR TRAP VECTOR
4574 021156 013737 002450 000006  MOV     SAVE6,0#6
4575
4576 021164 012737 000001 002444 9#:   MOV     0#1,FRSTIM   ;MARK FLAG FOR NEXT TIME THROUGH
4577
4578          ;SEE IF PROGRAM JUST STARTED, BR IF YES
4579 021172          REDEF  0EF.START
4580 021172 012700 000040          MOV     0EF.START,RO
4581 021176 104447          TRAP   C#REFG
4582 021200          BCOMPLETE      STARST
4583 021200 103415          BCS    STARST
4584
4585          ;SEE IF PROGRAM JUST RESTARTED, BR IF YES
4586 021202          REDEF  0EF.RESTART
4587 021202 012700 000037          MOV     0EF.RESTART,RO
4588 021206 104447          TRAP   C#REFG
4589 021210          BCOMPLETE      STARST
4590 021210 103411          BCS    STARST
4591
4592          ;SEE IF THIS IS A NEW PASS, BR IF YES
4593 021212          REDEF  0EF.NEW
4594 021212 012700 000035          MOV     0EF.NEW,RO
4595 021216 104447          TRAP   C#REFG
4596 021220          BCOMPLETE      NEWST
4597 021220 103411          BCS    NEWST
4598
4599          ;SEE IF PROGRAM WAS JUST CONTINUED
4600 021222          REDEF  0EF.CONTINUE
4601 021222 012700 000036          MOV     0EF.CONTINUE,RO
4602 021226 104447          TRAP   C#REFG
4603 021230          BCOMPLETE      ENDIT
4604 021230 103473          BCS    ENDIT
4605 021232 000414          BR      GETPRM
4606
4607 021234          STARST:

```



```

CVDHCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 107
CVDHCC.P11 12-JUL-84 16:09 INITIALIZE SECTION

4608 021234 005037 002466 CLR STARES ;CLEAR FLAG TO SHOW JUST HAD STA OR RES
4609
4610 ;CLEAR DEVICE MAP
4611 021240 005037 002460 CLR DEVMAP
4612 021244 NEWST:
4613 021244 012737 177777 002410 MOV @-1,LOGDEV ;RESET LOGICAL DEVICE TO -1
4614 021252 005237 002466 INC STARES ;INCREMENT NO. OF PASSES SINCE STA OR RES
4615 021256 012737 000001 002462 MOV @BIT0,DEVPTR ;INIT DEVICE MAP BIT POINTER
4616
4617 ; GET UNIBUS ADDRESS, VECTOR, PRIORITY LEVEL, SWITCH PACKS, TEST
4618 ; CONNECTOR INFORMATION FOR THIS LOGICAL DEVICE
4619 021264 GETPRM:
4620 021264 005237 002410 INC LOGDEV ;INCREMENT LOGICAL DEVICE NUMBER
4621 021270 GPHARD LOGDEV,R1 ;GET P-TABLE POINTER INTO R1
4622 021270 013700 002410 MOV LOGDEV,R0
4623 021274 104442 TRAP C@GPHRD
4624 021276 010001 MOV R0,R1
4625 021300 BCOMPLETE 100 ;BR IF DEVICE AVAILABLE
4626 021300 103403 BCS 100
4627 021302 006337 002462 ASL DEVPTR ;SHIFT DEVICE POINTER
4628 021306 000766 BR GETPRM ;SKIP THIS DEVICE
4629 021310 053737 002462 002460 100: BIS DEVPTR,DEVMAP ;SET BIT FOR THIS DEVICE
4630 021316 006337 002462 ASL DEVPTR ;SHIFT BIT POINTER
4631
4632 021322 012102 MOV (R1),R2 ;R2=CSR ADDR VALUE
4633 021324 012703 002472 MOV @MPCSR,R3 ;R3=POINTER TO CSR ADDR STORAGE AREA
4634
4635 021330 010223 110: MOV R2,(R3) ;PUT CSR ADDRESSES IN 'BSEL' AREA
4636 021332 005202 INC R2 ;BUMP BSEL ADDR
4637 021334 022703 002532 CMP @BSEL17*2,R3 ;ALL 16 ADDRESSES MOVED ?
4638 021340 001373 BNE 110 ;NO: DO ANOTHER ADDRESS
4639 ;YES: CONTINUE
4640
4641 021342 011137 002532 MOV (R1),MPIVEC ;GET DMV11 INPUT INTRPT VECTOR
4642 021346 012137 002534 MOV (R1),MPOVEC
4643 021352 062737 000004 002534 ADD @4,MPOVEC ;GET DMV11 OUTPUT INTRPT VECTOR
4644 021360 012137 002536 MOV (R1),MPRIOR ;GET DMV11 DEVICE PRIORITY
4645 021364 012137 002540 MOV (R1),LUSW11 ;GET LU SWITCH PACK #1
4646 021370 012137 002542 MOV (R1),LUSW12 ;GET LU SWITCH PACK #2
4647 021374 012137 002544 MOV (R1),BRDTYP ;GET DMV-11 BOARD TYPE
4648 021400 012137 002546 MOV (R1),TSTCON ;GET TEST CONNECTOR INDICATOR
4649 021404 011137 002550 MOV (R1),BDRATE ;GET BAUD RATE FOR THIS DEVICE
4650 ;ISSUE LSI BUS RESET, TO INIT DMV11
4651 021410 BRESET
4652 021410 104433 TRAP C@RESET
4653 021412 005000
4654 021414 000240 150: CLR R0 ;0 TIME DELAY TO ALLOW COMPLETION
4655 021416 077002 NOP ;0 OF DMV11 MICRODIAGNOSTICS.
4656 021420 SOB R0,150 ;0
4657 021420 ENDIT: ENDINIT
4658 021420
4659 021420 104411 L10012: TRAP C@INIT

```

CVDHCCO DMV11 LINE UNIT DIAG1
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AUTO DROP UNIT SECTION

.SBTTL AUTO DROP UNIT SECTION

```

;/////////////////////////////////////////////////////////////////
; THE AUTO DROP CODING DETERMINES WHETHER OR NOT THE DEVICE WHOSE P-TABLE
; WAS JUST OBTAINED IS READY FOR TESTING, AND IT IS DROPPED IF NOT READY.
;/////////////////////////////////////////////////////////////////
    
```

```

;.....
;
; THIS ALGORITHM IS THE SAME A CVDMA TEST # 1 EXCEPT THAT TEST
; WILL JUST REPORT THE FAILURE AND GO ON -- THIS ROUTINE WILL CAUSE THE
; DEVICE TO BE DROPPED IF A BUS-TIMEOUT OCCURS WHEN ANY OF THE CSR'S
; ARE ACCESSED WITH EITHER A "TST" OR "TSTB" INSTRUCTION.
;.....
    
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4676 021422
4677 021422
4678
4679 021422
4680 021422 012746 000000
4681 021426 012746 021540
4682 021432 012746 000004
4683 021436 012746 000003
4684 021442 104437
4685 021444 062706 000010
4686 021450 005037 002622
4687 021454 012702 000001
4688 021460 013703 002472
4689
4690 021464 105723
4691 021466 006302
4692 021470 103375
4693
4694 021472 013703 002472
4695 021476 012702 000001
4696 021502 005723
4697 021504 006302
4698 021506 006302
4699 021510 103374
4700
4701 021512
4702 021512 012700 000004
4703 021516 104436
4704 021520 005737 002622
4705 021524 001403
4706 021526
4707 021526 013700 002410
4708 021532 104451
4709

BGNAUTO

L#AUTO::

```

SETVEC #4,#AD.HIT,#0 ;SETUP INVALID-ADDRESS TRAP VECTOR
                                MOV #0,-(SP)
                                MOV #AD.HIT,-(SP)
                                MOV #4,-(SP)
                                MOV #3,-(SP)
                                TRAP C#SVEC
                                ADD #10,SP

CLR TMO ;INITIALIZE TRAP FLAG REGISTER
MOV #1,R2 ;FLAG BIT
MOV BSEL0,R3 ;INIT ADDRESS POINTER

1#: TSTB (R3)+ ;ACCESS THE CSR'S BY BYTES.
ASL R2
BCC 1#

MOV BSEL0,R3 ;RE-INIT ADDRESS POINTER
MOV #1,R2 ;RE-INIT FLAG BIT
2#: TST (R3)+ ;ACCESS THE CSR'S BY WORDS.
ASL R2
ASL R2
BCC 2#

CLRVEC #4 ;RESTORE THE VECTOR TO DS

TST TMO ;DID WE GET HIY WITH AN INVALID ADDRESS TRAP?
BEQ AD.OK ;NO. EXIT TEST
DODU LOGDEV ;YES. DROP THIS LOGICAL DEV.
                                MOV #4,R0
                                TRAP C#CVEC

                                MOV LOGDEV,R0
                                TRAP C#DODU
    
```


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AUTO DROP UNIT SECTION

4710 021534 000240
4711
4712 021536
4713 021536
4714 021536 104461
4715
4716 021540 050237 002622
4717 021544 000002
4718

AD.OK: NOP
ENDAUTO
AD.HIT: BIS R2,TMPO
RTI

;(FOR PATCHING IN A HALT IF NECESSARY)

L10013: TRAP C#AUTO

;FLAG THE HIT IF WE GET IT!
;RETURN

;

CVDHCCO DMV11 LINE UNIT DIAG1
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CLEANUP CODING SECTION

.SBTTL CLEANUP CODING SECTION

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

4719
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4721
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4726 021546
4727 021546
4728
4729
4730 021546
4731 021546
4732 021546 104412

BGNCLN

L\$CLEAN::

ENDCLN

L10014: TRAP C\$CLEAN

CVDHCCO DMV11 LINE UNIT DIAG1
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DROP UNIT SECTION

4733
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4740 021550
4741 021550
4742
4743 021550
4744 021550 104433
4745 021552
4746 021552
4747 021552 104453

.SBTTL DROP UNIT SECTION

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

BGNDU

;ISSUE UNIBUS RESET TO CLEAN UP
BRESET

ENDDU

L#DU::

TRAP C#RESET

L10015:

TRAP C#DU

CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 1 -- TBMT MICROCODE INTERRUPT TEST

.SBTTL TEST 1 -- TBMT MICROCODE INTERRUPT TEST

```

;*****
;
; TEST 1 -- TBMT MICROCODE INTERRUPT TEST
;
; THIS TEST CHECKS THE OPERATION OF THE TBMT (IRQ) INTERRUPT.
; THIS IS DONE BY ISSUING THE "SET MAINTENANCE INTERRUPT FLAG AND CLEAR
; INTERRUPT DISABLE IN PROCESSOR STATUS" COMMAND WHILE IN THE MAINTENANCE
; LOOP AND THEN CHECKING FOR BIT 7 OF BSEL3 TO BE SET (THE BIT IS SET
; BY THE MICROCODE WHEN THE TBMT INTERRUPT OCCURS).
;*****

```

```

;
; BGNTST
;
; T1::
;
; JSR PC,MSTCLR ;PUT THE MICROPROCESSOR IN THE MAINTENANCE LOOP
; BCC .+8. ;IF NO ERROR, PROCEED
; ERROR ;ELSE, REPORT IT AND
; TRAP C:ERROR
; ESCAPE TST ; EXIT THIS TEST
; TRAP C:ESCAPE
; .WORD L10017-.
;
; JSR R5,CKUSTS ;CHK USYRT STATUS FOR INIT STATE
; 110 ;TBMT=1, TSO=1
; BCC .+8. ;IF ERROR, PRINT REPORT
; ERROR
; TRAP C:ERROR
; ESCAPE TST ; AND SKIP REMAINDER OF TEST
; TRAP C:ESCAPE
; .WORD L10017-.
;
; MOV #DOTBMT,BSEL2 ;ISSUE "TBMT TEST" COMMAND
;
; MOV R3,-(SP)
; MOV #1000.,R3 ;WAIT FOR THE M-LOOP TO FINISH THE OPERATION
; SOB R3,1#
; MOV (SP)+,R3
;
; BITB #MRDY,BSEL2 ;"MRDY" SHOULD BE HIGH BY NOW.
; BNE 5# ;BR IF NO ERROR
;
; JSR PC,GETWSR ;GET SELECT REGISTERS
; MOV #DOTBMT,GDATA ;IDENTIFY REQUESTED FUNCTION
; GEDF EM4,ERR4 ;REPORT "MRDY" TIMEOUT ERROR...
; ; "DEVICE FATAL" ERROR! # 39
; TRAP C:ERDF
; .WORD 39
; .WORD EM4
; .WORD ERR4
; ESCAPE TST ;AND EXIT TEST
; TRAP C:ESCAPE
; .WORD L10017-.

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4777 021556
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4779 021556 004737 003374
4780 021562 103003
4781 021564
4782 021564 104460
4783 021566
4784 021566 104410
4785 021570 000144
4786
4787 021572 004537 005432
4788 021576 000110
4789 021600 103003
4790 021602
4791 021602 104460
4792 021604
4793 021604 104410
4794 021606 000126
4795
4796 021610 012777 000007 160660
4797
4798 021616 010346
4799 021620 012703 001750
4800 021624 077301
4801 021626 012603
4802
4803 021630 132777 000200 160640
4804 021636 001013
4805
4806 021640 004737 004210
4807 021644 012737 000007 002400
4808 021652
4809
4810 021652 104455
4811 021654 000047
4812 021656 013235
4813 021660 017030
4814 021662
4815 021662 104410
4816 021664 000050
4817

1#:

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TEST 2 -- SWITCH SETTING TEST

.SBTTL TEST 2 -- SWITCH SETTING TEST

```

;*****
;*
;* TEST 2 -- SWITCH SETTING TEST
;*
;* SUBTEST #1:
;* THE TWO READABLE SWITCH PACKS WILL BE SAMPLED AND COMPARED AGAINST THE 2
;* VALUES IN THE P-TABLE. AN ERROR IS REPORTED ON A MISMATCH.
;*
;* SUBTEST #2:
;* THE SPEED SELECT SWITCH (SPDSEL) IS READ VIA THE VIAORA REGISTER (BIT PA4)
;* AND COMPARED AGAINST THE BAUD RATE VALUE IN THE P-TABLE. IF A MISMATCH
;* OCCURS IT WILL BE REPORTED. NOTE: THIS SUBROUTINE IS NOT RUN IF AN M8064
;* BOARD IS BEING TESTED (IT ONLY RUNS 856K... MAKING A SPEED SWITCH USELESS).
;*
;-----

```

```

;
; BGNTST
;
; JSR PC,INIDMV ;INIT DMV-11 (MAINT LOOP) T2::
;-----
; BGNSUB
;
; JSR R5,READI ;GET "DDCMP ADDRESS" T2.1: TRAP C#BSUB
; .WORD SMPDDCMP
; (IT WILL BE PUT HERE)
; JSR R5,READI ;GET "BOOT ADDRESS"
; .WORD SMPBOT
; (IT WILL BE PUT HERE)
;
; T3.SW1: .WORD 0
; T3.SW2: .WORD 0
;
; CMPB T3.SW1,LUSWI2 ;# DOES "DDCMP ADDRESS" MATCH P-TABLE VALUE
; BNE T3.ERR ;NO. REPORT ERROR
;
; CMPB T3.SW2,LUSWI1 ;# DOES "BOOT ADDRESS" MATCH P-TABLE VALUE
; BEQ T3.OK ;NO. REPORT ERROR
;
; T3.ERR: GEDF T3.END,T3.EM1 ;REPORT SWITCH SETTINGS DON'T MATCH P-TABLE
; "DEVICE FATAL" ERROR # 41
; TRAP C#ERDF
; .WORD 41
; .WORD T3.END
; .WORD T3.EM1
;
; CKLOOP
; TRAP C#CLP1
;
; T3.OK: NOP
; ENDSUB
;
; L10021: TRAP C#ESUB
;-----
; BGNSUB
;
; T2.2: TRAP C#BSUB

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4854
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4856
4857
4858 021736
4859 021736 004737 005420
4860
4861 021742
4862 021742
4863 021742 104402
4864 021744 004537 003610
4865 021750 121400
4866 021752 000000
4867 021754 004537 003610
4868 021760 121000
4869 021762 000000
4870
4871 021764 123737 021752 002542
4872 021772 001004
4873
4874 021774 123737 021762 002540
4875 022002 001405
4876
4877 022004
4878
4879 022004 104455
4880 022006 000051
4881 022010 022354
4882 022012 022124
4883 022014
4884 022014 104406
4885
4886 022016 000240
4887 022020
4888 022020
4889 022020 104403
4890
4891 022022
4892 022022
4893 022022 104402

```

CVDHCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 116
 CVDHCC.P11 12-JUL-84 16:09 TEST 2 -- SWITCH SETTING TEST

```

4894 022024 005737 002544          TST      BRDTYP      ;IS THIS AN M8064 ?
4895 022030 001433          BEQ      10$        ; IF YES: THEN SKIP THIS SUBROUTINE
4896 022032 004537 003610          JSR      R5,READI  ;GET VIAORA REGISTER
4897 022036 120017          VIAORA
4898 022040 000000          1$:      000        ;STATUS WORD GOES HERE
4899 022042 103003          BCC      ..8.
4900 022044
4901 022044 104460          ERROR
4902 022046          ESCAPE  SUB              TRAP      C$ERROR
4903 022046 104410          .WORD
4904 022050 000050          .WORD      C$ESCAPE
4905 022052 142737 000357 022040          BICB    #357,1$    ;CLEAR ALL BUT SPEED SELECT BIT(PA4)
4906 022060 106237 022040          ASRB    1$        ;RIGHT JUSTIFY SPDSEL SWITCH BIT FOR
4907 022064 106237 022040          ASRB    1$        ; COMPARISON WITH OPERATOR'S REPLY
4908 022070 106237 022040          ASRB    1$
4909 022074 106237 022040          ASRB    1$
4910 022100 123737 022040 002550          CMPB    1$,BDRATE ;IS THE SWITCH IN THE DESIRED POSITION?
4911 022106 001404          BEQ      10$        ; IF YES: END THE SUBROUTINE/TEST
4912
4913 022110          GEDF    T3.6,T3.EM2 ;REPORT ERROR
4914
4915 022110 104455          ; "DEVICE FATAL" ERROR # 42
4916 022112 000052          TRAP      C$ERDF
4917 022114 022652          .WORD    42
4918 022116 022316          .WORD    T3.6
4919 022120          .WORD    T3.EM2
4920 022120
4921 022120 104403          L10022: TRAP      C$ESUB
4922
4923 022122          ;-----
4924 022122          T3.END: ENDTST
4925 022122 104401          L10020: TRAP      C$ETST
4926
4927 022124          BGNMSG  T3.EM1
4928 022124
4929 022124          PRINTB  #T3.1      ;PRINT ERROR MESSAGE
4930 022124 012746 022400          T3.EM1::
4931 022130 012746 000001          MOV     #T3.1,-(SP)
4932 022134 010600          MOV     #1,-(SP)
4933 022136 104414          MOV     SP,R0
4934 022140 062706 000004          TRAP   C$PNTB
4935 022144          ADD     #4,SP
4936 022144 012746 022465          MOV     #T3.2,-(SP)
4937 022150 012746 000001          MOV     #1,-(SP)
4938 022154 010600          MOV     SP,R0
4939 022156 104415          TRAP   C$PNTX
4940 022160 062706 000004          ADD     #4,SP
4941 022164          MOV     #T3.3,-(SP)
4942 022164 012746 022514          MOV     #1,-(SP)
4943 022170 012746 000001          MOV     SP,R0
4944 022174 010600          TRAP   C$PNTX
4945 022176 104415          ADD     #4,SP
4946 022200 062706 000004          MOV     LUSWI1,-(SP)
4947 022204          MOV     LUSWI2,-(SP)
4948 022204 013746 002540
4949 022210 013746 002542

```


CVDNCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 117
 CVDNCC.P11 12-JUL-84 16:09 TEST 2 -- SWITCH SETTING TEST

```

4950 022214 012746 022545          MOV      @T3.4,-(SP)
4951 022220 012746 000003          MOV      @3,-(SP)
4952 022224 010600                   MOV      SP,R0
4953 022226 104415                   TRAP     C#PNTX
4954 022230 062706 000010          ADD      @10,SP
4955 022234 105037 021753          CLRB     T3.SW1+1      ;MAKE SURE BITS 8 THROUGH 15 AREN'T REPORTED
4956 022240 105037 021763          CLRB     T3.SW2+1      ; -- ESPECIALLY BIT 8!!
4957 022244                   PRINTX   @T3.5,T3.SW1,T3.SW2
4958 022244 013746 021762          MOV      T3.SW2,-(SP)
4959 022250 013746 021752          MOV      T3.SW1,-(SP)
4960 022254 012746 022610          MOV      @T3.5,-(SP)
4961 022260 012746 000003          MOV      @3,-(SP)
4962 022264 010600                   MOV      SP,R0
4963 022266 104415                   TRAP     C#PNTX
4964 022270 062706 000010          ADD      @10,SP
4965 022274                   PRINTB   @NEWLIN
4966 022274 012746 011645          MOV      @NEWLIN,-(SP)
4967 022300 012746 000001          MOV      @1,-(SP)
4968 022304 010600                   MOV      SP,R0
4969 022306 104414                   TRAP     C#PNTB
4970 022310 062706 000004          ADD      @4,SP
4971 022314                   ENDMSG
4972 022314                   L10023:
4973 022314 104423                   TRAP     C#MSG
4974
4975 022316                   BGHMSG   T3.EM2
4976 022316                   T3.EM2::
4977 022316                   PRINTB   @FMT21,@TXT12,MPCSR
4978 022316 013746 002472          MOV      MPCSR,-(SP)
4979 022322 012746 015541          MOV      @TXT12,-(SP)
4980 022326 012746 012523          MOV      @FMT21,-(SP)
4981 022332 012746 000003          MOV      @3,-(SP)
4982 022336 010600                   MOV      SP,R0
4983 022340 104414                   TRAP     C#PNTB
4984 022342 062706 000010          ADD      @10,SP
4985 022346 004737 020356          JSR      PC,ERR114     ;GET AND PRINT VIA REGISTERS
4986 022352                   ENDMSG
4987 022352                   L10024:
4988 022352 104423                   TRAP     C#MSG
4989
4990
022354 053523 052111 044103  .NLIST  BEX
022400 047045 040445 053523  T3.END: .ASCIZ  'SWITCH SETTING TEST'
022465 045 022516 031123  T3.1:  .ASCIZ  /#MSWITCH PACK SETTING DOES NOT MATCH P-TABLE ENTRY/
022514 047045 051445 031062  T3.2:  .ASCIZ  '#MS22#A DDCMP BOOT'
022545 045 022516 033123  T3.3:  .ASCIZ  '#MS22#ADDRESS ADDRESS'
022610 047045 051445 022466  T3.4:  .ASCIZ  '#MS6#AP-TABLE VALUES:#S1#03#S6#03'
022652 050123 051504 046105  T3.5:  .ASCIZ  '#MS6#AREAD FROM DMV:#S2#03#S6#03'
022652 050123 051504 046105  T3.6:  .ASCIZ  /#SPOSEL SWITCH DOESN'T MATCH P-TABLE BAUD RATE ENTRY/
4991
.LIST  BEX
.EVEN

```

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TEST 3 -- USYRT MASTER CLEAR TEST

.SBTTL TEST 3 -- USYRT MASTER CLEAR TEST

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4998
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5000
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5002
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5005
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5007
5008
5009
5010
5011
5012
5013
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```

:*****
:*
:* TEST 3 -- USYRT MASTER CLEAR TEST
:*
:* ALL REGISTERS ARE LOADED WITH PATTERN E IN THE SAME SEQUENCE AS FOR
:* PATTERN F BELOW. THE USYRT IS THEN CLEARED BY A MASTER CLEAR
:* (BIT 6 OF BSEL 1). ALL REGISTERS ARE THEN CHECKED FOR
:* THE PROPER CONTENTS. THE INITIALIZED STATE OF THE REGISTERS IS CHECKED
:* AGAINST DATA PATTERN F.
:*
:* PATTERN E: 377, 377, 377, 377, 377, 377, 377, 366.
:* PATTERN F: 000, 000, 000, 000, 000, 000, 000, 110.
:*
:* SEQUENCE OF REGISTERS AS USED WITH PATTERNS E & F:
:*
:* RDSRL, RDSRH, TDSRL, TDSRH, PCSARL, PCSARH, PCR, USYRT STATUS REG
:*
:-----
:*
:* BGNTST
:*
:* T3::
JSR PC,INIDMV ;INIT DMV-11
CLR R1 ;INIT USYRT REG ADRS POINTER
MOV @PATE,R2 ;INIT PATTERN E POINTER
MOV USYREG(R1),2@ ;GET USYRT REG ADRS
MOVB (R2)+,3@ ;GET A PATTERN BYTE
JSR R5,WRITEI ;WRITE A USYRT REG
;USYRT REG ADRS GOES HERE
;DATA BYTE GOES HERE
;WORD 0
;WORD 0
ADD @2,R1 ;INCR REG ADRS PTR
CMP R1,#16. ;SEE IF ALL REGS WRITTEN YET
BLT 1@ ;BR IF NOT
JSR PC,INIDMV ;ISSUE MASTER CLEAR
CLR R1 ;INIT USYRT REG ADRS PTR
MOV @PATF,R2 ;INIT DATA PATTERN POINTER
MOV USYREG(R1),7@ ;SET USYRT READ ADDRESS
JSR R5,READI ;READ A USYRT REG
;USYRT REG ADRS GOES HERE
;DATA READ IS RETURNED HERE
;WORD 0
;WORD 0
CMPB @@,(R2)+ ;SEE IF REG CONTAINS EXPECTED DATA
BEQ 9@ ;BR IF MATCH
MOV R1,REGNUM ;SET USYRT REG NO. FOR PRINTOUT
ASR REGNUM ;GET WORD OFFSET
CLR GDATA ;GET EXPECTED DATA
MOVB -1(R2),GDATA
MOV @@,BDATA ;GET ACTUAL DATA
;REPORT REG NOT CLEARED BY MASTER CLEAR
GEDF EM1,ERR10
; "DEVICE FATAL" ERROR # 43
TRAP C#ERDF
;WORD 43
;WORD EM1
;WORD ERR10

```

022766 1@:
2@:
3@:
023030 6@:
7@:
8@:
002400
002402

022736 004737 005420
022742 005001
022744 012702 002652
022750 016137 002552
022756 112237 022770
022762 004537 003734
022766 000000
022770 000000
022772 062701 000002
022776 020127 000020
023002 002762
023004 004737 005420
023010 005001
023012 012702 002662
023016 016137 002552
023024 004537 003610
023030 000000
023032 000000
023034 123722 023032
023040 001422
023042 010137 002412
023046 006237 002412
023052 005037 002400
023056 116237 177777
023064 013737 023032

C#ERDF
43
EM1
ERR10

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TEST 3 -- USYRT MASTER CLEAR TEST

5048	023102		
5049	023102	104410	
5050	023104	000014	
5051	023106	062701	000002
5052	023112	020127	000020
5053	023116	002737	
5054	023120		
5055	023120		
5056	023120	104401	

ESCAPE TST

TRAP C#ESCAPE
.WORD L10025-

9#:

ADD #2,R1
CMP R1,#16.
BLT 6#

;INCR USYRT REG ADRS PTR
;SEE IF ALL REGS READ YET
;BR IF NOT

ENDTST

L10025:
TRAP C#ETST

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TEST 4 -- USYRT PROGRAM RESET TEST

.SBTTL TEST 4 -- USYRT PROGRAM RESET TEST

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5100
5101
5102
5103
5104

023122
023122 004737 005420
023126 005001
023130 012702 002652
023134 016137 002552
023142 112237 023154
023146 004537 003734
023152 000000
023154 000000
023156 062701 000002
023162 020127 000020
023166 002762
023170 004537 005126
023174 103003
023176
023176 104460
023200
023200 104410
023202 000002
023204
023204
023204 104401

023152

.....
: *
: * TEST 4 -- USYRT PROGRAM RESET TEST
: *
: * ALL REGISTERS ARE LOADED WITH PATTERN E IN THE SAME SEQUENCE AS FOR
: * PATTERN F BELOW. THE USYRT IS THEN RESET BY ASSERTING PROGRAM RESET
: * (BIT 0 @ A000) IN THE 6522 VIA. ALL REGISTERS ARE THEN CHECKED FOR
: * THE PROPER CONTENTS. THE INITIALIZED STATE OF THE REGISTERS IS CHECKED
: * AGAINST DATA PATTERN F.
: *
: * PATTERN E: 377, 377, 377, 377, 377, 377, 377, 366.
: * PATTERN F: 000, 000, 000, 000, 000, 000, 000, 110.
: *
: * SEQUENCE OF REGISTERS AS USED WITH PATTERNS E & F:
: *
: * RDSRL, RDSRH, TDSRL, TDSRH, PCSARL, PCSARH, PCR, USYRT STATUS REG
: *
: *
: *

```
      BGNTST
      JSR    PC,INIDPW          T4::
      CLR    R1                ;INIT USYRT REG ADRS POINTER
      MOV    @PATE,R2          ;INIT PATTERN E POINTER
      MOV    USYREG(R1),2@    ;GET USYRT REG ADRS
      MOVB   (R2)+,3@         ;GET A PATTERN BYTE
      JSR    R5,WRITEI        ;WRITE A USYRT REG
      .WORD  0                 ;USYRT REG ADRS GOES HERE
      .WORD  0                 ;DATA BYTE GOES HERE
      ADD    @2,R1            ;INCR REG ADRS PTR
      CMP    R1,@16.          ;SEE IF ALL REGS WRITTEN YET
      BLT    1@               ;BR IF NOT
      JSR    R5,RSTCHK        ;RESET USYRT/VERIFY SAME
      BCC    .+8.             ;BR IF NO ERROR
      ERROR  ;REPORT STACKED ERROR
      ESCAPE TST              ;SKIP TO END OF TEST
      TRAP   C@ERROR
      .WORD  L10026-.
      TRAP   C@ESCAPE
      TRAP   C@ETST
      ENDTST
      L10026:
      TRAP   C@ETST
```

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TEST 5 -- USYRT REGISTER ADDRESSING TEST

.SBTTL TEST 5 -- USYRT REGISTER ADDRESSING TEST

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;*
;* TEST 5 -- USYRT REGISTER ADDRESSING TEST
;*
;* FIRST, A MASTER CLEAR IS ISSUED, TO INITIALIZE THE USYRT REGS TO
;* PATTERN F. THEN, EACH REGISTER IS WRITTEN WITH A BYTE OF PATTERN J,
;* AND AFTER EACH IS WRITTEN, ALL ARE READ AND COMPARED TO THE CURRENT
;* EXPECTED VALUES. THIS IS PERFORMED FOR ALL REGISTERS -- INCLUDING THE
;* READ ONLY REGS -- IN ORDER TO MAKE SURE THAT EACH REGISTER ONLY RESPONDS
;* TO ITS OWN ADDRESS.
;* PATTERN F: 000, 000, 000, 000, 000, 000, 000, 110
;* PATTERN J: 000, 000, 001, 002, 004, 020, 040, 010
;*
;* SEQUENCE OF REGISTERS AS USED WITH PATTERNS F & J:
;* RDSRL, RDSRH, TDSRL, TDSRH, PCSARL, PCSARH, PCR, USYRT STATUS REG
;*
;-----*****

;
; BGNTST
; T5::
; JSR PC,INIDMV ;ISSUE MASTER CLEAR TO INIT DMV
; MOV #PATF,R2 ;INIT PATTERN I POINTER
; MOV #REDDAT,R3 ;INIT PTR TO EXPECTED DATA AREA
14: ; MOVB (R2), (R3) ;MOV PATTERN F INTO REDDAT TABLE
; CMP R2,#PATG
; BLO 14
; CLR R1 ;INIT USYRT REG ADRS PTR FOR WRITING
; CLR R2 ;INIT INDEX FOR WRITING
24: ; MOV USYREG(R1),34 ;SET USYRT REG ADRS
; MOVB PATJ(R2),44 ;SET DATA FOR WRITE
; MOVB 44,REDDAT(R2) ;SET EXPECTED DATA BYTE
; CMP 34,#TDSRL ;SEE IF WRITING TDSRL
; BNE 104 ;BR IF NOT
; BICB #100,REDDAT.7 ;FIX EXPECTED USTAT VALUE
104: ; JSR R5,WRITEI ;WRITE BYTE INTO A USYRT REG
34: ; .WORD 0 ;REG ADRS GOES HERE
44: ; .WORD 0 ;DATA BYTE GOES HERE
; CLR R3 ;INIT USYRT REG ADRS PTR FOR READING
; CLR R4 ;INIT INDEX FOR READING
54: ; MOV USYREG(R3),64 ;SET USYRT REG ADRS
; JSR R5,READI ;READ A USYRT REG
64: ; .WORD 0 ;REG ADRS GOES HERE
74: ; .WORD 0 ;DATA BYTE READ IS RETURNED HERE
; CMPB 74,REDDAT(R4) ;SEE IF BYTE READ MATCHES EXPECTED BYTE
; BEQ 84 ;BR IF MATCH
; MOV R4,REGNUM ;SET FAILING REG NO. FOR ERROR REPORT
; CLR GDATA ;GET EXPECTED DATA
; MOVB REDDAT(R4),GDATA
; MOV 74,BDATA ;GET ACTUAL DATA
; REPORT REGISTER MISCOMPARE ERROR
; GEDF EM66,ERR10
; "DEVICE FATAL" ERROR # 44
TRAP
; .WORD 44 C:ERDF

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TEST 5 -- USYRT REGISTER ADDRESSING TEST

5161	023370	013741							.WORD	EM66
5162	023372	017372							.WORD	ERR10
5163	023374				ESCAPE	TST				
5164	023374	104410							TRAP	C!ESCAPE
5165	023376	000032							.WORD	L10027-
5166	023400	062703	000002	8#:	ADD	#2,R3				
5167	023404	005204			INC	R4				
5168	023406	020427	000010		CMP	R4,#10				
5169	023412	002737			BLT	5#				
5170	023414	062701	000002		ADD	#2,R1				
5171	023420	005202			INC	R2				
5172	023422	020227	000010		CMP	R2,#10				
5173	023426	002703			BLT	2#				
5174	023430				ENDTST					
5175	023430									
5176	023430	104401							L10027:	TRAP C!ETST

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 TEST 6 -- R/W BIT TEST OF PCSAR HIGH BYTE

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 5221
 5222
 5223
 5224
 5225
 5226
 5227
 5228

023432
 023432 004737 005420
 023436 103003
 023440
 023440 104460
 023442
 023442 104410
 023444 000056
 023446 012701 002672
 023452 012703 000026
 023456 012737 000005 002412
 023464
 023464
 023464 104402
 023466 111137 002376
 023472 112137 002400
 023476 012700 120405
 023502 004737 004272
 023506 103003
 023510
 023510 104460
 023512
 023512 104410
 023514 000006
 023516
 023516
 023516 104403
 023520 077317
 023522
 023522
 023522 104401

```
.SBTTL TEST 6 -- R/W BIT TEST OF PCSAR HIGH BYTE
;*****
;*
;* TEST 6 -- R/W BIT TEST OF PCSAR HIGH BYTE
;*
;* WRITE, READ, AND COMPARE EACH WORD OF DATA PATTERN G.
;*
;* PATTERN G: 000, 001, 003, 004, 005, 007, 100, 101, 103, 104, 105,
;* 107, 000, 017, 027, 041, 200, 277, 103, 144, 115, 157, 000.
;*****
;
; BGNTST
;
;                               T6::
; JSR PC,INIDMV ;INIT DMV/VIA & START UP MAINT. LOOP
; BCC 304 ;IF AN ERROR OCCURED,
; ERROR ;REPORT IT &
;                               TRAP C#ERROR
; ESCAPE TST ; EXIT
;                               TRAP C#ESCAPE
;                               .WORD L10030-.
;
; 304: MOV @PATG,R1 ;POINT TO PATTERN TABLE
; MOV @<PATH-PATG-2>,R3 ;GET # OF ENTRIES IN TABLE
; MOV @5,REGNUM ;ERROR INDEX FOR PCSARH
;
; T7.LP: BGNSUB ;THE SUBTEST ONLY TESTS THE ONE PATTERN
;                               T6.1:
;                               TRAP C#SUB
;
; MOVB (R1),TDATA ;SETUP TEST DATA BYTE FOR "STUREG"
; MOVB (R1)+,GDATA ;SETUP EXPECTED DATA BYTE FOR "STUREG"
; MOV @PCSARH,R0 ;SPECIFY THE REGISTER BEING TESTED
; JSR PC,STUREG ;PERFORM STATIC TEST OF THE SPECIFIED REGISTER
; BCC 104 ;WAS AN ERROR FOUND?
; ERROR ;YES, REPORT IT AND
;                               TRAP C#ERROR
; ESCAPE TST ; EXIT FROM THE TEST. "CKLOOP" IS IMPLIED
;                               TRAP C#ESCAPE
;                               .WORD L10030-.
;
; 104: ENDSUB
;
;                               L10031:
;                               TRAP C#ESUB
;
; SOB R3,T7.LP ;IF THERE IS IN FACT MORE DATA, LOOP BACK TO
; TEST IT. ELSE, FALL OUT OF LOOP AND TEST
;
; ENDTST
;
;                               L10030:
;                               TRAP C#ETST
```

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TEST 7 -- R/W BIT TEST OF S/AR REGISTER

```
.SBTTL TEST 7 -- R/W BIT TEST OF S/AR REGISTER
;*****
;*
;* TEST 7 -- R/W BIT TEST OF S/AR REGISTER
;*
;* WRITE, READ, AND COMPARE EACH WORD OF DATA PATTERN H.
;*
;* PATTERN H: 125, 252, 000, 377, 000, 001, 002, 004, 010, 020, 040, 100,
;*             200, 000, 377, 376, 375, 373, 367, 357, 337, 277, 177, 377,
;*             000
;*
;*-----
;
; BGNTST
;
;                                     T7::
5244 023524 004737 005420 JSR PC,INIDMV ;INIT DMV & START UP THE MAINT. LOOP
5245 023524 103003 BCC 30; ;IF AN ERROR OCCURED,
5246 023530 103003 ERROR ;REPORT IT &
5247 023532 104460 ESCAPE TST ; EXIT TRAP C#ERROR
5248 023532 104460 ; TRAP C#ESCAPE
5249 023534 104410 ;.WORD L10032-.
5250 023534 000056
5251 023536 000056
5252
5253 023540 012701 002722 30;: MOV @PATH,R1 ;POINT TO PATTERN TABLE
5254 023544 012703 000027 MOV @<PATI-PATH-2>,R3 ;GET # OF ENTRIES IN TABLE
5255 023550 012737 000004 002412 MOV @4,REGNUM ;ERROR INDEX FOR S/AR BYTE
5256
5257 023556 T8.LP: BGNSUB ;THE SUBTEST ONLY TESTS THE ONE PATTERN
5258 023556 T7.1: TRAP C#SUB
5259 023556 104402
5260
5261 023560 111137 002376 MOVB (R1),TDATA ;SETUP TEST DATA BYTE FOR "STUREG"
5262 023564 112137 002400 MOVB (R1)+,GDATA ;SETUP EXPECTED DATA BYTE FOR "STUREG"
5263 023570 012700 120404 MOV @PCARL,R0 ;SPECIFY THE REGISTER BEING TESTED
5264 023574 004737 004272 JSR PC,STUREG ;PERFORM STATIC TEST OF THE SPECIFIED REGISTER
5265 023600 103003 BCC 10; ;WAS AN ERROR FOUND?
5266 023602 104460 ERROR ;YES, REPORT IT AND
5267 023602 104460 ESCAPE TST ; EXIT FROM THE TEST. "CKLOOP" IS IMPLIED TRAP C#ERROR
5268 023604 104410 ; TRAP C#ESCAPE
5269 023604 000006 ;.WORD L10032-.
5270 023606
5271
5272 023610 10;: ENDSUB
5273 023610 L10033: TRAP C#ESUB
5274 023610 104403
5275
5276 023612 077317 SOB R3,T8.LP ;IF THERE IS IN FACT MORE DATA, LOOP BACK TO
5277 ;TEST IT. ELSE, FALL OUT OF LOOP AND TEST
5278 023614 ENDTST
5279 023614 L10032: TRAP C#ETST
5280 023614 104401
```

CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 8 -- R/W BIT TEST OF PCR REGISTER

.SBTTL TEST 8 -- R/W BIT TEST OF PCR REGISTER

* TEST 8 -- R/W BIT TEST OF PCR REGISTER
* PATTERN I IS LOADED INTO PCR (HIGH) AND THE DATA READ BACK AND
* CHECKED.
* PATTERN I: 000, 041, 102, 143, 204, 245, 306, 347, 000, 001, 002,
* 004, 040, 100, 200, 000, 346, 345, 343, 307, 247, 147, 347, 242,
* 105, 347, 010, 020, 367, 357, 030, 027, 377.

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023616 004737 005420
023622 103003
023624 104460
023626 104410
023630 000056
023632 012701 002753
023636 012703 000037
023642 012737 000006 002412
023650
023650 104402
023652 111137 002376
023656 112137 002400
023662 012700 120407
023666 004737 004272
023674 104460
023676 104410
023700 000006
023702
023702 104403
023704 077317
023706
023706 104401

```

:          BGNTST
:
:          JSR      PC,INIDMV      ;INIT DMV/VIA & START UP MAINT. LOOP
:          BCC      304            ;IF AN ERROR OCCURED,
:          ERROR    ;REPORT IT &
:
:          ESCAPE  TST            ; EXIT
:
:
:          TRAP     C#ERROR
:
:          TRAP     C#ESCAPE
:          .WORD   L10034-.
:
:          304:   MOV      #PATI,R1      ;POINT TO PATTERN TABLE
:               MOV      #<PATJ-PATI-2>,R3 ;GET # OF ENTRIES IN TABLE
:               MOV      #6,REGNUM      ;ERROR INDEX FOR PCR REGISTER
:
:          T9.LP: BGNSUB            ;THE SUBTEST ONLY TESTS THE ONE PATTERN
:
:
:          TRAP     C#BSUB
:
:          T8.1:
:
:          MOVB     (R1),TDATA        ;SETUP TEST DATA BYTE FOR "STUREG"
:          MOVB     (R1)+,GDATA      ;SETUP EXPECTED DATA BYTE FOR "STUREG"
:          MOV      #PCR,R0          ;SPECIFY THE REGISTER BEING TESTED
:          JSR      PC,STUREG        ;PERFORM STATIC TEST OF THE SPECIFIED REGISTER
:          BCC      104              ;WAS AN ERROR FOUND?
:          ERROR    ;YES, REPORT IT AND
:
:          TRAP     C#ERROR
:          ESCAPE  TST            ; EXIT FROM THE TEST. "CKLOOP" IS IMPLIED
:
:          TRAP     C#ESCAPE
:          .WORD   L10034-.
:
:          104:   ENDSUB
:
:
:          L10035:
:          TRAP     C#ESUB
:
:          SOB      R3,T9.LP        ;IF THERE IS IN FACT MORE DATA, LOOP BACK TO
:          ;TEST IT. ELSE, FALL OUT OF LOOP AND TEST
:
:          L10034:
:          TRAP     C#ETST

```


CVDMCCO DMV11 LINE UNIT DIAG1
CVDMCC.P11 12-JUL-84 16:09

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TEST 9 -- R/W BIT TEST OF TDSR REGISTER'S HIGH BYTE

.SBTTL TEST 9 -- R/W BIT TEST OF TDSR REGISTER'S HIGH BYTE

```

*****
;*
;* TEST 9 -- R/W BIT TEST OF TDSR REGISTER'S HIGH BYTE
;*
;* PATTERN K IS LOADED INTO TDSR (HIGH) AND THE DATA READ BACK IS
;* COMPARED AGAINST PATTERN L. (UNPREDICTABLE BITS ARE MASKED OFF TO 0
;* WHEN READING FOR COMPARISON.)
;*
;* PATTERN K: 000, 377, 376, 375, 373, 376, 177, 377, 000, 001, 002,
;* 004, 010, 200, 125, 252, 000.
;*
;* PATTERN L: 000, 017, 016, 015, 013, 016, 017, 017, 000, 001, 002,
;* 004, 010, 000, 005, 012, 000.
;*
;* NOTE THAT THE UNDEFINED BITS (12, 13, & 14) ARE MASKED OFF TO 0'S
;* FOR THE COMPARISON. ALSO THAT BIT 15 IS A READ/ONLY BIT AND CAN'T BE
;* SET -- THEREFORE SHOULD ALWAYS BE READ AS A 0 BY THIS TEST.
;*
```

```

;-----
;
; BGNTST
;
; JSR PC,INIDMV ;INIT DMV/VIA & START UP MAINT. LOOP
; BCC 300 ;IF AN ERROR OCCURED,
; ERROR ;REPORT IT &
; TRAP C#ERROR
; ESCAPE TST ; EXIT
; TRAP C#ESCAPE
; .WORD L10036-.
;
; 300: MOV #PATK,R1 ;POINT TO PATTERN TABLE
; MOV #<PATL-PATK-2>,R3 ;GET # OF ENTRIES IN TABLE
; MOV #PATL,R2 ;POINT TO "EXPECTED" DATA PATTERN TABLE
;
; T10.LP: BGNSUB ;THE SUBTEST ONLY TESTS THE ONE PATTERN
; T9.1: TRAP C#BSUB
;
; MOVB (R1)+,TDATA ;SETUP TEST DATA BYTE
; MOVB (R2)+,GDATA ;SETUP EXPECTED DATA BYTE
;
; JSR R5,WRITE ;WRITE TO DMV-11
; .WORD TDSRH ; DMV-11 ADDRESS WRITTEN TO
; .WORD TDATA ; LOCATION OF DATA WRITTEN
;
; JSR R5,READ ;READ FROM DMV-11
; .WORD TDSRH ; DMV-11 ADDRESS READ FROM
; .WORD BDATA ; LOCATION WHERE READ DATA IS PUT
;
; BIC #177760,BDATA ;MASK OUT "DON'T CARE" BITS
; CMP GDATA,BDATA ;READ DATA = EXPECTED DATA ?
; BEQ 100 ;WAS AN ERROR FOUND?
;
; MOV #3,REGNUM ;YES: SET UP REGISTER NUMBER

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5358 023710
5359 023710 004737 005420
5360 023714 103003
5361 023716
5362 023716 104460
5363 023720
5364 023720 104410
5365 023722 000114
5366
5367 023724 012701 003024
5368 023730 012703 000017
5369 023734 012702 003045
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5371 023740
5372 023740
5373 023740 104402
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5375 023742 112137 002376
5376 023746 112237 002400
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5378 023752 004537 003722
5379 023756 120403
5380 023760 002376
5381
5382 023762 004537 003476
5383 023766 120403
5384 023770 002402
5385
5386 023772 042737 177760 002402
5387 024000 023737 002400 002402
5388 024006 001411
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5390 024010 012737 000003 002412

```


CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 10 -- R/W BIT TEST OF TXDB REGISTER

.SBTTL TEST 10 -- R/W BIT TEST OF TXDB REGISTER

```

;*****
;*
;* TEST 10 -- R/W BIT TEST OF TXDB REGISTER
;*
;* WRITE, READ, AND COMPARE EACH WORD OF DATA PATTERN H.
;*
;* PATTERN H: 000, 001, 002, 004, 010, 020, 040, 100, 200, 000, 377,
;* 376, 375, 373, 367, 357, 337, 277, 177, 377, 000
;*
;-----*****

```

```

;
; BGNTST
;
; T10::
; JSR PC,INIDMV ;INIT DMV/VIA & START UP MAINT. LOOP
; BCC 30# ;IF AN ERROR OCCURED,
; ERROR ;REPORT IT &
; TRAP C#ERROR
; ESCAPE TST ; EXIT
; TRAP C#ESCAPE
; .WORD L10040-.
;
; 30#: MOV #PATH,R1 ;POINT TO PATTERN TABLE
; MOV #<PATI-PATH-2>,R3 ;GET # OF ENTRIES IN TABLE
; MOV #2,REGNUM ;ERROR INDEX FOR TXDB REGISTER
;
; T11.LP: BGNSUB ;THE SUBTEST ONLY TESTS THE ONE PATTERN
; T10.1: TRAP C#BSUB
;
; MOVB (R1),TDATA ;SETUP TEST DATA BYTE FOR "STUREG"
; MOVB (R1),GDATA ;SETUP EXPECTED DATA BYTE FOR "STUREG"
; MOV #TDSRL,R0 ;SPECIFY THE REGISTER BEING TESTED
; JSR PC,STUREG ;PERFORM STATIC TEST OF THE SPECIFIED REGISTER
; BCC 10# ;WAS AN ERROR FOUND?
; ERROR ;YES, REPORT IT AND
; TRAP C#ERROR
; ESCAPE TST ; EXIT FROM THE TEST. "CKLOOP" IS IMPLIED
; TRAP C#ESCAPE
; .WORD L10040-.
;
; 10#: ENDSUB
; L10041: TRAP C#ESUB
;
; SOB R3,T11.LP ;IF THERE IS IN FACT MORE DATA, LOOP BACK TO
; TEST IT. ELSE, FALL OUT OF LOOP AND TEST
;
; ENDTST
; L10040: TRAP C#ETST

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5425 024040 004737 005420
5426 024044 103003
5427 024046
5428 024046 104460
5429 024050
5430 024050 104410
5431 024052 000056
5432
5433 024054 012701 002722
5434 024060 012703 000027
5435 024064 012737 000002 002412
5436
5437 024072
5438 024072
5439 024072 104402
5440
5441 024074 111137 002376
5442 024100 112137 002400
5443 024104 012700 120402
5444 024110 004737 004272
5445 024114 103003
5446 024116
5447 024116 104460
5448 024120
5449 024120 104410
5450 024122 000006
5451
5452 024124
5453 024124
5454 024124 104403
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5456 024126 077317
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5458 024130
5459 024130
5460 024130 104401

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CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 11 -- PSEUDO R/W BIT TEST OF RXDB

.SBTTL TEST 11 -- PSEUDO R/W BIT TEST OF RXDB

```

;*****
;*
;* TEST 11 -- PSEUDO R/W BIT TEST OF RXDB
;*
;* WRITE, READ (BUT NO COMPARE) OF EACH WORD IN DATA PATTERN H. THIS IS
;* PRIMARILY TO PROVIDE A SCOPE LOOP FUNCTION ON THIS REGISTER.
;*
;* PATTERN H: 000, 001, 002, 004, 010, 020, 040, 100, 200, 000, 377,
;* 376, 375, 373, 367, 357, 337, 277, 177, 377, 000
;*
;-----

```

```

;
; BGNTST
;
; JSR PC,INIDMV ;INIT DMV/VIA & START UP MAINT. LOOP
; BCC 30; ;IF AN ERROR OCCURED,
; ERROR ;REPORT IT &
;
; ESCAPE TST ; EXIT
;
; TRAP C#ERROR
; TRAP C#ESCAPE
; .WORD L10042-.
;
; 30;: MOV #PATH,R1 ;POINT TO PATTERN TABLE
; MOV #<PATI-PATH-2>,R3 ;GET # OF ENTRIES IN TABLE
;
; 20;: MOV (R1)+,2;
;
; JSR R5,WRITEI ;WRITE TO DMV-11
; .WORD RDSRL ; DMV-11 ADDRESS WRITTEN TO
; .WORD 0 ; ACTUAL DATA WRITTEN
;
; 2;: JSR R5,READI ;READ FROM DMV-11
; .WORD RDSRL ; DMV-11 ADDRESS READ FROM
; .WORD 0 ; READ DATA IS PUT HERE
;
; SOB R3,20; ;IF MORE DATA, LOOP BACK TO WRITE/READ IT,
; ; ELSE, FALL OUT OF LOOP AND TEST
;
; ENDTST
;
; L10042: TRAP C#ETST

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5476 024132
5477 024132 004737 005420
5478 024136 103003
5479 024140
5480 024140 104460
5481 024142
5482 024142 104410
5483 024144 000040
5484
5485 024146 012701 002722
5486 024152 012703 000027
5487
5488 024156 012137 024170
5489
5490 024162 004537 003734
5491 024166 120400
5492 024170 000000
5493
5494 024172 004537 003610
5495 024176 120400
5496 024200 000000
5497
5498 024202 077313
5499
5500 024204
5501 024204
5502 024204 104401

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CVDHCCO DMV11 LINE UNIT DIAG1
CVDHCC.P11 12-JUL-84 16:09

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TEST 12 -- PSEUDO R/W BIT TEST OF RDSR'S HIGH BYTE

.SBTTL TEST 12 -- PSEUDO R/W BIT TEST OF RDSR'S HIGH BYTE

*
* TEST 12 -- PSEUDO R/W BIT TEST OF RDSR'S HIGH BYTE
*
* WRITE, READ (BUT NO COMPARE) OF EACH WORD IN DATA PATTERN H. THIS IS
* PRIMARILY TO PROVIDE A SCOPE LOOP FUNCTION ON THIS REGISTER.
*
* PATTERN H: 000, 001, 002, 004, 010, 020, 040, 100, 200, 000, 377,
* 376, 375, 373, 367, 357, 337, 277, 177, 377, 000
*

;
: BGNTST
: JSR PC,INIDMV ;INIT DMV/VIA & START UP MAINT. LOOP T12::
: BCC 304 ;IF AN ERROR OCCURED,
: ERROR ;REPORT IT &
: ESCAPE TST ; EXIT TRAP C#ERROR
: .WORD L10043-
: 304: MOV @PATH,R1 ;POINT TO PATTERN TABLE
: MOV @<PATI-PATH-2>,R3 ;GET # OF ENTRIES IN TABLE
: 204: MOV (R1)+,24
: JSR R5,WRITEI ;WRITE TO DMV-11
: .WORD RDSRH ; DMV-11 ADDRESS WRITTEN TO
: 24: .WORD 0 ; ACTUAL DATA WRITTEN
: JSR R5,READI ;READ FROM DMV-11
: .WORD RDSRH ; DMV-11 ADDRESS READ FROM
: .WORD 0 ; READ DATA IS PUT HERE
: SOB R3,204 ;IF MORE DATA, LOOP BACK TO WRITE/READ IT.
: ; ELSE, FALL OUT OF LOOP AND TEST
: ENDTST
: L10043: TRAP C#ETST

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5518 024206
5519 024206 004737 005420
5520 024212 103003
5521 024214
5522 024214 104460
5523 024216
5524 024216 104410
5525 024220 000040
5526
5527 024222 012701 002722
5528 024226 012703 000027
5529
5530 024232 012137 024244
5531
5532 024236 004537 003734
5533 024242 120401
5534 024244 000000
5535
5536 024246 004537 003610
5537 024252 120401
5538 024254 000000
5539
5540 024256 077313
5541
5542 024260
5543 024260
5544 024260 104401

CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 13 -- NULL CLOCK TEST

.SBTTL TEST 13 -- NULL CLOCK TEST

```

;*****
;*
;* TEST 13 -- NULL CLOCK TEST
;*
;* FIRST, A MASTER CLEAR IS DONE TO INIT THE DMV. THEN, THE T1 TIMER ON THE
;* VIA CHIP IS PROGRAMMED FOR SQUARE WAVE CLOCK GENERATION ON PB7 (BIT 7
;* OF VIA OUTPUT REG B), WITH A BAUD RATE = 56 KBAUD. THIS IS THE MODE OF
;* VIA OPERATION WHICH IS USED TO GENERATE THE NULL CLOCK. THEN, THE PROGRAM
;* SCANS ORB REPEATEDLY TO MONITOR THE NULL CLOCK BIT, IN THE FOLLOWING
;* SEQUENCE :
;* - THE PROGRAM REPEATEDLY CHECKS THE NULL CLOCK BIT FOR THE 1 STATE, AND
;* IF IT IS NOT FOUND WITHIN SEVERAL HUNDRED MICRO-SEC (A GROSS TIMEOUT
;* INTERVAL), AN ERROR IS REPORTED. (AT 56 KBAUD, THE CLOCK SHOULD
;* HAVE A PERIOD OF ABOUT 18 MICRO-SEC.)
;* - THE PROGRAM NEXT REPEATEDLY CHECKS THE NULL CLOCK BIT FOR THE 0 STATE,
;* AND IF IT IS NOT FOUND WITHIN SEVERAL HUNDRED MICRO-SEC, AN ERROR IS
;* REPORTED.
;* - THE PROGRAM NEXT REPEATEDLY CHECKS THE NULL CLOCK BIT FOR THE 1 STATE
;* AGAIN, AND IF IT IS NOT FOUND WITHIN SEVERAL HUNDRED MICRO-SEC,
;* AN ERROR IS REPORTED.
;*
;-----

```

```

;
; BGNTST
;
; T13::
; JSR PC,INIDMV ;INIT DMV11
; JSR RS,WRITEI ;LOAD T1C-L, T1L-L FOR 56K BAUD
; VIAT1A
; 15.
; JSR RS,WRITEI ;LOAD T1C-H, T1L-H, START CLOCK
; VIAT1B
; 000
;-----
;WAIT FOR NULCLK BIT TO BE SET TO 1
;-----
; MOV #170000,REGO ;INIT PROGRAM TIMER
; JSR RS,READI ;READ VIA ORB
; VIAORB
; .WORD 0
; BITB #NULCLK,24 ;SEE IF CLOCK BIT SET
; BNE 34 ;BR IF SET
; INC REGO ;INCR TIMER
; BNE 14 ;BR IF TIMER DID NOT TIME OUT
; ; (TIME OUT = SEVERAL HUNDRED MICRO-SEC)
; MOV #0,REGNUM ;SET VIA REG NO. FOR PRINTOUT
; MOV #NULCLK,GDATA ;GET EXPECTED DATA
; MOV 24,BDATA ;GET ACTUAL DATA
; BIC #177,BDATA ;CLEAR UNUSED BITS
;REPORT NULL CLK STUCK AT 0
; GEDF EMS,ERR11
;
; "DEVICE FATAL" ERROR # 46
; TRAP C#ERDF
; .WORD 46
; .WORD EMS

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5571 024262
5572 024262 004737 005420
5573 024266 004537 003734
5574 024272 120004
5575 024274 000017
5576 024276 004537 003734
5577 024302 120005
5578 024304 000000
5579
5580
5581
5582 024306 012737 170000 002602
5583 024314 004537 003610
5584 024320 120000
5585 024322 000000
5586 024324 132737 000200 024322
5587 024332 001025
5588 024334 005237 002602
5589 024340 001365
5590
5591 024342 012737 000000 002412
5592 024350 012737 000200 002400
5593 024356 013737 024322 002402
5594 024364 042737 000177 002402
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5596 024372
5597
5598 024372 104455
5599 024374 000056
5600 024376 013252

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CVDNCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 132
 CVDNCC.P11 12-JUL-84 16:09 TEST 13 -- NULL CLOCK TEST

5601	024400	017546							.WORD	ERR11
5602	024402					ESCAPE	TST			
5603	024402	104410							TRAP	C#ESCAPE
5604	024404	000176							.WORD	L10044-.

 ;WAIT FOR NULCLK BIT TO BE CLEARED TO 0

5607										
5608	024406	012737	170000	002602	3#:	MOV	#170000,REGO	;INIT PROGRAM TIMER		
5609	024414	004537	003610		4#:	JSR	R5,READI	;READ VIA ORB		
5610	024420	120000				VIAORB				
5611	024422	000000			5#:	.WORD	0			
5612	024424	132737	000200	024422		BITB	#NULCLK,5#	;SEE IF CLOCK BIT CLEARED		
5613	024432	001425				BEQ	6#	;BR IF CLEARED		
5614	024434	005237	002602			INC	REGO	;INCR TIMER		
5615	024440	001365				BNE	4#	;BR IF TIMER DID NOT TIME OUT		
5616								; (TIME OUT = SEVERAL HUNDRED MICRO-SEC)		
5617	024442	012737	000000	002412		MOV	#0,REGNUM	;SET VIA REG NO. FOR PRINTOUT		
5618	024450	012737	000000	002400		MOV	#000,GDATA	;GET EXPECTED DATA		
5619	024456	013737	024422	002402		MOV	5#,BDATA	;GET ACTUAL DATA		
5620	024464	042737	000177	002402		BIC	#177,BDATA	;CLEAR UNUSED BITS		
5621						;REPORT NULL CLK STUCK AT 1				
5622	024472					GEDF	EM6,ERR11			

 ; "DEVICE FATAL" ERROR # 47
 TRAP C#ERDF
 .WORD 47
 .WORD EM6
 .WORD ERR11

5623										
5624	024472	104455								
5625	024474	000057								
5626	024476	013302								
5627	024500	017546								
5628	024502					ESCAPE	TST			
5629	024502	104410							TRAP	C#ESCAPE
5630	024504	000076							.WORD	L10044-.

 ;WAIT FOR NULCLK BIT TO BE SET TO 1 AGAIN

5631										
5632										
5633										
5634	024506	012737	170000	002602	6#:	MOV	#170000,REGO	;INIT PROGRAM TIMER		
5635	024514	004537	003610		7#:	JSR	R5,READI	;READ VIA ORB		
5636	024520	120000				VIAORB				
5637	024522	000000			8#:	.WORD	0			
5638	024524	132737	000200	024522		BITB	#NULCLK,8#	;SEE IF CLOCK BIT SET		
5639	024532	001023				BNE	9#	;BR IF SET		
5640	024534	005237	002602			INC	REGO	;INCR TIMER		
5641	024540	001365				BNE	7#	;BR IF TIMER DID NOT TIME OUT		
5642								; (TIME OUT = SEVERAL HUNDRED MICRO-SEC)		
5643	024542	012737	000000	002412		MOV	#0,REGNUM	;SET VIA REG NO. FOR PRINTOUT		
5644	024550	012737	000200	002400		MOV	#NULCLK,GDATA	;GET EXPECTED DATA		
5645	024556	013737	024522	002402		MOV	8#,BDATA	;GET ACTUAL DATA		
5646	024564	042737	000177	002402		BIC	#177,BDATA	;CLEAR UNUSED BITS		
5647						;REPORT NULL CLK STUCK AT 0				
5648	024572					GEDF	EM5,ERR11			

 ; "DEVICE FATAL" ERROR # 48

CVDNCCO DMV11 LINE UNIT DIAG1
CVDNCC.P11 12-JUL-84 16:09

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TEST 13 -- NULL CLOCK TEST

5650 024572 104455
5651 024574 000060
5652 024576 013252
5653 024600 017546
5654 024602
5655 024602
5656 024602
5657 024602 104401

98:
ENDTST

TRAP C#ERDF
.WORD 48
.WORD EMS
.WORD ERR11

L10044:
TRAP C#ETST

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TEST 14 -- BCP TX RESET W/IDLE = 0

.SBTTL TEST 14 -- BCP TX RESET W/IDLE = 0

```

:*****
:
: TEST 14 -- BCP TX RESET W/IDLE = 0
:
: THE USYRT IS INITIALIZED FOR "BYTE-CONTROL PROTOCOL" (BCP) WITH IDLE
: SET TO ZERO AND A 125 SYNC CHARACTER IS LOADED INTO S/AR. A 226 SYNC
: CHARACTER IS LOADED INTO TXDB SO THAT THE SOURCE OF SYNC CHARACTERS
: CAN BE LATER DETERMINED. THE VALID STATE OF THE USYRT REGISTERS IS
: READ AND CHECKED. TXE IS ASSERTED TO ENABLE THE TRANSMITTER LOGIC.
: THEN, TSOM IS ASSERTED AND TXC IS MANUALLY STEPPED WHILE OBSERVING
: TXA -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
: (TXBE SHOULD GO HIGH; AT THIS TIME THE S/AR'S SYNC CHARACTER SHOULD
: BE LOADED INTO TXSO AND TSOM IS AGAIN SET -- DRIVING TXBE LOW.)
: THREE SYNC CHARACTERS ARE SENT/RECEIVED; THE FIRST TWO SYNCHRONIZE
: THE RECEIVER, THE THIRD IS DIRECTLY READ (STRIP SYNC IS OFF) AND
: COMPARED AGAINST 125 (THE S/AR SYNC CHARACTER).
: IF VALUE READ IS 226, THEN TXDB PROVIDED THE SYNC (IE: ERROR).
: THE USYRT IS THEN RESET AND REGISTERS ARE AGAIN READ AND CHECKED.
: THIS TEST WILL GO NO FURTHER INTO THE TRANSMIT SEQUENCE SO THAT ONLY
: ONE MARK AND THREE SYNC CHARACTERS (FROM THE S/AR) IS TRANSMITTED.
: ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN THE
: SEQUENCE.
:
:*****

```

```

:-----
:
:          BGNTST
:
:          T14::
:
:          JSR      PC,INIDMV      ;INIT DMV-11. ENTER M-LOOP
:
:          JSR      R5,INITRN      ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
:          DDCHP!NOCHK!125        ;SET DDCHP,NO CHECK,S/AR(SYNC)=125
:          0
:          BCC     ..8.            ;USE 8 BIT CHARS
:          ERROR    ;BR IF NO ERROR
:                               ;REPORT STACKED ERROR
:
:          ESCAPE  TST            ;SKIP TO END OF TEST
:
:                               TRAP   C:ERROR
:
:                               TRAP   C:ESCAPE
:                               .WORD  L10045-.
:
:          JSR      R5,TXCTRL      ;OUTPUT 1ST SYNC CHARACTER
:          TSOM     ;AND KNOCK DOWN TBMT
:          7.
:
:          JSR      R5,TXCTRL      ;OUTPUT 2ND SYNC CHARACTER
:          TSOM     ;AND KNOCK DOWN TBMT
:          8.
:
:          JSR      R5,TXCTRL      ;OUTPUT 3RD SYNC CHARACTER (125)
:          TSOM     ;AND KNOCK DOWN TBMT
:          8.
:
:          JSR      R5,RCV1ST      ;CLOCK AND RCV TSOM
:          0

```

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5686 024604
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5688 024604 004737 005420
5689
5690 024610 004537 007400
5691 024614 043525
5692 024616 000000
5693 024620 103003
5694 024622
5695 024622 104460
5696 024624
5697 024624 104410
5698 024626 000106
5699
5700 024630 004537 010010
5701 024634 000001
5702 024636 000007
5703
5704 024640 004537 010010
5705 024644 000001
5706 024646 000010
5707
5708 024650 004537 010010
5709 024654 000001
5710 024656 000010
5711
5712 024660 004537 011364
5713 024664 000000

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E11

SEQ 134

CVDNCCO DMV11 LINE UNIT DIAG1
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 TEST 14 -- BCP TX RESET W/IDLE = 0

5714	024666	103003		BCC	..8.		;BR IF NO ERROR		
5715	024670			ERROR			;REPORT STACKED ERROR		
5716	024670	104460						TRAP	C#ERROR
5717	024672			ESCAPE	TST		;SKIP TO END OF TEST		
5718	024672	104410						TRAP	C#ESCAPE
5719	024674	000040						.WORD	L10045-.
5720									
5721	024676	004537	010110	JSR	R5,RXCHAR		;READ AND CHECK FOR S/AR 125 SYNC		
5722	024702	000125		125			; AND CLOCK IN NEXT ONE.		
5723	024704	000000		0					
5724	024706	000010		8.					
5725	024710	103003		BCC	..8.		;BR IF NO ERROR		
5726	024712			ERROR			;REPORT STACKED ERROR		
5727	024712	104460						TRAP	C#ERROR
5728	024714			ESCAPE	TST		;SKIP TO END OF TEST		
5729	024714	104410						TRAP	C#ESCAPE
5730	024716	000016						.WORD	L10045-.
5731									
5732	024720	004537	005126	JSR	R5,RSTCHK		;RESET USYRT/VERIFY SAME		
5733	024724	103003		BCC	..8.		;BR IF NO ERROR		
5734	024726			ERROR			;REPORT STACKED ERROR		
5735	024726	104460						TRAP	C#ERROR
5736	024730			ESCAPE	TST				
5737	024730	104410						TRAP	C#ESCAPE
5738	024732	000002						.WORD	L10045-.
5739									
5740	024734			ENDTST					
5741	024734								
5742	024734	104401						L10045:	TRAP C#ETST

CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 15 -- BCP TX RESET W/IDLE = 1

.SBTTL TEST 15 -- BCP TX RESET W/IDLE = 1

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:*****
:
: TEST 15 -- BCP TX RESET W/IDLE = 1
:
: THE USYRT IS INITIALIZED FOR "BYTE-CONTROL PROTOCOL" (BCP) WITH IDLE
: SET TO ONE AND A 226 SYNC CHARACTERS LOADED INTO S/AR AND TXDB.
: THE VALID STATE OF THE USYRT REGISTERS IS READ AND CHECKED. TXE IS
: ASSERTED TO ENABLE THE TRANSMITTER LOGIC.
: THEN, TSOM IS ASSERTED AND TXC IS MANUALLY STEPPED WHILE OBSERVING
: TXA -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
: (TXBE SHOULD GO HIGH, AT THIS TIME THE TXDB SYNC CHARACTER SHOULD
: BE LOADED INTO TXSO AND TSOM IS AGAIN SET -- DRIVING TXBE LOW.)
: AFTER THE RECEIVER IS SYNCHRONIZED (TWO SYNC CHARACTERS), TXDB IS
: LOADED WITH A 125 AND, WITH TSOM STILL = 1 (SYNC SOURCE = TXDB), THE
: USYRT IS AGAIN CLOCKED.
: AT THIS POINT, IF THE IDLE BIT WORKED, THE VALUE 125 WILL BE READ
: BY THE RECEIVER. OTHERWISE A 226 WILL BE READ, INDICATING TXDB WASN'T
: PROVIDING THE SYNC CHARACTERS.
: WHEN TXBE GOES HIGH AGAIN, THE USYRT IS RESET.
: ALL REGISTERS ARE AGAIN READ AND CHECKED.
: THIS TEST WILL GO NO FURTHER INTO THE TRANSMIT SEQUENCE SO THAT ONLY
: ONE MARK AND THREE SYNCs (226,226,125 FROM TXDB) ARE TRANSMITTED.
: ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN THE
: SEQUENCE.
:
:*****

```

```

:
: BGNTST
:
: T15::
:
: JSR PC,INIDMV ;INIT DMV-11. ENTER M-LOOP
:
: JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
: DDCMP!IDLES!NOCHK!SYNCH ;SET DDCMP,STRIP,IDLE,NO CHECK,SYNCH=226
: 0 ;USE 8 BIT CHARS
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR
: TRAP C!ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST
: TRAP C!ESCAPE
: .WORD L10046-.
:
: JSR R5,TXCHAR ;LOAD 2ND SYNCH, TX 1ST SYNCH
: SYNCH
: 7.
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR
: TRAP C!ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST
: TRAP C!ESCAPE
: .WORD L10046-.
:
: JSR R5,TXCHAR ;LOAD 125, TX 2ND SYNCH
: 125

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```

024736
024736 004737 005420
024742 004537 007400
024746 047626
024750 000000
024752 103003
024754 104460
024756 104410
024760 000136
024762 004537 007676
024766 000226
024770 000007
024772 103003
024774 104460
024776 104410
025000 000116
025002 004537 007676
025006 000125

```

CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 15 -- BCP TX RESET W/IDLE = 1

5799	025010	000010		8.					
5800	025012	103003		BCC	..8.				
5801	025014			ERROR					
5802	025014	104460						TRAP	C#ERROR
5803	025016			ESCAPE	TST				
5804	025016	104410						TRAP	C#ESCAPE
5805	025020	000076						.WORD	L10046-.
5806									
5807	025022	004537	007676	JSR	R5, TXCHAR				
5808	025026	000377		377					
5809	025030	000010		8.					
5810	025032	103003		BCC	..8.				
5811	025034			ERROR					
5812	025034	104460						TRAP	C#ERROR
5813	025036			ESCAPE	TST				
5814	025036	104410						TRAP	C#ESCAPE
5815	025040	000056						.WORD	L10046-.
5816									
5817	025042	004537	011364	JSR	R5, RCV1ST				
5818	025046	000000		0					
5819	025050	103003		BCC	..8.				
5820	025052			ERROR					
5821	025052	104460						TRAP	C#ERROR
5822	025054			ESCAPE	TST				
5823	025054	104410						TRAP	C#ESCAPE
5824	025056	000040						.WORD	L10046-.
5825									
5826	025060	004537	010110	JSR	R5, RXCHAR				
5827	025064	000125		125					
5828	025066	000000		0					
5829	025070	000010		8.					
5830	025072	103003		BCC	..8.				
5831	025074			ERROR					
5832	025074	104460						TRAP	C#ERROR
5833	025076			ESCAPE	TST				
5834	025076	104410						TRAP	C#ESCAPE
5835	025100	000016						.WORD	L10046-.
5836									
5837	025102	004537	005126	JSR	R5, RSTCHK				
5838	025106	103003		BCC	..8.				
5839	025110			ERROR					
5840	025110	104460						TRAP	C#ERROR
5841	025112			ESCAPE	TST				
5842	025112	104410						TRAP	C#ESCAPE
5843	025114	000002						.WORD	L10046-.
5844	025116								
5845	025116								
5846	025116	104401						L10046:	TRAP
5847									C#ETST

ENDTST

L10046:

CVDHCCO DMV11 LINE UNIT DIAG1
CVDHCC.P11 12-JUL-84 16:09

MACY11 30A(1052) 23-JUL-84 14:02 PAGE 138
TEST 16 -- BCP TX UNDERRUN W/TSON TERMINATION

.SBTTL TEST 16 -- BCP TX UNDERRUN W/TSON TERMINATION

```

;*****
;
; TEST 16 -- BCP TX UNDERRUN W/TSON TERMINATION
;
; THE USYRT IS INITIALIZED FOR BCP WITH IDLE = 1 AND TXC IS MANUALLY
; CONTROLLED UNTIL TWO SYNC CHARACTERS AND ONE DATA CHARACTER (000)
; HAVE BEEN TRANSMITTED. AT THIS TIME WHEN TXBE IS ASSERTED BY THE
; USYRT, NO DATA IS LOADED INTO TXDB -- FORCING AN UNDER RUN
; CONDITION. TXU AND TERR ARE CHECKED BOTH BEFORE AND AFTER THEIR
; EXPECTED ASSERTIONS. AFTER THE FIRST NON-DATA CHARACTER (WHICH
; SHOULD BE THE MARK CHARACTER) HAS BEEN STARTED, IDLE IS SET TO 0.
; THIS SHOULD FORCE THE NEXT NON-DATA CHARACTER TO BE A SYNC CHARACTER
; FROM S/AR. WHILE THIS SYNC CHARACTER IS BEING TRANSMITTED, TSON IS
; ASSERTED (CLEARING TXU AND TERR) -- IDLE IS LEFT AT 0. TXBE IS THEN
; CYCLED THROUGH AT LEAST ONE MORE SYNC CHARACTER AND THE TEST IS
; ABORTED. ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS
; WITHIN THE SEQUENCE.
; NOTE: BITS SHIFT OUT OF TX LSB FIRST.
;*****

```

```

;
; BGNTST
;
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T16::
;
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; DDCHP!IDLES!NOCHK!SYNCH ;SET DDCHP,STRIP,IDLE,NO CHECK,SYNCH=226
; NORXEN ;USE 8 BIT CHARS, RECEIVER DISABLED
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR TRAP C!ERROR
; ESCAPE TST ;SKIP TO END OF TEST TRAP C!ESCAPE
; .WORD L10047-.
;
; JSR R5,CHKTSO ;CHECK 1ST BIT OF EXPECTED "SYNCH"
; 0 ; CHARACTER (SHOULD BE 0)
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR TRAP C!ERROR
; ESCAPE TST ;AND EXIT TEST TRAP C!ESCAPE
; .WORD L10047-.
;
; JSR R5,SERIAL ;READ REMAINING 7 BITS OF "SYNCH" CHARACTER
; 7. ; (OFF OF TSO BIT)
; 151 ; EXPECTED BIT SEQUENCE (0010110)
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR TRAP C!ERROR
; ESCAPE TST ;AND EXIT TEST TRAP C!ESCAPE
; .WORD L10047-.

```

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5872 025120
5873 025120 004737 005420
5874
5875 025124 004537 007400
5876 025130 047626
5877 025132 040000
5878 025134 103003
5879 025136
5880 025136 104460
5881 025140
5882 025140 104410
5883 025142 000462
5884
5885 025144 004537 007116
5886 025150 000000
5887 025152 103003
5888 025154
5889 025154 104460
5890 025156
5891 025156 104410
5892 025160 000444
5893
5894 025162 004537 007256
5895 025166 000007
5896 025170 000151
5897 025172 103003
5898 025174
5899 025174 104460
5900 025176
5901 025176 104410
5902 025200 000424
5903

```

CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 16 -- BCP TX UNDERRUN W/TSON TERMINATION

```

5904 025202 004537 003734      JSR      R5,WRITEI      ;LOAD 1ST DATA CHARACTER (000)
5905 025206 120402              TDSRL
5906 025210 000000              000
5907
5908 025212 004537 010010      JSR      R5,TXCTRL      ;CLEAR TSON
5909 025216 000000              000
5910 025220 000000              0
5911
5912 025222 004537 007256      JSR      R5,SERIAL      ;READ 2ND SYNCH CHARACTER VIA TSO
5913 025226 000010              8.          ; 8 BIT CHAR/CLOCK TICKS
5914 025230 000151              151        ; EXPECTED BIT SEQUENCE (010010110)
5915 025232 103003              BCC      .+8.          ;BR IF NO ERROR
5916 025234 103003              ERROR      ;REPORT STACKED ERROR
5917 025234 104460              ESCAPE    TST          ;AND EXIT TEST                      TRAP      C#ERROR
5918 025236 104410              .WORD
5919 025236 104410              .WORD      TRAP      C#ESCAPE
5920 025240 000364              .WORD      L10047-.
5921
5922      ;-----
5923      ; VERIFY THAT TXU AND TERR BITS ARE ZERO AT THIS POINT
5924      ;-----
5924 025242 004537 005432      JSR      R5,CKUSTS      ;CHECK USYRT STATUS
5925 025246 000114              TXACT!TBMT!TSO        ; FOR TRANSMITTER ACTIVE (NO TXU YET!)
5926 025250 103003              BCC      .+8.          ;BR IF NO ERROR
5927 025252 103003              ERROR      ;REPORT STACKED ERROR
5928 025252 104460              ESCAPE    TST          ;SKIP TO END OF TEST                      TRAP      C#ERROR
5929 025254 104410              .WORD
5930 025254 104410              .WORD      TRAP      C#ESCAPE
5931 025256 000346              .WORD      L10047-.
5932
5933 025260 004537 003610      JSR      R5,READI      ;GET TX ERROR BIT (TO SEE IF SET)
5934 025264 120403              TDSRH      ; TERR BIT IS IN TDSRH
5935 025266 000000              000        ; TDSRH STORED HERE
5936 025270 133727 025266 000200 104:    BITB      104,#BIT7    ;CHECK TERR BIT
5937 025276 001406              BEQ      154          ; BR IF TERR NOT SET
5938 025300 001406              GEDF      EM98,ERR12   ;REPORT ERROR: "TERR NOT CLEAR"
5939                                ;          "DEVICE FATAL" ERROR # 49
5940 025300 104455              .WORD      TRAP      C#ERDF
5941 025302 000061              .WORD      49
5942 025304 014357              .WORD      EM98
5943 025306 017722              .WORD      ERR12
5944 025310 104410              ESCAPE    TST          ;AND EXIT TEST                      TRAP      C#ESCAPE
5945 025310 104410              .WORD
5946 025312 000312              .WORD      L10047-.
5947
5948      ;-----
5949      ; NOW READ 1ST DATA CHARACTER (AND CHECK TERR=1,TXU=1)
5950      ;-----
5950 025314 004537 007256 154:    JSR      R5,SERIAL      ;READ DATA CHARACTER (000) VIA TSO
5951 025320 000010              8.          ; 8 BIT CHAR/CLOCK TICKS
5952 025322 000000              000        ; EXPECTED BIT SEQUENCE (00000000)
5953 025324 103003              BCC      .+8.          ;BR IF NO ERROR
5954 025326 103003              ERROR      ;REPORT STACKED ERROR
5955 025326 104460              ESCAPE    TST          ;AND EXIT TEST                      TRAP      C#ERROR
5956 025330 104410              .WORD
5957 025330 104410              .WORD      TRAP      C#ESCAPE
5958 025332 000272              .WORD      L10047-.
5959

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CVDHCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 140
CVDHCC.P11 12-JUL-84 16:09 TEST 16 -- BCP TX UNDERRUN W/TSON TERMINATION

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LINE	UNIT	DIAG1	MACY11	30A(1052)	23-JUL-84	14:02	PAGE 140
5960	025334	004537	011614				
5961	025340	000001					
5962							
5963	025342	004537	005432				
5964	025346	000116					
5965	025350	103003					
5966	025352						
5967	025352	104460					
5968	025354						
5969	025354	104410					
5970	025356	000246					
5971							
5972	025360	004537	003610				
5973	025364	120403					
5974	025366	000000					
5975	025370	133727	025366	000200	204:		
5976	025376	001006					
5977	025400						
5978							
5979	025400	104455					
5980	025402	000062					
5981	025404	014404					
5982	025406	017722					
5983	025410						
5984	025410	104410					
5985	025412	000212					
5986							
5987							
5988							
5989	025414	004537	007116				
5990	025420	000001					
5991	025422	103003					
5992	025424						
5993	025424	104460					
5994	025426						
5995	025426	104410					
5996	025430	000174					
5997							
5998	025432	004537	007256				
5999	025436	000007					
6000	025440	000177					
6001	025442	103003					
6002	025444						
6003	025444	104460					
6004	025446						
6005	025446	104410					
6006	025450	000154					
6007							
6008							
6009							
6010	025452	004537	003734				
6011	025456	120405					
6012	025460	000107					
6013							
6014	025462	004537	007256				
6015	025466	000010					

CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 16 -- BCP TX UNDERRUN W/TSON TERMINATION

```

6016 025470 000377          377          ; EXPECTED BIT SEQUENCE (11111111)
6017 025472 103003          BCC          ; BR IF NO ERROR
6018 025474          ERROR      .+8.      ; REPORT STACKED ERROR
6019 025474 104460          ESCAPE TST          ; AND EXIT TEST
6020 025476          TRAP          C#ERROR
6021 025476 104410          TRAP          C#ESCAPE
6022 025500 000124          .WORD      L10047-.
6023
6024 025502 004537 007256    JSR          RS,SERIAL ; READ SYNCH CHARACTER VIA TSO
6025 025506 000010          8.          ; 8 BIT CHAR/CLOCK TICKS
6026 025510 000151          151         ; EXPECTED BIT SEQUENCE (010010110)
6027 025512 103003          BCC          ; BR IF NO ERROR
6028 025514          ERROR      .+8.      ; REPORT STACKED ERROR
6029 025514 104460          ESCAPE TST          ; AND EXIT TEST
6030 025516          TRAP          C#ERROR
6031 025516 104410          TRAP          C#ESCAPE
6032 025520 000104          .WORD      L10047-.
6033
6034 025522 004537 010010    JSR          RS, TXCTRL ; * ASSERT TSON (SHOULD CLEAR TXU, TERR)
6035 025526 000001          TSON
6036 025530 000000          0
6037
6038          ; -----
6038          ; VERIFY THAT TXU AND TERR BITS ARE ZERO AT THIS POINT
6039          ; -----
6040 025532 004537 005432    JSR          RS, CKUSTS ; CHECK USYRT STATUS
6041 025536 000014          TXACT!TSO    ; FOR TRANSMITTER ACTIVE (NO TXU YET!)
6042 025540 103003          BCC          .+8.      ; BR IF NO ERROR
6043 025542          ERROR      ; REPORT STACKED ERROR
6044 025542 104460          ESCAPE TST          ; SKIP TO END OF TEST
6045 025544          TRAP          C#ERROR
6046 025544 104410          TRAP          C#ESCAPE
6047 025546 000056          .WORD      L10047-.
6048
6049 025550 004537 003610    JSR          RS, READI  ; GET TX ERROR BIT (TO SEE IF SET)
6050 025554 120403          TDSRH       ; TERR BIT IS IN TDSRH
6051 025556 000000          000         ; TDSRH STORED HERE
6052 025560 133727 025556 000200 17# : BITB      17#,#BIT7 ; CHECK TERR BIT
6053 025566 001406          BEQ          18#     ; BR IF TERR NOT SET
6054 025570          GEDF      EM98,ERR12 ; REPORT ERROR: "TERR NOT CLEAR"
6055          ; "DEVICE FATAL" ERROR # 51
6056 025570 104455          TRAP          C#ERDF
6057 025572 000063          .WORD      51
6058 025574 014357          .WORD      EM98
6059 025576 017722          .WORD      ERR12
6060 025600          ESCAPE TST          ; AND EXIT TEST
6061 025600 104410          TRAP          C#ESCAPE
6062 025602 000022          .WORD      L10047-.
6063
6064          ; -----
6064          ; READ/CHECK FOR SYNCH CHARACTER
6065          ; -----
6066 025604 004537 007256    18# : JSR          RS,SERIAL ; READ !SYNCH! CHARACTER VIA TSO
6067 025610 000010          8.          ; 8 BIT CHAR/CLOCK TICKS
6068 025612 000151          151         ; EXPECTED BIT SEQUENCE (10010110)
6069 025614 103003          BCC          .+8.      ; BR IF NO ERROR
6070 025616          ERROR      ; REPORT STACKED ERROR
6071 025616 104460          TRAP          C#ERROR

```

CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 16 -- BCP TX UNDERRUN W/TSON TERMINATION

6072 025620
6073 025620 104410
6074 025622 000002
6075 025624
6076 025624
6077 025624 104401

ESCAPE TST

;AND EXIT TEST

ENDTST

TRAP C#ESCAPE
.WORD L10047-

L10047:

TRAP C#ETST

CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 17 -- BCP TX UNDERRUN W/RESET TERMINATION

.SBTTL TEST 17 -- BCP TX UNDERRUN W/RESET TERMINATION

```

;*****
;*
;* TEST 17 -- BCP TX UNDERRUN W/RESET TERMINATION
;*
;* THE USYRT IS INITIALIZED FOR BCP WITH IDLE = 1 AND TXC IS MANUALLY
;* CONTROLLED UNTIL TWO SYNC CHARACTERS AND ONE DATA CHARACTER HAVE
;* BEEN TRANSMITTED. AT THIS TIME WHEN TXBE IS ASSERTED BY THE USYRT,
;* NO DATA IS LOADED INTO TXDB -- FORCING AN UNDER RUN CONDITION. TXU
;* AND TERR ARE CHECKED BOTH BEFORE AND AFTER THEIR EXPECTED
;* ASSERTIONS. AFTER THE FIRST NON-DATA CHARACTER (WHICH SHOULD BE THE
;* MARK CHARACTER) HAS BEEN STARTED, IDLE IS SET TO 0. THIS SHOULD
;* FORCE THE NEXT NON-DATA CHARACTER TO BE A SYNC CHARACTER.
;* IMMEDIATELY AFTER THIS SYNC CHARACTER HAS BEING TRANSMITTED, A
;* PROGRAM RESET IS ISSUED AND ALL REGISTERS ARE CHECKED. ERROR
;* LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN THE
;* SEQUENCE.
;*****

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025626
025626 004737 005420
025632 004537 007400
025636 047626
025640 040000
025642 103003
025644
025644 104460
025646
025646 104410
025650 000354
025652 004537 007116
025656 000000
025660 103003
025662
025662 104460
025664
025664 104410
025666 000336
025670 004537 007256
025674 000007
025676 000151
025700 103003
025702
025702 104460
025704
025704 104410
025706 000316
025710 004537 003734
025714 120402

```

```

;
; BGNTST
;
; JSR PC,INIDMW ;INIT DMV-11. ENTER M-LOOP T17::
;
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; DDCHP!IDLES!NOCHK!SYNCH ;SET DDCHP,STRIP,IDLE,NO CHECK,SYNCH=226
; NORXEN ;USE 8 BIT CHARS, RECEIVER DISABLED
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR TRAP C#ERROR
; ESCAPE TST ;SKIP TO END OF TEST TRAP C#ESCAPE
; .WORD L10050-.
;
; JSR R5,CHKTSO ;CHECK 1ST BIT OF EXPECTED "SYNCH"
; 0 ; CHARACTER (SHOULD BE 0)
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR TRAP C#ERROR
; ESCAPE TST ;AND EXIT TEST TRAP C#ESCAPE
; .WORD L10050-.
;
; JSR R5,SERIAL ;READ REMAINING 7 BITS OF "SYNCH" CHARACTER
; 7. ; (OFF OF TSO BIT)
; 151 ; EXPECTED BIT SEQUENCE (0010110)
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR TRAP C#ERROR
; ESCAPE TST ;AND EXIT TEST TRAP C#ESCAPE
; .WORD L10050-.
;
; JSR R5,WRITEI ;LOAD 1ST DATA CHARACTER (000)
; TDSRL

```


CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 17 -- BCP TX UNDERRUN W/RESET TERMINATION

```

6134 025716 000000 000
6135
6136 025720 004537 010010 JSR R5, TXCTRL ;CLEAR TSOH
6137 025724 000000 000
6138 025726 000000 0
6139
6140 025730 004537 007256 JSR R5, SERIAL ;READ 2ND SYNCH CHARACTER VIA TSO
6141 025734 000010 8. ; 8 BIT CHAR/CLOCK TICKS
6142 025736 000151 151 ; EXPECTED BIT SEQUENCE (010010110)
6143 025740 103003 BCC .+8. ;BR IF NO ERROR
6144 025742 ERROR ;REPORT STACKED ERROR
6145 025742 104460 ESCAPE TST ;AND EXIT TEST TRAP C#ERROR
6146 025744
6147 025744 104410 TRAP C#ESCAPE
6148 025746 000256 .WORD L10050-.
6149
6150 ;-----
6151 ; VERIFY THAT TXU AND TERR BITS ARE ZERO AT THIS POINT
6152 ;-----
6152 025750 004537 005432 JSR R5, CKUSTS ;CHECK USYRT STATUS
6153 025754 000114 TXACT!TBMT!TSO ; FOR TRANSMITTER ACTIVE (NO TXU YET!)
6154 025756 103003 BCC .+8. ;BR IF NO ERROR
6155 025760 ERROR ;REPORT STACKED ERROR
6156 025760 104460 ESCAPE TST ;SKIP TO END OF TEST TRAP C#ERROR
6157 025762
6158 025762 104410 TRAP C#ESCAPE
6159 025764 000240 .WORD L10050-.
6160
6161 025766 004537 003610 JSR R5, READI ;GET TX ERROR BIT (TO SEE IF SET)
6162 025772 120403 TDSRH ; TERR BIT IS IN TDSRH
6163 025774 000000 000 ; TDSRH STORED HERE
6164 025776 133727 025774 000200 10#: BITB 10#, #BIT7 ;CHECK TERR BIT
6165 026004 001406 BEQ 15# ; BR IF TERR NOT SET
6166 026006 GEDF EM98, ERR12 ;REPORT ERROR: "TERR NOT CLEAR"
6167 ; "DEVICE FATAL" ERROR # 52
6168 026006 104455 TRAP C#ERDF
6169 026010 000064 .WORD 52
6170 026012 014357 .WORD EM98
6171 026014 017722 .WORD ERR12
6172 026016 ESCAPE TST ;AND EXIT TEST
6173 026016 104410 TRAP C#ESCAPE
6174 026020 000204 .WORD L10050-.
6175
6176 ;-----
6177 ; NOW READ 1ST DATA CHARACTER (AND CHECK TERR=1, TXU=1)
6178 ;-----
6178 026022 004537 007256 15#: JSR R5, SERIAL ;READ DATA CHARACTER (000) VIA TSO
6179 026026 000010 8. ; 8 BIT CHAR/CLOCK TICKS
6180 026030 000000 000 ; EXPECTED BIT SEQUENCE (00000000)
6181 026032 103003 BCC .+8. ;BR IF NO ERROR
6182 026034 ERROR ;REPORT STACKED ERROR
6183 026034 104460 ESCAPE TST ;AND EXIT TEST TRAP C#ERROR
6184 026036
6185 026036 104410 TRAP C#ESCAPE
6186 026040 000164 .WORD L10050-.
6187
6188 026042 004537 011614 JSR R5, STEPLU ;GENERATE 1 TICK TO UNDERRUN TX
6189 026046 000001 1

```


CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 18 -- BCP TX DISABLE TEST

.SBTTL TEST 18 -- BCP TX DISABLE TEST

```

*****
;*
;* TEST 18 -- BCP TX DISABLE TEST
;*
;* THE USYRT IS INITIALIZED FOR BCP AND A MESSAGE IS STARTED. ONCE THE
;* SECOND DATA CHARACTER IS LOADED INTO TXDB TXE IS DROPPED. TXSO IS
;* WATCHED TO ASSURE THAT THE CHARACTER BEING TRANSMITTED IS COMPLETED.
;* WHEN IT IS, THE USYRT SHOULD DROP TXA AND STOP TRANSMITTING -- THE
;* LAST CHARACTER LOADED INTO TXDB SHOULD BE LOST.
;*
;* CHARACTERS LOADED: 125 252
;* CHARACTERS TRANSMITTED: 125
*****

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026226
026226 004737 005420
026232 004537 007400
026236 043626
026240 000000
026242 103003
026244 104460
026246 104410
026250 000162
026252 004537 010010
026256 000001
026260 006007
026262 004537 010010
026266 000000
026270 000000
026272 004537 007676
026276 000125
026300 000010
026302 103003
026304 104460
026306 104410
026310 000122
026312 004537 007676
026316 000252
026320 000000
026322 103003
026324 104460

```

```

: BGNTST
:
: T18::
:
: JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
:
: JSR RS,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
: DDCMP!NOCHK!SYNCH ;SET DDCMP,NO CHECK,SYNCH=226
: 0 ;USE 8 BIT CHARS
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST TRAP C#ERROR
:
: JSR RS,TXCTRL ;OUTPUT 1ST SYNC CHARACTER
: TSOM ;AND KNOCK DOWN TBMT
: 7.
:
: JSR RS,TXCTRL ;CLEAR TSOM (GET READY TO SEND DATA)
: 000
: 0
:
: JSR RS,TXCHAR ;LOAD 125, TX 2ND SYNCH
: 125
: 8.
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR TRAP C#ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST TRAP C#ESCAPE
:
: JSR RS,TXCHAR ;LOAD 252
: 252
: 0
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR TRAP C#ERROR
:

```

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TEST 18 -- BCP TX DISABLE TEST

6319	026326			ESCAPE TST	;SKIP TO END OF TEST		
6320	026326	104410				TRAP	C#ESCAPE
6321	026330	000102				.WORD	L10051-.
6322							
6323	026332	004537	003734	JSR R5,WRITEI	;DROP TRANSMIT ENABLE (TXE)		
6324	026336	120000		VIAORB			
6325	026340	000102		RXEN!TTLOOP			
6326							
6327	026342	004537	011614	JSR R5,STEPLU	;CLOCK IN 125		
6328	026346	000007		7.	;***		
6329							
6330	026350	004537	011364	JSR R5,RCV1ST	;CLOCK AND RCV 125		
6331	026354	000000		0			
6332	026356	103003		BCC .+8.	;BR IF NO ERROR		
6333	026360			ERROR	;REPORT STACKED ERROR		
6334	026360	104460				TRAP	C#ERROR
6335	026362			ESCAPE TST	;SKIP TO END OF TEST		
6336	026362	104410				TRAP	C#ESCAPE
6337	026364	000046				.WORD	L10051-.
6338							
6339	026366	004537	010110	JSR R5,RXCHAR	;READ AND CHECK FOR 125		
6340	026372	000125		125			
6341	026374	000000		0			
6342	026376	000010		8.	;AND CLOCK IN NEXT CHAR.		
6343	026400	103003		BCC .+8.	;BR IF NO ERROR		
6344	026402			ERROR	;REPORT STACKED ERROR		
6345	026402	104460				TRAP	C#ERROR
6346	026404			ESCAPE TST	;SKIP TO END OF TEST		
6347	026404	104410				TRAP	C#ESCAPE
6348	026406	000024				.WORD	L10051-.
6349							
6350	026410	004537	010110	JSR R5,RXCHAR	;READ AND CHECK FOR 377		
6351	026414	000377		377	;** IF 252 IS READ, THEN DROPPING		
6352	026416	000000		0	;** TXEN DIDN'T WORK !!!		
6353	026420	000010		8.			
6354	026422	103003		BCC .+8.	;BR IF NO ERROR ****		
6355	026424			ERROR	;REPORT STACKED ERROR ****		
6356	026424	104460				TRAP	C#ERROR
6357	026426			ESCAPE TST	;SKIP TO END OF TEST ****		
6358	026426	104410				TRAP	C#ESCAPE
6359	026430	000002				.WORD	L10051-.
6360	026432			ENDTST			
6361	026432					L10051:	
6362	026432	104401				TRAP	C#ETST

CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 19 -- FIFO STACKING CHARACTERS TEST

.SBTTL TEST 19 -- FIFO STACKING CHARACTERS TEST

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:*****
:
: TEST 19 -- FIFO STACKING CHARACTERS TEST
:
: THE USYRT IS SETUP FOR BCP MODE WITH NO ERROR DETECTION.
: THIS TEST BEGINS BY SYNCHRONIZING THE RECEIVER AND THEN PROCEEDS
: TO FILL THE 8 CHARACTER RECEIVER FIFO WITH THE CHARACTERS:
: 1/2(SYNCH),000,377,125,252,347,030,303,1/2(074).
: THESE CHARACTERS ARE THEN READ OFF OF THE FIFO AND CHECKED. NOTE
: THAT NO CLOCKS ARE PROVIDED WHEN RECEIVING THE CHARACTERS SINCE THEY
: ARE SUPPLIED BY THE FIFO SUPPORT LOGIC IN GROUPS OF 4 TICKS (WHEN
: RDA = 0).
: ALSO NOTE THAT DUE TO FIFO TIMING, TWO 'HALF CHARACTERS' ARE LOADED
: INTO THE FIFO (THE 1ST AND LAST CHARACTERS).
:
:*****

```

```

:
: BGNTST
:
: JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T19::
:
: JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
: DDCMP!NOCHK!SYNCH ;SET DDCMP,NO CHECK,SYNCH=226
: 0 ;USE 8 BIT CHARS
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR TRAP C#ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST TRAP C#ESCAPE
: .WORD L10052-.
:
: JSR R5,TXCTRL ;OUTPUT 1ST SYNC CHARACTERS
: TSOM
: 7.
: JSR R5,TXCTRL ;CLEAR TSOM
: 000
: 0
:-----
: FILL THE FIFO WITH CHARACTERS (DATA1 - DATA8)
:-----
:
: MOV @TXTBL3,R2 ;SET UP TABLE POINTER
: 50: MOVB (R2)+,100 ;SETUP TRANSMIT CHARACTER
:
: JSR R5,TXCHAR ;TRANSMIT A CHARACTER
: 100: 000 ;** HOLE FOR NEXT TX CHARACTER
: NCTBMT*256.!8. ;NO CHECK OF INITIAL TBMT=0
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR TRAP C#ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST TRAP C#ESCAPE
: .WORD L10052-.

```

026434 004737 005420
026440 004537 007400
026444 043626
026446 000000
026450 103003
026452 104460
026454 104410
026456 000216
026460 004537 010010
026464 000001
026466 000007
026470 004537 010010
026474 000000
026476 000000
026500 012702 026676
026504 112237 026514
026510 004537 007676
026514 000000
026516 100010
026520 103003
026522 104460
026524 104410
026526 000146

CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 19 -- FIFO STACKING CHARACTERS TEST

```

6419 026530 022702 026710          CMP    #TXEND3,R2
6420 026534 001363          BNE    5$
6421
6422 026536 004537 011614          JSR    R5,STEPLU          ;ADD A FEW TX TICKS TO COMPLETELY
6423 026542 000005          5          ; FILL UP FIFO.
6424
6425          ;-----
6426          ; THE FIFO IS NOW FULL OF CHARACTERS.
6427          ; NOW READ/VERIFY THEM.
6428 026544 012702 026676          MOV    #TXTBL3,R2          ;SET UP TABLE POINTER
6429 026550 112237 026560 15$:  MOVB   (R2)+,20$          ;SETUP EXPECTED CHARACTER
6430
6431 026554 004537 010110          JSR    R5,RXCHAR          ;READ & CHK CHARACTER
6432 026560 000000          20$:  000          ;** HOLE FOR EXPECTED RECEIVE CHAR.
6433 026562 000000          0          ;
6434 026564 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
6435 026566 103003          BCC    .+8.          ;BR IF NO ERROR
6436 026570          ERROR          ;REPORT STACKED ERROR
6437 026570 104460          ESCAPE TST          ;SKIP TO END OF TEST          TRAP    C$ERROR
6438 026572          .WORD          ;
6439 026572 104410          .WORD          ;
6440 026574 000100          .WORD          ;
6441
6442 026576 022702 026706          CMP    #TXEND3-2,R2
6443 026602 001362          BNE    15$
6444
6445 026604 004537 011614          JSR    R5,STEPLU          ;CLOCK IN LAST FEW CHARACTERS OFF
6446 026610 000015          15          ; OF FIFO.
6447
6448 026612 004537 010110          JSR    R5,RXCHAR          ;READ & CHK CHARACTER
6449 026616 000303          303
6450 026620 000000          0
6451 026622 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
6452 026624 103003          BCC    .+8.          ;BR IF NO ERROR
6453 026626          ERROR          ;REPORT STACKED ERROR
6454 026626 104460          ESCAPE TST          ;SKIP TO END OF TEST          TRAP    C$ERROR
6455 026630          .WORD          ;
6456 026630 104410          .WORD          ;
6457 026632 000042          .WORD          ;
6458
6459 026634 004537 010110          JSR    R5,RXCHAR          ;READ & CHK CHARACTER
6460 026640 000074          074
6461 026642 000000          0
6462 026644 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
6463 026646 103003          BCC    .+8.          ;BR IF NO ERROR
6464 026650          ERROR          ;REPORT STACKED ERROR
6465 026650 104460          ESCAPE TST          ;SKIP TO END OF TEST          TRAP    C$ERROR
6466 026652          .WORD          ;
6467 026652 104410          .WORD          ;
6468 026654 000020          .WORD          ;
6469
6470 026656 004537 011532          JSR    R5,ENDTRN          ;SHUT DOWN TRANSMITTER, RECEIVER
6471 026662 000010          8.
6472 026664 103003          BCC    .+8.          ;BR IF NO ERROR
6473 026666          ERROR          ;REPORT STACKED ERROR
6474 026666 104460          TRAP    C$ERROR

```

CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 19 -- FIFO STACKING CHARACTERS TEST

ESCAPE TST ;SKIP TO END OF TEST

6475	026670	
6476	026670	104410
6477	026672	000002
6478	026674	
6479	026674	
6480	026674	104401
6481		
6482	026676	226
6483	026677	226
6484	026700	000
6485	026701	377
6486	026702	125
6487	026703	252
6488	026704	347
6489	026705	030
6490	026706	303
6491	026707	074
6492	026710	000
6493		026712
6494		

ENDTST

L10052:

TRAP	C#ESCAPE
.WORD	L10052-.
TRAP	C#ETST

```

;-----
TXBL3: .BYTE 226 ;SYNCH
        .BYTE 226 ;SYNCH
        .BYTE 000
        .BYTE 377
        .BYTE 125
        .BYTE 252
        .BYTE 347
        .BYTE 030
        .BYTE 303
        .BYTE 074
TXEND3: .BYTE 000
        .EVEN
;-----

```

CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 20 -- BCP CHARACTER LENGTH TEST

.SBTTL TEST 20 -- BCP CHARACTER LENGTH TEST

```

;*****
;*
;* TEST 20 -- BCP CHARACTER LENGTH TEST
;*
;* THE USYRT IS INITIALIZED FOR BCP WITH NO ERROR CHECKING. TXC IS MANUALLY
;* CONTROLLED UNTIL TWO SYNC CHARACTERS HAVE BEEN TRANSMITTED. THEN 3
;* SUBTESTS FOLLOW, EACH ONE USING A DIFFERENT TRANSMIT CHARACTER LENGTH
;* STARTING AT FIVE (5) AND ENDING WITH SEVEN (7).
;*
;* TEST PATTERN: 111 222 333 044 155 266 377
;*****

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6496
6497
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6499
6500
6501
6502
6503
6504
6505
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6508
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6510
6511 026712
6512 026712 004737 005420
6513
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6516 026716
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6518 026716 104402
6519 026720 004537 007400
6520 026724 043626
6521 026726 000245
6522 026730 103003
6523 026732
6524 026732 104460
6525 026734
6526 026734 104410
6527 026736 000126
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6529 026740 004537 010010
6530 026744 000001
6531 026746 000004
6532 026750 004537 010010
6533 026754 000000
6534 026756 000000
6535
6536 026760 012703 027410
6537 026764 112337 026774
6538
6539 026770 004537 007676
6540 026774 000000
6541 026776 000005
6542 027000 103003
6543 027002
6544 027002 104460
6545 027004
6546 027004 104410
6547 027006 000056
6548
6549 027010 022703 027421
6550 027014 001363

```

```

;
; BGNTST
;
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T20::
;-----
; SUBROUTINE # 1: 5 BIT CHARACTERS
;-----
; BGNSUB
;
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE TRAP C#BSUB
; DDCHP!NOCHK!SYNCH ;SET CHAR MODE,NO ERROR CHECKING,S/AR=226
; BIT7!BIT5!BIT2!BIT0 ;TXCL-RXCL=5 BITS
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
;
; ESCAPE SUB ;SKIP TO END OF TEST TRAP C#ERROR
;
; JSR R5,TXCTRL ;LOAD 2ND SYNCH,TX 1ST SYNCH TRAP C#ESCAPE
; TSOM ;
; 4. ;
; JSR R5,TXCTRL ;CLEAR TSOM .WORD L10054-.
; 000
; 0
;-----
; 100: MOV #T24TBL,R3 ;SET UP DATA TABLE POINTER
; MOVB (R3)+,10 ;INSTALL NEXT TX CHARACTER
;
; 10: JSR R5,TXCHAR ;TRANSMIT CHARACTER ( ==> RX/FIFO )
; 000 ;** HOLE FOR NEXT CHARACTER **
; 5. ;
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR TRAP C#ERROR
;
; ESCAPE SUB ;SKIP TO END OF TEST TRAP C#ESCAPE
;
; .WORD L10054-.
;
; CMP #T24TBL+9.,R3 ;ALL CHARACTERS TRANSMITTED ?
; BNE 100 ; IF NOT, TX ANOTHER ONE

```


CVDNCCO DMV11 LINE UNIT DIAG1
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TEST 20 -- BCP CHARACTER LENGTH TEST

```

6551 ;-----
6552 027016 012703 027410      MOV    #T24TBL,R3      ;SET UP DATA TABLE POINTER
6553 027022 112337 027040      40+:  MOVB   (R3)+,4#     ;INSTALL NEXT EXPECTED RX CHARACTER
6554 027026 142737 000340 027040  BICB   #340,4#       ;MASK OUT UNTRANSMITTED BITS
6555
6556 027034 004537 010110      JSR    R5,RXCHAR      ;READ/CHECK NEXT CHARACTER
6557 027040 000000      4+:  000              ;** HOLE FOR NEXT EXPECTED CHARACTER
6558 027042 000000      0
6559 027044 100000      NOCRDA              ;NO INITIAL CHECK OF RDA=0
6560 027046 103003      BCC    .+8.         ;BR IF NO ERROR
6561 027050      ERROR              ;REPORT STACKED ERROR
6562 027050 104460      ESCAPE SUB          ;SKIP TO END OF TEST          TRAP    C#ERROR
6563 027052      .WORD
6564 027052 104410      TRAP    C#ESCAPE
6565 027054 000010      .WORD    L10054-.
6566
6567 027056 022703 027417      CMP    #T24TBL+7,R3  ;ALL CHARACTERS CHECKED ?
6568 027062 001357      BNE    40#          ; IF NOT, CHECK ANOTHER ONE
6569
6570 027064      ENDSUB
6571 027064
6572 027064 104403      L10054:  TRAP    C#ESUB
6573
6574 ;-----
6575 ; SUBROUTINE # 2: 6 BIT CHARACTERS
6576 ;-----
6577      BGNSUB
6578      T20.2:
6579 027066 104402      TRAP    C#BSUB
6580 027070 004537 007400      JSR    R5,INITRN    ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
6581 027074 043626      DDCHP!NOCHK!SYNCH  ;SET CHAR MODE,NO ERROR CHECKING,S/AR=226
6582 027076 000306      BIT7!BIT6!BIT2!BIT1 ;TXCL=RXCL=6 BITS
6583 027100 103003      BCC    .+8.         ;BR IF NO ERROR
6584 027102 104460      ERROR              ;REPORT STACKED ERROR          TRAP    C#ERROR
6585 027104      ESCAPE SUB          ;SKIP TO END OF TEST          TRAP    C#ESCAPE
6586 027104 104410      .WORD    L10055-.
6587 027106 000126
6588
6589 027110 004537 010010      JSR    R5,TXCTRL    ;LOAD 2ND SYNCH, TX 1ST SYNCH
6590 027114 000001      TSOM
6591 027116 000005      5.
6592 027120 004537 010010      JSR    R5,TXCTRL    ;CLEAR TSOM
6593 027124 000000      000
6594 027126 000000      0
6595 ;-----
6596 027130 012703 027410      MOV    #T24TBL,R3      ;SET UP DATA TABLE POINTER
6597 027134 112337 027144      20+:  MOVB   (R3)+,2#     ;INSTALL NEXT TX CHARACTER
6598
6599 027140 004537 007676      JSR    R5,TXCHAR     ;TRANSMIT CHARACTER ( ==> RX/FIFO )
6600 027144 000000      2+:  000              ;** HOLE FOR NEXT CHARACTER **
6601 027146 000006      6.
6602 027150 103003      BCC    .+8.         ;BR IF NO ERROR
6603 027152      ERROR              ;REPORT STACKED ERROR          TRAP    C#ERROR
6604 027152 104460      ESCAPE SUB          ;SKIP TO END OF TEST          TRAP    C#ESCAPE
6605 027154      .WORD
6606 027154 104410      TRAP    C#ESCAPE

```


CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 20 -- BCP CHARACTER LENGTH TEST

```

6663 027322          ERROR          ;REPORT STACKED ERROR
6664 027322 104460          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP    C#ERROR
6665 027324          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP    C#ESCAPE
6666 027324 104410          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD  L10056-.
6667 027326 000056          ESCAPE SUB          ;SKIP TO END OF TEST
6668
6669 027330 022703 027421      CMP      #T24TBL+9.,R3      ;ALL CHARACTERS TRANSMITTED ?
6670 027334 001363          BNE      30#                ; IF NOT, TX ANOTHER ONE
6671          ;-----
6672 027336 012703 027410      MOV      #T24TBL,R3        ;SET UP DATA TABLE POINTER
6673 027342 112337 027360 60# : MOVB    (R3)+,6#          ;INSTALL NEXT EXPECTED RX CHARACTER
6674 027346 142737 000200 027360 BICB    #200,6#           ;MASK OUT UNTRANSMITTED BITS
6675
6676 027354 004537 010110      JSR      R5,RXCHAR         ;READ/CHECK NEXT CHARACTER
6677 027360 000000 6# :      000                ;** HOLE FOR NEXT EXPECTED CHARACTER
6678 027362 000000          0
6679 027364 100000          NOCRDA
6680 027366 103003          BCC     .+8.              ;NO INITIAL CHECK OF RDA=0
6681 027370          ERROR          ;REPORT STACKED ERROR
6682 027370 104460          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP    C#ERROR
6683 027372          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP    C#ESCAPE
6684 027372 104410          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD  L10056-.
6685 027374 000010          ESCAPE SUB          ;SKIP TO END OF TEST
6686
6687 027376 022703 027417      CMP      #T24TBL+7,R3      ;ALL CHARACTERS CHECKED ?
6688 027402 001357          BNE      60#                ; IF NOT, CHECK ANOTHER ONE
6689
6690          ENDSUB
6691
6692          ;-----
6693          ;-----
6694          ;-----
6695          ;-----
6696          ;-----
6697 027410          111          T24TBL: .BYTE 111      ;D1
6698 027411          222          .BYTE 222      ;D2
6699 027412          333          .BYTE 333      ;D3
6700 027413          044          .BYTE 044      ;D4
6701 027414          155          .BYTE 155      ;D5
6702 027415          266          .BYTE 266      ;D6
6703 027416          377          .BYTE 377      ;D7
6704 027417          000          .BYTE 000      ;FILLER 1
6705 027420          000          .BYTE 000      ;FILLER 2
6706 027421          000          .BYTE 000      ;FILLER 3
6707          .EVEN
6708          ;-----

```

L10056: TRAP C#ESUB
L10053: TRAP C#ETST

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TEST 21 -- BOP TX TABORT/(IDLE = 0) TEST

.SBTTL TEST 21 -- BOP TX TABORT/(IDLE = 0) TEST

```

;*****
;*
;* TEST 21 -- BOP TX TABORT/(IDLE = 0) TEST
;*
;* THE USYRT IS INITIALIZED FOR "BIT-ORIENTED PROTOCOL" (BOP) WITH IDLE
;* SET TO ZERO. TXE AND TSOH IS ASSERTED AND TXC IS MANUALLY STEPPED WHILE
;* OBSERVING TXA -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
;* NEXT, TXBE SHOULD GO HIGH, AT THIS TIME AN ALL ZEROS CHARACTER WILL BE
;* LOADED INTO TXDB DRIVING TXBE LOW. THE TRANSMITTER IS CLOCKED THROUGH
;* ONE CHARACTER. WHEN TXBE GOES HIGH AGAIN, TABORT IS ASSERTED CAUSING
;* ABORT TO BE TRANSMITTED. ALL CHARACTERS ARE CHECKED AT TXSO.
;* THIS TEST WILL GO NO FURTHER INTO THE TRANSMIT SEQUENCE SO THAT ONLY TWO
;* FLAGS, ONE ZERO CHARACTER, AND ONE ABORT CHARACTER IS SENT (INTO THE BIT
;* BUCKET). ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN
;* THE SEQUENCE.
;*****

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027422
027422 004737 005420
027426 004537 007400
027432 003400
027434 040000
027436 103003
027440
027440 104460
027442
027442 104410
027444 000150
027446 004537 007116
027452 000000
027454 103003
027456
027456 104460
027460
027460 104410
027462 000132
027464 004537 007256
027470 000007
027472 000176
027474 103003
027476
027476 104460
027500
027500 104410
027502 000112
027504 004537 010010
027510 000000
027512 000000

```

```

;
; BGNTST
;
; JSR PC,INIDMV ;INIT VIA T21::
;
; JSR R5,INITRN ;LOAD 1 SOH, CLK TX UNTIL ACTIVE
; NOCHK ;BOP MODE, NO ERROR CHECK
; NORXEN ;NO RECEIVER ENABLE,USE 8 BIT CHARS
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
; ESCAPE TST ;SKIP TO END OF TEST
; TRAP C#ESCAPE
; .WORD L10057-.
;
; JSR R5,CHKTSO ;CHECK 1ST BIT OF EXPECTED "FLAG"
; 0 ; CHARACTER (SHOULD BE ^)
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
; ESCAPE TST ;AND EXIT TEST
; TRAP C#ESCAPE
; .WORD L10057-.
;
; JSR R5,SERIAL ;READ REMAINING 7 BITS OF "FLAG" CHARACTER
; 7. ; (OFF OF TSO BIT)
; 176 ; EXPECTED BIT SEQUENCE (1111110)
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
; ESCAPE TST ;AND EXIT TEST
; TRAP C#ESCAPE
; .WORD L10057-.
;
; JSR R5,TXCTRL ;CLEAR TSOH
; 000
; 0

```

CVDHCCO DMV11 LINE UNIT DIAG1
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TEST 21 -- BOP TX TABORT/(IDLE = 0) TEST

6765								
6766	027514	004537	003734	JSR	R5,WRITEI	;LOAD 000 CHARACTER		
6767	027520	120402		TDSRL				
6768	027522	000000		000				
6769								
6770	027524	004537	007256	JSR	R5,SERIAL	;READ FLAG CHARACTER VIA TSO		
6771	027530	000010		8.		; 8 BIT CHAR/CLOCK TICKS		
6772	027532	000176		176		; EXPECTED BIT SEQUENCE (01111110)		
6773	027534	103003		BCC	.+8.	;BR IF NO ERROR		
6774	027536			ERROR		;REPORT STACKED ERROR		
6775	027536	104460					TRAP	C#ERROR
6776	027540			ESCAPE	TST	;AND EXIT TEST		
6777	027540	104410					TRAP	C#ESCAPE
6778	027542	000052					.WORD	L10057-.
6779								
6780	027544	004537	010010	JSR	R5,TXCTRL	;SET TXABT BIT		
6781	027550	000004		TAB				
6782	027552	000000		0				
6783								
6784	027554	004537	007256	JSR	R5,SERIAL	;READ 000 CHARACTER VIA TSO		
6785	027560	000010		8.		; 8 BIT CHAR/CLOCK TICKS		
6786	027562	000000		000		; EXPECTED BIT SEQUENCE (00000000)		
6787	027564	103003		BCC	.+8.	;BR IF NO ERROR		
6788	027566			ERROR		;REPORT STACKED ERROR		
6789	027566	104460					TRAP	C#ERROR
6790	027570			ESCAPE	TST	;AND EXIT TEST		
6791	027570	104410					TRAP	C#ESCAPE
6792	027572	000022					.WORD	L10057-.
6793								
6794	027574	004537	007256	JSR	R5,SERIAL	;READ ABORT CHARACTER VIA TSO		
6795	027600	000007		7		; 7 BIT CHAR/CLOCK TICKS		
6796	027602	000177		177		; EXPECTED BIT SEQUENCE (11111111)		
6797	027604	103003		BCC	.+8.	;BR IF NO ERROR		
6798	027606			ERROR		;REPORT STACKED ERROR		
6799	027606	104460					TRAP	C#ERROR
6800	027610			ESCAPE	TST	;AND EXIT TEST		
6801	027610	104410					TRAP	C#ESCAPE
6802	027612	000002					.WORD	L10057-.
6803	027614			ENDTST				
6804	027614						L10057:	
6805	027614	104401					TRAP	C#ETST

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TEST 22 -- BOP TX TABORT/(IDLE = 1) TEST

.SBTTL TEST 22 -- BOP TX TABORT/(IDLE = 1) TEST

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.....
:
: TEST 22 -- BOP TX TABORT/(IDLE = 1) TEST
:
: THE USYRT IS INITIALIZED FOR "BIT-ORIENTED PROTOCOL" (BOP) WITH IDLE
: SET TO ONE. TXE AND TSOH IS ASSERTED AND TXC IS MANUALLY STEPPED WHILE
: OBSERVING TXA -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
: NEXT, TXBE SHOULD GO HIGH; AT THIS TIME AN ALL ZEROS CHARACTER WILL BE
: LOADED INTO TXDB DRIVING TXBE LOW. THE TRANSMITTER IS CLOCKED THROUGH
: ONE CHARACTER. WHEN TXBE GOES HIGH AGAIN, TABORT IS ASSERTED CAUSING
: ABORT TO BE TRANSMITTED. ALL CHARACTERS ARE CHECKED AT TXSO.
: THIS TEST WILL GO NO FURTHER INTO THE TRANSMIT SEQUENCE SO THAT ONLY TWO
: FLAGS, ONE ZERO CHARACTER, AND ONE FLAG CHARACTER IS SENT (INTO THE BIT
: BUCKET). ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN
: THE SEQUENCE.
:
:-----
```

```

:
: BGNTST
:
: JSR PC,INIDMV ;INIT VIA T22::
:
: JSR R5,INITRN ;LOAD 1 SOH, CLK TX UNTIL ACTIVE
: NOCHK:IDLES ;BOP MODE, NO ERROR CHECK, IDLE=1
: NORXEN ;NO RECEIVER ENABLE,USE 8 BIT CHARS
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST TRAP C#ERROR
:
: JSR R5,CHKTSO ;CHECK 1ST BIT OF EXPECTED "FLAG"
: 0 ; CHARACTER (SHOULD BE 0)
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR
:
: ESCAPE TST ;AND EXIT TEST TRAP C#ERROR
:
: JSR R5,SERIAL ;READ REMAINING 7 BITS OF "FLAG" CHARACTER
: 7. ; (OFF OF TSO BIT)
: 176 ; EXPECTED BIT SEQUENCE (1111110)
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR
:
: ESCAPE TST ;AND EXIT TEST TRAP C#ERROR
:
: JSR R5,TXCTRL ;CLEAR TSOH
: 000
: 0 TRAP C#ESCAPE
: .WORD L10060--
```


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TEST 22 -- BOP TX TABORT/(IDLE = 1) TEST

6862								
6863	027710	004537	003734	JSR	R5,WRITEI	;LOAD 000 CHARACTER		
6864	027714	120402		TDSRL				
6865	027716	000000		000				
6866								
6867	027720	004537	007256	JSR	R5,SERIAL	;READ FLAG CHARACTER VIA TSO		
6868	027724	000010		8.		; 8 BIT CHAR/CLOCK TICKS		
6869	027726	000176		176		; EXPECTED BIT SEQUENCE (01111110)		
6870	027730	103003		BCC	..8.	;BR IF NO ERROR		
6871	027732			ERROR		;REPORT STACKED ERROR		
6872	027732	104460					TRAP	C#ERROR
6873	027734			ESCAPE	TST	;AND EXIT TEST		
6874	027734	104410					TRAP	C#ESCAPE
6875	027736	000052					.WORD	L10060-.
6876								
6877	027740	004537	010010	JSR	R5,TXCTRL	;SET TXABT BIT		
6878	027744	000004		TAB				
6879	027746	000000		0				
6880								
6881	027750	004537	007256	JSR	R5,SERIAL	;READ 000 CHARACTER VIA TSO		
6882	027754	000010		8.		; 8 BIT CHAR/CLOCK TICKS		
6883	027756	000000		000		; EXPECTED BIT SEQUENCE (00000000)		
6884	027760	103003		BCC	..8.	;BR IF NO ERROR		
6885	027762			ERROR		;REPORT STACKED ERROR		
6886	027762	104460					TRAP	C#ERROR
6887	027764			ESCAPE	TST	;AND EXIT TEST		
6888	027764	104410					TRAP	C#ESCAPE
6889	027766	000022					.WORD	L10060-.
6890								
6891	027770	004537	007256	JSR	R5,SERIAL	;READ ABORT (FLAG) CHARACTER VIA TSO		
6892	027774	000010		8.		; 8 BIT CHAR/CLOCK TICKS		
6893	027776	000176		176		; EXPECTED BIT SEQUENCE (01111110)		
6894	030000	103003		BCC	..8.	;BR IF NO ERROR		
6895	030002			ERROR		;REPORT STACKED ERROR		
6896	030002	104460					TRAP	C#ERROR
6897	030004			ESCAPE	TST	;AND EXIT TEST		
6898	030004	104410					TRAP	C#ESCAPE
6899	030006	000002					.WORD	L10060-.
6900	030010			ENDTST				
6901	030010						L10060:	
6902	030010	104401					TRAP	C#ETST

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TEST 23 -- BOP TX TXGA (TRANSMIT GO-AHEAD) TEST

.SBTTL TEST 23 -- BOP TX TXGA (TRANSMIT GO-AHEAD) TEST

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:*****
:
:      TEST 23 -- BOP TX TXGA (TRANSMIT GO-AHEAD) TEST
:
:  THE USYRT IS INITIALIZED FOR BOP AND TXE IS ASSERTED. TSOM IS ASSERTED
:  AND TXA OBSERVED -- IT SHOULD BE ASSERTED WITHIN TWO (2) CLOCK CYCLES.
:  NEXT, TXBE SHOULD GO HIGH; AT THIS TIME AN ALL ZEROS CHARACTER WILL BE
:  LOADED INTO TXDB DRIVING TXBE LOW. WHEN TXBE GOES HIGH AGAIN, TXGA
:  IS ASSERTED CAUSING GA TO BE TRANSMITTED. THE SEQUENCE OF EVENTS IS
:  CONTINUALLY MONITORED WHILE TXC IS MANUALLY CONTROLLED AND ALL
:  CHARACTERS ARE CHECKED AT TXSO. THIS TEST WILL GO NO FURTHER INTO
:  THE TRANSMIT SEQUENCE SO THAT ONLY TWO FLAGS, ONE ZERO CHARACTER
:  AND ONE GA CHARACTER IS SENT (INTO THE BIT BUCKET).
:  ERROR LOOPING WILL DEPEND ON WHERE THE FIRST ERROR OCCURS WITHIN
:  THE SEQUENCE.
:*****

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:      BGNTST
:
:      JSR      PC,INIDMV      ;INIT VIA          T23::
:
:      JSR      RS,INITRN      ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
:      NOCHK
:      NORXEN
:      BCC      .+8.           ;NO RECEIVER ENABLE,USE 8 BIT CHARS
:      ERROR
:                               ;BR IF NO ERROR
:                               ;REPORT STACKED ERROR
:
:      ESCAPE   TST           ;SKIP TO END OF TEST
:
:                               TRAP      C#ERROR
:
:                               TRAP      C#ESCAPE
:                               .WORD    L10061-.
:
:      JSR      RS,CHKTSO      ;CHECK 1ST BIT OF EXPECTED "FLAG"
:      0
:      BCC      .+8.           ; CHARACTER (SHOULD BE 0)
:      ERROR
:                               ;BR IF NO ERROR
:                               ;REPORT STACKED ERROR
:
:      ESCAPE   TST           ;AND EXIT TEST
:
:                               TRAP      C#ERROR
:
:                               TRAP      C#ESCAPE
:                               .WORD    L10061-.
:
:      JSR      RS,SERIAL      ;READ REMAINING 7 BITS OF "FLAG" CHARACTER
:      7.
:      176
:      BCC      .+8.           ; (OFF OF TSO BIT)
:                               ; EXPECTED BIT SEQUENCE (1111110)
:      ERROR
:                               ;BR IF NO ERROR
:                               ;REPORT STACKED ERROR
:
:      ESCAPE   TST           ;AND EXIT TEST
:
:                               TRAP      C#ERROR
:
:                               TRAP      C#ESCAPE
:                               .WORD    L10061-.
:
:      JSR      RS,TXCTRL      ;CLEAR TSOM
:      000
:      0

```

```

030012
030012 004737 005420
030016 004537 007400
030022 003400
030024 040000
030026 103003
030030
030030 104460
030032
030032 104410
030034 000150
030036 004537 007116
030042 000000
030044 103003
030046
030046 104460
030050
030050 104410
030052 000132
030054 004537 007256
030060 000007
030062 000176
030064 103003
030066
030066 104460
030070
030070 104410
030072 000112
030074 004537 010010
030100 000000
030102 000000

```

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TEST 23 -- BOP TX TXGA (TRANSMIT GO-AHEAD) TEST

6959								
6960	030104	004537	003734	JSR	R5,WRITEI		;LOAD 000 CHARACTER	
6961	030110	120402		TDSRL				
6962	030112	000000		000				
6963								
6964	030114	004537	007256	JSR	R5,SERIAL		;READ "FLAG" CHARACTER VIA TSO	
6965	030120	000010		8.			; 8 BIT CHAR/CLOCK TICKS	
6966	030122	000176		176			; EXPECTED BIT SEQUENCE (01111110)	
6967	030124	103003		BCC	.*8.		;BR IF NO ERROR	
6968	030126			ERROR			;REPORT STACKED ERROR	
6969	030126	104460						TRAP C#ERROR
6970	030130			ESCAPE	TST		;AND EXIT TEST	
6971	030130	104410						TRAP C#ESCAPE
6972	030132	000052						.WORD L10061-.
6973								
6974	030134	004537	010010	JSR	R5,TXCTRL		;SET TX GO-AHEAD AND TEOM	
6975	030140	000012		TGA!TEOM				
6976	030142	000000		0				
6977								
6978	030144	004537	007256	JSR	R5,SERIAL		;READ 000 CHARACTER VIA TSO	
6979	030150	000010		8.			; 8 BIT CHAR/CLOCK TICKS	
6980	030152	000000		000			; EXPECTED BIT SEQUENCE (00000000)	
6981	030154	103003		BCC	.*8.		;BR IF NO ERROR	
6982	030156			ERROR			;REPORT STACKED ERROR	
6983	030156	104460						TRAP C#ERROR
6984	030160			ESCAPE	TST		;AND EXIT TEST	
6985	030160	104410						TRAP C#ESCAPE
6986	030162	000022						.WORD L10061-.
6987								
6988	030164	004537	007256	JSR	R5,SERIAL		;READ GO-AHEAD CHARACTER VIA TSO	
6989	030170	000010		8.			; 8 BIT CHAR/CLOCK TICKS	
6990	030172	000177		177			; EXPECTED BIT SEQUENCE (01111111)	
6991	030174	103003		BCC	.*8.		;BR IF NO ERROR	
6992	030176			ERROR			;REPORT STACKED ERROR	
6993	030176	104460						TRAP C#ERROR
6994	030200			ESCAPE	TST		;AND EXIT TEST	
6995	030200	104410						TRAP C#ESCAPE
6996	030202	000002						.WORD L10061-.
6997	030204							
6998	030204			ENDTST				
6999	030204	104401						L10061: TRAP C#ETST

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TEST 24 -- BOP TX MESSAGE WITHOUT CRC

7056	030306	104410					TRAP	C#ESCAPE
7057	030310	000252					.WORD	L10062--
7058								
7059	030312	004537	007676	JSR	R5, TXCHAR	;LOAD 125; TX 307		
7060	030316	000125		125				
7061	030320	000010		8.				
7062	030322	103003		BCC	..+8.	;BR IF NO ERROR		
7063	030324			ERROR		;REPORT STACKED ERROR		
7064	030324	104460					TRAP	C#ERROR
7065	030326			ESCAPE	TST	;SKIP TO END OF TEST		
7066	030326	104410					TRAP	C#ESCAPE
7067	030330	000232					.WORD	L10062--
7068								
7069	030332	004537	007676	JSR	R5, TXCHAR	;LOAD 252		
7070	030336	000252		252				
7071	030340	000000		0				
7072	030342	103003		BCC	..+8.	;BR IF NO ERROR		
7073	030344			ERROR		;REPORT STACKED ERROR		
7074	030344	104460					TRAP	C#ERROR
7075	030346			ESCAPE	TST	;SKIP TO END OF TEST		
7076	030346	104410					TRAP	C#ESCAPE
7077	030350	000212					.WORD	L10062--
7078								
7079	030352	004537	011364	JSR	R5, RCV1ST	;CLOCK AND RCV 000		
7080	030356	000000		0				
7081	030360	103003		BCC	..+8.	;BR IF NO ERROR		
7082	030362			ERROR		;REPORT STACKED ERROR		
7083	030362	104460					TRAP	C#ERROR
7084	030364			ESCAPE	TST	;SKIP TO END OF TEST		
7085	030364	104410					TRAP	C#ESCAPE
7086	030366	000174					.WORD	L10062--
7087								
7088	030370	004537	010110	JSR	R5, RXCHAR	;READ & CHK 000, RCV 307		
7089	030374	000400		RXSOM!000		; & CHECK RSOM=1		
7090	030376	000000		0				
7091	030400	000010		8.				
7092	030402	103003		BCC	..+8.	;BR IF NO ERROR		
7093	030404			ERROR		;REPORT STACKED ERROR		
7094	030404	104460					TRAP	C#ERROR
7095	030406			ESCAPE	TST	;SKIP TO END OF TEST		
7096	030406	104410					TRAP	C#ESCAPE
7097	030410	000152					.WORD	L10062--
7098								
7099	030412	004537	007676	JSR	R5, TXCHAR	;LOAD 201		
7100	030416	000201		201				
7101	030420	000000		0				
7102	030422	103003		BCC	..+8.	;BR IF NO ERROR		
7103	030424			ERROR		;REPORT STACKED ERROR		
7104	030424	104460					TRAP	C#ERROR
7105	030426			ESCAPE	TST	;SKIP TO END OF TEST		
7106	030426	104410					TRAP	C#ESCAPE
7107	030430	000132					.WORD	L10062--
7108								
7109	030432	004537	010110	JSR	R5, RXCHAR	;READ & CHK 307, RCV 125		
7110	030436	000307		307				
7111	030440	000000		0				

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TEST 24 -- BOP TX MESSAGE WITHOUT CRC

7112	030442	000010		8.				
7113	030444	103003		BCC	..8.		;BR IF NO ERROR	
7114	030446			ERROR			;REPORT STACKED ERROR	
7115	030446	104460						TRAP C#ERROR
7116	030450			ESCAPE	TST		;SKIP TO END OF TEST	
7117	030450	104410						TRAP C#ESCAPE
7118	030452	000110						.WORD L10062-.
7119								
7120	030454	004537	010010	JSR	RS, TXCTRL		;SET TEOM BIT	
7121	030460	000002		TEOM				
7122	030462	000000		0				
7123	030464	103003		BCC	..8.		;BR IF NO ERROR	
7124	030466			ERROR			;REPORT STACKED ERROR	
7125	030466	104460						TRAP C#ERROR
7126	030470			ESCAPE	TST		;SKIP TO END OF TEST	
7127	030470	104410						TRAP C#ESCAPE
7128	030472	000070						.WORD L10062-.
7129								
7130	030474	004537	010110	JSR	RS, RXCHAR		;READ & CHK 125, RCV 252	
7131	030500	000125		125				
7132	030502	000000		0				
7133	030504	000010		8.				
7134	030506	103003		BCC	..8.		;BR IF NO ERROR	
7135	030510			ERROR			;REPORT STACKED ERROR	
7136	030510	104460						TRAP C#ERROR
7137	030512			ESCAPE	TST		;SKIP TO END OF TEST	
7138	030512	104410						TRAP C#ESCAPE
7139	030514	000046						.WORD L10062-.
7140								
7141	030516	004537	010110	JSR	RS, RXCHAR		;READ & CHK 252, RCV 201	
7142	030522	000252		252				
7143	030524	000000		0				
7144	030526	020010		NCRCT!8.			;DON'T CHECK FOR FINAL RXACT=1	
7145	030530	103003		BCC	..8.		;BR IF NO ERROR	
7146	030532			ERROR			;REPORT STACKED ERROR	
7147	030532	104460						TRAP C#ERROR
7148	030534			ESCAPE	TST		;SKIP TO END OF TEST	
7149	030534	104410						TRAP C#ESCAPE
7150	030536	000024						.WORD L10062-.
7151								
7152	030540	004537	010110	JSR	RS, RXCHAR		;READ & CHK 201, RCV FIRST FLAG	
7153	030544	001201		RXEOM!201			; & CHECK REOM	
7154	030546	000000		0				
7155	030550	060000		NFCRDA!NCRCT			;DON'T CHECK FOR FINAL RDA=RXACT=1	
7156	030552	103003		BCC	..8.		;BR IF NO ERROR	
7157	030554			ERROR			;REPORT STACKED ERROR	
7158	030554	104460						TRAP C#ERROR
7159	030556			ESCAPE	TST		;SKIP TO END OF TEST	
7160	030556	104410						TRAP C#ESCAPE
7161	030560	000002						.WORD L10062-.
7162	030562							
7163	030562							
7164	030562	104401						L10062: TRAP C#ETST

ENDTST

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TEST 25 -- BOP RX CHARACTER LENGTH TEST

.SBTTL TEST 25 -- BOP RX CHARACTER LENGTH TEST

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7193 030564
7194 030564 004737 005420
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7198 030570
7199 030570
7200 030570 104402
7201 030572 004537 007400
7202 030576 004226
7203 030600 000002
7204 030602 103003
7205 030604
7206 030604 104460
7207 030606
7208 030606 104410
7209 030610 000344
7210
7211 030612 004537 010010
7212 030616 000001
7213 030620 000007
7214 030622 004537 010010
7215 030626 000000
7216 030630 000000
7217 030632 004537 007676
7218 030636 000123
7219 030640 000010
7220 030642 103003

```
*****
*
* TEST 25 -- BOP RX CHARACTER LENGTH TEST
*
* THE USYRT IS INITIALIZED FOR BOP WITH CRC-CCITT PRESET TO 1'S. TXC
* IS MANUALLY CONTROLLED UNTIL TWO FLAG CHARACTERS HAVE BEEN
* TRANSMITTED. THEN 6 SUBTESTS FOLLOW, EACH ONE USING A DIFFERENT
* TRANSMIT CHARACTER LENGTH STARTING AT TWO (2) AND ENDING WITH SEVEN
* (7). IN EACH SUBTEST, TWO 8 BIT CHARACTERS WILL BE TRANSMITTED
* BEFORE TXCL IS CHANGED TO THE CHARACTER LENGTH BEING TESTED. THIS
* CORRESPONDS TO NORMAL USAGE WHERE EITHER:
*
* 1 -- A MESSAGE OF CHARACTERS WHICH ARE LESS THEN 8 BITS IS
* SENT AS A STREAM OF 8 BIT CHARACTERS AND THE REMAINING
* BITS ARE SENT AS A CHARACTER OF LESS THEN 8 BITS OR
*
* 2 -- A HEADER OF TWO 8 BIT CHARACTERS IS SENT FOLLOWED BY A
* DATA STREAM OF DATA CHARACTERS WHICH MAY BE LESS THEN 8
* BITS IN LENGTH (I.E. 2, 3, 4, 5, 6, OR 7 BIT
* CHARACTERS).
*
* THE TEST PATTERN IS: 123 321 111 222 333 044 155 266 377
```

```
-----
*
* BGNTST
*
* JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T25::
*-----
* SUBROUTINE # 1: 2 BIT CHARACTERS
*-----
* BGNSUB
*
* JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE T25.1: TRAP C#BSUB
* IDLES!SYNCH ;SET BOP MODE,CRC-CCITT-1,S/AR=226
* BIT1 ;INITIALLY: TXCL=8 BITS / RXCL=2 BITS
* BCC .+8. ;BR IF NO ERROR
* ERROR ;REPORT STACKED ERROR TRAP C#ERROR
*
* ESCAPE SUB ;SKIP TO END OF TEST TRAP C#ESCAPE
* .WORD L10064-.
*
* JSR R5,TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG
* TSOM
* 7.
* JSR R5,TXCTRL ;CLEAR TSOM
* 000
* 0
* JSR R5,TXCHAR ;LOAD 123(HEADER1), TX 2ND FLAG
* 123
* 8.
* BCC .+8. ;BR IF NO ERROR
```

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TEST 25 -- BOP RX CHARACTER LEN;TH TEST

7221	030644			ERROR		;REPORT STACKED ERROR		
7222	030644	104460					TRAP	C#ERROR
7223	030646			ESCAPE SUB		;SKIP TO END OF TEST		
7224	030646	104410					TRAP	C#ESCAPE
7225	030650	000304					.WORD	L10064--
7226								
7227	030652	004537	007676	JSR R5,TXCHAR		;LOAD 321(HEADER2), TX 123(HEADER1)		
7228	030656	000321		321				
7229	030660	000010		8.				
7230	030662	103003		BCC .+8.		;BR IF NO ERROR		
7231	030664			ERROR		;REPORT STACKED ERROR		
7232	030664	104460					TRAP	C#ERROR
7233	030666			ESCAPE SUB		;SKIP TO END OF TEST		
7234	030666	104410					TRAP	C#ESCAPE
7235	030670	000264					.WORD	L10064--
7236								
7237	030672	004537	003734	JSR R5,WRITEI		;NOW CHANGE TXCL TO 2 BITS TOO		
7238	030676	120407		PCR				
7239	030700	000102		BIT6!BIT1				
7240	030702	004537	007676	JSR R5,TXCHAR		;LOAD 111(DATA1), TX 321(HEADER2)		
7241	030706	000111		111				
7242	030710	000010		8.				
7243	030712	103003		BCC .+8.		;BR IF NO ERROR		
7244	030714			ERROR		;REPORT STACKED ERROR		
7245	030714	104460					TRAP	C#ERROR
7246	030716			ESCAPE SUB		;SKIP TO END OF TEST		
7247	030716	104410					TRAP	C#ESCAPE
7248	030720	000234					.WORD	L10064--
7249								
7250	030722	012703	033477					
7251	030726	112337	030736	104: MOV #T30TBL+1,R3		;SET UP DATA TABLE POINTER		
7252				MOV (R3)+,14		;INSTALL NEXT TX CHARACTER		
7253	030732	004537	007676	JSR R5,TXCHAR		;TRANSMIT CHARACTER (==> RX/FIFO)		
7254	030736	000000		000		;** HOLE FOR NEXT CHARACTER **		
7255	030740	000002		2.				
7256	030742	103003		BCC .+8.		;BR IF NO ERROR		
7257	030744			ERROR		;REPORT STACKED ERROR		
7258	030744	104460					TRAP	C#ERROR
7259	030746			ESCAPE SUB		;SKIP TO END OF TEST		
7260	030746	104410					TRAP	C#ESCAPE
7261	030750	000204					.WORD	L10064--
7262								
7263	030752	022703	033505	CMP #T30TBL+7,R3		;ALL CHARACTERS TRANSMITTED ?		
7264	030756	001363		BNE 104		; IF NOT, TX ANOTHER ONE		
7265								
7266	030760	004537	010010	JSR R5,TXCTRL		;SET TEOM		
7267	030764	000002		TEOM				
7268	030766	000000		0				
7269	030770	004537	011614	JSR R5,STEPLU		; AND TX DATA7 + SOME FLAGS		
7270	030774	000044		36.				
7271								
7272	030776	004537	010110	JSR R5,RXCHAR		;READ & CHK 123(HEADER1), RCV 321(HEADER2)		
7273	031002	000523		RXSON!123		; & CHECK FOR RSON=1		
7274	031004	000000		0				
7275	031006	100000		NOCRDA		;NO INITIAL CHECK OF RDA=0		
7276	031010	103003		BCC .+8.		;BR IF NO ERROR		

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TEST 25 -- BOP RX CHARACTER LENGTH TEST

7277	031012				ERROR		;REPORT STACKED ERROR		
7278	031012	104460						TRAP	C#ERROR
7279	031014				ESCAPE SUB		;SKIP TO END OF TEST		
7280	031014	104410						TRAP	C#ESCAPE
7281	031016	000136						.WORD	L10064--
7282									
7283	031020	004537	010110		JSR R5,RXCHAR		;READ/CHECK 321(HEADER2),RCV 001(DATA1)		
7284	031024	000321			321				
7285	031026	000000			0				
7286	031030	100000			NOCRDA		;NO INITIAL CHECK OF RDA=0		
7287	031032	103003			BCC .+8.		;BR IF NO ERROR		
7288	031034				ERROR		;REPORT STACKED ERROR		
7289	031034	104460						TRAP	C#ERROR
7290	031036				ESCAPE SUB		;SKIP TO END OF TEST		
7291	031036	104410						TRAP	C#ESCAPE
7292	031040	000114						.WORD	L10064--
7293									
7294	031042	012703	033476		MOV #T30TBL,R3		;SET UP DATA TABLE POINTER		
7295	031046	112337	031064		20#: MOVB (R3)+,2#		;INSTALL NEXT EXPECTED RX CHARACTER		
7296	031052	142737	000374	031064	BICB #374,2#		;MASK OUT UNTRANSMITTED BITS		
7297									
7298	031060	004537	010110		JSR R5,RXCHAR		;READ/CHECK NEXT CHARACTER		
7299	031064	000000			2#: 000		;** HOLE FOR NEXT EXPECTED CHARACTER		
7300	031066	000000			0				
7301	031070	100000			NOCRDA		;NO INITIAL CHECK OF RDA=0		
7302	031072	103003			BCC .+8.		;BR IF NO ERROR		
7303	031074				ERROR		;REPORT STACKED ERROR		
7304	031074	104460						TRAP	C#ERROR
7305	031076				ESCAPE SUB		;SKIP TO END OF TEST		
7306	031076	104410						TRAP	C#ESCAPE
7307	031100	000054						.WORD	L10064--
7308									
7309	031102	022703	033503		CMP #T30TBL+5,R3		;ALL CHARACTERS CHECKED ?		
7310	031106	001357			BNE 20#		; IF NOT, CHECK ANOTHER ONE		
7311									
7312	031110	004537	010110		JSR R5,RXCHAR		;READ/CHK DATA6(002), RCV DATA7		
7313	031114	000002			002				
7314	031116	000000			0		;NO INITIAL CHECK OF RDA=0		
7315	031120	120000			NCRACT!NOCRDA		;DON'T CHECK FOR FINAL RXACT=1		
7316	031122	103003			BCC .+8.		;BR IF NO ERROR		
7317	031124				ERROR		;REPORT STACKED ERROR		
7318	031124	104460						TRAP	C#ERROR
7319	031126				ESCAPE SUB		;SKIP TO END OF TEST		
7320	031126	104410						TRAP	C#ESCAPE
7321	031130	000024						.WORD	L10064--
7322									
7323	031132	004537	010110		JSR R5,RXCHAR		;READ/CHK DATA7(003), RCV FIRST FLAG		
7324	031136	001003			RXEOM!003		; & CHECK RERR BIT=0 (GOOD CRC) & REOM=1		
7325	031140	000001			RERCHK		;NO INITIAL CHECK OF RDA=0		
7326	031142	160000			NOCRDA!NFCRDA!NCRACT		;DON'T CHECK FOR FINAL RDA-RXACT=1		
7327	031144	103003			BCC .+8.		;BR IF NO ERROR		
7328	031146				ERROR		;REPORT STACKED ERROR		
7329	031146	104460						TRAP	C#ERROR
7330	031150				ESCAPE SUB		;SKIP TO END OF TEST		
7331	031150	104410						TRAP	C#ESCAPE
7332	031152	000002						.WORD	L10064--

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TEST 25 -- BOP RX CHARACTER LENGTH TEST

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7333 031154          ENDSUB
7334 031154
7335 031154 104403          L10064: TRAP C#ESUB
7336
7337 ;-----
7338 ; SUBROUTINE # 2: 3 BIT CHARACTERS
7339 ;-----
7339 031156          BGNSUB
7340 031156
7341 031156 104402          T25.2: TRAP C#BSUB
7342 031160 004537 007400 JSR   R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
7343 031164 000226 SYNCH ;SET BOP MODE,CRC-CCITT-1,S/AR=226
7344 031166 000003 BIT1!BIT0 ;INITIALLY: TXCL=8 BITS / RXCL=3 BITS
7345 031170 103003 BCC   .+8. ;BR IF NO ERROR
7346 031172 ERROR ;REPORT STACKED ERROR
7347 031172 104460 ESCAPE SUB ;SKIP TO END OF TEST TRAP C#ERROR
7348 031174
7349 031174 104410 TRAP C#ESCAPE
7350 031176 000344 .WORD L10065-.
7351
7352 031200 004537 010010 JSR   R5,TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG
7353 031204 000001 TSON
7354 031206 000007 7.
7355 031210 004537 010010 JSR   R5,TXCTRL ;CLEAR TSON
7356 031214 000000 000
7357 031216 000000 0
7358 031220 004537 007676 JSR   R5,TXCHAR ;LOAD 123(HEADER1), TX 2ND FLAG
7359 031224 000123 123
7360 031226 000010 8.
7361 031230 103003 BCC   .+8. ;BR IF NO ERROR
7362 031232 ERROR ;REPORT STACKED ERROR
7363 031232 104460 ESCAPE SUB ;SKIP TO END OF TEST TRAP C#ERROR
7364 031234
7365 031234 104410 TRAP C#ESCAPE
7366 031236 000304 .WORD L10065-.
7367
7368 031240 004537 007676 JSR   R5,TXCHAR ;LOAD 321(HEADER2), TX 123(HEADER1)
7369 031244 000321 321
7370 031246 000010 8.
7371 031250 103003 BCC   .+8. ;BR IF NO ERROR
7372 031252 ERROR ;REPORT STACKED ERROR
7373 031252 104460 ESCAPE SUB ;SKIP TO END OF TEST TRAP C#ERROR
7374 031254
7375 031254 104410 TRAP C#ESCAPE
7376 031256 000264 .WORD L10065-.
7377
7378 031260 004537 003734 JSR   R5,WRITEI ;NOW CHANGE TXCL TO 3 BITS TOO
7379 031264 120407 PCR
7380 031266 000143 BIT6!BIT5!BIT1!BIT0
7381 031270 004537 007676 JSR   R5,TXCHAR ;LOAD 111(DATA1), TX 321(HEADER2)
7382 031274 000111 111
7383 031276 000010 8.
7384 031300 103003 BCC   .+8. ;BR IF NO ERROR
7385 031302 ERROR ;REPORT STACKED ERROR
7386 031302 104460 ESCAPE SUB ;SKIP TO END OF TEST TRAP C#ERROR
7387 031304
7388 031304 104410 TRAP C#ESCAPE

```

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TEST 25 -- BOP RX CHARACTER LENGTH TEST

```

7389 031306 000234                                     .WORD L10065-.
7390
7391 031310 012703 033477
7392 031314 112337 031324
7393
7394 031320 004537 007676
7395 031324 000000
7396 031326 000003
7397 031330 103003
7398 031332
7399 031332 104460
7400 031334
7401 031334 104410
7402 031336 000204                                     .WORD L10065-.
7403
7404 031340 022703 033505
7405 031344 001363
7406
7407 031346 004537 010010
7408 031352 000002
7409 031354 000000
7410 031356 004537 011614
7411 031362 000044
7412
7413 031364 004537 010110
7414 031370 000523
7415 031372 000000
7416 031374 100000
7417 031376 103003
7418 031400
7419 031400 104460
7420 031402
7421 031402 104410
7422 031404 000136                                     .WORD L10065-.
7423
7424 031406 004537 010110
7425 031412 000321
7426 031414 000000
7427 031416 100000
7428 031420 103003
7429 031422
7430 031422 104460
7431 031424
7432 031424 104410
7433 031426 000114                                     .WORD L10065-.
7434
7435 031430 012703 033476
7436 031434 112337 031452
7437 031440 142737 000370 031452
7438
7439 031446 004537 010110
7440 031452 000000
7441 031454 000000
7442 031456 100000
7443 031460 103003
7444 031462

```

```

;-----
100:  MOV    #T30TBL+1,R3    ;SET UP DATA TABLE POINTER
      MOVB  (R3)+,10      ;INSTALL NEXT TX CHARACTER

10:   JSR    R5,TXCHAR      ;TRANSMIT CHARACTER ( ==> RX/FIFO )
      OOO                    ;** HOLE FOR NEXT CHARACTER **
      3.
      BCC   .+8.          ;BR IF NO ERROR
      ERROR                      ;REPORT STACKED ERROR
                                TRAP   C#ERROR
      ESCAPE SUB          ;SKIP TO END OF TEST
                                TRAP   C#ESCAPE
                                .WORD  L10065-.

      CMP    #T30TBL+7,R3  ;ALL CHARACTERS TRANSMITTED ?
      BNE   100           ; IF NOT, TX ANOTHER ONE
;-----
      JSR    R5,TXCTRL     ;SET TEOM
      TEOM
      0
      JSR    R5,STEPLU     ; AND TX DATA7 + SOME FLAGS
      36.

      JSR    R5,RXCHAR     ;READ & CHK 123(HEADER1), RCV 321(HEADER2)
      RXSOM:123          ; & CHECK FOR RSOM=1
      0
      NOCRDA              ;NO INITIAL CHECK OF RDA=0
      BCC   .+8.          ;BR IF NO ERROR
      ERROR                      ;REPORT STACKED ERROR
                                TRAP   C#ERROR
      ESCAPE SUB          ;SKIP TO END OF TEST
                                TRAP   C#ESCAPE
                                .WORD  L10065-.

      JSR    R5,RXCHAR     ;READ/CHECK 321(HEADER2),RCV 001(DATA1)
      321
      0
      NOCRDA              ;NO INITIAL CHECK OF RDA=0
      BCC   .+8.          ;BR IF NO ERROR
      ERROR                      ;REPORT STACKED ERROR
                                TRAP   C#ERROR
      ESCAPE SUB          ;SKIP TO END OF TEST
                                TRAP   C#ESCAPE
                                .WORD  L10065-.

;-----
400:  MOV    #T30TBL,R3    ;SET UP DATA TABLE POINTER
      MOVB  (R3)+,40      ;INSTALL NEXT EXPECTED RX CHARACTER
      BICB  #370,40      ;MASK OUT UNTRANSMITTED BITS

40:   JSR    R5,RXCHAR     ;READ/CHECK NEXT CHARACTER
      OOO                    ;** HOLE FOR NEXT EXPECTED CHARACTER
      0
      NOCRDA              ;NO INITIAL CHECK OF RDA=0
      BCC   .+8.          ;BR IF NO ERROR
      ERROR                      ;REPORT STACKED ERROR

```


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```

7445 031462 104460
7446 031464          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP   C#ERROR
7447 031464 104410          ;                               TRAP   C#ESCAPE
7448 031466 000054          ;                               .WORD  L10065-.
7449
7450 031470 022703 033503      CMP      #T30TBL+5,R3      ;ALL CHARACTERS CHECKED ?
7451 031474 001357      BNE      40#                ; IF NOT, CHECK ANOTHER ONE
7452
;-----
7453 031476 004537 010110      JSR      R5,RXCHAR          ;READ/CHK DATA6(006), RCV DATA7
7454 031502 000006      006
7455 031504 000000      0
7456 031506 020000      NCRACT          ;DON'T CHECK FOR FINAL RXACT=1
7457 031510 103003      BCC      .+8.            ;BR IF NO ERROR
7458 031512          ERROR                ;REPORT STACKED ERROR
7459 031512 104460          ESCAPE TST          ;SKIP TO END OF TEST          TRAP   C#ERROR
7460 031514          ;                               TRAP   C#ESCAPE
7461 031514 104410          ;                               .WORD  L10063-.
7462 031516 001756
7463
7464 031520 004537 010110      JSR      R5,RXCHAR          ;READ/CHK DATA7(007), RCV FIRST FLAG
7465 031524 001007      RXEOM!007          ;AND CHECK FOR REOM=1
7466 031526 000001      RERCHK           ; & CHECK RERR BIT=0 (GOOD CRC)
7467 031530 060000      NFCRDA!NCRACT      ;DON'T CHECK FOR FINAL RDA=RXACT=1
7468 031532 103003      BCC      .+8.            ;BR IF NO ERROR
7469 031534          ERROR                ;REPORT STACKED ERROR
7470 031534 104460          ESCAPE TST          ;SKIP TO END OF TEST          TRAP   C#ERROR
7471 031536          ;                               TRAP   C#ESCAPE
7472 031536 104410          ;                               .WORD  L10063-.
7473 031540 001734
7474 031542          ENDSUB
7475 031542          ;                               L10065:
7476 031542 104403          ;                               TRAP   C#ESUB
7477
;-----
; SUBROUTINE # 3: 4 BIT CHARACTERS
;-----
7478
7479
7480 031544          BGNSUB
7481 031544          ;                               T25.3:
7482 031544 104402          ;                               TRAP   C#BSUB
7483 031546 004537 007400      JSR      R5,INITRN        ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
7484 031552 000226      SYNCH           ;SET BOP MODE,CRC-CCITT-1,S/AR=226
7485 031554 000004      BIT2           ;INITIALLY: TXCL=8 BITS / RXCL=4 BITS
7486 031556 103003      BCC      .+8.            ;BR IF NO ERROR
7487 031560          ERROR                ;REPORT STACKED ERROR
7488 031560 104460          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP   C#ERROR
7489 031562          ;                               TRAP   C#ESCAPE
7490 031562 104410          ;                               .WORD  L10066-.
7491 031564 000374
7492
7493 031566 004537 010010      JSR      R5,TXCTRL        ;LOAD 2ND FLAG, TX 1ST FLAG
7494 031572 000001      TSOM
7495 031574 000007      7.
7496 031576 004537 010010      JSR      R5,TXCTRL        ;CLEAR TSOM
7497 031602 000000      000
7498 031604 000000      0
7499 031606 004537 007676      JSR      R5,TXCHAR        ;LOAD 123(HEADER1), TX 2ND FLAG
7500 031612 000123      123

```


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```

7501 031614 000010      8.
7502 031616 103003      BCC      .+8.      ;BR IF NO ERROR
7503 031620              ERROR      ;REPORT STACKED ERROR
7504 031620 104460              ESCAPE SUB      ;SKIP TO END OF TEST      TRAP      C#ERROR
7505 031622              ;
7506 031622 104410              ;
7507 031624 000304              ;
7508 ;
7509 031626 004537 007676      JSR      R5,TXCHAR      ;LOAD 321(HEADER2), TX 123(HEADER1)
7510 031632 000321      321
7511 031634 000010      8.
7512 031636 103003      BCC      .+8.      ;BR IF NO ERROR
7513 031640              ERROR      ;REPORT STACKED ERROR
7514 031640 104460              ESCAPE SUB      ;SKIP TO END OF TEST      TRAP      C#ERROR
7515 031642              ;
7516 031642 104410              ;
7517 031644 000264              ;
7518 ;
7519 031646 004537 003734      JSR      R5,WRITEI      ;NOW CHANGE TXCL TO 4 BITS TOO
7520 031652 120407      PCR
7521 031654 000204      BIT7!BIT2
7522 031656 004537 007676      JSR      R5,TXCHAR      ;LOAD 111(DATA1), TX 321(HEADER2)
7523 031662 000111      111
7524 031664 000010      8.
7525 031666 103003      BCC      .+8.      ;BR IF NO ERROR
7526 031670              ERROR      ;REPORT STACKED ERROR
7527 031670 104460              ESCAPE SUB      ;SKIP TO END OF TEST      TRAP      C#ERROR
7528 031672              ;
7529 031672 104410              ;
7530 031674 000234              ;
7531 ;
7532 031676 012703 033477      MOV      @T30TBL+1,R3      ;SET UP DATA TABLE POINTER
7533 031702 112337 031712      100:    MOVB      (R3)+,10      ;INSTALL NEXT TX CHARACTER
7534 ;
7535 031706 004537 007676      JSR      R5,TXCHAR      ;TRANSMIT CHARACTER ( ==> RX/FIFO )
7536 031712 000000      10:    OOB      ;** HOLE FOR NEXT CHARACTER **
7537 031714 000004      4.
7538 031716 103003      BCC      .+8.      ;BR IF NO ERROR
7539 031720              ERROR      ;REPORT STACKED ERROR
7540 031720 104460              ESCAPE SUB      ;SKIP TO END OF TEST      TRAP      C#ERROR
7541 031722              ;
7542 031722 104410              ;
7543 031724 000204              ;
7544 ;
7545 031726 022703 033505      CMP      @T30TBL+7,R3      ;ALL CHARACTERS TRANSMITTED ?
7546 031732 001363      BNE      100      ; IF NOT, TX ANOTHER ONE
7547 ;
7548 031734 004537 010010      JSR      R5,TXCTRL      ;SET TEOM
7549 031740 000002      TEOM
7550 031742 000000      0
7551 031744 004537 011614      JSR      R5,STEPLU      ; AND TX DATA7 + SOME FLAGS
7552 031750 000044      36.
7553 ;
7554 031752 004537 010110      JSR      R5,RXCHAR      ;READ & CHK 123(HEADER1), RCV 321(HEADER2)
7555 031756 000523      RXSOM!123      ; & CHECK FOR RSOM=1
7556 031760 000000      0

```


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7613	032124	104410					TRAP	C#ESCAPE
7614	032126	001346					.WORD	L10063-.
7615	032130			ENDSUB				
7616	032130						L10066:	
7617	032130	104403					TRAP	C#ESUB
7618								
7619								
7620								
7621	032132							
7622	032132							
7623	032132	104402						
7624	032134	004537	007400					
7625	032140	000226						
7626	032142	000005						
7627	032144	103003						
7628	032146							
7629	032146	104460						
7630	032150							
7631	032150	104410						
7632	032152	000344						
7633								
7634	032154	004537	010010					
7635	032160	000001						
7636	032162	000007						
7637	032164	004537	010010					
7638	032170	000000						
7639	032172	000000						
7640	032174	004537	007676					
7641	032200	000123						
7642	032202	000010						
7643	032204	103003						
7644	032206							
7645	032206	104460						
7646	032210							
7647	032210	104410						
7648	032212	000304						
7649								
7650	032214	004537	007676					
7651	032220	000321						
7652	032222	000010						
7653	032224	103003						
7654	032226							
7655	032226	104460						
7656	032230							
7657	032230	104410						
7658	032232	000264						
7659								
7660	032234	004537	003734					
7661	032240	120407						
7662	032242	000245						
7663	032244	004537	007676					
7664	032250	000111						
7665	032252	000010						
7666	032254	103003						
7667	032256							
7668	032256	104460						

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```

7669 032260          ESCAPE SUB          ;SKIP TO END OF TEST
7670 032260 104410          TRAP          C#ESCAPE
7671 032262 000234          .WORD          L10067-.
7672          ;-----
7673 032264 012703 033477      MOV      #T30TBL+1,R3      ;SET UP DATA TABLE POINTER
7674 032270 112337 032300 10#: MOVB     (R3)+,1#      ;INSTALL NEXT TX CHARACTER
7675          ;-----
7676 032274 004537 007676      JSR      R5,TXCHAR        ;TRANSMIT CHARACTER ( ==> RX/FIFO )
7677 032300 000000 1#:      OOO          ;** HOLE FOR NEXT CHARACTER **
7678 032302 000005          5.
7679 032304 103003          BCC      .+8.            ;BR IF NO ERROR
7680 032306          ERROR          ;REPORT STACKED ERROR
7681 032306 104460          TRAP          C#ERROR
7682 032310          ESCAPE SUB          ;SKIP TO END OF TEST
7683 032310 104410          TRAP          C#ESCAPE
7684 032312 000204          .WORD          L10067-.
7685          ;-----
7686 032314 022703 033505      CMP      #T30TBL+7,R5    ;ALL CHARACTERS TRANSMITTED ?
7687 032320 001363 10#      ONE          ; IF NOT, TX ANOTHER ONE
7688          ;-----
7689 032322 004537 010010      JSR      R5,TXCTRL       ;SET TEOM
7690 032326 000002          TEOM
7691 032330 000000          0
7692 032332 004537 011614      JSR      R5,STEPLU       ; AND TX DATA7 + SOME FLAGS
7693 032336 000044          36.
7694          ;-----
7695 032340 004537 010110      JSR      R5,RXCHAR       ;READ & CHK 123(HEADER1), RCV 321(HEADER2)
7696 032344 000523          RXSOM:123          ; & CHECK FOR RSOM-1
7697 032346 000000          ^
7698 032350 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
7699 032352 103003          BCC      .+8.            ;BR IF NO ERROR
7700 032354          ERROR          ;REPORT STACKED ERROR
7701 032354 104460          TRAP          C#ERROR
7702 032356          ESCAPE SUB          ;SKIP TO END OF TEST
7703 032356 104410          TRAP          C#ESCAPE
7704 032360 000136          .WORD          L10067-.
7705          ;-----
7706 032362 004537 010110      JSR      R5,RXCHAR       ;READ/CHECK 321(HEADER2),RCV 011(DATA1)
7707 032366 000321          321
7708 032370 000000          0
7709 032372 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
7710 032374 103003          BCC      .+8.            ;BR IF NO ERROR
7711 032376          ERROR          ;REPORT STACKED ERROR
7712 032376 104460          TRAP          C#ERROR
7713 032400          ESCAPE SUB          ;SKIP TO END OF TEST
7714 032400 104410          TRAP          C#ESCAPE
7715 032402 000114          .WORD          L10067-.
7716          ;-----
7717 032404 012703 033476      MOV      #T30TBL,R3      ;SEI UP DATA TABLE POINTER
7718 032410 112337 032426 40#: MOVB     (R3)+,4#      ;INSTALL NEXT EXPECTED RX CHARACTER
7719 032414 142737 000340 032426 BICB     #340,4#        ;MASK OUT UNTRANSMITTED BITS
7720          ;-----
7721 032422 004537 010110      JSR      R5,RXCHAR       ;READ/CHECK NEXT CHARACTER
7722 032426 000000 4#:      OOO          ;** HOLE FOR NEXT EXPECTED CHARACTER
7723 032430 000000          0
7724 032432 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0

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```

7725 032434 103003          BCC      .+8.          ;BR IF NO ERROR
7726 032436                ERROR          ;REPORT STACKED ERROR
7727 032436 104460                ESCAPE  SUB          ;SKIP TO END OF TEST          TRAP  C#ERROR
7728 032440                ESCAPE  SUB          ;SKIP TO END OF TEST          TRAP  C#ESCAPE
7729 032440 104410                ESCAPE  SUB          ;SKIP TO END OF TEST          .WORD L10067-.
7730 032442 000054                ESCAPE  SUB          ;SKIP TO END OF TEST          .WORD L10067-.
7731
7732 032444 022703 033503          CMP      #T30TBL+5,R3      ;ALL CHARACTERS CHECKED ?
7733 032450 0G1357          BNE      40#                ; IF NOT, CHECK ANOTHER ONE
7734 -----
7735 032452 004537 010110          JSR      R5,RXCHAR          ;READ/CHK DATA6(026), RCV DATA7
7736 032456 000026          026
7737 032460 000001          RERCHK          ; & CHECK RERR BIT=0 (GOOD CRC)
7738 032462 020000          NCRACT          ;DON'T CHECK FOR INITIAL RDA=0
7739 032464 103003          BCC      .+8.          ;BR IF NO ERROR
7740 032466                ERROR          ;REPORT STACKED ERROR          TRAP  C#ERROR
7741 032466 104460                ESCAPE  TST          ;SKIP TO END OF TEST          TRAP  C#ESCAPE
7742 032470                ESCAPE  TST          ;SKIP TO END OF TEST          .WORD L10063-.
7743 032470 104410                ESCAPE  TST          ;SKIP TO END OF TEST          TRAP  C#ESCAPE
7744 032472 001002                ESCAPE  TST          ;SKIP TO END OF TEST          .WORD L10063-.
7745
7746 032474 004537 010110          JSR      R5,RXCHAR          ;READ/CHK DATA7(037), RCV FIRST FLAG
7747 032500 001037          RXEOM!037          ; & CHECK FOR REOM=1
7748 032502 000000          0
7749 032504 060000          NFCRDA!NCRACT          ;DON'T CHECK FOR FINAL RDA=RXACT=1
7750 032506 103003          BCC      .+8.          ;BR IF NO ERROR
7751 032510                ERROR          ;REPORT STACKED ERROR          TRAP  C#ERROR
7752 032510 104460                ESCAPE  TST          ;SKIP TO END OF TEST          TRAP  C#ESCAPE
7753 032512                ESCAPE  TST          ;SKIP TO END OF TEST          .WORD L10063-.
7754 032512 104410                ESCAPE  TST          ;SKIP TO END OF TEST          TRAP  C#ESCAPE
7755 032514 000760                ESCAPE  TST          ;SKIP TO END OF TEST          .WORD L10063-.
7756 032516                ENDSUB
7757 032516                ENDSUB
7758 032516 104403                ENDSUB
7759
7760 -----
7761 ; SUBROUTINE # 5: 6 BIT CHARACTERS
7762 -----
7762 032520                BGNSUB
7763 032520                T25.5:
7764 032520 104402                TRAP  C#BSUB
7765 032522 004537 007400          JSR      R5,INITRN          ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
7766 032526 000226          SYNCH          ;SET BOP MODE,CRC-CCITT-1,S/AR=226
7767 032530 000006          BIT2!BIT1          ;INITIALLY: TXCL=8 BITS / RXCL=6 BITS
7768 032532 103003          BCC      .+8.          ;BR IF NO ERROR
7769 032534                ERROR          ;REPORT STACKED ERROR          TRAP  C#ERROR
7770 032534 104460                ESCAPE  SUB          ;SKIP TO END OF TEST          TRAP  C#ESCAPE
7771 032536                ESCAPE  SUB          ;SKIP TO END OF TEST          .WORD L10070-.
7772 032536 104410                ESCAPE  SUB          ;SKIP TO END OF TEST          TRAP  C#ESCAPE
7773 032540 000344                ESCAPE  SUB          ;SKIP TO END OF TEST          .WORD L10070-.
7774
7775 032542 004537 010010          JSR      R5,TXCTRL          ;LOAD 2ND FLAG, TX 1ST FLAG
7776 032546 000001          TSOM
7777 032550 000007          7.
7778 032552 004537 010010          JSR      R5,TXCTRL          ;CLEAR TSOM
7779 032556 000000          000
7780 032560 000000          0

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```

7781 032562 004537 007676      JSR    R5,TXCHAR      ;LOAD 123(HEADER1), TX 2ND FLAG
7782 032566 000123              123
7783 032570 000010              8.
7784 032572 103003              BCC    .+8.          ;BR IF NO ERROR
7785 032574              ERROR                ;REPORT STACKED ERROR
7786 032574 104460              ESCAPE SUB           ;SKIP TO END OF TEST          TRAP  C#ERROR
7787 032576              ;
7788 032576 104410              ;
7789 032600 000304              ;
7790              ;
7791 032602 004537 007676      JSR    R5,TXCHAR      ;LOAD 321(HEADER2), TX 123(HEADER1)
7792 032606 000321              321
7793 032610 000010              8.
7794 032612 103003              BCC    .+8.          ;BR IF NO ERROR
7795 032614              ERROR                ;REPORT STACKED ERROR
7796 032614 104460              ESCAPE SUB           ;SKIP TO END OF TEST          TRAP  C#ERROR
7797 032616              ;
7798 032616 104410              ;
7799 032620 000264              ;
7800              ;
7801 032622 004537 003734      JSR    R5,WRITEI     ;NOW CHANGE TXCL TO 6 BITS TOO
7802 032626 120407              PCR
7803 032630 000306              BIT7!BIT6!BIT2!BIT1
7804 032632 004537 007676      JSR    R5,TXCHAR      ;LOAD 111(DATA1), TX 321(HEADER2)
7805 032636 000111              111
7806 032640 000010              8.
7807 032642 103003              BCC    .+8.          ;BR IF NO ERROR
7808 032644              ERROR                ;REPORT STACKED ERROR
7809 032644 104460              ESCAPE SUB           ;SKIP TO END OF TEST          TRAP  C#ERROR
7810 032646              ;
7811 032646 104410              ;
7812 032650 000234              ;
7813              ;
7814 032652 012703 033477      104:  MOV    #T30TBL+1,R3 ;SET UP DATA TABLE POINTER
7815 032656 112337 032666      MOVB   (R3)+,14      ;INSTALL NEXT TX CHARACTER
7816              ;
7817 032662 004537 007676      JSR    R5,TXCHAR      ;TRANSMIT CHARACTER ( ==> RX/FIFO )
7818 032666 000000      14:  000                ;** HOLE FOR NEXT CHARACTER **
7819 032670 000006              6.
7820 032672 103003              BCC    .+8.          ;BR IF NO ERROR
7821 032674              ERROR                ;REPORT STACKED ERROR
7822 032674 104460              ESCAPE SUB           ;SKIP TO END OF TEST          TRAP  C#ERROR
7823 032676              ;
7824 032676 104410              ;
7825 032700 000204              ;
7826              ;
7827 032702 022703 033505      CMP    #T30TBL+7,R3 ;ALL CHARACTERS TRANSMITTED ?
7828 032706 001363              BNE    104           ; IF NOT, TX ANOTHER ONE
7829              ;
7830 032710 004537 010010      JSR    R5,TXCTRL     ;SET TEOM
7831 032714 000002              TEOM
7832 032716 000000              0
7833 032720 004537 011614      JSR    R5,STEPLU     ; AND TX DATA7 + SOME FLAGS
7834 032724 000044              36.
7835              ;
7836 032726 004537 010110      JSR    R5,RXCHAR     ;READ & CHK 123(HEADER1), RCV 321(HEADER2)

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TEST 25 -- BOP RX CHARACTER LENGTH TEST

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7837 032732 000523          RXSOM!123          ; & CHECK FOR RSOM=1
7838 032734 000000          0
7839 032736 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
7840 032740 103003          BCC      .+8.   ;BR IF NO ERROR
7841 032742          ERROR          ;REPORT STACKED ERROR
7842 032742 104460          ESCAPE SUB      ;SKIP TO END OF TEST          TRAP    C#ERROR
7843 032744          ;
7844 032744 104410          ;
7845 032746 000136          ;
7846          ;
7847 032750 004537 010110    JSR      R5,RXCHAR ;READ/CHECK 321(HEADER2),RCV 011(DATA1)
7848 032754 000321          321
7849 032756 000000          0
7850 032760 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
7851 032762 103003          BCC      .+8.   ;BR IF NO ERROR
7852 032764          ERROR          ;REPORT STACKED ERROR
7853 032764 104460          ESCAPE SUB      ;SKIP TO END OF TEST          TRAP    C#ERROR
7854 032766          ;
7855 032766 104410          ;
7856 032770 000114          ;
7857          ;
7858 032772 012703 033476    ;-----
7859 032776 112337 033014    404:    MOV      #T30TBL,R3 ;SET UP DATA TABLE POINTER
7860 033002 142737 000300 033014    MOVB    (R3)+,44 ;INSTALL NEXT EXPECTED RX CHARACTER
7861          BICB    #300,44 ;MASK OUT UNTRANSMITTED BITS
7862 033010 004537 010110    JSR      R5,RXCHAR ;READ/CHECK NEXT CHARACTER
7863 033014 000000          44:    000          ;** HOLE FOR NEXT EXPECTED CHARACTER
7864 033016 000000          0
7865 033020 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
7866 033022 103003          BCC      .+8.   ;BR IF NO ERROR
7867 033024          ERROR          ;REPORT STACKED ERROR
7868 033024 104460          ESCAPE SUB      ;SKIP TO END OF TEST          TRAP    C#ERROR
7869 033026          ;
7870 033026 104410          ;
7871 033030 000054          ;
7872          ;
7873 033032 022703 033503    CMP      #T30TBL+5,R3 ;ALL CHARACTERS CHECKED ?
7874 033036 001357          404:    BNE          ; IF NOT, CHECK ANOTHER ONE
7875          ;-----
7876 033040 004537 010110    JSR      R5,RXCHAR ;READ/CHK DATA6(066), RCV DATA7
7877 033044 000066          066
7878 033046 000001          RERCHK          ; & CHECK RERR BIT=0 (GOOD CRC)
7879 033050 020000          NCRACT          ;DON'T CHECK FOR INITIAL RDA=0
7880 033052 103003          BCC      .+8.   ;BR IF NO ERROR
7881 033054          ERROR          ;REPORT STACKED ERROR
7882 033054 104460          ESCAPE TST      ;SKIP TO END OF TEST          TRAP    C#ERROR
7883 033056          ;
7884 033056 104410          ;
7885 033060 000414          ;
7886          ;
7887 033062 004537 010110    JSR      R5,RXCHAR ;READ/CHK DATA7(077), RCV FIRST FLAG
7888 033066 001077          RXEOM!077      ; & CHECK FOR REOM=1
7889 033070 000000          0
7890 033072 060000          NRCRDA!NCRACT ;DON'T CHECK FOR FINAL RDA=RXACT=1
7891 033074 103003          BCC      .+8.   ;BR IF NO ERROR
7892 033076          ERROR          ;REPORT STACKED ERROR
    
```

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TEST 25 -- BOP RX CHARACTER LENGTH TEST

```

7893 033076 104460                                     TRAP  C#ERROR
7894 033100                                     ESCAPE TST      ;SKIP TO END OF TEST
7895 033100 104410                                     TRAP  C#ESCAPE
7896 033102 000372                                     .WORD L10063-.
7897 033104                                     ENDSUB
7898 033104                                     L10070:
7899 033104 104403                                     TRAP  C#ESUB
7900
7901 :-----:
7902 : SUBROUTINE # 6: 7 BIT CHARACTERS
7903 :-----:
7903 033106                                     BGNSUB
7904 033106                                     T25.6:
7905 033106 104402                                     TRAP  C#BSUB
7906 033110 004537 007400      JSR  R5,INITRN      ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
7907 033114 000226      SYNCH                ;SET BOP MODE,CRC-CCITT-1,S/AR=226
7908 033116 000007      RXDL                ;INITIALLY: TXCL=8 BITS / RXCL=7 BITS
7909 033120 103003      BCC  .+8.           ;BR IF NO ERROR
7910 033122                                     ERROR            ;REPORT STACKED ERROR
7911 033122 104460                                     TRAP  C#ERROR
7912 033124                                     ESCAPE SUB      ;SKIP TO END OF TEST
7913 033124 104410                                     TRAP  C#ESCAPE
7914 033126 000344                                     .WORD L10071-.
7915
7916 033130 004537 010010      JSR  R5,TXCTRL     ;LOAD 2ND FLAG, TX 1ST FLAG
7917 033134 000001      TSOM
7918 033136 000007      7.
7919 033140 004537 010010      JSR  R5,TXCTRL     ;CLEAR TSOM
7920 033144 000000      000
7921 033146 000000      0
7922 033150 004537 007676      JSR  R5,TXCHAR     ;LOAD 123(HEADER1), TX 2ND FLAG
7923 033154 000123      123
7924 033156 000010      8.
7925 033160 103003      BCC  .+8.           ;BR IF NO ERROR
7926 033162                                     ERROR            ;REPORT STACKED ERROR
7927 033162 104460                                     TRAP  C#ERROR
7928 033164                                     ESCAPE SUB      ;SKIP TO END OF TEST
7929 033164 104410                                     TRAP  C#ESCAPE
7930 033166 000304                                     .WORD L10071-.
7931
7932 033170 004537 007676      JSR  R5,TXCHAR     ;LOAD 321(HEADER2), TX 123(HEADER1)
7933 033174 000321      321
7934 033176 000010      8.
7935 033200 103003      BCC  .+8.           ;BR IF NO ERROR
7936 033202                                     ERROR            ;REPORT STACKED ERROR
7937 033202 104460                                     TRAP  C#ERROR
7938 033204                                     ESCAPE SUB      ;SKIP TO END OF TEST
7939 033204 104410                                     TRAP  C#ESCAPE
7940 033206 000264                                     .WORD L10071-.
7941
7942 033210 004537 003734      JSR  R5,WRITEI     ;NOW CHANGE TXCL TO 6 BITS TOO
7943 033214 120407      PCR
7944 033216 000347      TXDL!RXDL
7945 033220 004537 007676      JSR  R5,TXCHAR     ;LOAD 111(DATA1), TX 321(HEADER2)
7946 033224 000111      111
7947 033226 000010      8.
7948 033230 103003      BCC  .+8.           ;BR IF NO ERROR

```


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TEST 25 -- BOP RX CHARACTER LENGTH TEST

```

7949 033232                ERROR                ;REPORT STACKED ERROR
7950 033232 104460                TRAP          C#ERROR
7951 033234                ESCAPE SUB          ;SKIP TO END OF TEST
7952 033234 104410                TRAP          C#ESCAPE
7953 033236 000234                .WORD        L10071-.
7954 ;-----
7955 033240 012703 033477          MOV          #T30TBL+1,R3 ;SET UP DATA TABLE POINTER
7956 033244 112337 033254          10#: MOV      (R3)+,1#    ;INSTALL NEXT TX CHARACTER
7957
7958 033250 004537 007676          JSR          R5,TXCHAR    ;TRANSMIT CHARACTER ( ==> RX/FIFO )
7959 033254 000000          1#: 000                ;** HOLE FOR NEXT CHARACTER **
7960 033256 000007          7.
7961 033260 103003          BCC          .+8.        ;BR IF NO ERROR
7962 033262                ERROR                ;REPORT STACKED ERROR
7963 033262 104460                TRAP          C#ERROR
7964 033264                ESCAPE SUB          ;SKIP TO END OF TEST
7965 033264 104410                TRAP          C#ESCAPE
7966 033266 000204                .WORD        L10071-.
7967
7968 033270 022703 033505          CMP          #T30TBL+7,R3 ;ALL CHARACTERS TRANSMITTED ?
7969 033274 001363          BNE          10#        ; IF NOT, TX ANOTHER ONE
7970 ;-----
7971 033276 004537 010010          JSR          R5,TXCTRL    ;SET TEOM
7972 033302 000002          TEOM
7973 033304 000000          0
7974 033306 004537 011614          JSR          R5,STEPLU    ; AND TX DATA7 + SOME FLAGS
7975 033312 000044          36.
7976
7977 033314 004537 010110          JSR          R5,RXCHAR    ;READ & CHK 123(HEADER1), RCV 321(HEADER2)
7978 033320 000523          RXSOM:123            ; & CHECK FOR RSOM=1
7979 033322 000000          0
7980 033324 100000          NOCRDA            ;NO INITIAL CHECK OF RDA=0
7981 033326 103003          BCC          .+8.        ;BR IF NO ERROR
7982 033330                ERROR                ;REPORT STACKED ERROR
7983 033330 104460                TRAP          C#ERROR
7984 033332                ESCAPE SUB          ;SKIP TO END OF TEST
7985 033332 104410                TRAP          C#ESCAPE
7986 033334 000136                .WORD        L10071-.
7987
7988 033336 004537 010110          JSR          R5,RXCHAR    ;READ/CHECK 321(HEADER2),RCV 011(DATA1)
7989 033342 000321          321
7990 033344 000000          0
7991 033346 100000          NOCRDA            ;NO INITIAL CHECK OF RDA=0
7992 033350 103003          BCC          .+8.        ;BR IF NO ERROR
7993 033352                ERROR                ;REPORT STACKED ERROR
7994 033352 104460                TRAP          C#ERROR
7995 033354                ESCAPE SUB          ;SKIP TO END OF TEST
7996 033354 104410                TRAP          C#ESCAPE
7997 033356 000114                .WORD        L10071-.
7998 ;-----
7999 033360 012703 033476          MOV          #T30TBL,R3  ;SET UP DATA TABLE POINTER
8000 033364 112337 033402          40#: MOV      (R3)+,4#    ;INSTALL NEXT EXPECTED RX CHARACTER
8001 033370 142737 000200 033402          BICB        #200,4#     ;MASK OUT UNTRANSMITTED BITS
8002
8003 033376 004537 010110          JSR          R5,RXCHAR    ;READ/CHECK NEXT CHARACTER
8004 033402 000000          4#: 000                ;** HOLE FOR NEXT EXPECTED CHARACTER

```


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 TEST 25 -- BOP RX CHARACTER LENGTH TEST

```

8005 033404 000000          0
8006 033406 100000          NOCRDA          ;NO INITIAL CHECK OF RDA=0
8007 033410 103003          BCC      .+8.    ;BR IF NO ERROR
8008 033412          ERROR          ;REPORT STACKED ERROR
8009 033412 104460          ESCAPE SUB      ;SKIP TO END OF TEST          TRAP    C#ERROR
8010 033414          ESCAPE SUB      ;SKIP TO END OF TEST          TRAP    C#ESCAPE
8011 033414 104410          ESCAPE SUB      ;SKIP TO END OF TEST          .WORD  L10071-.
8012 033416 000054          ESCAPE SUB      ;SKIP TO END OF TEST          TRAP    C#ERROR
8013
8014 033420 022703 033503          CMP      #T30TBL+5,R3 ;ALL CHARACTERS CHECKED ?
8015 033424 001357          BNE      40#         ; IF NOT, CHECK ANOTHER ONE
8016 -----
8017 033426 004537 010110          JSR      R5,RXCHAR   ;READ/CHK DATA6(066), RCV DATA7
8018 033432 000066          066
8019 033434 000001          RERCHK          ; & CHECK RERR BIT=0 (GOOD CRC)
8020 033436 020000          NCRACK          ;DON'T CHECK FOR INITIAL RDA=0
8021 033440 103003          BCC      .+8.    ;BR IF NO ERROR
8022 033442          ERROR          ;REPORT STACKED ERROR
8023 033442 104460          ESCAPE TST      ;SKIP TO END OF TEST          TRAP    C#ERROR
8024 033444          ESCAPE TST      ;SKIP TO END OF TEST          TRAP    C#ESCAPE
8025 033444 104410          ESCAPE TST      ;SKIP TO END OF TEST          .WORD  L10063-.
8026 033446 000026          ESCAPE TST      ;SKIP TO END OF TEST          TRAP    C#ERROR
8027
8028 033450 004537 010110          JSR      R5,RXCHAR   ;READ/CHK DATA7(177), RCV FIRST FLAG
8029 033454 001177          RXEOM!177       ; & CHECK FOR REOM=1
8030 033456 000000          0
8031 033460 060000          NCRDA!NCRACK    ;DON'T CHECK FOR FINAL RDA=RXACT=1
8032 033462 103003          BCC      .+8.    ;BR IF NO ERROR
8033 033464          ERROR          ;REPORT STACKED ERROR
8034 033464 104460          ESCAPE TST      ;SKIP TO END OF TEST          TRAP    C#ERROR
8035 033466          ESCAPE TST      ;SKIP TO END OF TEST          TRAP    C#ESCAPE
8036 033466 104410          ESCAPE TST      ;SKIP TO END OF TEST          .WORD  L10063-.
8037 033470 000004          ESCAPE TST      ;SKIP TO END OF TEST          TRAP    C#ESUB
8038 033472          ENDSUB
8039 033472          ENDSUB          L10071:
8040 033472 104403          ENDSUB          TRAP    C#ESUB
8041 033474          ENDSUB          L10063:
8042 033474          ENDSUB          TRAP    C#ETST
8043 033474 104401          ENDSUB
8044 -----
8045 033476          111          T30TBL: .BYTE 111 ;D1
8046 033477          222          .BYTE 222 ;D2
8047 033500          333          .BYTE 333 ;D3
8048 033501          044          .BYTE 044 ;D4
8049 033502          155          .BYTE 155 ;D5
8050 033503          266          .BYTE 266 ;D6
8051 033504          377          .BYTE 377 ;D7
8052          033506          .EVEN
8053 -----
    
```

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TEST 26 -- TX "SPACING SEQUENCE"

.SBTTL TEST 26 -- TX "SPACING SEQUENCE"

```

;*****
;*
;* TEST 26 -- TX "SPACING SEQUENCE"
;*
;* THE TRANSMITTER IS INITIALIZED AND THE "SPACING SEQUENCE" IS FORCED
;* BY ASSERTING BOTH T50M & T50M AT THE SAME TIME -- CHECK THE BIT
;* STREAM FOR ACCURACY (SPACES) AND COMPLETENESS (16 OF THEM). WHEN TXBE
;* GOES HIGH (= 1) A SMALL MESSAGE IS SENT.
;*
;-----

```

```

;
; BGNTST
;
; JSR PC,INIDMV ;INIT VIA T26::

```

```

;-----
; SET UP USYRT AND VIA REGISTERS
;-----

```

```

; JSR R5,WRITEI ;SET ACR FOR T1 ONE-SHOT MODE

```

```

; VIAACR
; 200
; JSR R5,WRITEI ;LOAD VIA T1L-L
; VIAT1C
; 300
; JSR R5,WRITEI ;LOAD VIA T1L-H
; VIAT1D
; 000

```

```

; JSR R5,WRITEI ;RESET THE USYRT

```

```

; VIAORB
; RTSND!DTR!PRESET
; JSR R5,WRITEI ;CLEAR USYRT RESET BIT
; VIAORB
; RTSND!DTR

```

```

; JSR R5,WRITEI ;LOAD USYRT PCSARL

```

```

; PCSARL
; 000
; JSR R5,WRITEI ;LOAD USYRT PCSARH
; PCSARH
; XYZ
; (NO ERROR CHECKING)

```

```

; JSR R5,WRITEI ;SET UP USYRT

```

```

; VIAORB
; RTSND!TXEN!RXEN!DTR!TTLOOP

```

```

; JSR R5,CKTBMT ;CHK FOR TBMT = 1

```

```

; 1
; BCC .+8. ;IF NO ERROR, PROCEED
; ERROR ;ELSE, REPORT IT AND

```

```

; ESCAPE TST ; EXIT THIS TEST

```

TRAP C\$ERROR

TRAP C\$ESCAPE
.WORD L10072-

```

;-----

```

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8054
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8068 033506 004737 005420
8069 033506 004737 005420
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8071
8072
8073 033512 004537 003734
8074 033516 120013
8075 033520 000200
8076 033522 004537 003734
8077 033526 120006
8078 033530 000300
8079 033532 004537 003734
8080 033536 120007
8081 033540 000000
8082
8083 033542 004537 003734
8084 033546 120000
8085 033550 000031
8086 033552 004537 003734
8087 033556 120000
8088 033560 000030
8089
8090 033562 004537 003734
8091 033566 120404
8092 033570 000000
8093 033572 004537 003734
8094 033576 120405
8095 033600 000007
8096
8097 033602 004537 003734
8098 033606 120000
8099 033610 000172
8100
8101 033612 004537 006036
8102 033616 000001
8103 033620 103003
8104 033622
8105 033622 104460
8106 033624
8107 033624 104410
8108 033626 000234
8109

```

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TEST 26 -- TX "SPACING SEQUENCE"

```

8110      ; INIT SPACING SEQUENCE BY SETTING TSOM AND TEOM
8111      ;-----
8112 033630 004537 010010      64: JSR R5, TXCTRL ;SET TSOM AND TEOM
8113 033634 000003              TSOM!TEOM ; ("SPACING SEQUENCE")
8114 033636 000000              0
8115
8116 033640 004537 011614      JSR R5, STEPLU ;1 TICK TO START SPACE SEQUENCE
8117 033644 000001              1
8118
8119 033646 004537 007256      JSR R5, SERIAL ;READ 000 CHARACTER VIA TSO
8120 033652 000010              8. ; 8 BIT CHAR/CLOCK TICKS
8121 033654 000000              000 ; EXPECTED BIT SEQUENCE (0000000)
8122 033656 103003              BCC .+8. ;BR IF NO ERROR
8123 033660              ERROR ;REPORT STACKED ERROR
8124 033660 104460              TRAP C#ERROR
8125 033662              ESCAPE TST ;AND EXIT TEST
8126 033662 104410              TRAP C#ESCAPE
8127 033664 000176              .WORD L10072-.
8128
8129 033666 004537 006036      JSR R5, CKTBMT ;CHK FOR TBMT = 1
8130 033672 000001              1
8131 033674 103003              BCC .+8. ;IF NO ERROR, PROCEED
8132 033676              ERROR ;ELSE, REPORT IT AND
8133 033676 104460              TRAP C#ERROR
8134 033700              ESCAPE TST ; EXIT THIS TEST
8135 033700 104410              TRAP C#ESCAPE
8136 033702 000160              .WORD L10072-.
8137      ;-----
8138 033704 004537 010010      JSR R5, TXCTRL ;CLEAR TEOM
8139 033710 000001              TSOM
8140 033712 000000              0
8141
8142 033714 004537 007256      JSR R5, SERIAL ;READ 000 CHARACTER VIA TSO
8143 033720 000010              8. ; 8 BIT CHAR/CLOCK TICKS
8144 033722 000000              000 ; EXPECTED BIT SEQUENCE (00000000)
8145 033724 103003              BCC .+8. ;BR IF NO ERROR
8146 033726              ERROR ;REPORT STACKED ERROR
8147 033726 104460              TRAP C#ERROR
8148 033730              ESCAPE TST ;AND EXIT TEST
8149 033730 104410              TRAP C#ESCAPE
8150 033732 000130              .WORD L10072-.
8151
8152 033734 004537 006036      JSR R5, CKTBMT ;CHK FOR TBMT = 1
8153 033740 000001              1
8154 033742 103003              BCC .+8. ;IF NO ERROR, PROCEED
8155 033744              ERROR ;ELSE, REPORT IT AND
8156 033744 104460              TRAP C#ERROR
8157 033746              ESCAPE TST ; EXIT THIS TEST
8158 033746 104410              TRAP C#ESCAPE
8159 033750 000112              .WORD L10072-.
8160      ;-----
8161      ; SEND "SHORT MESSAGE" (125,252)
8162      ;-----
8163 033752 004537 003734      JSR R5, WRITEI ;LOAD 125 CHARACTER
8164 033756 120402              TDSRL
8165 033760 000125              125

```


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TEST 26 -- TX "SPACING SEQUENCE"

8166	033762	004537	010010	JSR	R5, TXCTRL	;CLEAR TSOM		
8167	033766	000000		000				
8168	033770	000000		0				
8169								
8170	033772	004537	007256	JSR	R5, SERIAL	;READ FLAG CHARACTER (176) VIA TSO		
8171	033776	000010		8.		; 8 BIT CHAR/CLOCK TICKS		
8172	034000	000176		176		; EXPECTED BIT SEQUENCE (01111110)		
8173	034002	103003		BCC	.+8.	;BR IF NO ERROR		
8174	034004			ERROR		;REPORT STACKED ERROR		
8175	034004	104460					TRAP	C#ERROR
8176	034006			ESCAPE	TST	;AND EXIT TEST		
8177	034006	104410					TRAP	C#ESCAPE
8178	034010	000052					.WORD	L10072-.
8179								
8180	034012	004537	003734	JSR	R5, WRITEI	;LOAD 252 CHARACTER		
8181	034016	120402		TDSRL				
8182	034020	000252		252				
8183								
8184	034022	004537	007256	JSR	R5, SERIAL	;READ 1ST DATA CHARACTER (125) VIA TSO		
8185	034026	000010		8.		; 8 BIT CHAR/CLOCK TICKS		
8186	034030	000252		252		; EXPECTED BIT SEQUENCE (01010110)		
8187	034032	103003		BCC	.+8.	;BR IF NO ERROR		
8188	034034			ERROR		;REPORT STACKED ERROR		
8189	034034	104460					TRAP	C#ERROR
8190	034036			ESCAPE	TST	;AND EXIT TEST		
8191	034036	104410					TRAP	C#ESCAPE
8192	034040	000022					.WORD	L10072-.
8193								
8194	034042	004537	007256	JSR	R5, SERIAL	;READ 2ND DATA CHARACTER (252) VIA TSO		
8195	034046	000010		8.		; 8 BIT CHAR/CLOCK TICKS		
8196	034050	000125		125		; EXPECTED BIT SEQUENCE (10101010)		
8197	034052	103003		BCC	.+8.	;BR IF NO ERROR		
8198	034054			ERROR		;REPORT STACKED ERROR		
8199	034054	104460					TRAP	C#ERROR
8200	034056			ESCAPE	TST	;AND EXIT TEST		
8201	034056	104410					TRAP	C#ESCAPE
8202	034060	000002					.WORD	L10072-.
8203	034062							
8204	034062							
8205	034062	104401					L10072:	TRAP C#ETST

ENDTST

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TEST 27 -- FIFO OVERRUN INTEGRITY TEST

.SBTTL TEST 27 -- FIFO OVERRUN INTEGRITY TEST

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```

;*****
;*
;* TEST 27 -- FIFO OVERRUN INTEGRITY TEST
;*
;* THIS TEST BEGINS BY SYNCHRONIZING THE RECEIVER AND THEN PROCEEDS TO FILL
;* THE 8 CHARACTER RECEIVER FIFO UNTIL RXOR WITH THE CHARACTERS:
;* (SYNCH),000,377,125,252,347,030,303,074,125.
;* THESE CHARACTERS ARE THEN READ OFF OF THE FIFO AND CHECKED. OF IMPORTANCE
;* IS THE INTEGRITY OF THE LAST OVERRUN-CAUSING FIFO CHARACTER (IT SHOULD
;* REMAIN INTACT).
;* NOTE THAT NO CLOCKS ARE PROVIDED WHEN RECEIVING THE CHARACTERS SINCE THEY
;* ARE SUPPLIED BY THE FIFO SUPPORT LOGIC IN GROUPS OF 4 TICKS (WHEN
;* RDA = 0).
;*
;-----

```

```

; BGNTST
;
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T27::
;
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; DDCHP!NOCHK!SYNCH ;SET DDCHP,NO CHECK,SYNCH=226
; 0 ;USE 8 BIT CHARS
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
;
; ESCAPE TST ;SKIP TO END OF TEST TRAP C!ERROR
;
; JSR R5,TXCTRL ;OUTPUT 1ST SYNC CHARACTERS TRAP C!ESCAPE
; TSOM ; .WORD L10073-.
; 7.
;
; JSR R5,TXCTRL ;CLEAR TSOM
; 000
; 0

```

```

;-----
; FILL THE FIFO WITH CHARACTERS AND FORCE OVERRUN
;-----
;
; MOV @TXTBL4,R2 ;SET UP TABLE POINTER
; MOV (R2)+,106 ;SETUP TRANSMIT CHARACTER
;
; JSR R5,TXCHAR ;TRANSMIT A CHARACTER
; 000 ;** HOLE FOR NEXT TX CHARACTER
; NCTBMT*256,!8. ;NO CHECK OF INITIAL TBMT=0
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
;
; ESCAPE TST ;SKIP TO END OF TEST TRAP C!ERROR
;
; .WORD L10073-.

```


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TEST 27 -- FIFO OVERRUN INTEGRITY TEST

8262	034160	022702	034447		CMP	@TXEND4,R2		;CONTINUE TRANSMITTING UNTIL		
8263	034164	001363			BNE	5I		;OVERRUN.		
8264										
8265	034166	004537	006476		JSR	R5,CKROR		;VERIFY RECEIVER OVERRUN OCCURED		
8266	034172	000001			1					
8267	034174	103003			BCC	..8.		;BR IF OK		
8268	034176				ERROR			;REPORT STACKED ERROR		
8269	034176	104460							TRAP	C#ERROR
8270	034200				ESCAPE	TST		;SKIP TO END OF TEST		
8271	034200	104410							TRAP	C#ESCAPE
8272	034202	000230							.WORD	L10073-.
8273										
8274										
8275										
8276										
8277	034204	004537	010110		JSR	R5,RXCHAR		;READ & CHK CHARACTER		
8278	034210	000226			SYNCH			; (THIS CHARACTER ISN'T AFFECTED)		
8279	034212	000000			0					
8280	034214	100000			NOCRDA			;NO INITIAL CHECK OF RDA=0		
8281	034216	103003			BCC	..8.		;BR IF NO ERROR		
8282	034220				ERROR			;REPORT STACKED ERROR		
8283	034220	104460							TRAP	C#ERROR
8284	034222				ESCAPE	TST		;SKIP TO END OF TEST		
8285	034222	104410							TRAP	C#ESCAPE
8286	034224	000206							.WORD	L10073-.
8287										
8288	034226	004537	010110		JSR	R5,RXCHAR		;READ & CHK CHARACTER		
8289	034232	000000			000			; (THIS IS THE OVERRITTEN CHARACTER)		
8290	034234	000000			0			; ...WAS A "SYNCH" BEFORE OVERRITTEN		
8291	034236	100000			NOCRDA			;NO INITIAL CHECK OF RDA=0		
8292	034240	103003			BCC	..8.		;BR IF NO ERROR		
8293	034242				ERROR			;REPORT STACKED ERROR		
8294	034242	104460							TRAP	C#ERROR
8295	034244				ESCAPE	TST		;SKIP TO END OF TEST		
8296	034244	104410							TRAP	C#ESCAPE
8297	034246	000164							.WORD	L10073-.
8298										
8299	034250	012702	034437		MOV	@TXTBL4+3,R2		;SET UP TABLE POINTER		
8300	034254	112237	034264	15I:	MOVB	(R2)+.20I		;SETUP EXPECTED CHARACTER		
8301										
8302	034260	004537	010110		JSR	R5,RXCHAR		;READ & CHK CHARACTER		
8303	034264	000000		20I:	000			; ** HOLE FOR EXPECTED RECEIVE CHAR.		
8304	034266	000000			0					
8305	034270	100000			NOCRDA			;NO INITIAL CHECK OF RDA=0		
8306	034272	103003			BCC	..8.		;BR IF NO ERROR		
8307	034274				ERROR			;REPORT STACKED ERROR		
8308	034274	104460							TRAP	C#ERROR
8309	034276				ESCAPE	TST		;SKIP TO END OF TEST		
8310	034276	104410							TRAP	C#ESCAPE
8311	034300	000132							.WORD	L10073-.
8312	034302	022702	034444		CMP	@TXEND4-3,R2				
8313	034306	001362			BNE	15I				
8314										
8315	034310	012702	000004		MOV	@4,R2		;TRANSMIT 4 EXTRA CHARACTERS TO AVOID		
8316	034314	004537	007676	30I:	JSR	R5, TXCHAR		;TRANSMITTER UNDERRUN.		
8317	034320	000333			333			;FILLER CHARACTER		

; THE RECEIVER SHOULD HAVE OVERRUN. VERIFY THIS AND READ/VERIFY
; THE REMAINING FIFO CHARACTERS (ESPECIALLY THE LAST ONE).

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TEST 27 -- FIFO OVERRUN INTEGRITY TEST

8318	034322	100010		NCTBMT*256.!8.		;NO CHECK OF INITIAL TBMT=0		
8319	034324	077205		S08 R2,308				
8320								
8321	034326	004537	010110	JSR R5,RXCHAR		;READ & CHK CHARACTER		
8322	034332	000303		303				
8323	034334	000000		0				
8324	034336	100000		NOCRDA		;NO INITIAL CHECK OF RDA=0		
8325	034340	103003		BCC .+8.		;BR IF NO ERROR		
8326	034342			ERROR		;REPORT STACKED ERROR		
8327	034342	104460					TRAP	C#ERROR
8328	034344			ESCAPE TST		;SKIP TO END OF TEST		
8329	034344	104410					TRAP	C#ESCAPE
8330	034346	000064					.WORD	L10073-.
8331								
8332	034350	004537	010110	JSR R5,RXCHAR		;READ & CHK CHARACTER		
8333	034354	000074		074				
8334	034356	000000		0				
8335	034360	100000		NOCRDA		;NO INITIAL CHECK OF RDA=0		
8336	034362	103003		BCC .+8.		;BR IF NO ERROR		
8337	034364			ERROR		;REPORT STACKED ERROR		
8338	034364	104460					TRAP	C#ERROR
8339	034366			ESCAPE TST		;SKIP TO END OF TEST		
8340	034366	104410					TRAP	C#ESCAPE
8341	034370	000042					.WORD	L10073-.
8342								
8343	034372	004537	010110	JSR R5,RXCHAR		;* READ & CHK FINAL CHARACTER		
8344	034376	000125		125				
8345	034400	000000		0				
8346	034402	100000		NOCRDA		;* NO INITIAL CHECK OF RDA=0		
8347	034404	103003		BCC .+8.		;* BR IF NO ERROR		
8348	034406			ERROR		;* REPORT STACKED ERROR		
8349	034406	104460					TRAP	C#ERROR
8350	034410			ESCAPE TST		;* SKIP TO END OF TEST		
8351	034410	104410					TRAP	C#ESCAPE
8352	034412	000020					.WORD	L10073-.
8353								
8354	034414	004537	011532	JSR R5,ENDTRN		;SHUT DOWN TRANSMITTER, RECEIVER		
8355	034420	000011		9.				
8356	034422	103003		BCC .+8.		;BR IF NO ERROR		
8357	034424			ERROR		;REPORT STACKED ERROR		
8358	034424	104460					TRAP	C#ERROR
8359	034426			ESCAPE TST		;SKIP TO END OF TEST		
8360	034426	104410					TRAP	C#ESCAPE
8361	034430	000002					.WORD	L10073-.
8362	034432			ENDTST				
8363	034432							
8364	034432	104401					L10073:	
8365							TRAP	C#ETST
8366	034434	226		-----				
8367	034435	226		TXTBL4: .BYTE 226				
8368	034436	000		.BYTE 226				
8369	034437	377		.BYTE 000				
8370	034440	125		.BYTE 377				
8371	034441	252		.BYTE 125				
8372	034442	347		.BYTE 252				
8373	034443	030		.BYTE 347				
				.BYTE 030				

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TEST 27 -- FIFO OVERRUN INTEGRITY TEST

8374 034444 303
8375 034445 074
8376 034446 125
8377 034447 000
8378
8379

.BYTE 303
.BYTE 074
.BYTE 125
TXEND4: .BYTE 000
.EVEN

;------

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TEST 28 -- BCP RX OVERRUN SET AND CLEAR TEST

.SBTTL TEST 28 -- BCP RX OVERRUN SET AND CLEAR TEST

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034450
034450
034450
034450 104402
034452 004737 005420
034456 004537 007400
034462 043626
034464 000000
034466 103003
034470 104460
034472
034472 104410
034474 000112
034476 004537 010010
034502 000001
034504 000007
034506 004537 010010
034512 000001
034514 000010
034516 004537 010010
034522 000000
034524 000000
034526 004537 006476
034532 000000
034534 103003

```

;*****
;*
;* TEST 28 -- BCP RX OVERRUN SET AND CLEAR TEST
;*
;* THE USYRT IS INITIALIZED AND THREE SUBTESTS ARE PERFORMED.
;*
;* 1 -- AN OVERRUN CONDITION IS FORCED, RECEIVER STATUS REGISTER IS
;* READ TWICE; ONCE TO VERIFY ROR BIT = 1, AND AGAIN TO VERIFY
;* THAT THE FIRST READ CLEARED ROR .
;*
;* 2 -- AN OVERRUN CONDITION IS FORCED (BY THE SAME TECHNIQUE USED IN
;* (2), THE USYRT IS RESET AND THE PROPER STATE OF ALL REGISTERS
;* IS VERIFIED.
;*
;* 3 -- AN OVEHRUN CONDITION IS FORCED (AS ABOVE). RXE IS THEN DROPPED
;* AND A DELAY IS PROVIDED TO ALLOW TIME FOR THE FIFO TO FLUSH
;* (CAUSED BY RDA GOING LOW). RXE IS THEN RE-INITIALIZED AND ROR
;* IS CHECKED = 0. THE RECEIVER IS THEN RE-SYNCHED AND THE TEST IS
;* TERMINATED.
;*****

```

```

;
; BGNTST
;
;***** SUBTEST #1 *****
; BGNSUB
;
; T28.1:
; TRAP C#BSUB
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; DDCMP!NOCHK!SYNCH ;SET DDCMP, NO ERR CHECKING, SYNCH=226
; 0 ;USE 8 BIT CHARS
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
; ESCAPE SUB ;SKIP TO END OF TEST
; TRAP C#ESCAPE
; .WORD L10075-.
;
; JSR R5, TXCTRL ;OUTPUT 1ST SYNC CHARACTERS
; TSOM
; 7.
; JSR R5, TXCTRL ;OUTPUT 2ND SYNC CHARACTER
; TSOM
; 8.
; JSR R5, TXCTRL ;CLEAR TSOM
; 000
; 0
;
; JSR R5, CKROR ;CHECK FOR RXOR = 0
; 0
; BCC .+8. ;BR IF NO ERROR

```


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TEST 28 -- BCP RX OVERRUN SET AND CLEAR TEST

8436	034536			ERROR		;REPORT STACKED ERROR		
8437	034536	104460					TRAP	C#ERROR
8438	034540			ESCAPE SUB		;SKIP TO END OF TEST		
8439	034540	104410					TRAP	C#ESCAPE
8440	034542	000044					.WORD	L10075--
8441								
8442	034544	004537	011614	JSR	R5,STEPLU	;FORCE RECEIVER OVERRUN		
8443	034550	000116		78.				
8444								
8445	034552	004537	006476	JSR	R5,CKROR	;CHECK FOR RXOR = 1		
8446	034556	000001		1				
8447	034560	103003		BCC	.+8.	;BR IF NO ERROR		
8448	034562			ERROR		;REPORT STACKED ERROR		
8449	034562	104460					TRAP	C#ERROR
8450	034564			ESCAPE TST		;SKIP TO END OF TEST		
8451	034564	104410					TRAP	C#ESCAPE
8452	034566	000262					.WORD	L10074--
8453								
8454	034570	004537	006476	JSR	R5,CKROR	;CHECK FOR RXOR = 0		
8455	034574	000000		0				
8456	034576	103003		BCC	.+8.	;BR IF NO ERROR		
8457	034600			ERROR		;REPORT STACKED ERROR		
8458	034600	104460					TRAP	C#ERROR
8459	034602			ESCAPE SUB		;SKIP TO END OF TEST		
8460	034602	104410					TRAP	C#ESCAPE
8461	034604	000002					.WORD	L10075--
8462	034606			ENDSUB				
8463	034606							
8464	034606	104403					L10075:	
8465							TRAP	C#ESUB
8466	034610			;***** SUBTEST #2 *****				
8467	034610			BGNSUB				
8468	034610	104402					T28.2:	
8469	034612	004737	005420	JSR	PC,INIDMV	;INIT DMV-11, ENTER M-LOOP	TRAP	C#BSUB
8470								
8471	034616	004537	007400	JSR	R5,INITRN	;LOAD 1 SOM, CLK TX UNTIL ACTIVE		
8472	034622	043626		DDCMP!NOCHK!SYNCH	;SET DDCMP, NO ERR CHECKING, SYNCH=226			
8473	034624	000000		0		;USE 8 BIT CHARS		
8474	034626	103003		BCC	.+8.	;BR IF NO ERROR		
8475	034630			ERROR		;REPORT STACKED ERROR		
8476	034630	104460					TRAP	C#ERROR
8477	034632			ESCAPE SUB		;SKIP TO END OF TEST		
8478	034632	104410					TRAP	C#ESCAPE
8479	034634	000054					.WORD	L10076--
8480								
8481	034636	004537	010010	JSR	R5,TXCTRL	;OUTPUT 1ST SYNC CHARACTERS		
8482	034642	000001		TSOM				
8483	034644	000007		7.				
8484	034646	004537	010010	JSR	R5,TXCTRL	;OUTPUT 2ND SYNC CHARACTER		
8485	034652	000001		TSOM				
8486	034654	000010		8.				
8487	034656	004537	010010	JSR	R5,TXCTRL	;CLEAR TSOM		
8488	034662	000000		000				
8489	034664	000000		0				
8490	034666	004537	011614	JSR	R5,STEPLU	;FORCE RECEIVER OVERRUN		
8491	034672	000116		78.				

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 TEST 28 -- BCP RX OVERRUN SET AND CLEAR TEST

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8492
8493 034674 004537 005126      JSR      R5,RSTCHK      ;RESET USYRT/VERIFY SAME
8494 034700 103003              BCC      .+8.           ;BR IF NO ERROR
8495 034702                      ERROR          ;REPORT STACKED ERROR
8496 034702 104460              TRAP     C#ERROR
8497 034704                      ESCAPE TST      ;SKIP TO END OF TEST
8498 034704 104410              TRAP     C#ESCAPE
8499 034706 000142              .WORD    L10074-.
8500 034710                      ENDSUB
8501 034710                      L10076:
8502 034710 104403              TRAP     C#ESUB
8503 ;***** SUBTEST #3 *****
8504 034712                      BGNSUB
8505 034712                      T28.3:
8506 034712 104402              TRAP     C#BSUB
8507 034714 004737 005420      JSR      PC,INIDMV      ;INIT DMV-11, ENTER M-LOOP
8508
8509 034720 004537 007400      JSR      R5,INITRN      ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
8510 034724 043626      DDCHP:NOCHK!SYNCH ;SET DDCHP, NO ERR CHECKING, SYNCH=226
8511 034726 000000      0                      ;USE 8 BIT CHARS
8512 034730 103003      BCC      .+8.           ;BR IF NO ERROR
8513 034732                      ERROR          ;REPORT STACKED ERROR
8514 034732 104460              TRAP     C#ERROR
8515 034734                      ESCAPE SUB      ;SKIP TO END OF TEST
8516 034734 104410              TRAP     C#ESCAPE
8517 034736 000110              .WORD    L10077-.
8518
8519 034740 004537 010010      JSR      R5,TXCTRL      ;OUTPUT 1ST SYNC CHARACTERS
8520 034744 000001      TSOM
8521 034746 000007      7.
8522 034750 004537 010010      JSR      R5,TXCTRL      ;OUTPUT 2ND SYNC CHARACTER
8523 034754 000001      TSOM
8524 034756 000010      8.
8525 034760 004537 010010      JSR      R5,TXCTRL      ;CLEAR TSOM
8526 034764 000000      000
8527 034766 000000      0
8528 034770 004537 011614      JSR      R5,STEPLU      ;FORCE RECEIVER OVERRUN
8529 034774 000116      78.
8530
8531 034776 004537 003734      JSR      R5,WRITEI      ;DROP RECEIVER ENABLE (RXEN)
8532 035002 120000      VIAORB          ; (RDA SHOULD ALSO DROP, WHICH WILL
8533 035004 000042      TXEN!TTLOOP      ; CAUSE FIFO TO FLUSH ITSELF).
8534
8535 035006 012701 000050      MOV      #50,R1        ;DELAY FOR NNN SEC. TO ALLOW FIFO TIME
8536 035012 004737 005312      10#: JSR      PC,WAIT50      ;TO FLUSH ITSELF.
8537 035016 077103      SOB      R1,10#
8538
8539 035020 004537 003734      JSR      R5,WRITEI      ;TURN ON RECEIVER ENABLE (RXEN)
8540 035024 120000      VIAORB
8541 035026 000142      TXEN!RXEN!TTLOOP
8542
8543 035030 004537 006476      JSR      R5,CKROR      ;VERIFY CLEARING OF RECEIVER OVERRUN
8544 035034 000000      0
8545 035036 103003      BCC      .+8.           ;BR IF NO ERROR
8546 035040                      ERROR          ;REPORT STACKED ERROR
8547 035040 104460              TRAP     C#ERROR
    
```

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TEST 28 -- BCP RX OVERRUN SET AND CLEAR TEST

8548 035042
8549 035042 104410
8550 035044 000002
8551 035046
8552 035046
8553 035046 104403
8554 035050
8555 035050
8556 035050 104401

ESCAPE SUB ;SKIP TO END OF TEST

TRAP C#ESCAPE
.WORD L10077-

ENDSUB

L10077:

TRAP C#ESUB

ENDTST

L10074:

TRAP C#ETST

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TEST 29 -- BCP RX SYNC CHARACTER RECOGNITION

.SBTTL TEST 29 -- BCP RX SYNC CHARACTER RECOGNITION

```

;*****
;*
;* TEST 29 -- BCP RX SYNC CHARACTER RECOGNITION
;*
;* THE FOLLOWING MESSAGE IS INITIATED WITHOUT ASSERTING RXE AND ONCE
;* THE DATA IS BEING TRANSMITTED, RXE IS ASSERTED (IE: *):
;*
;* SYNC * SYNC DATA DATA DATA SYNC SYNC SYNC SYNC SYNC DATA DATA DATA
;* SYNC SYNC DATA DATA DATA SYNC SYNC
;*
;* THE RECEIVER SHOULD IGNORE THE FIRST STRING OF DATA CHARACTERS, USE
;* THE NEXT TWO SYNC CHARACTERS FOR SYNCHRONIZATION, THEN PASS THE REST
;* OF THE MESSAGE (7 SYNC AND 6 DATA CHARACTERS) THROUGH RXDB REGISTER.
;*
;-----*****

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8578 035052 004737 005420
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8580 035056 004537 007400
8581 035062 043626
8582 035064 040000
8583 035066 103003
8584 035070
8585 035070 104460
8586 035072
8587 035072 104410
8588 035074 000414
8589
8590 035076 004537 010010
8591 035102 000001
8592 035104 000007
8593 035106 004537 010010
8594 035112 000000
8595 035114 000000
8596 035116 004537 003734
8597 035122 120000
8598 035124 000142
8599
8600
8601
8602 035126 004537 007676
8603 035132 000000
8604 035134 000010
8605 035136 103003
8606 035140
8607 035140 104460
8608 035142
8609 035142 104410
8610 035144 000344
8611
8612 035146 004537 007676

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;
; BGNTST
;
; T2°::
;
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
;
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; DDCHP!NOCHK!SYNCH ;SET DDCHP,NO CHECK,SYNCH=226
; NORXEN ;USE 8 BIT CHARS; LEAVE RXEN=0
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C$ERROR
;
; ESCAPE TST ;SKIP TO END OF TEST
; TRAP C$ESCAPE
; .WORD L10100-.
;
; JSR R5, TXCTRL ;OUTPUT 1ST SYNC CHARACTER
; TSOM ; (IGNORED BY RECEIVER)
; 7.
; JSR R5, TXCTRL ;CLEAR TSOM
; 000
; 0
; JSR R5,WRITEI ;ENABLE RECEIVER (RXEN => 1)
; VIAORB
; RXEN!TXEN!TTLOOP
;
;-----*****
; THE RECEIVER SHOULD IGNORE THE NEXT STRING OF CHARACTERS
;-----*****
;
; JSR R5, TXCHAR ;LOAD 000, TX 2ND SYNCH
; 000
; 8.
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C$ERROR
;
; ESCAPE TST ;SKIP TO END OF TEST
; TRAP C$ESCAPE
; .WORD L10100-.
;
; JSR R5, TXCHAR ;LOAD 377, TX 000

```

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TEST 29 -- BCP RX SYNC CHARACTER RECOGNITION

8613	035152	000377		377				
8614	035154	000010		8.				
8615	035156	103003		BCC	.+8.		;BR IF NO ERROR	
8616	035160			ERROR			;REPORT STACKED ERROR	
8617	035160	104460						TRAP C#ERROR
8618	035162			ESCAPE	TST		;SKIP TO END OF TEST	
8619	035162	104410						TRAP C#ESCAPE
8620	035164	000324						.WORD L10100-.
8621								
8622	035166	004537	007676	JSR	R5, TXCHAR		;LOAD 125, TX 377	
8623	035172	000125		125				
8624	035174	000010		8.				
8625	035176	103003		BCC	.+8.		;BR IF NO ERROR	
8626	035200			ERROR			;REPORT STACKED ERROR	
8627	035200	104460						TRAP C#ERROR
8628	035202			ESCAPE	TST		;SKIP TO END OF TEST	
8629	035202	104410						TRAP C#ESCAPE
8630	035204	000304						.WORD L10100-.
8631								
8632	035206	004537	007676	JSR	R5, TXCHAR		;TX 125, LOAD SYNCH	
8633	035212	000226		SYNCH				
8634	035214	000010		8.				
8635	035216	103003		BCC	.+8.		;BR IF NO ERROR	
8636	035220			ERROR			;REPORT STACKED ERROR	
8637	035220	104460						TRAP C#ERROR
8638	035222			ESCAPE	TST		;SKIP TO END OF TEST	
8639	035222	104410						TRAP C#ESCAPE
8640	035224	000264						.WORD L10100-.
8641								
8642	035226	004537	006176	JSR	R5, CKRDA		;CHECK RECEIVE DATA AVAILABLE	
8643	035232	000000		0			; (NO DATA EXPECTED)	
8644	035234	103003		BCC	.+8.		;BR IF NO ERROR	
8645	035236			ERROR			;REPORT STACKED ERROR	
8646	035236	104460						TRAP C#ERROR
8647	035240			ESCAPE	TST		;SKIP TO END OF TEST	
8648	035240	104410						TRAP C#ESCAPE
8649	035242	000246						.WORD L10100-.
8650								
8651								
8652								
8653								
8654	035244	004537	007676	JSR	R5, TXCHAR		;LOAD 2ND SYNCH, TX 1ST SYNCH	
8655	035250	000226		SYNCH				
8656	035252	000010		8.				
8657	035254	103003		BCC	.+8.		;BR IF NO ERROR	
8658	035256			ERROR			;REPORT STACKED ERROR	
8659	035256	104460						TRAP C#ERROR
8660	035260			ESCAPE	TST		;SKIP TO END OF TEST	
8661	035260	104410						TRAP C#ESCAPE
8662	035262	000226						.WORD L10100-.
8663								
8664	035264	004537	007676	JSR	R5, TXCHAR		;LOAD 3ND SYNCH, TX 2ND SYNCH	
8665	035270	000226		SYNCH				
8666	035272	000010		8.				
8667	035274	103003		BCC	.+8.		;BR IF NO ERROR	
8668	035276			ERROR			;REPORT STACKED ERROR	

; THE RECEIVER SHOULD SYNCHRONIZE ON THE NEXT TWO SYNC CHARACTERS
; AND THEN READ THE REMAINING ONES.

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TEST 29 -- BCP RX SYNC CHARACTER RECOGNITION

8669	035276	104460					TRAP	C#ERROR
8670	035300			ESCAPE	TST	;SKIP TO END OF TEST		
8671	035300	104410					TRAP	C#ESCAPE
8672	035302	000206					.WORD	L10100-.
8673								
8674	035304	004537	007676	JSR	R5, TXCHAR	;LOAD 4TH SYNCH, TX 3RD SYNCH		
8675	035310	000226		SYNCH				
8676	035312	000010		8.				
8677	035314	103003		BCC	.+8.	;BR IF NO ERROR		
8678	035316			ERROR		;REPORT STACKED ERROR		
8679	035316	104460					TRAP	C#ERROR
8680	035320			ESCAPE	TST	;SKIP TO END OF TEST		
8681	035320	104410					TRAP	C#ESCAPE
8682	035322	000166					.WORD	L10100-.
8683								
8684	035324	004537	007676	JSR	R5, TXCHAR	;LOAD 5TH SYNCH		
8685	035330	000226		SYNCH				
8686	035332	000000		0				
8687	035334	103003		BCC	.+8.	;BR IF NO ERROR		
8688	035336			ERROR		;REPORT STACKED ERROR		
8689	035336	104460					TRAP	C#ERROR
8690	035340			ESCAPE	TST	;SKIP TO END OF TEST		
8691	035340	104410					TRAP	C#ESCAPE
8692	035342	000146					.WORD	L10100-.
8693								
8694	035344	004537	011364	JSR	R5, RCV1ST	;CLOCK AND RECEIVE 3RD SYNCH		
8695	035350	000000		0				
8696	035352	103003		BCC	.+8.	;BR IF NO ERROR		
8697	035354			ERROR		;REPORT STACKED ERROR		
8698	035354	104460					TRAP	C#ERROR
8699	035356			ESCAPE	TST	;SKIP TO END OF TEST		
8700	035356	104410					TRAP	C#ESCAPE
8701	035360	000130					.WORD	L10100-.
8702								
8703	035362	004537	010110	JSR	R5, RXCHAR	;RECEIVE/CHECK SYNCH CHARACTER		
8704	035366	000226		SYNCH				
8705	035370	000000		0				
8706	035372	000010		8.				
8707	035374	103003		BCC	.+8.	;BR IF NO ERROR		
8708	035376			ERROR		;REPORT STACKED ERROR		
8709	035376	104460					TRAP	C#ERROR
8710	035400			ESCAPE	TST	;SKIP TO END OF TEST		
8711	035400	104410					TRAP	C#ESCAPE
8712	035402	000106					.WORD	L10100-.
8713								
8714	035404	012702	035512					
8715	035410	112237	035446	54:	MOV	@TXTBL1, R2		
8716	035414	116237	000001	035426	MOVB	(R2)+, 204		
8717					MOVB	1(R2), 104		
8718	035422	004537	007676					
8719	035426	000000		104:	JSR	R5, TXCHAR		
8720	035430	000000			000	;** HOLE FOR NEXT TX CHARACTER		
8721	035432	103003			0			
8722	035434				BCC	.+8.	;BR IF NO ERROR	
8723	035434	104460			ERROR	;REPORT STACKED ERROR		
8724	035436			ESCAPE	TST	;SKIP TO END OF TEST	TRAP	C#ERROR

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TEST 29 -- BCP RX SYNC CHARACTER RECOGNITION

8725	035436	104410					TRAP	C#ESCAPE
8726	035440	000050					.WORD	L10100-.
8727								
8728	035442	004537	010110					
8729	035446	000000		20#:	JSR	R5,RXCHAR		;CLOCK/RECEIVE/CHECK PREVIOUS CHARACTER
8730	035450	000000			000			;** HOLE FOR EXPECTED CHARACTER
8731	035452	000010			0			
8732	035454	103003			8.			
8733	035456				BCC	+.8.		;BR IF NO ERROR
8734	035456	104460			ERROR			;REPORT STACKED ERROR
8735	035460				ESCAPE	TST		;SKIP TO END OF TEST
8736	035460	104410					TRAP	C#ERROR
8737	035462	000026					.WORD	C#ESCAPE
8738								L10100-.
8739	035464	022702	035527		CMP	@TXEND1,R2		
8740	035470	001347			BNE	5#		
8741					;-----			
8742	035472	004537	011532		JSR	R5,ENDTRN		;SHUT DOWN TRANSMITTER, RECEIVER
8743	035476	000010			8.			
8744	035500	103003			BCC	+.8.		;BR IF NO ERROR
8745	035502				ERROR			;REPORT STACKED ERROR
8746	035502	104460			ESCAPE	TST		;SKIP TO END OF TEST
8747	035504						TRAP	C#ERROR
8748	035504	104410					.WORD	C#ESCAPE
8749	035506	000002						L10100-.
8750								
8751	035510			ENDTST				
8752	035510							
8753	035510	104401					L10100:	TRAP
8754								C#ETST
8755	035512	226			;-----			
8756	035513	226		TXLBL1:	.BYTE	226		;SYNCH
8757	035514	000			.BYTE	226		;SYNCH
8758	035515	377			.BYTE	000		
8759	035516	125			.BYTE	377		
8760	035517	226			.BYTE	125		
8761	035520	226			.BYTE	226		;SYNCH
8762	035521	252			.BYTE	226		;SYNCH
8763	035522	101			.BYTE	252		
8764	035523	202			.BYTE	101		
8765	035524	226			.BYTE	202		
8766	035525	226			.BYTE	226		;SYNCH
8767	035526	000			.BYTE	226		;SYNCH
8768	035527	000		TXEND1:	.BYTE	000		
8769					.EVEN	000		
8770					;-----			

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 TEST 30 -- BCP RX STRIP-SYNC TEST

.SBTTL TEST 30 -- BCP RX STRIP-SYNC TEST

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;*****
;*
;* TEST 30 -- BCP RX STRIP-SYNC TEST
;*
;* THE USYRT IS INITIALIZED WITH THE STRIP-SYNC CONTROL BIT ASSERTED.
;* THE FOLLOWING MESSAGE IS THEN INITIATED WITHOUT ASSERTING RXE AND
;* ONCE THE DATA IS BEING TRANSMITTED, RXE IS ASSERTED (IE: *):
;*
;* SYNC * SYNC DATA DATA DATA SYNC SYNC SYNC SYNC SYNC DATA DATA DATA
;* SYNC SYNC DATA DATA DATA SYNC SYNC
;*
;* THE RECEIVER SHOULD IGNORE THE FIRST STRING OF DATA CHARACTERS. USE
;* THE NEXT TWO SYNC CHARACTERS FOR SYNCHRONIZATION, IGNORE THE NEXT
;* THREE SYNC CHARACTERS, AND PASS THE REST OF THE MESSAGE (4 SYNC AND
;* 6 DATA CHARACTERS) THROUGH RXDB REGISTER.
;*****
    
```

```

;
; BGNTST
;
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T30:
;
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; DDCMP!STRIPS!NOCHK!SYNCH ;SET DDCMP,NO CHECK,SYNCH=226
; NORXEN ;USE 8 BIT CHARS, LEAVE RXEN=0
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
;
; ESCAPE TST ;SKIP TO END OF TEST TRAP C$ERROR
;
; JSR R5,WRITEI ;ENABLE RECEIVER (RXEN => 1)
; V_AORB
; RXEN!TXEN!TTL00P
    
```

 ; THE RECEIVER SHOULD IGNORE THE NEXT STRING OF CHARACTERS

```

;
; JSR R5,TXCHAR ;LOAD 000, TX 2ND SYNCH
; 000
; 8.
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
;
; ESCAPE TST ;SKIP TO END OF TEST TRAP C$ERROR
;
; TRAP C$ESCAPE
; .WORD L10101-.
    
```

035530 004737 005420
 035534 004537 007400
 035540 063626
 035542 040000
 035544 103003
 035546 104460
 035550 104410
 035552 000474
 035554 004537 010010
 035560 000001
 035562 000007
 035564 004537 010010
 035570 000000
 035572 000000
 035574 004537 003734
 035600 120000
 035602 000142
 035604 004537 007676
 035610 000000
 035612 000010
 035614 103003
 035616 104460
 035620 104410
 035622 000424

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TEST 30 -- BCP RX STRIP-SYNC TEST

8827	035624	004537	007676	JSR	R5, TXCHAR	;LOAD 377, TX 000		
8828	035630	000377		377				
8829	035632	000010		B.				
8830	035633	103003		BCC	.+8.	;BR IF NO ERROR		
8831	035636			ERROR		;REPORT STACKED ERROR		
8832	035636	104460					TRAP	C#ERROR
8833	035640			ESCAPE	TST	;SKIP TO END OF TEST		
8834	035640	104410					TRAP	C#ESCAPE
8835	035642	000404					.WORD	L10101-.
8836								
8837	035644	004537	007676	JSR	R5, TXCHAR	;LOAD 125, TX 377		
8838	035650	000125		125				
8839	035652	000010		B.				
8840	035654	103003		BCC	.+8.	;BR IF NO ERROR		
8841	035656			ERROR		;REPORT STACKED ERROR		
8842	035656	104460					TRAP	C#ERROR
8843	035660			ESCAPE	TST	;SKIP TO END OF TEST		
8844	035660	104410					TRAP	C#ESCAPE
8845	035662	000364					.WORD	L10101-.
8846								
8847	035664	004537	007676	JSR	R5, TXCHAR	;LOAD SYNCH, TX 125		
8848	035670	000226		SYNCH				
8849	035672	000010		B.				
8850	035674	103003		BCC	.+8.	;BR IF NO ERROR		
8851	035676			ERROR		;REPORT STACKED ERROR		
8852	035676	104460					TRAP	C#ERROR
8853	035700			ESCAPE	TST	;SKIP TO END OF TEST		
8854	035700	104410					TRAP	C#ESCAPE
8855	035702	000344					.WORD	L10101-.
8856								
8857	035704	004537	006176	JSR	R5, CKRDA	;CHECK RECEIVE DATA AVAILABLE		
8858	035710	000000		0		; (NO DATA EXPECTED)		
8859	035712	103003		BCC	.+8.	;BR IF NO ERROR		
8860	035714			ERROR		;REPORT STACKED ERROR		
8861	035714	104460					TRAP	C#ERROR
8862	035716			ESCAPE	TST	;SKIP TO END OF TEST		
8863	035716	104410					TRAP	C#ESCAPE
8864	035720	000326					.WORD	L10101-.
8865								
8866								
8867								
8868								
8869	035722	004537	007676	JSR	R5, TXCHAR	;LOAD 2ND SYNCH, TX 1ST SYNCH		
8870	035726	000226		SYNCH				
8871	035730	000010		B.				
8872	035732	103003		BCC	.+8.	;BR IF NO ERROR		
8873	035734			ERROR		;REPORT STACKED ERROR		
8874	035734	104460					TRAP	C#ERROR
8875	035736			ESCAPE	TST	;SKIP TO END OF TEST		
8876	035736	104410					TRAP	C#ESCAPE
8877	035740	000306					.WORD	L10101-.
8878								
8879	035742	004537	007676	JSR	R5, TXCHAR	;LOAD 3ND SYNCH, TX 2ND SYNCH		
8880	035746	000226		SYNCH				
8881	035750	000010		B.				
8882	035752	103003		BCC	.+8.	;BR IF NO ERROR		

 ; THE RECEIVER SHOULD SYNCHRONIZE ON THE NEXT TWO SYNC CHARACTERS.
 ; STRIP THE NEXT THREE, AND THEN READ THE REMAINING ONES.

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TEST 30 -- BCP RX STRIP-SYNC TEST

8939	036102	004537	011364		JSR	R5,RCV1ST	;CLOCK AND RECEIVE DATA1		
8940	036106	000000			0				
8941	036110	103003			BCC	..8.	;BR IF NO ERROR		
8942	036112				ERROR		;REPORT STACKED ERROR		
8943	036112	104460						TRAP	C#ERROR
8944	036114				ESCAPE	TST	;SKIP TO END OF TEST		
8945	036114	104410						TRAP	C#ESCAPE
8946	036116	000130						.WORD	L10101-.
8947									
8948	036120	004537	010110		JSR	R5,RXCHAR	;RECEIVE/CHECK DATA1 (252)		
8949	036124	000252			252				
8950	036126	000000			0				
8951	036130	000010			8.				
8952	036132	103003			BCC	..8.	;BR IF NO ERROR		
8953	036134				ERROR		;REPORT STACKED ERROR		
8954	036134	104460						TRAP	C#ERROR
8955	036136				ESCAPE	TST	;SKIP TO END OF TEST		
8956	036136	104410						TRAP	C#ESCAPE
8957	036140	000106						.WORD	L10101-.
8958									
8959	036142	012702	036250		MOV	#TXTBL2,R2	;SET UP TABLE POINTER		
8960	036146	112237	036204		5#:	MOV# (R2),.20#	;SETUP EXPECTED CHARACTER		
8961	036152	116237	000001	036164	MOV#	1(R2),10#	;SETUP TRANSMIT CHARACTER		
8962									
8963	036160	004537	007676		JSR	R5,TXCHAR	;LOAD A CHARACTER		
8964	036164	000000			10#:	000	;** HOLE FOR NEXT TX CHARACTER		
8965	036166	000000			0				
8966	036170	103003			BCC	..8.	;BR IF NO ERROR		
8967	036172				ERROR		;REPORT STACKED ERROR		
8968	036172	104460						TRAP	C#ERROR
8969	036174				ESCAPE	TST	;SKIP TO END OF TEST		
8970	036174	104410						TRAP	C#ESCAPE
8971	036176	000050						.WORD	L10101-.
8972									
8973	036200	004537	010110		JSR	R5,RXCHAR	;CLOCK/RECEIVE/CHECK PREVIOUS CHARACTER		
8974	036204	000000			20#:	000	;** HOLE FOR EXPECTED CHARACTER		
8975	036206	000000			0				
8976	036210	000010			8.				
8977	036212	103003			BCC	..8.	;BR IF NO ERROR		
8978	036214				ERROR		;REPORT STACKED ERROR		
8979	036214	104460						TRAP	C#ERROR
8980	036216				ESCAPE	TST	;SKIP TO END OF TEST		
8981	036216	104410						TRAP	C#ESCAPE
8982	036220	000026						.WORD	L10101-.
8983									
8984	036222	022702	036262		CMF	#TXEND2,R2			
8985	036226	001347			BNE	5#			
8986									
8987	036230	004537	011532		JSR	R5,ENDTRN	;SHUT DOWN TRANSMITTER, RECEIVER		
8988	036234	000010			8.				
8989	036236	103003			BCC	..8.	;BR IF NO ERROR		
8990	036240				ERROR		;REPORT STACKED ERROR		
8991	036240	104460						TRAP	C#ERROR
8992	036242				ESCAPE	TST	;SKIP TO END OF TEST		
8993	036242	104410						TRAP	C#ESCAPE
8994	036244	000002						.WORD	L10101-.

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TEST 30 -- BCP RX STRIP-SYNC TEST

ENDTST

L10101: TRAP C#ETST

8995	036246	
8996	036246	
8997	036246	104401
8998		
8999	036250	347
9000	036251	030
9001	036252	226
9002	036253	226
9003	036254	252
9004	036255	101
9005	036256	202
9006	036257	226
9007	036260	226
9008	036261	000
9009	036262	000
9010		036264
9011		

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-----
TXTBL2: .BYTE 347
        .BYTE 030
        .BYTE 226 ;SYNCH
        .BYTE 226 ;SYNCH
        .BYTE 252
        .BYTE 101
        .BYTE 202
        .BYTE 226 ;SYNCH
        .BYTE 226 ;SYNCH
        .BYTE 000
TXEND2: .BYTE 000
        .EVEN
-----

```


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TEST 31 -- BCP RX LOST RXE TEST

9068	036374			ESCAPE	TST		;SKIP TO END OF TEST		
9069	036374	104410						TRAP	C#ESCAPE
9070	036376	000244						.WORD	L10102-.
9071									
9072	036400	004537	007676	JSR	R5, TXCHAR		;LOAD 252, TX 125		
9073	036404	000252							
9074	036406	000010							
9075	036410	103003		BCC	..8.		;BR IF NO ERROR		
9076	036412			ERROR			;REPORT STACKED ERROR		
9077	036412	104460						TRAP	C#ERROR
9078	036414			ESCAPE	TST		;SKIP TO END OF TEST		
9079	036414	104410						TRAP	C#ESCAPE
9080	036416	000224						.WORD	L10102-.
9081									
9082	036420	004537	007676	JSR	R5, TXCHAR		;LOAD 377, TX 252		
9083	036424	000377							
9084	036426	000010							
9085	036430	103003		BCC	..8.		;BR IF NO ERROR		
9086	036432			ERROR			;REPORT STACKED ERROR		
9087	036432	104460						TRAP	C#ERROR
9088	036434			ESCAPE	TST		;SKIP TO END OF TEST		
9089	036434	104410						TRAP	C#ESCAPE
9090	036436	000204						.WORD	L10102-.
9091									
9092	036440	004537	007676	JSR	R5, TXCHAR		;LOAD 000		
9093	036444	000000							
9094	036446	000000							
9095	036450	103003		BCC	..8.		;BR IF NO ERROR		
9096	036452			ERROR			;REPORT STACKED ERROR		
9097	036452	104460						TRAP	C#ERROR
9098	036454			ESCAPE	TST		;SKIP TO END OF TEST		
9099	036454	104410						TRAP	C#ESCAPE
9100	036456	000164						.WORD	L10102-.
9101									
9102	036460	004537	011364	JSR	R5, RCV1ST		;CLOCK AND RCV 000		
9103	036464	000000							
9104	036466	103003		BCC	..8.		;BR IF NO ERROR		
9105	036470			ERROR			;REPORT STACKED ERROR		
9106	036470	104460						TRAP	C#ERROR
9107	036472			ESCAPE	TST		;SKIP TO END OF TEST		
9108	036472	104410						TRAP	C#ESCAPE
9109	036474	000146						.WORD	L10102-.
9110									
9111	036476	004537	010110	JSR	R5, RXCHAR		;READ & CHK 000, RCV 125		
9112	036502	000000							
9113	036504	000000							
9114	036506	000010							
9115	036510	103003		BCC	..8.		;BR IF NO ERROR		
9116	036512			ERROR			;REPORT STACKED ERROR		
9117	036512	104460						TRAP	C#ERROR
9118	036514			ESCAPE	TST		;SKIP TO END OF TEST		
9119	036514	104410						TRAP	C#ESCAPE
9120	036516	000124						.WORD	L10102-.
9121									
9122									
9123									

; TX AND RX NOW SYNC'D. ONE CHARACTER HAS BEEN READ/VERIFIED....
; NOW CLEAR RXEN (RECEIVER ENABLE).

CVDNCCC DMV11 LINE UNIT DIAG1
CVDNCC.P11 12-JUL-84 16:09

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TEST 31 -- BCP RX LOST RXE TEST

```

9124
9125 036520 004537 003476      JSR      R5,READ          ;READ VALUE OF VIAORB REGISTER
9126 036524 120000              VIAORB          ; AND PUT IT IN LOCATION PROVIDED
9127 036526 036554              CGORB          ;BELOW (CGORB).
9128 036530 103003              BCC      .+8.          ;BR IF NO ERROR
9129 036532                      ERROR          ;REPORT ERROR
9130 036532 104460                      TRAP      C#ERROR
9131 036534                      ESCAPE TST
9132 036534 104410                      TRAP      C#ESCAPE
9133 036536 000104                      .WORD    L10102-.
9134
9135 036540 042737 000100 036554  BIC      @RXEN,CGORB    ;CLEAR RXEN BIT OF ORB STATUS WORD
9136
9137 036546 004537 003734      JSR      R5,WRITEI      ;WRITE NEW STATUS WORD (W/RXEN=0)
9138 036552 120000              VIAORB          ;BACK INTO VIAORB
9139 036554 000000              CGORB: .WORD    0      ;ACTUAL DATA WRITTEN TO VIAORB
9140 036556 103003              BCC      .+8.          ;BR IF NO ERROR
9141 036560                      ERROR          ;REPORT ERROR
9142 036560 104460                      TRAP      C#ERROR
9143 036562                      ESCAPE TST
9144 036562 104410                      TRAP      C#ESCAPE
9145 036564 000056                      .WORD    L10102-.
9146
9147      ; RXEN NOW CLEARED. CHECK USYRT STATUS, TX ANOTHER CHARACTER, AND
9148      ; CHECK USYRT STATUS AGAIN.
9149
9150 036566 004537 005432      JSR      R5,CKUSTS      ;CHK USYRT STATUS FOR PROPER STATE
9151 036572 000104              TXACT:TBMT      ;TXACT = 1, TBMT = 1
9152 036574 103003              BCC      .+8.          ;BR IF NO ERROR
9153 036576                      ERROR
9154 036576 104460                      TRAP      C#ERROR
9155 036600                      ESCAPE TST
9156 036600 104410                      TRAP      C#ESCAPE
9157 036602 000040                      .WORD    L10102-.
9158
9159 036604 004537 007676      JSR      R5,TXCHAR      ;LOAD/TRANSMIT 303
9160 036610 000303              303
9161 036612 100010              NCTBMT*256.!8.
9162 036614 103003              BCC      .+8.          ;BR IF NO ERROR
9163 036616                      ERROR          ;REPORT STACKED ERROR
9164 036616 104460                      TRAP      C#ERROR
9165 036620                      ESCAPE TST
9166 036620 104410                      TRAP      C#ESCAPE
9167 036622 000020                      .WORD    L10102-.
9168
9169 036624 004537 005432      JSR      R5,CKUSTS      ;CHK USYRT STATUS FOR PROPER STATE
9170 036630 000114              TXACT:TSTO:TBMT    ;TXACT = 1
9171 036632 103003              BCC      .+8.          ;BR IF NO ERROR
9172 036634                      ERROR
9173 036634 104460                      TRAP      C#ERROR
9174 036636                      ESCAPE TST
9175 036636 104410                      TRAP      C#ESCAPE
9176 036640 000002                      .WORD    L10102-.
9177
9178      ENDTST
9179 036642 104401                      L10102: TRAP      C#ETST
    
```


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CVDNCC.P11 12-JUL-84 16:09

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HARDWARE PARAMETER CODING SECTION

.SBTTL HARDWARE PARAMETER CODING SECTION

9180
9181
9182
9183
9184
9185
9186
9187
9188
9189
9190
9191
9192
9193 036644
9194 036644 000041
9195 036646
9196
9197 036646
9198 036646 000031
9199 036650 036750
9200 036652 160020
9201 036654 177776
9202 036656
9203 036656 001031
9204 036660 036776
9205 036662 000000
9206 036664 000674
9207 036666
9208 036666 002032
9209 036670 037027
9210 036672 007000
9211 036674 000004
9212 036676 000007
9213 036700
9214 036700 003032
9215 036702 037060
9216 036704 000377
9217 036706 000000
9218 036710 000377
9219 036712
9220 036712 004032
9221 036714 037121
9222 036716 000377
9223 036720 000000
9224 036722 000377
9225 036724
9226 036724 005032
9227 036726 037163
9228 036730 000007
9229 036732 000000
9230 036734 000002
9231 036736
9232 036736 007032
9233 036740 037246
9234 036742 000017
9235 036744 000000

////////////////////////////////////
// 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

.WORD L10103-L#HARD/2
L#HARD::

GPRMA ADDRES.0,0,160020,177776,YES

.WORD T#CODE
.WORD ADDRES
.WORD T#LLOLIM
.WORD T#HILIM

GPRMA VECTOR,2,0,0,674,YES

.WORD T#CODE
.WORD VECTOR
.WORD T#LLOLIM
.WORD T#HILIM

GPRMD PRIRTY,4,0,7000,4,7,YES

.WORD T#CODE
.WORD PRIRTY
.WORD 7000
.WORD T#LLOLIM
.WORD T#HILIM

GPRMD SW1.M,6,0,377,0,377,YES

.WORD T#CODE
.WORD SW1.M
.WORD 377
.WORD T#LLOLIM
.WORD T#HILIM

GPRMD SW2.M,10,0,377,0,377,YES

.WORD T#CODE
.WORD SW2.M
.WORD 377
.WORD T#LLOLIM
.WORD T#HILIM

GPRMD BDTY.M,12,0,7,0,2,YES

.WORD T#CODE
.WORD BDTY.M
.WORD 7
.WORD T#LLOLIM
.WORD T#HILIM

GPRMD BR.M,16,0,17,0,1,YES

.WORD T#CODE
.WORD BR.M
.WORD 17
.WORD T#LLOLIM

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HARDWARE PARAMETER CODING SECTION

9236 036746 000001

.WORD T#HILIM

9237

9238 036750

ENDHRD

9239

9240 036750

L10103: .EVEN

9241

9242

036750	042504	044526	042503
036776	042504	044526	042503
037027	104	053105	041511
037060	053523	052111	044103
037121	123	044527	041524
037163	102	040517	042122
037246	040502	042125	051040

```

.NLIST BEX
ADDRS: .ASCIZ /DEVICE CSR ADDRESS : /
VECTOR: .ASCIZ /DEVICE VECTOR ADDRESS : /
PRIRTY: .ASCIZ /DEVICE PRIORITY LEVEL : /
SW1.M: .ASCIZ /SWITCH PACK # 1 (BOOT ADDRESS): /
SW2.M: .ASCIZ /SWITCH PACK # 2 (DDCMP ADDRESS): /
BDTY.M: .ASCIZ /BOARD TYPE (0=M8064, 1=M8053-V.35, 2=M8053-EIA) : /
BR.M: .ASCIZ /BAUD RATE (0=LOW (19.2K), 1=HIGH (56K)): /

```

9243

.LIST BEX
.EVEN

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SOFTWARE PARAMETER CODING SECTION

.SBTTL SOFTWARE PARAMETER CODING SECTION

9244
9245
9246
9247
9248
9249
9250
9251
9252
9253
9254
9255
9256
9257
9258
9259
9260
9261
9262

037320
037320 000000
037322
037322
037322
037322

;/;;;
;/ 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

.WORD L10104-L\$SOFT/2
L\$SOFT::

ENDSFT

.EVEN
L10104:

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

.SBTTL ***** PATCH AREA FOR DEBUG *****

9263
 9264
 9265 037322
 9266 037422 037422
 9267 037422 000240
 9268 037424 000240
 9269 037426 000240
 9270
 9271
 9272
 9273
 9274 037430
 9275
 9276
 9277 037430
 9278
 9279 037430 000000
 9280 037432 000000
 9281 037434
 9282
 9283 000001

PATCH:

. = . +100
 NOP
 NOP
 NOP

;*****

.SBTTL "ENDMOD" STATEMENT

ENDMOD

.SBTTL "LASTAD" STATEMENT & END OF PROGRAM
LASTAD

.EVEN
 .WORD 0
 .WORD 0

L\$LAST::

.END

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CROSS REFERENCE TABLE -- USER SYMBOLS

6173	6185	6197	6212	6227	6237	6250	6258	6261	6281	6292	6310	6320
6336	6347	6358	6361	6384	6394	6416	6439	6456	6467	6476	6479	6511
6517	6526	6546	6564	6571	6577	6586	6606	6624	6631	6637	6646	6666
6684	6691	6694	6730	6740	6749	6759	6777	6791	6801	6804	6827	6837
6846	6856	6874	6888	6898	6901	6924	6934	6943	6953	6971	6985	6995
6998	7018	7028	7046	7056	7066	7076	7085	7096	7106	7117	7127	7138
7149	7160	7163	7193	7199	7208	7224	7234	7247	7260	7280	7291	7306
7320	7331	7334	7340	7349	7365	7375	7388	7401	7421	7432	7447	7461
7472	7475	7481	7490	7506	7516	7529	7542	7562	7573	7588	7602	7613
7616	7622	7631	7647	7657	7670	7683	7703	7714	7729	7743	7754	7757
7763	7772	7788	7798	7811	7824	7844	7855	7870	7884	7895	7898	7904
7913	7929	7939	7952	7965	7985	7996	8011	8025	8036	8039	8042	8068
8107	8126	8135	8149	8158	8177	8191	8201	8204	8227	8237	8259	8271
8285	8296	8310	8329	8340	8351	8360	8363	8406	8409	8420	8439	8451
8460	8463	8467	8478	8498	8501	8505	8516	8549	8552	8555	8576	8587
8609	8619	8629	8639	8648	8661	8671	8681	8691	8700	8711	8725	8736
8748	8752	8792	8802	8824	8834	8844	8854	8863	8876	8886	8896	8906
8916	8926	8936	8945	8956	8970	8981	8993	8996	9026	9036	9046	9059
9069	9079	9089	9099	9108	9119	9132	9144	9156	9166	9175	9178	9194
9257	9275											
1300#	4727	4731										
1300#	4741	4746										
1300#	1303	4137	4164	4198	4242	4287	4322	4351	4660	4715	4733	4748
4761	4777	4784	4793	4815	4835	4837	4858	4862	4888	4890	4892	4903
4920	4922	4924	4926	4974	4989	5015	5049	5055	5057	5080	5098	5103
5105	5126	5164	5175	5177	5192	5198	5206	5217	5221	5223	5227	5229
5244	5250	5258	5269	5273	5275	5279	5281	5298	5304	5312	5323	5327
5329	5333	5335	5358	5364	5372	5398	5402	5404	5408	5410	5424	5430
5438	5449	5453	5455	5459	5461	5476	5482	5501	5503	5518	5524	5543
5545	5571	5603	5629	5656	5658	5686	5697	5718	5729	5737	5741	5743
5773	5784	5794	5804	5814	5823	5834	5842	5845	5847	5872	5882	5891
5901	5919	5930	5945	5957	5969	5984	5995	6005	6021	6031	6046	6061
6073	6076	6078	6100	6110	6119	6129	6147	6158	6173	6185	6197	6212
6227	6237	6250	6258	6261	6263	6281	6292	6310	6320	6336	6347	6358
6361	6363	6384	6394	6416	6439	6456	6467	6476	6479	6481	6511	6517
6526	6546	6564	6571	6573	6577	6586	6606	6624	6631	6633	6637	6646
6666	6684	6691	6693	6694	6696	6730	6740	6749	6759	6777	6791	6801
6804	6806	6827	6837	6846	6856	6874	6888	6898	6901	6903	6924	6934
6943	6953	6971	6985	6995	6998	7000	7018	7028	7046	7056	7066	7076
7085	7096	7106	7117	7127	7138	7149	7160	7163	7165	7193	7199	7208
7224	7234	7247	7260	7280	7291	7306	7320	7331	7334	7336	7340	7349
7365	7375	7388	7401	7421	7432	7447	7461	7472	7475	7477	7481	7490
7506	7516	7529	7542	7562	7573	7588	7602	7613	7616	7618	7622	7631
7647	7657	7670	7683	7703	7714	7729	7743	7754	7757	7759	7763	7772
7788	7798	7811	7824	7844	7855	7870	7884	7895	7898	7900	7904	7913
7929	7939	7952	7965	7985	7996	8011	8025	8036	8039	8041	8042	8044
8068	8107	8126	8135	8149	8158	8177	8191	8201	8204	8206	8227	8237
8259	8271	8285	8296	8310	8329	8340	8351	8360	8363	8365	8406	8409
8420	8439	8451	8460	8463	8465	8467	8478	8498	8501	8503	8505	8516
8549	8552	8554	8555	8557	8576	8587	8609	8619	8629	8639	8648	8661
8671	8681	8691	8700	8711	8725	8736	8748	8752	8754	8792	8802	8824
8834	8844	8854	8863	8876	8886	8896	8906	8916	8926	8936	8945	8956
8970	8981	8993	8996	8998	9026	9036	9046	9059	9069	9079	9089	9099
9108	9119	9132	9144	9156	9166	9175	9178	9180	9241	9263	9275	
1300#	9194	9239										
1300#	1468	1484										

F\$CLEA= 000007
F\$DU = 000016
F\$END = 000041

F\$HARD= 000004
F\$HW = 000013

CVDMCCO DMV11 LINE UNIT DIAG1
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CROSS REFERENCE TABLE -- USER SYMBOLS

IEO = 000020	15810													
IER = 020000 G	15730													
INIDMV 005420	30510	4859	5016	5027	5081	5127	5193	5245	5299	5359	5425	5477	5519	
	5572	5688	5775	5873	6101	6283	6385	6512	6731	6828	6925	7019	7194	
	8069	8228	8411	8469	8507	8578	8793	9027						
INITRN 007400	35410	5690	5777	5875	6103	6285	6387	6519	6579	6639	6733	6830	6927	
	7021	7201	7342	7483	7624	7765	7906	8230	8413	8471	8509	8580	8795	
	9029													
INITT1 004556	27980													
INITT2 004756	28850													
INTFLG 002422	20730													
INTGRL = 000001	19990													
INTSC = 000200	19560													
ISR = 000100 G	15660													
IXE = 004000 G	15710													
I\$AU = 000041	13000	47570	47610											
I\$AUTO = 000041	13000	46770	47150											
I\$CLN = 000041	13000	47270	47330											
I\$DU = 000041	13000	47410	47480											
I\$HRD = 000041	91940	92410												
I\$INIT = 000041	13000	45600	46600											
I\$MOD = 000041	13000	13000	92750											
I\$MSG = 000041	13000	41020	41370	41410	41640	41680	41980	42030	42420	42480	42870	42930	43220	
	43280	43510	49280	49740	49760	49890								
I\$PROT = 000040	13000	45470												
I\$PTAB = 000041	13000													
I\$PMR = 000041	13000													
I\$RPT = 000041	13000													
I\$SEG = 000041	13000	4777	4858	4862	4892	5015	5080	5126	5192	5206	5244	5258	5298	
	5312	5358	5372	5424	5438	5476	5518	5571	5686	5773	5872	6100	6281	
	6384	6511	6517	6577	6637	6730	6827	6924	7018	7193	7199	7340	7481	
	7622	7763	7904	8068	8227	8406	8409	8467	8505	8576	8792	9026		
I\$SETU = 000041	13000													
I\$SFT = 000041	92570	92630												
I\$SRV = 000041	13000													
I\$SUB = 000041	13000	4777	4858	48620	48880	48900	48920	4903	49200	49220	5015	5080	5126	
	5192	52060	52210	52230	5244	52580	52730	52750	5298	53120	53270	53290	5358	
	53720	54020	54040	5424	54380	54530	54550	5476	5518	5571	5686	5773	5872	
	6100	6281	6384	6511	65170	6526	6546	6564	65710	65730	65770	6586	6606	
	6624	66310	66330	66370	6646	6666	6684	66910	66930	6730	6827	6924	7018	
	7193	71990	7208	7224	7234	7247	7260	7280	7291	7306	7320	7331	73340	
	73360	73400	7349	7365	7375	7388	7401	7421	7432	7447	74750	74770	74810	
	7490	7506	7516	7529	7542	7562	7573	7588	76160	76180	76220	7631	7647	
	7657	7670	7683	7703	7714	7729	77570	77590	77630	7772	7788	7798	7811	
	7824	7844	7855	7870	78980	79000	79040	7913	7929	7939	7952	7965	7985	
	7996	8011	80390	80410	8068	8227	8406	84090	8420	8439	8460	84630	84650	
	84670	8478	85010	85030	85050	8516	8549	85520	85540	8576	8792	9026		
I\$TST = 000041	13000	47770	4784	4793	4815	48350	48370	48580	4862	4892	49240	49260	50150	
	5049	50550	50570	50800	5098	51030	51050	51260	5164	51750	51770	51920	5198	
	5206	5217	52270	52290	52440	5250	5258	5269	52790	52810	52980	5304	5312	
	5323	53330	53350	53580	5364	5372	5398	54080	54100	54240	5430	5438	5449	
	54590	54610	54760	5482	55010	55030	55180	5524	55430	55450	55710	5603	5629	
	56560	56580	56860	5697	5718	5729	5737	57410	57430	57730	5784	5794	5804	
	5814	5823	5834	5842	58450	58470	58720	5882	5891	5901	5919	5930	5945	
	5957	5969	5984	5995	6005	6021	6031	6046	6061	6073	60760	60780	61000	
	6110	6119	6129	6147	6158	6173	6185	6197	6212	6227	6237	6250	6258	

CVDMCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 218
CVDMCC.P11 12-JUL-84 16:09 CROSS REFERENCE TABLE -- USER SYMBOLS

6261#	6263#	6281#	6292	6310	6320	6336	6347	6358	6361#	6363#	6384#	6394
6416	6439	6456	6467	6476	6479#	6481#	6511#	6517	6577	6637	6694#	6696#
6730#	6740	6749	6759	6777	6791	6801	6804#	6806#	6827#	6837	6846	6856
6874	6888	6898	6901#	6903#	6924#	6934	6943	6953	6971	6985	6995	6998#
7000#	7018#	7028	7046	7056	7066	7076	7085	7096	7106	7117	7127	7138
7149	7160	7163#	7165#	7193#	7199	7340	7461	7472	7481	7602	7613	7622
7743	7754	7763	7884	7895	7904	8025	8036	8042#	8044#	8068#	8107	8126
8135	8149	8158	8177	8191	8201	8204#	8206#	8227#	8237	8259	8271	8285
8296	8310	8329	8340	8351	8360	8363#	8365#	8406#	8409	8451	8467	8498
8505	8555#	8557#	8576#	8587	8609	8619	8629	8639	8648	8661	8671	8681
8691	8700	8711	8725	8736	8748	8752#	8754#	8792#	8802	8824	8834	8844
8854	8863	8876	8886	8896	8906	8916	8926	8936	8945	8956	8970	8981
8993	8996#	8998#	9026#	9036	9046	9059	9069	9079	9089	9099	9108	9119
9132	9144	9156	9166	9175	9178#	9180#						

J\$JMP = 000167
LOADAT 002436
LOE = 040000 G
LOGDEV 002410
LOT = 000010 G
LUSWI1 002540
LUSWI2 002542
LUIMOD 002000 G
L\$ACP 002110 G
L\$APT 002036 G
L\$AU 021554 G
L\$AUT 002070 G
L\$AUTO 021422 G
L\$CCP 002106 G
L\$CLEA 021546 G
L\$CO 002032 G
L\$DEPO 002011 G
L\$DESC 003326 G
L\$DESP 002076 G
L\$DEVP 002060 G
L\$DISP 002124 G
L\$DLY 002116 G
L\$DTP 002040 G
L\$DTYP 002034 G
L\$DU 021550 G
L\$DUT 002072 G
L\$DVTY 003306 G
L\$EF 002052 G
L\$ENVI 002044 G
L\$ERRT 002246 G
L\$ETP 002102 G
L\$EXP1 002046 G
L\$EXP4 002064 G
L\$EXP5 002066 G
L\$HARD 036646 G
L\$HIME 002120 G
L\$HPCP 002016 G
L\$HPTP 002022 G
L\$HM 002224 G
L\$ICP 002104 G
L\$INIT 021100 G
L\$LADP 002026 G

1300#
2080#
1574#
2068# 4613* 4620* 4622 4707
1563#
2125# 4645* 4874 4948
2126# 4646* 4871 4949
1303#
1402#
1360#
1387 4757#
1386#
1403 4677#
1400#
1401 4727#
1356#
1338#
1393 2395#
1392#
1378#
1363 1426#
1408#
1362#
1358#
1389 4741#
1388#
1379 2383#
1373#
1366#
1397 2022#
1396#
1368#
1382#
1384#
1345 9194 9195#
1410#
1344#
1348#
1349 1468 1469#
1398#
1399 4560#
1352#

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L\$LAST	037434	G	1353	9281#				
L\$LOAD	002100	G	1394#					
L\$LUN	002074	G	1390#					
L\$MREV	002050	G	1370#					
L\$NAME	002000	G	1327#					
L\$PRIO	002042	G	1364#					
L\$PROT	021072	G	1405	4547#				
L\$PRT	002112	G	1404#					
L\$REPP	002062	G	1380#					
L\$REV	002010	G	1336#					
L\$SOFT	037322	G	9257	9258#				
L\$SPC	002056	G	1376#					
L\$SPCP	002020	G	1346#					
L\$SPTP	002024	G	1350#					
L\$STA	002030	G	1354#					
L\$SW	002245	G	1493	1494#				
L\$TEST	002114	G	1406#					
L\$TIML	002014	G	1342#					
L\$UNIT	002012	G	1340#					
L10000	002244		1468	1484#				
L10001	002246		1493	1498#				
L10002	017152		4135#					
L10003	017250		4162#					
L10004	017370		4196#					
L10005	017544		4240#					
L10006	017720		4285#					
L10007	020034		4320#					
L10010	020132		4349#					
L10012	021420		4658#					
L10013	021536		4713#					
L10014	021546		4731#					
L10015	021552		4746#					
L10016	021554		4759#					
L10017	021734		4785	4794	4816	4835#		
L10020	022122		4924#					
L10021	022020		4888#					
L10022	022120		4904	4920#				
L10023	022314		4972#					
L10024	022352		4987#					
L10025	023120		5050	5055#				
L10026	023204		5099	5103#				
L10027	023430		5165	5175#				
L10030	023522		5199	5218	5227#			
L10031	023516		5221#					
L10032	023614		5251	5270	5279#			
L10033	023610		5273#					
L10034	023706		5305	5324	5333#			
L10035	023702		5327#					
L10036	024036		5365	5399	5408#			
L10037	024032		5402#					
L10040	024130		5431	5450	5459#			
L10041	024124		5453#					
L10042	024204		5483	5501#				
L10043	024260		5525	5543#				
L10044	024602		5604	5630	5656#			
L10045	024734		5698	5719	5730	5738	5741#	

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L10046	025116	5785	5795	5805	5815	5824	5835	5843	5845#					
L10047	025624	5883	5892	5902	5920	5931	5946	5958	5970	5985	5996	6006	6022	6032
		6047	6062	6074	6076#									
L10050	026224	6111	6120	6130	6148	6159	6174	6186	6198	6213	6228	6238	6251	6259
		6261#												
L10051	026432	6293	6311	6321	6337	6348	6359	6361#						
L10052	026674	6395	6417	6440	6457	6468	6477	6479#						
L10053	027406	6694#												
L10054	027064	6527	6547	6565	6571#									
L10055	027234	6587	6607	6625	6631#									
L10056	027404	6647	6667	6685	6691#									
L10057	027614	6741	6750	6760	6778	6792	6802	6804#						
L10060	030010	6838	6847	6857	6875	6889	6899	6901#						
L10061	030204	6935	6944	6954	6972	6986	6996	6998#						
L10062	030562	7029	7047	7057	7067	7077	7086	7097	7107	7118	7128	7139	7150	7161
		7163#												
L10063	033474	7462	7473	7603	7614	7744	7755	7885	7896	8026	8037	8042#		
L10064	031154	7209	7225	7235	7248	7261	7281	7292	7307	7321	7332	7334#		
L10065	031542	7350	7366	7376	7389	7402	7422	7433	7448	7475#				
L10066	032130	7491	7507	7517	7530	7543	7563	7574	7589	7616#				
L10067	032516	7632	7648	7658	7671	7684	7704	7715	7730	7757#				
L10070	033104	7773	7789	7799	7812	7825	7845	7856	7871	7898#				
L10071	033472	7914	7930	7940	7953	7966	7986	7997	8012	8039#				
L10072	034062	8108	8127	8136	8150	8159	8178	8192	8202	8204#				
L10073	034432	8238	8260	8272	8286	8297	8311	8330	8341	8352	8361	8363#		
L10074	035050	8452	8499	8555#										
L10075	034606	8421	8440	8461	8463#									
L10076	034710	8479	8501#											
L10077	035046	8517	8550	8552#										
L10100	035510	8588	8610	8620	8630	8640	8649	8662	8672	8682	8692	8701	8712	8726
		8737	8749	8752#										
L10101	036246	8803	8825	8835	8845	8855	8864	8877	8887	8897	8907	8917	8927	8937
		8946	8957	8971	8982	8994	8996#							
L10102	036642	9037	9047	9060	9070	9080	9090	9100	9109	9120	9133	9145	9157	9167
		9176	9178#											
L10103	036750	9194	9240#											
L10104	037322	9257	9262#											
MCLR =	000100	1593#	1595	2428	2438									
MDMRDY =	000040	1763#												
MLWRI	003744	2565	2590#											
MPCSR	002472	2098#	4205	4250	4295	4330	4633	4978						
MPIVEC	002532	2122#	4641*											
MPOVEC	002534	2123#	4642*	4643*										
MPRIOR	002536	2124#	4644*											
MRDY =	000200	1600#	2435	2478	2525	2597	4803							
MREQ =	000001	1594#	1595	2428	2438									
MSTCLR	003374	2428#	3051	4779										
NCRACT =	020000	2008#	7144	7155	7315	7326	7456	7467	7597	7608	7738	7749	7879	7890
		8020	8031											
NCTBMT =	000200	2004#	3648	6411	8254	8318	9161							
NEMLIN	011645	4068#	4966											
NEWST	021244	4597	4612#											
NFCRDA =	040000	2007#	7155	7326	7467	7608	7749	7890	8031					
NOCHK =	003400	1703#	5691	5778	5876	6104	6286	6388	6520	6580	6640	6734	6831	6928
		7022	8231	8414	8472	8510	8581	8796						
NOCRDA =	100000	2006#	6434	6451	6462	6559	6619	6679	7275	7286	7301	7315	7326	7416

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	7427	7442	7557	7568	7583	7698	7709	7724	7839	7850	7865	7980	7991
	8006	8280	8291	8305	8324	8335	8346						
NLOOP= 001000	2002#												
NORXEN= 040000	2001#	5877	6105	6735	6832	6929	8582	8797					
NULCLK= 000200	1745#	5586	5592	5612	5638	5644							
OVRC = 002000	1705#												
O\$APTS= 000000	1300#	1354											
C\$AU = 000001	1300#	1324#	1386										
O\$BGNR= 000000	1300#	1380											
O\$BGNS= 000000	1300#	1346											
O\$DU = 000001	1300#	1324#	1388										
O\$ERRT= 000001	1300#	1324#	1396										
O\$GNSW= 000000	1300#	1350											
O\$POIN= 000001	1300#	1324#	1412										
O\$SETU= 000000	1300#	1340	9279										
PALENB= 000001	1910#												
PATCH 037322	9265#												
PATE 002652	2178#	5018	5083										
PATF 002662	2189#	2959	5029	5128									
PATG 002672	2200#	5131	5201	5202									
PATH 002722	2227#	5202	5253	5254	5433	5434	5485	5486	5527	5528			
PATI 002753	2255#	5254	5307	5308	5434	5486	5528						
PATJ 003014	2291#	5136	5308										
PATK 003024	2302#	5367	5368										
PATL 003045	2322#	5368	5369										
PATQ 003066	2342#												
PATQB 003076	2352#												
PBLENB= 000002	1909#												
PCR = 120407	1711#	3561	5317	7238	7379	7520	7661	7802	7943				
PCSARH= 120405	1684#	3555	5211	6011	6218	8094							
PCSARL= 120404	1677#	3551	5263	8091									
PNT = 001000 G	1569#												
PRESET= 000001	1752#	2953	3545	8085									
PRI = 002000 G	1570#												
PRIOR 002416	2071#												
PRIRTY 037027	9209	9242#											
PRI00 = 000000 G	1558#												
PRI01 = 000040 G	1557#												
PRI02 = 000100 G	1556#												
PRI03 = 000140 G	1555#												
PRI04 = 000200 G	1554#												
PRI05 = 000240 G	1553#												
PRI06 = 000300 G	1552#												
PRI07 = 000340 G	1551#												
PROTO = 000100	1689#	6012											
PSTACK 002414	2070#	4562*											
RABGA = 000004	1634#	3835	3837	3847									
RAMADR= 001000	1996#												
RCVBUF 003106	2366#												
RCVDAT= 000002	1767#												
RCV1ST 011364	3956#	5712	5817	6330	7079	8694	8939	9102					
RDA = 000200	1727#	3242	3253	3977									
RDSRH = 120401	1628#	3326	3373	3735	5533	5537							
RDSRL = 120400	1622#	3738	5491	5495									
READ 003476	2470#	2691	2733	2738	2763	5382	9125						
READI 003610	2516#	2820	2907	2961	3066	3102	3147	3192	3237	3282	3325	3372	3439

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		3595	3734	3737	3748	3974	4864	4867	4896	5031	5147	5494	5536	5583
		5609	5635	5933	5972	6049	6161	6200						
REDBYT	002432	2078#												
REDDAT	002572	2143#	5129	5137*	5140*	5150	5154							
REDLOC=	000001	1605#	2471	2482	2518	2529								
REDPAG=	000003	1607#												
REGNUM	002412	2069#	2967*	2968*	3072*	3101*	3146*	3191*	3236*	3281*	3324*	3371*	3438*	3753*
		3762*	3780*	3785*	4143	4169	4218	4263	4308	4826*	5036*	5037*	5152*	5203*
		5255*	5309*	5390*	5435*	5591*	5617*	5643*						
REG0	002602	2146#	5582*	5588*	5608*	5614*	5634*	5640*						
REG1	002604	2147#												
REG2	002606	2148#												
REG3	002610	2149#												
REG4	002612	2150#												
REG5	002614	2151#												
REG6	002616	2152#												
REG7	002620	2153#												
REOM =	000002	1635#	3401	3412	3858	3860	3870							
RERCHK=	000001	1645#	3786	7325	7466	7607	7737	7878	8019					
RERR =	000200	1631#	3789	3791	3801									
RETADR	002430	2077#												
RING =	000200	1761#												
ROR =	000010	1633#	3330	3341	3812	3814	3824							
RSA =	000020	1730#	3287	3298										
RSOM =	000001	1636#	3377	3388	3881	3883	3893							
RSTCHK	005126	2947#	5093	5732	5837	6253	8493							
RTSND =	000010	1749#	2953	2956	3029	3545	3548	8085	8088	8099				
RUN =	000200	1592#	1595	2428	2438									
RXABGA=	002000	1641#												
RXACT =	000040	1729#	3152	3163										
RXCHAR	010110	3731#	5721	5826	6339	6350	6431	6448	6459	6556	6616	6676	7088	7109
		7130	7141	7152	7272	7283	7298	7312	7323	7413	7424	7439	7453	7464
		7554	7565	7580	7594	7605	7695	7706	7721	7735	7746	7836	7847	7862
		7876	7887	7977	7988	8003	8017	8028	8277	8288	8302	8321	8332	8343
		8703	8728	8948	8973	9111								
RXDL =	000007	1718#	3742	6641	7908	7944								
RXEN =	000100	1746#	3581	3611	6325	8099	8541	8598	8813	9135				
RXEOM =	001000	1642#	7153	7324	7465	7606	7747	7888	8029					
RXERR =	100000	1639#												
RXOR =	004000	1640#												
RXSOM =	000400	1643#	7089	7273	7414	7555	7696	7837	7978					
SAVE4	002446	2084#	4569*	4573										
SAVE6	002450	2085#	4570*	4574										
SAVLEN	002456	2088#	3558*	3559*	3742	4566*								
SCRACH	002406	2067#												
SECAD =	000020	1691#												
SECADR=	010000	1700#												
SELO	002472	2097#	2653											
SEL10	002512	2110#	2657											
SEL12	002516	2113#	2658											
SEL14	002522	2116#	2659											
SEL16	002526	2119#	2660											
SEL2	002476	2101#	2654	4796*										
SEL4	002502	2104#	2470*	2517*	2563*	2588*	2655							
SEL6	002506	2107#	2540	2564*	2589*	2656								
SERIAL	007256	3483#	5894	5912	5950	5998	6014	6024	6066	6122	6140	6178	6230	6243

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	6752	6770	6784	6794	6849	6867	6881	6891	6946	6964	6978	6988	8119
	8142	8170	8184	8194									
SETVIA 005326	30170	3052											
SFPTBL 002246 G	14950												
SFR = 000001	17340												
SPEED = 000020	17640												
SRMODE = 000034	18980												
STALL 004400	27160												
STARES 002466	20920	46080	46140										
STARST 021234	4583	4590	46070										
STEPLU 011614	3492	3593	3654	3702	3922	3971	4022	40450	5960	6188	6327	6422	6445
	7269	7410	7551	7692	7833	7974	8116	8442	8490	8528			
STRIP = 000040	16900												
STRIPS = 020000	16990	8796	9030										
STRTML = 000301	15950												
STUREG 004272	26820	5212	5264	5318	5444								
SUBRFC 002420	20720	45630											
SVCGBL = 000000	13000	1303	13100	1327	1336	1338	1340	1342	1344	1346	1348	1350	1352
	1354	1356	1358	1360	1362	1364	1366	1368	1370	1373	1376	1378	1380
	1382	1384	1386	1388	1390	1392	1394	1396	1398	1400	1402	1404	1406
	1408	1410	1426	1469	1470	1494	1495	2022	2383	2395	4102	4141	4168
	4203	4248	4293	4328	4547	4560	4677	4727	4741	4757	4928	4976	9195
	9258	92810	9282										
SVCINS = 000001	13000	13070	1328	1329	1330	1331	1332	1333	1334	1335	1337	1339	1341
	1343	1345	1347	1349	1351	1353	1355	1357	1359	1361	1363	1365	1367
	1369	1371	1372	1374	1375	1377	1379	1381	1383	1385	1387	1389	1391
	1393	1395	1397	1399	1401	1403	1405	1407	1409	1411	1425	1427	1428
	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441
	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454
	1455	1456	1457	1468	1493	2384	2387	2396	2403	2441	2442	2443	2444
	2485	2486	2487	2488	2532	2533	2534	2535	2603	2604	2605	2606	2702
	2703	2704	2705	2975	2976	2977	2978	3079	3080	3081	3082	3112	3113
	3114	3115	3123	3124	3125	3126	3157	3158	3159	3160	3168	3169	3170
	3171	3202	3203	3204	3205	3213	3214	3215	3216	3247	3248	3249	3250
	3258	3259	3260	3261	3292	3293	3294	3295	3303	3304	3305	3306	3335
	3336	3337	3338	3346	3347	3348	3349	3382	3383	3384	3385	3393	3394
	3395	3396	3406	3407	3408	3409	3417	3418	3419	3420	3449	3450	3451
	3452	3461	3462	3463	3464	3510	3511	3512	3513	3757	3758	3759	3760
	3770	3771	3772	3773	3796	3797	3798	3799	3806	3807	3808	3809	3819
	3820	3821	3822	3829	3830	3831	3832	3842	3843	3844	3845	3852	3853
	3854	3855	3865	3866	3867	3868	3875	3876	3877	3878	3888	3889	3890
	3891	3898	3899	3900	3901	4109	4110	4111	4112	4113	4114	4124	4125
	4126	4127	4128	4129	4130	4136	4143	4144	4145	4146	4147	4148	4149
	4152	4153	4154	4155	4156	4157	4158	4159	4163	4172	4173	4174	4175
	4176	4177	4178	4181	4182	4183	4184	4185	4186	4187	4188	4190	4191
	4192	4193	4194	4197	4205	4206	4207	4208	4209	4210	4211	4213	4214
	4215	4216	4217	4221	4222	4223	4224	4225	4226	4227	4230	4231	4232
	4233	4234	4235	4236	4237	4241	4250	4251	4252	4253	4254	4255	4256
	4258	4259	4260	4261	4262	4266	4267	4268	4269	4270	4271	4272	4275
	4276	4277	4278	4279	4280	4281	4282	4286	4295	4296	4297	4298	4299
	4300	4301	4303	4304	4305	4306	4307	4311	4312	4313	4314	4315	4316
	4317	4321	4330	4331	4332	4333	4334	4335	4336	4339	4340	4341	4342
	4343	4344	4345	4346	4350	4376	4377	4378	4379	4380	4381	4382	4384
	4385	4386	4387	4388	4389	4390	4391	4392	4394	4395	4396	4397	4398
	4399	4401	4402	4403	4404	4405	4406	4407	4408	4409	4411	4412	4413
	4414	4415	4425	4426	4427	4428	4429	4430	4431	4433	4434	4435	4436

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4437	4438	4439	4440	4441	4443	4444	4445	4446	4447	4448	4450	4451
4452	4453	4454	4455	4456	4457	4458	4460	4461	4462	4463	4464	4465
4467	4468	4469	4470	4471	4472	4473	4474	4475	4477	4478	4479	4480
4481	4482	4484	4485	4486	4487	4488	4489	4490	4491	4492	4502	4503
4504	4505	4506	4507	4508	4510	4511	4512	4513	4514	4515	4516	4517
4518	4520	4521	4522	4523	4524	4525	4527	4528	4529	4530	4531	4532
4533	4534	4535	4580	4581	4583	4587	4588	4590	4594	4595	4597	4601
4602	4604	4622	4623	4624	4626	4652	4659	4680	4681	4682	4683	4684
4685	4702	4703	4707	4708	4714	4732	4744	4747	4760	4782	4784	4785
4791	4793	4794	4810	4811	4812	4813	4815	4816	4829	4830	4831	4832
4836	4863	4879	4880	4881	4882	4884	4889	4893	4901	4903	4904	4915
4916	4917	4918	4921	4925	4930	4931	4932	4933	4934	4936	4937	4938
4939	4940	4942	4943	4944	4945	4946	4948	4949	4950	4951	4952	4953
4954	4958	4959	4960	4961	4962	4963	4964	4966	4967	4968	4969	4970
4973	4978	4979	4980	4981	4982	4983	4984	4988	5044	5045	5046	5047
5049	5050	5056	5096	5098	5099	5104	5159	5160	5161	5162	5164	5165
5176	5196	5198	5199	5207	5215	5217	5218	5222	5228	5248	5250	5251
5259	5267	5269	5270	5274	5280	5302	5304	5305	5313	5321	5323	5324
5328	5334	5362	5364	5365	5373	5393	5394	5395	5396	5398	5399	5403
5409	5428	5430	5431	5439	5447	5449	5450	5454	5460	5480	5482	5483
5502	5522	5524	5525	5544	5598	5599	5600	5601	5603	5604	5624	5625
5626	5627	5629	5630	5650	5651	5652	5653	5657	5695	5697	5698	5716
5718	5719	5727	5729	5730	5735	5737	5738	5742	5782	5784	5785	5792
5794	5795	5802	5804	5805	5812	5814	5815	5821	5823	5824	5832	5834
5835	5840	5842	5843	5846	5880	5882	5883	5889	5891	5892	5899	5901
5902	5917	5919	5920	5928	5930	5931	5940	5941	5942	5943	5945	5946
5955	5957	5958	5967	5969	5970	5979	5980	5981	5982	5984	5985	5993
5995	5996	6003	6005	6006	6019	6021	6022	6029	6031	6032	6044	6046
6047	6056	6057	6058	6059	6061	6062	6071	6073	6074	6077	6108	6110
6111	6117	6119	6120	6127	6129	6130	6145	6147	6148	6156	6158	6159
6168	6169	6170	6171	6173	6174	6183	6185	6186	6195	6197	6198	6207
6208	6209	6210	6212	6213	6225	6227	6228	6235	6237	6238	6248	6250
6251	6256	6258	6259	6262	6290	6292	6293	6308	6310	6311	6318	6320
6321	6334	6336	6337	6345	6347	6348	6356	6358	6359	6362	6392	6394
6395	6414	6416	6417	6437	6439	6440	6454	6456	6457	6465	6467	6468
6474	6476	6477	6480	6518	6524	6526	6527	6544	6546	6547	6562	6564
6565	6572	6578	6584	6586	6587	6604	6606	6607	6622	6624	6625	6632
6638	6644	6646	6647	6664	6666	6667	6682	6684	6685	6692	6695	6738
6740	6741	6747	6749	6750	6757	6759	6760	6775	6777	6778	6789	6791
6792	6799	6801	6802	6805	6835	6837	6838	6844	6846	6847	6854	6856
6857	6872	6874	6875	6886	6888	6889	6896	6898	6899	6902	6932	6934
6935	6941	6943	6944	6951	6953	6954	6969	6971	6972	6983	6985	6986
6993	6995	6996	6999	7026	7028	7029	7044	7046	7047	7054	7056	7057
7064	7066	7067	7074	7076	7077	7083	7085	7086	7094	7096	7097	7104
7106	7107	7115	7117	7118	7125	7127	7128	7136	7138	7139	7147	7149
7150	7158	7160	7161	7164	7200	7206	7208	7209	7222	7224	7225	7232
7234	7235	7245	7247	7248	7258	7260	7261	7278	7280	7281	7289	7291
7292	7304	7306	7307	7318	7320	7321	7329	7331	7332	7335	7341	7347
7349	7350	7363	7365	7366	7373	7375	7376	7386	7388	7389	7399	7401
7402	7419	7421	7422	7430	7432	7433	7445	7447	7448	7459	7461	7462
7470	7472	7473	7476	7482	7488	7490	7491	7504	7506	7507	7514	7516
7517	7527	7529	7530	7540	7542	7543	7560	7562	7563	7571	7573	7574
7586	7588	7589	7600	7602	7603	7611	7613	7614	7617	7623	7629	7631
7632	7645	7647	7648	7655	7657	7658	7668	7670	7671	7681	7683	7684
7701	7703	7704	7712	7714	7715	7727	7729	7730	7741	7743	7744	7752
7754	7755	7758	7764	7770	7772	7773	7786	7788	7789	7796	7798	7799

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	7809	7811	7812	7822	7824	7825	7842	7844	7845	7853	7855	7856	7868
	7870	7871	7882	7884	7885	7893	7895	7896	7899	7905	7911	7913	7914
	7927	7929	7930	7937	7939	7940	7950	7952	7953	7963	7965	7966	7983
	7985	7986	7994	7996	7997	8009	8011	8012	8023	8025	8026	8034	8036
	8037	8040	8043	8105	8107	8108	8124	8126	8127	8133	8135	8136	8147
	8149	8150	8156	8158	8159	8175	8177	8178	8189	8191	8192	8199	8201
	8202	8205	8235	8237	8238	8257	8259	8260	8269	8271	8272	8283	8285
	8286	8294	8296	8297	8308	8310	8311	8327	8329	8330	8338	8340	8341
	8349	8351	8352	8358	8360	8361	8364	8410	8418	8420	8421	8437	8439
	8440	8449	8451	8452	8458	8460	8461	8464	8468	8476	8478	8479	8496
	8498	8499	8502	8506	8514	8516	8517	8547	8549	8550	8553	8556	8585
	8587	8588	8607	8609	8610	8617	8619	8620	8627	8629	8630	8637	8639
	8640	8646	8648	8649	8659	8661	8662	8669	8671	8672	8679	8681	8682
	8689	8691	8692	8698	8700	8701	8709	8711	8712	8723	8725	8726	8734
	8736	8737	8746	8748	8749	8753	8800	8802	8803	8822	8824	8825	8832
	8834	8835	8842	8844	8845	8852	8854	8855	8861	8863	8864	8874	8876
	8877	8884	8886	8887	8894	8896	8897	8904	8906	8907	8914	8916	8917
	8924	8926	8927	8934	8936	8937	8943	8945	8946	8954	8956	8957	8968
	8970	8971	8979	8981	8982	8991	8993	8994	8997	9034	9036	9037	9044
	9046	9047	9057	9059	9060	9067	9069	9070	9077	9079	9080	9087	9089
	9090	9097	9099	9100	9106	9108	9109	9117	9119	9120	9130	9132	9133
	9142	9144	9145	9154	9156	9157	9164	9166	9167	9173	9175	9176	9179
	9194	9198	9199	9200	9201	9203	9204	9205	9206	9208	9209	9210	9211
	9212	9214	9215	9216	9217	9218	9220	9221	9222	9223	9224	9226	9227
	9228	9229	9230	9232	9233	9234	9235	9236	9239	9257	9261	9278	9279
	9280												
SVCSUB= 000001	1300#	1309#	4862	4892	5206	5258	5312	5372	5438	6517	6577	6637	7199
	7340	7481	7622	7763	7904	8409	8467	8505					
SVCTAG= 000001	1300#	1311#	1418	1422	1484	1498	4135	4162	4196	4240	4285	4320	4349
	4658	4713	4731	4746	4759	4835	4888	4920	4924	4972	4987	5055	5103
	5175	5221	5227	5273	5279	5327	5333	5402	5408	5453	5459	5501	5543
	5656	5741	5845	6076	6261	6361	6479	6571	6631	6691	6694	6804	6901
	6998	7163	7334	7475	7616	7757	7898	8039	8042	8204	8363	8463	8501
	8552	8555	8752	8996	9178	9240	9262						
SVCTST= 000001	1300#	1308#	4777	4858	5015	5080	5126	5192	5244	5298	5358	5424	5476
	5518	5571	5686	5773	5872	6100	6281	6384	6511	6730	6827	6924	7018
	7193	8068	8227	8406	8576	8792	9026						
SMPBOT= 121000	1990#	4868											
SMPDDC= 121400	1991#	4865											
SW1.M 037060	9215	9242#											
SW2.M 037121	9221	9242#											
SYNCH = 000226	1678#	3588	5778	5788	5876	6104	6286	6388	6520	6580	6640	7202	7343
	7484	7625	7766	7907	8231	8278	8414	8472	8510	8581	8633	8655	8665
	8675	8685	8704	8796	8848	8870	8880	8890	8900	9030	9040		
S#LSYM= 010000	1300#	1485#	1499#	4136#	4163#	4197#	4241#	4286#	4321#	4350#	4659#	4714#	4732#
	4747#	4760#	4836#	4889#	4921#	4925#	4973#	4988#	5056#	5104#	5176#	5222#	5228#
	5274#	5280#	5328#	5334#	5403#	5409#	5454#	5460#	5502#	5544#	5657#	5742#	5846#
	6077#	6262#	6362#	6480#	6572#	6632#	6692#	6695#	6805#	6902#	6999#	7164#	7335#
	7476#	7617#	7758#	7899#	8040#	8043#	8205#	8364#	8464#	8502#	8553#	8556#	8753#
	8997#	9179#	9241#	9263#									
TAB = 000004	1662#	6781	6878										
TBMT = 000100	1728#	3197	3208	3598	5925	5964	6153	6192	9151	9170			
TCCHEK= 100000	1995#												
TDATA 002376	2063#	2687	5209#	5261#	5315#	5375#	5380	5441#					
TDSRH = 120403	1657#	3584	3689	5379	5383	5934	5973	6050	6162	6201			
TDSRL = 120402	1651#	3587	3636	5138	5443	5905	6133	6767	6864	6961	8164	8181	

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TXTML7	016255	40680	4077					
TXTNP	016437	40680	4089					
TXTNPT	016766	40900						
TXTNP0	016444	40680	4090					
TXTNP1	016454	40680	4090					
TXTNP2	016464	40680	4090					
TXTNP3	016474	40680	4090					
TXTNP4	016511	40680	4090					
TXTNP5	016526	40680	4090					
TXTNP6	016543	40680	4090					
TXTNP7	016557	40680	4090					
TXTNP8	016573	40680	4090					
TXTNUL	016111	40680						
TXTUR	016607	40680	4173	4222	4312			
TXTURT	C17010	40930	4172	4221	4311			
TXTURO	016622	40680	4093					
TXTUR1	016630	40680	4093					
TXTUR2	016636	40680	4093					
TXTUR3	016644	40680	4093					
TXTUR4	016652	40680	4093					
TXTUR5	016661	40680	4093					
TXTUR6	016670	40680	4093					
TXTUR7	016674	40680	4093					
TXTVR	016312	40680	4081	4267				
TXTVRA	016410	40680	4085					
TXTVRB	016413	40680	4085					
TXTVRC	016417	40680	4085					
TXTVRD	016423	40680	4085					
TXTVRE	016427	40680	4085					
TXTVRF	016433	40680	4085					
TXTVRT	016724	40820	4266					
TXTVR0	016330	40680	4082					
TXTVR1	016334	40680	4082					
TXTVR2	016340	40680	4082					
TXTVR3	016345	40680	4082					
TXTVR4	016352	40680	4082					
TXTVR5	016357	40680	4082					
TXTVR6	016364	40680	4082					
TXTVR7	016371	40680	4082					
TXTVR8	016376	40680	4085					
TXTVR9	016403	40680	4085					
TXT1	014541	40680						
TXT10	015341	40680						
TXT11	015361	40680						
TXT11A	015433	40680						
TXT11B	015471	40680						
TXT12	015541	40680	4206	4251	4296	4331	4979	
TXT13	015567	40680	4503					
TXT14	015604	40680	4502					
TXT15	015642	40680	4520					
TXT16	015704	40680	4426					
TXT17	015717	40680	4425					
TXT18	015754	40680	4443					
TXT19	016015	40680	4460					
TXT2	014577	40680						
TXT2A	014641	40680						

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T\$LTNO= 000057
T\$NEST= 177777

92820													
13000	13030	14680	14840	14930	14980	41020	41350	41410	41620	41680	41960	42030	
42400	42480	42850	42930	43200	43280	43490	45470	45520	45600	46580	46770	47130	
47270	47310	47410	47460	47570	47590	47780	48350	48590	48630	48880	48930	49200	
49240	49280	49720	49760	49870	50160	50550	50810	51030	51270	51750	51930	52070	
52210	52270	52450	52590	52730	52790	52990	53130	53270	53330	53590	53730	54020	
54080	54250	54390	54530	54590	54770	55010	55190	55430	55720	56560	56870	57410	
57740	58450	58730	60760	61010	62610	62820	63610	63850	64790	65120	65180	65710	
65780	66310	66380	66910	66940	67310	68040	68280	69010	69250	69980	70190	71630	
71940	72000	73340	73410	74750	74820	76160	76230	77570	77640	78980	79050	80390	
80420	80690	82040	82280	83630	84070	84100	84630	84680	85010	85060	85520	85550	
85770	87520	87930	89960	90270	91780	91940	92390	92570	92610	92750			

T\$NS0 = 000000
T\$NS1 = 000005

13030	9275												
14680	1484	14930	1498	41020	4135	41410	4162	41680	4196	42030	4240	42480	
4285	42930	4320	43280	4349	45470	4552	45600	4658	46770	4713	47270	4731	
47410	4746	47570	4759	47780	4835	48590	4924	49280	4972	49760	4987	50160	
5055	50810	5103	51270	5175	51930	5227	52450	5279	52990	5333	53590	5408	
54250	5459	54770	5501	55190	5543	55720	5656	56870	5741	57740	5845	58730	
6076	61010	6261	62820	6361	63850	6479	65120	6694	67310	6804	68280	6901	
69250	6998	70190	7163	71940	8042	80690	8204	82280	8363	84070	8555	85770	
8752	87930	8996	90270	9178	91940	9239	92570	9261					
48630	4888	48930	4920	52070	5221	52590	5273	53130	5327	53730	5402	54390	
5453	65180	6571	65780	6631	66380	6691	72000	7334	73410	7475	74820	7616	
76230	7757	77640	7898	79050	8039	84100	8463	84680	8501	85060	8552		

T\$NS2 = 000002

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

13000													
13000													
13000													
13000	47770	48580	48620	48920	50150	50800	51260	51920	52060	52440	52580	52980	
53120	53580	53720	54240	54380	54760	55180	55710	56860	57730	58720	61000	62810	
63840	65110	65170	65770	66370	67300	68270	69240	70180	71930	71990	73400	74810	
76220	77630	79040	80680	82270	84060	84090	84670	85050	85760	87920	90260		

T\$TAGL= 177777
T\$TAGN= 010105

13000													
13000	14680	14930	41020	41410	41680	42030	42480	42930	43280	45470	45600	46770	
47270	47410	47570	47780	48590	48630	48930	49280	49760	50160	50810	51270	51930	
52070	52450	52590	52990	53130	53590	53730	54250	54390	54770	55190	55720	56870	
57740	58730	61010	62820	63850	65120	65180	65780	66380	67310	68280	69250	70190	
71940	72000	73410	74820	76230	77640	79050	80690	82280	84070	84100	84680	85060	

T\$TEMP= 000000

14180	14220	14270	14280	14290	14300	14310	14320	14330	14340	14350	14360	14370	
14380	14390	14400	14410	14420	14430	14440	14450	14460	14470	14480	14490	14500	
14510	14520	14530	14540	14550	14560	14570	14580	14840	14980	41350	41620	41960	
42400	42850	43200	43490	45520	46580	47130	47310	47460	47590	47840	4785	47930	
4794	48150	4816	48350	48880	49030	4904	49200	49240	49720	49870	50490	5050	
50550	50980	5099	51030	51640	5165	51750	51980	5199	52170	5218	52210	52270	
52500	5251	52690	5270	52730	52790	53040	5305	53230	5324	53270	53330	53640	
5365	53980	5399	54020	54080	54300	5431	54490	5450	54530	54590	54820	5483	
55010	55240	5525	55430	56030	5604	56290	5630	56560	56970	5698	57180	5719	
57290	5730	57370	5738	57410	57840	5785	57940	5795	58040	5805	58140	5815	
58230	5824	58340	5835	58420	5843	58450	58820	5883	58910	5892	59010	5902	
59190	5920	59300	5931	59450	5946	59570	5958	59690	5970	59840	5985	59950	
5996	60050	6006	60210	6022	60310	6032	60460	6047	60610	6062	60730	6074	
60760	61100	6111	61190	6120	61290	6130	61470	6148	61580	6159	61730	6174	
61850	6186	61970	6198	62120	6213	62270	6228	62370	6238	62500	6251	62580	
6259	62610	62920	6293	63100	6311	63200	6321	63360	6337	63470	6348	63580	
6359	63610	63940	6395	64160	6417	64390	6440	64560	6457	64670	6468	64760	
6477	64790	65260	6527	65460	6547	65640	6565	65710	65860	6587	66060	6607	

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6624#	6625	6631#	6646#	6647	6666#	6667	6684#	6685	6691#	6694#	6740#	6741
6749#	6750	6759#	6760	6777#	6778	6791#	6792	6801#	6802	6804#	6837#	6838
6846#	6847	6856#	6857	6874#	6875	6888#	6889	6898#	6899	6901#	6934#	6935
6943#	6944	6953#	6954	6971#	6972	6985#	6986	6995#	6996	6998#	7028#	7029
7046#	7047	7056#	7057	7066#	7067	7076#	7077	7085#	7086	7096#	7097	7106#
7107	7117#	7118	7127#	7128	7138#	7139	7149#	7150	7160#	7161	7163#	7208#
7209	7224#	7225	7234#	7235	7247#	7248	7260#	7261	7280#	7281	7291#	7292
7306#	7307	7320#	7321	7331#	7332	7334#	7349#	7350	7365#	7366	7375#	7376
7388#	7389	7401#	7402	7421#	7422	7432#	7433	7447#	7448	7461#	7462	7472#
7473	7475#	7490#	7491	7506#	7507	7516#	7517	7529#	7530	7542#	7543	7562#
7563	7573#	7574	7588#	7589	7602#	7603	7613#	7614	7616#	7631#	7632	7647#
7648	7657#	7658	7670#	7671	7683#	7684	7703#	7704	7714#	7715	7729#	7730
7743#	7744	7754#	7755	7757#	7772#	7773	7788#	7789	7798#	7799	7811#	7812
7824#	7825	7844#	7845	7855#	7856	7870#	7871	7884#	7885	7895#	7896	7898#
7913#	7914	7929#	7930	7939#	7940	7952#	7953	7965#	7966	7985#	7986	7996#
7997	8011#	8012	8025#	8026	8036#	8037	8039#	8042#	8107#	8108	8126#	8127
8135#	8136	8149#	8150	8158#	8159	8177#	8178	8191#	8192	8201#	8202	8204#
8237#	8238	8259#	8260	8271#	8272	8285#	8286	8296#	8297	8310#	8311	8329#
8330	8340#	8341	8351#	8352	8360#	8361	8363#	8420#	8421	8439#	8440	8451#
8452	8460#	8461	8463#	8478#	8479	8498#	8499	8501#	8516#	8517	8549#	8550
8552#	8555#	8587#	8588	8609#	8610	8619#	8620	8629#	8630	8639#	8640	8648#
8649	8661#	8662	8671#	8672	8681#	8682	8691#	8692	8700#	8701	8711#	8712
8725#	8726	8736#	8737	8748#	8749	8752#	8802#	8803	8824#	8825	8834#	8835
8844#	8845	8854#	8855	8863#	8864	8876#	8877	8886#	8887	8896#	8897	8906#
8907	8916#	8917	8926#	8927	8936#	8937	8945#	8946	8956#	8957	8970#	8971
8981#	8982	8993#	8994	8996#	9036#	9037	9046#	9047	9059#	9060	9069#	9070
9079#	9080	9089#	9090	9099#	9100	9108#	9109	9119#	9120	9132#	9133	9144#
9145	9156#	9157	9166#	9167	9175#	9176	9178#	9198#	9203#	9208#	9214#	9220#
9226#	9232#	9239#	9261#	9275#								
1300#	4777#	4858#	4862	4892	5015#	5080#	5126#	5192#	5206	5244#	5258	5298#
5312	5358#	5372	5424#	5438	5476#	5518#	5571#	5686#	5773#	5872#	6100#	6281#
6384#	6511#	6517	6577	6637	6730#	6827#	6924#	7018#	7193#	7199	7340	7481
7622	7763	7904	8068#	8227#	8406#	8409	8467	8505	8576#	8792#	9026#	9282
1300#	4113	4129	4136	4148	4158	4163	4177	4187	4193	4197	4210	4216
4226	4236	4241	4255	4261	4271	4281	4286	4300	4306	4316	4321	4335
4345	4350	4381	4391	4398	4408	4414	4430	4440	4447	4457	4464	4474
4481	4491	4507	4517	4524	4534	4581	4588	4595	4602	4623	4652	4659
4684	4703	4708	4714	4732	4744	4747	4760	4782	4784	4791	4793	4810
4815	4829	4836	4863	4879	4884	4889	4893	4901	4903	4915	4921	4925
4933	4939	4945	4953	4963	4969	4973	4983	4988	5044	5049	5056	5096
5098	5104	5159	5164	5176	5196	5198	5207	5215	5217	5222	5228	5248
5250	5259	5267	5269	5274	5280	5302	5304	5313	5321	5323	5328	5334
5362	5364	5373	5393	5398	5403	5409	5428	5430	5439	5447	5449	5454
5460	5480	5482	5502	5522	5524	5544	5598	5603	5624	5629	5650	5657
5695	5697	5716	5718	5727	5729	5735	5737	5742	5782	5784	5792	5794
5802	5804	5812	5814	5821	5823	5832	5834	5840	5842	5846	5880	5882
5889	5891	5899	5901	5917	5919	5928	5930	5940	5945	5955	5957	5967
5969	5979	5984	5993	5995	6003	6005	6019	6021	6029	6031	6044	6046
6056	6061	6071	6073	6077	6108	6110	6117	6119	6127	6129	6145	6147
6156	6158	6168	6173	6183	6185	6195	6197	6207	6212	6225	6227	6235
6237	6248	6250	6256	6258	6262	6290	6292	6308	6310	6318	6320	6334
6336	6345	6347	6356	6358	6362	6392	6394	6414	6416	6437	6439	6454
6456	6465	6467	6474	6476	6480	6518	6524	6526	6544	6546	6562	6564
6572	6578	6584	6586	6604	6606	6622	6624	6632	6638	6644	6646	6664
6666	6682	6684	6692	6695	6738	6740	6747	6749	6757	6759	6775	6777
6789	6791	6799	6801	6805	6835	6837	6844	6846	6854	6856	6872	6874

T#TEST= 000037

T#TSTM= 177777

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CROSS REFERENCE TABLE -- USER SYMBOLS

	6886	6888	6896	6898	6902	6932	6934	6941	6943	6951	6953	6969	6971
	6983	6985	6993	6995	6999	7026	7028	7044	7046	7054	7056	7064	7066
	7074	7076	7083	7085	7094	7096	7104	7106	7115	7117	7125	7127	7136
	7138	7147	7149	7158	7160	7164	7200	7206	7208	7222	7224	7232	7234
	7245	7247	7258	7260	7278	7280	7289	7291	7304	7306	7318	7320	7329
	7331	7335	7341	7347	7349	7363	7365	7373	7375	7386	7388	7399	7401
	7419	7421	7430	7432	7445	7447	7459	7461	7470	7472	7476	7482	7488
	7490	7504	7506	7514	7516	7527	7529	7540	7542	7560	7562	7571	7573
	7586	7588	7600	7602	7611	7613	7617	7623	7629	7631	7645	7647	7655
	7657	7668	7670	7681	7683	7701	7703	7712	7714	7727	7729	7741	7743
	7752	7754	7758	7764	7770	7772	7786	7788	7796	7798	7809	7811	7822
	7824	7842	7844	7853	7855	7868	7870	7882	7884	7893	7895	7899	7905
	7911	7913	7927	7929	7937	7939	7950	7952	7963	7965	7983	7985	7994
	7996	8009	8011	8023	8025	8034	8036	8040	8043	8105	8107	8124	8126
	8133	8135	8147	8149	8156	8158	8175	8177	8189	8191	8199	8201	8205
	8235	8237	8257	8259	8269	8271	8283	8285	8294	8296	8308	8310	8327
	8329	8338	8340	8349	8351	8358	8360	8364	8410	8419	8420	8437	8439
	8449	8451	8458	8460	8464	8468	8476	8478	8496	8498	8502	8506	8514
	8516	8547	8549	8553	8556	8585	8587	8607	8609	8617	8619	8627	8629
	8637	8639	8646	8648	8659	8661	8669	8671	8679	8681	8689	8691	8698
	8700	8709	8711	8723	8725	8734	8736	8746	8748	8753	8800	8802	8822
	8824	8832	8834	8842	8844	8852	8854	8861	8863	8874	8876	8884	8886
	8894	8896	8904	8906	8914	8916	8924	8926	8934	8936	8943	8945	8954
	8956	8968	8970	8979	8981	8991	8993	8997	9034	9036	9044	9046	9057
	9059	9067	9069	9077	9079	9087	9089	9097	9099	9106	9108	9117	9119
	9130	9132	9142	9144	9154	9156	9164	9166	9173	9175	9179		
T#TSTS= 000001	1300#	4778#	4859#	5016#	5081#	5127#	5193#	5245#	5299#	5359#	5425#	5477#	5519#
	5572#	5687#	5774#	5873#	6101#	6282#	6385#	6512#	6731#	6828#	6925#	7019#	7194#
	8069#	8228#	8407#	8577#	8793#	9027#							
T##AU = 010016	4757#	4759											
T##AUT= 010013	4677#	4713											
T##CLE= 010014	4727#	4731											
T##DU = 010015	4741#	4746											
T##HAR= 010103	9194#	9240											
T##HM = 010000	1468#	1484											
T##INI= 010012	4560#	4658											
T##MSG= 010024	4102#	4135	4141#	4162	4168#	4196	4203#	4240	4248#	4285	4293#	4320	4328#
	4349	4928#	4972	4976#	4987								
T##PRO= 010011	4547#												
T##SOF= 010104	9257#	9262											
T##SUB= 010077	4863#	4888	4893#	4903	4920	5207#	5221	5259#	5273	5313#	5327	5373#	5402
	5439#	5453	6518#	6526	6546	6564	6571	6578#	6586	6606	6624	6631	6638#
	6646	6666	6684	6691	7200#	7208	7224	7234	7247	7260	7280	7291	7306
	7320	7331	7334	7341#	7349	7365	7375	7388	7401	7421	7432	7447	7475
	7482#	7490	7506	7516	7529	7542	7562	7573	7588	7616	7623#	7631	7647
	7657	7670	7683	7703	7714	7729	7757	7764#	7772	7788	7798	7811	7824
	7844	7855	7870	7898	7905#	7913	7929	7939	7952	7965	7985	7996	8011
	8039	8410#	8420	8439	8460	8463	8468#	8478	8501	8506#	8516	8549	8552
T##SW = 010001	1493#	1498											
T##TES= 010102	4778#	4784	4793	4815	4835	4859#	4924	5016#	5049	5055	5081#	5098	5103
	5127#	5164	5175	5193#	5198	5217	5227	5245#	5250	5269	5279	5299#	5304
	5323	5333	5359#	5364	5398	5408	5425#	5430	5449	5459	5477#	5482	5501
	5519#	5524	5543	5572#	5603	5629	5656	5687#	5697	5718	5729	5737	5741
	5774#	5784	5794	5804	5814	5823	5834	5842	5845	5873#	5882	5891	5901
	5919	5930	5945	5957	5969	5984	5995	6005	6021	6031	6046	6061	6073
	6076	6101#	6110	6119	6129	6147	6158	6173	6185	6197	6212	6227	6237

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VIASR = 120012	1871#													
VIAT1A= 120004	1801#	2843	5574											
VIAT1B= 120005	1813#	2848	4049	5577										
VIAT1C= 120006	1826#	2834	3567	8077										
VIAT1D= 120007	1837#	2839	3570	8080										
VIAT2A= 120010	1848#	2921												
VIAT2B= 120011	1860#	2926												
VREGS 002336	2059#	2760	4433	4434	4435	4436	4450	4451	4452	4453	4467	4468	4469	
	4470	4484	4485	4486	4487									
WAIT50 005312	2994#	8536												
WRIBYT 002434	2079#													
WRILOC= 000002	1606#	2590	2600											
WRIPAG= 000004	1608#													
WRITE 003722	2563#	2685	5378											
WRITEI 003734	2587#	2816	2829	2833	2838	2842	2847	2903	2916	2920	2925	2951	2954	
	3018	3021	3024	3027	3030	3033	3036	3543	3546	3550	3554	3560	3563	
	3566	3569	3579	3583	3586	3635	3688	4019	4048	5021	5086	5141	5490	
	5532	5573	5576	5904	6010	6132	6217	6323	6766	6863	6960	7237	7378	
	7519	7660	7801	7942	8073	8076	8079	8083	8086	8090	8093	8097	8163	
	8180	8531	8539	8596	8811	9137								
WSRO 002256	2031#	2653*	4387											
WSR10 002266	2039#	2657*	4404											
WSR12 002270	2041#	2658*	4403											
WSR14 002272	2043#	2659*	4402											
WSR16 002274	2045#	2660*	4401											
WSR2 002260	2033#	2654*	4386	4819	4825									
WSR4 002262	2035#	2655*	4385											
WSR6 002264	2037#	2656*	4384											
XDATA 002404	2066#	4152	4181	4230	4275	4339	4365*	4366*						
XORGB 020134	4150	4179	4228	4273	4337	4363#								
XYZ = 000007	1693#	6012	8095											
X\$ALMA= 000000	1300#													
X\$FALS= 000040	1300#													
X\$OFFS= 000400	1300#													
X\$TRUE= 000020	1300#													
\$E = 000065	2010#	2440#	2484#	2531#	2602#	2701#	2974#	3078#	3111#	3122#	3156#	3167#	3201#	
	3212#	3246#	3257#	3291#	3302#	3334#	3345#	3381#	3392#	3405#	3416#	3448#	3460#	
	3509#	3756#	3769#	3795#	3805#	3818#	3828#	3841#	3851#	3864#	3874#	3887#	3897#	
	4809#	4828#	4878#	4914#	5043#	5158#	5392#	5597#	5623#	5649#	5939#	5978#	6055#	
	6167#	6206#												
\$LSTIN= 000001	1305#													
\$LSTTA= 000001	1306#													
\$T = 000037	2010#	4762#	4838#	4992#	5057#	5105#	5177#	5229#	5281#	5335#	5410#	5461#	5503#	
	5545#	5658#	5743#	5848#	6078#	6263#	6363#	6495#	6709#	6806#	6903#	7000#	7165#	
	8054#	8206#	8380#	8557#	8771#	9012#								
	1296#	2056#	2059#	2143#	2226#	2366#	2387#	2403#	3515	4780	4785	4789	4794	
	4816	4899	4904	5050	5094	5099	5165	5199	5218	5251	5270	5305	5324	
	5365	5399	5431	5450	5483	5525	5604	5630	5693	5698	5714	5719	5725	
	5730	5733	5738	5780	5785	5790	5795	5800	5805	5810	5815	5819	5824	
	5830	5835	5838	5843	5878	5883	5887	5892	5897	5902	5915	5920	5926	
	5931	5946	5953	5958	5965	5970	5985	5991	5996	6001	6006	6017	6022	
	6027	6032	6042	6047	6062	6069	6074	6106	6111	6115	6120	6125	6130	
	6143	6148	6154	6159	6174	6181	6186	6193	6198	6213	6223	6228	6233	
	6238	6246	6251	6254	6259	6288	6293	6306	6311	6316	6321	6332	6337	
	6343	6348	6354	6359	6390	6395	6412	6417	6435	6440	6452	6457	6463	
	6468	6472	6477	6493#	6522	6527	6542	6547	6560	6565	6582	6587	6602	

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CROSS REFERENCE TABLE -- MACRO NAMES

GETPRI	10	13000													
GETWOR	10	13000													
GMANIA	10	13000													
GMANID	10	13000													
GMANIL	10	13000													
GPHRD	10	13000	4621												
GPRMA	10	13000	9197	9202											
GPRMD	10	13000	9207	9213	9219	9225	9231								
GPRML	10	13000													
GTDF	20100	2439	2483	2530	2601	2700	2973	3077	3110	3121	3155	3166	3200	3211	3245
	3256	3290	3301	3333	3344	3380	3391	3404	3415	3447	3459	3508	3755	3768	3794
	3804	3817	3827	3840	3850	3863	3873	3886	3896						
GTHRD	20100														
GTSF	20100														
GTSFT	20100														
HEADER	10	13000	1326												
INLOOP	10	13000													
IOSETU	10	13000													
IOSTAR	10	13000													
KT11	10	13000													
LASTAD	10	13000	9277												
MANUAL	10	13000													
MEMORY	10	13000													
MSG	47620	4768	48380	4844	49920	4998	50570	5063	51050	5111	51770	5183	52290	5235	52810
	5287	53350	5341	54100	5416	54610	5467	55030	5509	55450	5551	56580	5664	57430	5749
	58480	5854	60780	6084	62630	6269	63630	6369	64950	6501	67090	6715	68060	6812	69030
	6909	70000	7006	71650	7171	80540	8060	82060	8212	83800	8386	85570	8563	87710	8777
	90120	9018													
M\$BYTE	10	13000	13270	1333	1334	1335									
M\$CHEC	10	13000													
M\$CNT0	10	13000	91980	92030	92080	92140	92200	92260	92320						
M\$COUN	10	13000	41090	41240	41430	41520	41720	41810	41900	42050	42130	42210	42300	42500	42580
	42660	42750	42950	43030	43110	43300	43390	43760	43840	43940	44010	44110	44250	44330	44430
	44500	44600	44670	44770	44840	45020	45100	45200	45270	49300	49360	49420	49480	49580	49660
	49780														
M\$DATA	10	13000	13270	1336	1338	1340	1342	1344	1346	1348	1350	1352	1354	1356	1358
	1360	1362	1364	13660	1368	1370	1373	1376	1378	1380	1382	1384	1386	1388	1390
	1392	1394	1396	1398	1400	1402	1404	1406	1408	1410	23830	23950			
M\$DECR	10	13000	14840	14980	41350	41620	41960	42400	42850	43200	43490	45520	46580	47130	47310
	47460	47590	48350	48880	49200	49240	49720	49870	50550	51030	51750	52210	52270	52730	52790
	53270	53330	54020	54080	54530	54590	55010	55430	56560	57410	58450	60760	62610	63610	64790
	65710	66310	66910	66940	68040	69010	69980	71630	73340	74750	76160	77570	78980	80390	80420
	82040	83630	84630	85010	85520	85550	87520	89960	91780	92390	92610	92750			
M\$DEFA	10	13000	91980	92030	92080	92140	92200	92260	92320						
M\$ENDE	10	13000	14840	14980	41350	41620	41960	42400	42850	43200	43490	46580	47130	47310	47460
	47590	48350	48880	49200	49240	49720	49870	50550	51030	51750	52210	52270	52730	52790	53270
	53330	54020	54080	54530	54590	55010	55430	56560	57410	58450	60760	62610	63610	64790	65710
	66310	66910	66940	68040	69010	69980	71630	73340	74750	76160	77570	78980	80390	80420	82040
	83630	84630	85010	85520	85550	87520	89960	91780	92390	92610	92750				
M\$ERRI	10	13000	48100	48290	48790	49150	50440	51590	53930	55980	56240	56500	59400	59790	60560
	61680	62070													
M\$ESCA	10	13000	47840	4785	47930	4794	48150	4816	49030	4904	50490	5050	50980	5099	51640
	5165	51980	5199	52170	5218	52500	5251	52690	5270	53040	5305	53230	5324	53640	5365
	53980	5399	54300	5431	54490	5450	54820	5483	55240	5525	56030	5604	56290	5630	56970
	5698	57180	5719	57290	5730	57370	5738	57840	5785	57940	5795	58040	5805	58140	5815
	58230	5824	58340	5835	58420	5843	58820	5883	58910	5892	59010	5902	59190	5920	59300

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CROSS REFERENCE TABLE -- MACRO NAMES

5931	5945	5946	5957	5958	5969	5970	5984	5985	5995	5996	6005	6006	6021	6022
6031	6032	6046	6047	6061	6062	6073	6074	6110	6111	6119	6120	6129	6130	6147
6148	6158	6159	6173	6174	6185	6186	6197	6198	6212	6213	6227	6228	6237	6238
6250	6251	6258	6259	6292	6293	6310	6311	6320	6321	6336	6337	6347	6348	6358
6359	6394	6395	6416	6417	6439	6440	6456	6457	6467	6468	6476	6477	6526	6527
6546	6547	6564	6565	6586	6587	6606	6607	6624	6625	6646	6647	6666	6667	6684
6685	6740	6741	6749	6750	6759	6760	6777	6778	6791	6792	6801	6802	6837	6838
6846	6847	6856	6857	6874	6875	6888	6889	6898	6899	6934	6935	6943	6944	6953
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8835	8844	8845	8854	8855	8863	8864	8876	8877	8886	8887	8896	8897	8906	8907
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8994	9036	9037	9046	9047	9059	9060	9069	9070	9079	9080	9089	9090	9099	9100
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7066	7076	7085	7096	7106	7117	7127	7138	7149	7160	7208	7224	7234	7247	7260
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M\$EXTJ 1	1300													
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1390	1392	1394	1396	1398	1400	1402	1404	1406	1408	1410	1426	1469	1470	1484
1494	1495	1498	2022	2383	2395	4102	4135	4141	4162	4168	4196	4203	4240	4248
4285	4293	4320	4328	4349	4547	4560	4658	4677	4713	4727	4731	4741	4746	4757
4759	4777	4835	4858	4862	4888	4892	4920	4924	4928	4972	4976	4987	5015	5055
5080	5103	5126	5175	5192	5206	5221	5227	5244	5258	5273	5279	5298	5312	5327

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	53330	53580	53720	54020	54080	54240	54380	54530	54590	54760	55010	55180	55430	55710	56560
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	73340	73400	74750	74810	76160	76220	77570	77630	78980	79040	80390	80420	80680	82040	82270
	83630	84060	84090	84630	84670	85010	85050	85520	85550	85760	87520	87920	89960	90260	91780
	91950	92400	92580	92620	92810										
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	3842	3843	3844	3845	3852	3853	3854	3855	3865	3866	3867	3868	3875	3876	3877
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	41520	41530	41540	41550	41560	4157	41580	4159	41630	41720	41730	41740	41750	4176	41770
	4178	41810	41820	41830	41840	41850	4186	41870	4188	41900	41910	4192	41930	4194	41970

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42050	42060	42070	42080	4209	42100	4211	42130	42140	4215	42160	4217	42210	42220	42230
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	7893#	7895#	7896#	7899#	7905#	7911#	7913#	7914#	7927#	7929#	7930#	7937#	7939#	7940#	7950#
	7952#	7953#	7963#	7965#	7966#	7983#	7985#	7986#	7994#	7996#	7997#	8009#	8011#	8012#	8023#
	8025#	8026#	8034#	8036#	8037#	8040#	8043#	8105#	8107#	8108#	8124#	8126#	8127#	8133#	8135#
	8136#	8147#	8149#	8150#	8156#	8158#	8159#	8175#	8177#	8178#	8189#	8191#	8192#	8199#	8201#
	8202#	8205#	8235#	8237#	8238#	8257#	8259#	8260#	8269#	8271#	8272#	8283#	8285#	8286#	8294#
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 CVDMCC.P11 12-JUL-84 16:09 CROSS REFERENCE TABLE -- MACRO NAMES

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CVDMCC.P11 12-JUL-84 16:09 CROSS REFERENCE TABLE -- MACRO NAMES

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CROSS REFERENCE TABLE -- MACRO NAMES

M\$TLAB

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CROSS REFERENCE TABLE -- MACRO NAMES

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	5653	5940#	5941	5942	5943	5979#	5980	5981	5982	6056#	6057	6058	6059	6168#	6169

CVDHCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 248
 CVDHCC.P11 12-JUL-84 16:09 CROSS REFERENCE TABLE -- MACRO NAMES

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	5743	5848	6078	6263	6363	6495	6709	6806	6903	7000	7165	8054	8206	8380	8557
	8771	9012													
NTST	2010#	4762	4838	4992	5057	5105	5177	5229	5281	5335	5410	5461	5503	5545	5658
	5743	5848	6078	6263	6363	6495	6709	6806	6903	7000	7165	8054	8206	8380	8557
	8771	9012													
OPEN	1#	1300#													
POINTE	1#	1300#	1323												
PRINTB	1#	1300#	4142	4151	4171	4180	4189	4204	4212	4220	4229	4249	4257	4265	4274
	4294	4302	4310	4329	4338	4410	4929	4965	4977						
PRINTF	1#	1300#													
PRINTS	1#	1300#													
PRINTX	1#	1300#	4108	4123	4375	4383	4393	4400	4424	4432	4442	4449	4459	4466	4476
	4483	4501	4509	4519	4526	4935	4941	4947	4957						
READBU	1#	1300#													
READEF	1#	1300#	4579	4586	4593	4600									
RFLAGS	1#	1300#													
SETDF	2010#	2441	2485	2532	2603	2702	2975	3079	3112	3123	3157	3168	3202	3213	3247
	3258	3292	3303	3335	3346	3382	3393	3406	3417	3449	3461	3510	3757	3770	3796
	3806	3819	3829	3842	3852	3865	3875	3888	3898						
SETHRD	2010#														
SETPRI	1#	1300#													
SETSF	2010#														
SETSFT	2010#														
SETVEC	1#	1300#	4679												
SLASH	1#	1300#	1417	1421											
STARS	1#	1300#													
SVC	1#	1298#	1299												
T\$GEN	2010#	2441	2485	2532	2603	2702	2975	3079	3112	3123	3157	3168	3202	3213	3247
	3258	3292	3303	3335	3346	3382	3393	3406	3417	3449	3461	3510	3757	3770	3796
	3806	3819	3829	3842	3852	3865	3875	3888	3898						
XFER	1#	1300#													
XFERF	1#	1300#													
XFERT	1#	1300#													
\$GEDF	2010#	4809	4828	4878	4914	5043	5158	5392	5597	5623	5649	5939	5978	6055	6167
	6206														
\$GEHRD	2010#														
\$GESF	2010#														
\$GESFT	2010#														
\$GTDF	2010#	2440	2484	2531	2602	2701	2974	3078	3111	3122	3156	3167	3201	3212	3246
	3257	3291	3302	3334	3345	3381	3392	3405	3416	3448	3460	3509	3756	3769	3795
	3805	3818	3828	3841	3851	3864	3874	3887	3897						

CVDMCCO DMV11 LINE UNIT DIAG1 MACY11 30A(1052) 23-JUL-84 14:02 PAGE 249
CVDMCC.P11 12-JUL-84 16:09 CROSS REFERENCE TABLE -- MACRO NAMES

\$GTHRD 2010#
\$GTSF 2010#
\$GTSFT 2010#

. ABS. 037434 000

ERRORS DETECTED: 0

CVDMCC,CVDMCC/CRF/SOL=SVC34R.MLB,CVDMCC.P11
RUN-TIME: 41 52 6 SECONDS
RUN-TIME RATIO: 144/100=1.4
CORE USED: 23K (45 PAGES)