

# DV11

ROM TEST PART 2  
CZDVDCO

AH-8741C-MC

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FICHE 1 OF 1

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This microfiche card contains a grid of frames. The left side of the card features a vertical column of frames, each containing a small, illegible label. The remaining frames in the grid contain data, likely test results, organized in a structured format with multiple columns and rows. The data is too small to be transcribed accurately.

11

801

EOF1CZDXIBSEQ  
PDP10 411 SEQ 0001

00010000

780330

PDP10 411  
IDENTIFICATION

HDR1CZDVDCSEQ

00010000

780330

PRODUCT CODE: AC-8740C-MC  
PRODUCT NAME: CZDVDCO DV11 ROM TS\* PRTE  
DATE RELEASED: FEB-1978  
MAINTAINER: DIAG-MK  
AUTHOR: J EGOLF J VALDES

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## 1. ABSTRACT

THE FUNCTION OF THE DV11 DIAGNOSTICS ARE TO VERIFY THAT THE OPTION OPERATES ACCORDING TO SPECIFICATIONS. THE DIAGNOSTICS VERIFY THAT THERE ARE NO MALFUNCTIONS AND THE ALL OPERATIONS OF THE DV11 ARE CORRECT IN ITS ENVIRONMENT.

PARAMETERS MAY BE SET TO ALERT DIAGNOSTICS AS TO THE DV11 CONFIGURATION BY USING THE "TRIAL" PROGRAM (DZDVE SA:210). ALL QUESTIONS SHOULD BE ANSWERED AND THEN EACH DIAGNOSTIC WILL "OVERLAY" THESE PARAMETERS WHICH ARE STORED IN THE "STATUS TABLE" (SEE SECTION 8.4A). THE ALTERNATIVE TO "TRIAL" PROGRAM IS "AUTO SIZING" (SEE SECTION 8.5).

DZDVD LIKE DZDVC ALLOWS THE MICRO PROCESSOR TO "FREE RUN". BECAUSE OF THE LENGTH OF THE "FREE RUNNING" TEST; THIS TEST IS TO CATCH THE OVERFLOW FROM DZDVC.

CURRENTLY THERE ARE SIX OFF LINE DIAGNOSTICS THAT ARE TO BE RUN IN SEQUENCE TO INSURE THAT IF AN ERROR SHOULD OCCUR IT WILL BE DETECTED AT AN EARLY STAGE AND INSURING THAT DIAGNOSIS OF ERROR WILL BE IMMEDIATE TO PROBLEM

NOTE: ADDITIONAL DIAGNOSTICS MAY BE ADDED IN THE FUTURE.

THE SIX DIAGNOSTICS ARE:

1. DZDVA (REV) BASIS R/W TEST AND ROM INSTRUCTION EXERCISER.
2. DZDVB (REV) STATIC LINE CARD TESTS.
3. DZDVC (REV) 'FREE RUNNING' ROM TESTS PART 1.
4. DZDVD (REV) 'FREE RUNNING' ROM TESTS PART 2.
5. DZDVE (REV) MODEM CONTROL AND CABLE TESTS PLUS MANUAL PARAMETER INPUT. [TRIAL PROGRAM]
6. ASYNCHRONOUS LINE CARD TESTS.

## 2. REQUIREMENTS

## 2.1 EQUIPMENT

ANY PDP11 FAMILY CPU (WITH MINIMUM 8K MEMORY)  
ASR 33 (OR EQUIVALENT)  
DV11-AA MUX CNTRL UNIT  
AT LEAST ONE OF THE FOLLOWING  
DV11-BA 8 LINE SYNC MODULES  
DV11-BB 8 LINE ASYNC MODULES  
DV11-BC 4 SYNC LINES, 4 ASYNC LINES

## 2.2 STORAGE

PROGRAM WILL USE ALL BK OF MEMORY EXCEPT WHERE ABL AND FOOTSTRAP LOADER RESIDE. LOCATION 1500 THRU 1735 ARE ESPECIALLY TO BE NOTED AND TO BE UNTOUCHED BY OPERATOR AFTER DV11 TRIAL PROGRAM HAS BEEN EXECUTED; OR AFTER THE 'AUTO SIZING' HAS BEEN DONE.

## 3. LOADING PROCEEDURE

## 3.1 METHOD

ALL PROGRAMS ARE IN ABSOLUTE FORMAT AND ARE LOADED USING THE ABSOLUTE LOADER. NOTE: IF THE DIAGNOSTICS ARE ON A MEDIA SUCH AS DISK, MAGTAPE, DECTAPE, OR CASSETTE. FOLLOW INSTRUCTIONS FOR THE MONITOR WHICH HAS BEEN PROVIDED ON THAT SPECIFIC MEDIA.

ABSOLUTE LOADER STARTING ADDRESS \*500

MEMORY \* SIZE

4K	17
8K	37
12K	57
16K	77
20K	117
24K	137
28K	157

- 3.1.1 PLACE ADDRESS OF ABS LOADER INTO SWITCH REGISTER.  
(ALSO PLACE 'HALT' SW UP)
- 3.1.2 DEPRESS 'LOAD ADDRESS' KEY ON CONSOLE AND RELEASE.
- 3.1.3 DEPRESS 'START KEY' ON CONSOLE AND RELEASE (PROGRAM SHOULD NOW BE LOADING INTO CPU)

## 4. STARTING PROCEEDURE

- A. SET SWITCH REGISTER TO 000200  
 B. DEPRESS 'LOAD ADDRESS' KEY AND RELEASE  
 C. SET SWR TO ZERO FOR 'AUTO SIZING' OR LEAVE  
 LEAVE SWR BIT 7=1 TO USE EXISTING PARAMETERS SET UP BY DV11 TRIAL  
 PROGRAM OR A PREVIOUSLY RUN DV11 DIAGNOSTIC THAT USED THE 'AUTO  
 SIZING'. (SECTION 7.2 AND 8.4, 8.5 MAY BE HELPFUL)  
 D. DEPRESS 'START KEY' AND RELEASE THE PROGRAM WILL TYPE MAINDEC NAME  
 AND PROGRAM NAME (IF THIS WAS THE FIRST START UP OF THE PROGRAM) AND  
 ALSO THE FOLLOWING:

```

'MAP OF DV11 STATUS'
1500      175000
1502      000300
1504      000226
1506      000062
1510      000226
1512      000062
1514      000226
1516      000062
1520      000226
1522      000062
  
```

THE ABOVE IS ONLY AN EXAMPLE! THIS WOULD INDICATE THE STATUS TABLE  
 STARTING AT ADD. 1500 IN THE PROGRAM. THE STATUS TABLE MUST BE  
 VERIFIED BY THE USER IF AUTO SIZING IS DONE. FOR INFORMATION OF STATUS  
 TABLE SEE SECTION 8.4 FOR HELP.

THE PROGRAM WILL TYPE 'R' AND PROCEED TO RUN THE DIAGNOSTIC

## 4.1 CONTROL SWITCH SETTINGS

NOTE: IF THERE IS NO REAL SWR (177570); SWR MAY BE MODIFIED AT  
 LOC:176 OR BY HITTING CONTROL "G" (↑G) ON CONSOLE TERMINAL.

```

SW 15  SET:  HALT ON ERROR
SW 14  SET:  LOOP ON CURRENT TEST
SW 13  SET:  INHIBIT ERROR PRINT OUT
SW 12  SET:  INHIBIT **ALL** TYPE OUT/BELL ON ERROR.
SW 11  SET:  INHIBIT ITERATIONS. (QUICK PASS)
SW 10  SET:  ESCAPE TO EXT TEST
SW 09  SET:  LOOP WITH CURRENT DATA
SW 08  SET:  CATCH ERROR AND LOOP ON IT
SW 07  SET:  USE PREVIOUS STATUS TABLE. CLR-DO AUTO SIZE.
SW 06  SET:  RESERVED
SW 05  SET:  RESERVED
SW 04  SET:  RESERVED
SW 03  SET:  RESERVED
SW 02  SET:  LOCK ON SELECTED TEST
SW 01  SET:  RESTART PROGRAM AT SELECTED TEST
SW 00  SET:  RESELECT DV11'S DESIRED ACTIVE.
  
```

## 4.1.2 SWITCH REGISTER RESTRICTIONS

SW 00 RESELECT DV11'S DESIRED ACTIVE. PLEASE NOTE THAT A MESSAGE IS TYPED OUT FOR SETTING THE SWITCH REGISTER EQUAL TO DV11'S ACTIVE. THIS MEANS IF THE SYSTEM HAS FOUR DV11S; BITS 00,01,02,03 WILL BE SET IN LOC 'DVACTV' FROM THE SWITCH REGISTER. USING THIS SWITCH(SW00) ALTERS THAT LOCATION; THEREFORE IF FOUR DV11S ARE IN THE SYSTEM \*\*\*DO NOT\*\*\* SET SWITCHS GREATER THAN SW 03 IN THE UP POSITION. THIS WOULD BE A FATAL ERROR. DO NOT SELECT MORE ACTIVE DV11S THAN HAS BEEN GIVEN INFORMATION ABOUT IN TRIAL PROGRAM.

METHOD: A: LOAD ADDRESS 200  
 B: START WITH SW 00=1  
 C: PROGRAM WILL TYPE MESSAGE  
 D: SET THE BINARY NUMBER OF DV11S DESIRED ACTIVE EXAMPLE: 1=1  
 DV11; 3=2 DV11; 7=3 DV11; 17=4 DV11 37=5 DV11 ETC. PRESS CONTINUE.  
 E: NUMBER (IF VALID) WILL BE IN DATA LIGHTS (EXCLUDING 11/05)  
 F: SET WITH ANY OTHER SWITCH SETTINGS DESIRED. PRESS CONTINUE.

SW 01 RESTART PROGRAM AT SELECTED TEST IT IS STRONGLY SUGGESTED THAT AT LEAST ONE PASS HAS BEEN MADE BEFORE TRYING TO SELECT A TEST THAT IS NOT IN THE ORDER OF SEQUENCE THE REASON BEING IS THAT THE PROGRAM HAS TO CLEAR AREAS AND SET UP PARAMETERS. ALSO WHEN A TEST IS SELECTED ALWAYS START AT THE VERY BEGINNING OF THAT TEST.

SW 09 LOOP ON CURRENT DATA: THIS SWITCH WILL ONLY WORK IF CALL 'SCOPI' IS IN THAT TEST. THE REASON BEING THAT MOST TESTS DEAL WITH BLOCKS OF DIFFERENT DATA TO BE SENT OR RECEIVED ALL AT ONCE THUS IN BLOCK DATA; ONE PATTERN CANN'T BE SINGLED OUT.

## 4.1.3 SWITCH REGISTER PRIORITIES

## ERROR SWITCHES

1. SW 12 DELETE PRINT OUT/BELL ON ERROR.
2. SW 13 DELETE ERROR PRINTOUT.
3. SW 15 HALT ON THE ERROR.
4. SW 08 GOTO BEGINNING OF THE TEST(ON ERROR).
5. SW 10 GOTO NEXT TEST(ON ERROR).

## SCOPE SWITCHES

1. SW 09 (IF ENABLED BY 'SCOPI') ON AN ERROR: IF AN '\*' IS PRINTED IN FRONT OF THE TEST NO. (EX. \*TEST NO. 10) SW09 IS INCORPORATED IN THAT TEST AND THEREFORE SW09 IS \*USUALLY\* THE BEST SWITCH FOR THE SCOPE LOOP (SW14=0, SW10=0, SW09=1, SW08=0). IF SW09 IS NOT ENABELED; AND THERE IS A \*HARD\* ERROR (CONSTANT); SW08 IS BEST. (SW14=1,0, SW10=0, SW09=0, SW08=1). FOR INTERMITTEMT ERRORS; SW14=1 WILL LOOP ON TEST REGARDLESS OF ERROR OR NOT ERROR. (SW14=1, SW10=0, SW09=0, SW08=1,0)
2. SW 14
3. SW 11

## 4.2 STARTING ADDRESS

STARTING ADDRESS IS AT 000200 THERE ARE NO OTHER STARTING ADDRESSES FOR THE DV11 DIAGNOSTICS PREVIOUSLY MENTIONED EXCEPT FOR DZDVE WHICH IS: 000200 FOR THE MODEM CONTROL AND CABLE TESTS AND 000210 FOR THE MANUAL PARAMETER INPUT PROGRAM.

NOTE: IF ADDRESS 000042 IS NON-ZERO THE PROGRAM ASSUMES IT IS UNDER ACT11 OR XXDP CONTROL AND WILL ACT ACCORDINGLY AFTER \*ALL\* AVAILABLE DV11'S ARE TESTED THE PROGRAM WILL RETURN TO 'XXDP' OR 'ACT-11'.

## 5. OPERATING PROCEDURE

WHEN PROGRAM IS INITIALLY STARTED MESSAGES AS DESCRIBED IN SECTION FOUR WILL BE PRINTED.

AND PROGRAM WILL BEGIN PUNNING THE DIAGNOSTIC

## 5.2 PROGRAM AND/OR OPERATOR ACTION

THE TYPICAL APPROACH SHOULD BE

1. HALT ON ERROR (VIA SW 15=1) WHEN EVER AN ERROR OCCURS.
2. CLEAR SW 15.
3. SET SW 14: (LOOP ON THIS TEST)
4. SET SW 13: (INHIBIT ERROR PRINT OUT)

THE TEST NUMBER AND PC WILL BE TYPED OUT AND POSSIBLY AN ERROR MESSAGE (THIS DEPENDS ON THE TEST) TO GIVE THE OPERATOR AN IDEA AS TO THE SOURCE OF THE PROBLEM. IF IT IS NECESSARY TO KNOW MORE INFORMATION CONCERNING THE ERROR REPORT; LOOK IN THE LISTING FOR THAT TEST NUMBER WHICH WAS TYPED OUT AND THEN NOTE THE PC OF THE ERROR REPORT THIS WAY THE EXACT FUNCTIONING OF THE TEST CAN BE INTERPEDITED.

## 5.2.1

IF THE DATA "SET BUZY" JUMPER(S) ARE REMOVED FROM THE M7833 ASYNC LINE CARD, THE FOLLOWING PATCH SHOULD BE INSTALLED.

CHANGE LOC 21524 FROM 403 TO 240  
LOC 21532 FROM 34000 TO 7000

THIS PATCH PUTS THE DV-11BB IN INTERNAL MAINTENANCE FOR THE PARTICULAR TEST. THIS WILL WORK WITH ALL ASYNC LINE CARDS; WILL NOT WORK WITH SYNC LINE CARDS.

## 6. ERRORS

AS DESCRIBED PREVIOUSLY THERE WILL ALWAYS BE A TEST NUMBER AND PC TYPED OUT AT THE TIME OF AN ERROR (PROVIDING SW 13=0 AND SW 12=0). IN MOST CASES ADDITIONAL INFORMATION WILL BE SUPPLIED TO THE THE ERROR MESSAGE WHICH IS TO GIVE THE OPERATOR AN INDICATION OF THE ERROR.

## 6.2 ERROR RECOVERY

IF FOR SOME REASON THE DV11 SHOULD 'HANG THE BUS' (GAIN CONTROL OF BUS SO THAT CONSOLE MANUAL FUNCTIONS ARE INHIBITED) AN INIT OR POWER DOWN/UP IS NECESSARY FOR OPERATOR TO REGAIN CONTROL OF CPU. IF THIS SHOULD HAPPEN; LOOK IN LOCATION 'TSTNO' (ADDRESS 1224) FOR THE NUMBER OF THE TEST THAT WAS RUNNING AT THE TIME OF THE CATASTROPHIC ERROR. IN THIS WAY THE OPERATOR WILL HAVE AN IDEA AS TO WHAT THE DV11 WAS DOING AT THE TIME OF THE ERROR.

## 7. RESTRICTIONS

## 7.1 STARTING RESTRICTIONS

SEE SECTION 4. (PLEASE)  
STATUS TABLE SHOULD BE VERIFIED REGARDLESS OF HOW PROGRAM WAS STARTED. ALSO IT IS IMPORTANT TO USE THIS LISTING ALONG WITH THE INFORMATION PRINTED ON THE TTY TO COMPLETELY ISOLATE PROBLEMS.



## 7.2 OPERATING RESTRICTIONS

DV11 TRIAL PROGRAM MUST BE RUN PRIOR TO THE FIRST AND ONLY THE FIRST RUNNING OF ANY DV11 DIAGNOSTIC IF "AUTO SIZING" IS NOT USED.  
NOTE: IF NO PROGRAM OTHER THAN A DV11 DIAGNOSTIC WAS LOADED AFTER DV11 TRIAL OR IF CORE MEMORY HAS NOT BEEN CHANGED; OR IF THERE IS NO DV11 CONFIGURATION CHANGES; THE DV11 TRIAL PROGRAM NEED NEVER BE RUN AGAIN. HOWEVER IF ANY OF THE ABOVE HAVE BEEN VIOLATED THE DV11 TRIAL PROGRAM MUST BE RUN AGAIN BEFORE RUNNING THE DIACNOSTICS NOTE: AN ALTERNATIVE TO THE ABOVE IS ATTEMPTING THE 'AUTO SIZING' WHEN PROGRAM IS INITIALLY STARTED WITH SW07=0.

## 7.3 HARDWARE CONFIGURATION RESTRICTIONS (SYNC LINE CARDS ONLY)

1. HARDWARE MUST BE SET TO FULL DUPLEX
2. PARITY OFF.
3. ALL LINES OF A PARTICULAR LINE CARD MUST BE CONFIGURED THE SAME.

## 8. MISCELLANEOUS

## 8.1 EXECUTION TIME

ALL DV11 DEVICE DIAGNOSTICS WILL GIVE AN 'END PASS' MESSAGE (PROVIDING NO ERRORS AND SW12=0) WITHIN 4 MINS. THIS IS ASSUMING SW11=1 (DELETE ITERATIONS) IS SET TO GIVE THE FASTEST POSSIBLE EXECUTION. THE ACTUAL EXECUTION TIME DEPENDS GREATLY ON THE PDP11 CPU CONFIGURATION.

## 8.2 PASS COMPLETE

NOTE: \*EVERY\* TIME THE PROGRAM IS STARTED; THE TESTS WILL RUN AS IF SW11 (DELETE ITERATIONS) WAS UP (=1). THIS IS TO 'VERIFY NO \*HARD\* ERRORS' AS SOON AS POSSIBLE. THEREFORE THE FIRST PASS -EACH TIME PROGRAM IS STARTED- WILL BE A 'QUICK PASS' UNTILL ALL DV11'S IN SYSTEM ARE TESTED. WHEN THE DIAGNOSTIC HAS COMPLETED A PASS THE FOLLOWING IS AN EXAMPLE OF THE PRINT OUT TO BE EXPECTED.

END PASS DZDVD-B CSR: 175000 VEC: 300 PASSES: 000001 ERRORS: 000000

NOTE: THE NUMBERS FOR CSR AND VEC ARE NOT NECESSARILY THE VALUES FOR THE DEVICE. THEY ARE ONLY FOR THIS EXAMPLE.

NOTE: DZDVE (MODEM AND CABLE TEST) END PASS MESSAGE IS A LARGE "END" TYPED OUT ON TTY. PLEASE NOTE THAT EACH CHARACTER PRINTED IS ACTUALLY AND "END PASS" INDICATION. THIS WAS USED IN PLACE OF "BELL" BECAUSE IF SW12=1 AND AN ERROR OCCURED THE BELL MAY BE MISTAKEN FOR END PASS. THE PASS EXECUTION IS SO FAST THAT THE STANDARD END PASS WAS TOO LENGHTLY. THEREFORE EACH CHAR IS AN "END PASS AND THE ENTIRE "END" IS NOT REQUIRED FOR ACCEPTANCE.

2.4 KEY LOCATIONS

RETURN (1212) CONTAINS THE ADDRESS WHERE PROGRAM WILL RETURN WHEN ITERATION COUNT IS REACHED OR IF LOOP ON TEST IS ASSERTED.

NEXT (1214) CONTAINS THE ADDRESS OF THE NEXT TEST TO BE PERFORMED.

\*STNO (1224) CONTAINS THE NUMBER OF THE TEST NOW BEING PERFORMED.

RUN (1302) THE BIT IN 'RUN' ALWAYS POINTS ONE PAST THE DV11 CURRENTLY BEING TESTED. EXAMPLE: (RUN) 1302/00000000100000 MEANS THAT DV11 NO.05 IS THE DV11 NOW RUNNING.

DVCR00-DVCR17  
 DVST00-DVST17  
 (1500)-(1736)

THESE LOCATIONS CONTAIN THE INFORMATION NEEDED TO TEST UP TO 8 (DECIMAL) DV11S SEQUENTIALY. THEY CONTAIN THE CSR VECTOR AND STATUS CONCERNING THE CONFIGURATION OF EACH DV11.

DVACTV (1276) EACH BIT SET IN THIS LOCATION INDICATES THAT THE ASSOCIATED DV11 WILL BE TESTED IN TURN. EXAMPLE: (DVACTV) 1276/000000000011111 MEANS THAT DV11 NO. 00,01,02,03,04 WILL BE TESTED. EXAMPLE: (DVACTV) 1276/000000000010001 MEANS THAT DV11 NO. 00,04 WILL BE TESTED.

D/SCR (1356) CONTAINS THE RECEIVER CSR OF THE CURRENT DV11 UNDER TEST.

LO0.03 (1412)  
 LO4.07 (1414)  
 LO8.11 (1416)  
 LI2.15 (1420)

CONTAINS THE STATUS OF THE CURRENT DV11 UNDER TEST.

BIT 15 SET: LINE CARD \*NOT INSTALLED (AND WONT BE TESTED)  
 BIT 14 SET: RESERVED  
 BIT 13 SET: RESERVED  
 BIT 12 SET: ONE SYNC, =0: TWO SYNCs.  
 BIT 11 SET: ASYNC LINE CARD, =0 SYNC LINE CARD.  
 BIT 10 SET: RESERVED  
 BIT 09 SET: BITS PER CHAR. (USED WITH BIT8)  
 BIT 08 SET: BITS PER CHAR. (USED WITH BIT9)  
 BIT09 BIT08 BITS PER CHAR.

0 0 8  
 0 1 7  
 1 0 6  
 1 1 5

BIT 07-00 SYNC "A" FOR SPECIFIED LINE CARD. BITS 07-00 MUST BE ALL ZEROS FOR TESTING ASYNC LINE CARDS.

B.4A MORE ON THAT 'STATUS TABLE' (1500-1736)

```

'MAP OF DV11 STATUS'
1500 175000
1502 000300
1504 000226
1506 000062
1510 000226
1512 000062
1514 004000
1516 000000
1520 004000
1522 000000
    
```

THE ABOVE INFORMATION WILL BE REPEATED FOR EACH OF UP TO 8 DV11'S IN THE SYSTEM (THESE WILL FOLLOW UNDER THIS TABLE). EXPLANATION:

1500 175000 THIS IS THE SYSTEM CONTROL REGISTER FOR THE 1ST DV11 IN THE SYSTEM.  
 1502 000300 THIS IS VECTOR 'A' FOR THE FIRST DV11 IN THE SYSTEM.  
 1504 000226 THIS REPRESENTS 'SYNC A' AND THE SOFTWARE STATUS FOR THE 1ST LINE CARD IN THE 1ST DV11. THE BITS ARE AS FOLLOWS:

```

BIT 15 SET: LINE CARD *NOT INSTALLED (AND WONT BE TESTED)
BIT 14 SET: RESERVED
BIT 13 SET: RESERVED
BIT 12 SET: ONE SYNC, =0: TWO SYNCs.
BIT 11 SET: ASYNC LINE CARD, =0 SYNC LINE CARD.
BIT 10 SET: RESERVED
BIT 09 SET: BITS PER CHAR. (USED WITH BIT8)
BIT 08 SET: BITS PER CHAR. (USED WITH BIT9)
    
```

```

BIT09 BIT08 BITS PER CHAR.
    0      0      8
    0      1      7
    1      0      6
    1      1      5
    
```

BIT 07-00 SYNC 'A' FOR SPECIFIED LINE CARD.  
 1506 000062 THIS REPRESENTS 'SYNC B' FOR THE 1ST LINE CARD.  
 1510 000226 THIS IS 'SYNC A' AND LINE STATUS FOR THE 2ND LINE CARD.  
 (FOR BITS DEFINATION SEE EXPLANATION FOR LINE CARD 1).  
 1512 000062 THIS IS 'SYNC B' FOR THE SECOND LINE CARD.  
 1514 000226 THIS IS 'SYNC A' AND LINE STATUS FOR THE 3RD LINE CARD.  
 (FOR BITS DEFINATION SEE EXPLANATION FOR LINE CARD 1).  
 1516 000062 THIS IS 'SYNC B' FOR LINE CARD NO. 3.  
 1520 000226 THIS IS 'SYNC A' AND LINE STATUS FOR THE 4TH LINE CARD.  
 (FOR BITS DEFINATION SEE EXPLANATION FOR LINE CARD 1).  
 1522 000062 THIS IS SYNC B FOR THE 4TH LINE CARD.

THE ABOVE IS REPEATED FOR EACH DV11 IN THE SYSTEM. THE TABLE IS FILLED BY AUTO SIZING OR BY THE MANUAL PARAMETER INPUT PROGRAM AS DESCRIBED PREVIOUSLY. ALSO IF DESIRED BY USER; THE LOCATIONS MAY BE ALTERED BY HAND (TOGGLED IN) TO SUIT THE SPECIFIC CONFIGURATION.

## 8.5 \*\*\* METHOD OF AUTO SIZING \*\*\*

## 8.5.1 FINDING THE CONTROL STATUS REGISTER.

THE PROGRAM WILL START AT ADDRESS 175000 AND START 'REFERENCEING' ADDRESS. IF A NON-EX MEMORY TRAP OCCURES; THE POINTER (HOLDING 175000) IS UPDATED BY 10 AND THE ABOVE IS REPEATED UNTILL ADDRESS 175400 IS REACHED. IF A 'SLAVE SYNC RESPONSE' WAS ISSUED BY THE DV11 (OR ANY OTHER DEVICE) (NO NXM TRAP)(AND IT (SEL0) WAS=0) ; POINTER PLUS 12 (SEL12) IS TESTED TO CONTAIN 177777 (MUST BE EXACTLY 177777); IF A TRAP IS ENCOUNTERED OR IF SEL12 DOES NOT CONTAIN 177777 THE ABOVE UPDATING IS PERFORMED. IF SEL12 WAS EQUAL TO 177777 THE POINTER IS STORED AWAY AND THE ROUTINE CONTINUES AS ABOVE;

NOTE: IF THE PROGRAM DOES NOT FIND YOUR DV11; SOMETHING IS WRONG AND AUTO SIZING SHOULD NOT BE DONE.

## 8.5.2 FINDING THE VECTOR

THE VECTOR AREA (ADDRESS 300-776) IS FILLED WITH THE INSTRUCTION IOT AND '+2' (NEXT ADDRESS). BIT7 AND BIT6 (RX INTERRUPT AND RX INTERRUPT IE) ARE SET INTO DVSCR REGISTER; A DELAY IS MADE AND IF NO INTERRUPT OCCURES (BECAUSE OF A BAD DV11) THE PROGRAM ASSUMES VECTOR ADDRESS 300 AND THE PROBLEM SHOULD BE FIXED IN THE DIAGNOSTIC. ONCE THE PROBLEM IS FIXED; THE PROGRAM SHOULD BE RE-SETUP AGAIN TO GET CORRECT VECTOR. IF AN INTERRUPT OCCURED; THE ADDRESS TO WHICH THE DV11 INTERRUPTED TO IS PICKED UP AND REPORTED AS THE VECTOR. NOTE: IF THE VECTOR REPORTED IS NOT THE VECTOR SET UP BY YOU; THERE IS A PROBLEM AND AUTO SIZING SHOULD NOT BE DONE.

## 8.5.3 PARAMETER ASSUMPTIONS.

SINCE TOO MUCH HARDWARE WOULD NEED TO BE TURNED ON TO SIZE THE REST OF THE PARAMETERS; THE PROGRAM MUST ASSUME THE REMAINING VARIATIONS. THE RESULT IF NOT TO YOUR SPECIFIC CONFIGURATION MAY BE ALTERED BY HANG (TOGGLE IN) IS DESIRED. IN THIS WAY 95% OF THE PARAMETER SETUP WAS DONE BY THE PROGRAM AND 5% BY YOU.

THEREFORE:

- 1) ALL LINE CARDS(4) ARE ASSUMED TO BE INSTALLED.  
SET BIT15 OF STATUS MAP OF ANY (APPROIATE) LINE CARDS MISSING
- 2) TWO SYNC.  
SET BIT12 IF YOU HAVE A 4 LINE GROUP SET FOR 1 SYNC.
- 3) EIGHT BITS PER CHAR.  
ADJUST BITS 9 AND BIT 8 IN STATUS MAP FOR YOUR CORRECT CONFIG.
- 4) SYNCHRONOUS LINE CARDS INSTALLED  
SET BIT11 OF STATUS MAP FOR ASYNC LINE CARD AND ZERO SYNC CHARS.
- 5) SYNC "A"=226 AND SYNC "B"=062

IN ALL ADJUSTMENTS PLEASE REFER TO SECTION 8.4A FOR GRETER DETAIL.

# MO1

CZDVDCO MACY11 30A(1052) 10-FEB-78 15:44 PAGE 2  
CZDVDC.P11 02-FEB-78 13:55

SEQ 0012

```
;*AC-8740C-MC/<377>/"CZDVDCO DV11" ROM TST PRT2  
;*COPYRIGHT 1972, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754  
*-----*
```

```
: STARTING PROCEDURE  
: LOAD PROGRAM  
: LOAD ADDRESS 000200  
: PRESS START  
: PROGRAM WILL TYPE "AC-8740C-MC/<377>/"CZDVDCO DV11" ROM TST PRT2"  
: PROGRAM WILL TYPE "R" TO INDICATE THAT TESTING HAS STARTED  
: AT THE END OF A PASS, PROGRAM WILL TYPE PASS COMPLETE MESSAGE  
: AND THEN RESUME TESTING
```

```
: SWITCH REGISTER OPTIONS  
:-----*
```

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

```
SW15=100000      :=1, HALT ON ERROR  
SW14=40000       :=1, LOOP ON CURRENT TEST  
SW13=20000       :=1, INHIBIT ERROR TYPEOUT  
SW12=10000       :=1, DELETE TYPEOUT/BELL ON ERROR.  
SW11=4000        :=1, INHIBIT ITERATIONS  
SW10=2000        :=1, ESCAPE TO NEXT TEST ON ERROR  
SW09=1000        :=1, LOOP WITH CURRENT DATA  
SW08=400         :=1, LOOP ON ERROR  
SW07=200         :=1, DO "AUTO SIZING" ON INITIAL START UP.  
SW06=100  
SW05=40  
SW04=20  
SW03=10  
SW02=4  
SW01=2  
SW00=1
```

```
: LOCK ON TEST SELECT  
: RESTART PROGRAM AT SELECTED TEST  
: RESELECT DV11 DESIRED ACTIVE  
: NOTE: THIS MUST NOT EXCEED ORIGINAL COUNT
```

UNRECORDED COPY - ORIGINAL COPY - UNRECORDED COPY

000000  
000001  
000002  
000003  
000004  
000005  
000006  
000007  
177776  
001200  
100000  
040000  
020000  
010000  
004000  
002000  
001000  
000400  
000200  
000100  
000040  
000020  
000010  
000004  
000002  
000001  
010000  
020000  
030000  
040000  
050000  
060000  
070000

; REGISTER DEFINITIONS  
-----

000000	R0=%0	; GENERAL REGISTER
000001	R1=%1	; GENERAL REGISTER
000002	R2=%2	; GENERAL REGISTER
000003	R3=%3	; GENERAL REGISTER
000004	R4=%4	; GENERAL REGISTER
000005	R5=%5	; GENERAL REGISTER
000006	SP=%6	; PROCESSOR STACK POINTER
000007	PC=%7	; PROGRAM COUNTER

; LOCATION EQUIVALENCIES  
-----

177776	PS=177776	; PROCESSOR STATUS WORD
001200	STACK=1200	; START OF PROCESSOR STACK
100000	BIT15=100000	
040000	BIT14=40000	
020000	BIT13=20000	
010000	BIT12=10000	
004000	BIT11=4000	
002000	BIT10=2000	
001000	BIT9=1000	
000400	BIT8=400	
000200	BIT7=200	
000100	BIT6=100	
000040	BIT5=40	
000020	BIT4=20	
000010	BIT3=10	
000004	BIT2=4	
000002	BIT1=2	
000001	BIT0=1	
010000	ALU=BIT12	
020000	RAM=BIT13	
030000	XFR=BIT13+BIT12	
040000	NPR=BIT14	
050000	S.C=BIT14+BIT12	
060000	BCC=BIT14+BIT13	
070000	BRB=BIT14+BIT13+BIT12	

TRAPCATCHER FOR UNEXPECTED INTERRUPTS

```

83      ;*****
84      ;-----
85      ;TRAPCATCAER FOR ILLEGAL INTERRUPTS
86      ;THE STANDARD "TRAP CATCHER" IS PLACED
87      ;BETWEEN ADDRESS 0 TO ADDRESS 776.
88      ;IT LOOKS LIKE "PC+2 HALT".
89      ;-----
90      ;*****
91
92      000000      .=0
93
94      ;STANDARD INTERRUPT VECTORS
95      ;-----
96      000024      .=24
97      000024      004402      .PFAIL      ;POWER FAIL HANDLER
98      000026      000340      340          ;SERVICE AT LEVEL 7
99      000030      004002      .HLT          ;ERROR HANDLER
100     000032      000340      340          ;SERVICE AT LEVEL 7
101     000034      003750      .TRPSRV     ;GENERAL HANDLER DISPATCH SERVICE
102     000036      000340      340          ;SERVICE AT LEVEL 7
103
104     000040      000001      .=40
105     000042      000001      .BLKW 1     ;SAVE FOR ACT-11 OR DDP2
106     000044      000001      .BLKW 1     ;RETURN ADDRESS IF UNDER ACT-11 OR DDP2
107     000046      002560      LOGICAL     ;SAVE FOR ACT-11 OR DDP2
108
109
110     000174      000000      .=174
111     000176      000000      LIGHT: 0    ;
112     000176      000000      .=176
113
114     000200      000200      SSWR: 0    ;
115     000200      000137      001742      .=200
116
117
118
119     001000      001000      MTITLE: .ASCIZ <377><12>/AC-8740C-MC/<377>/"CZDVDCO DV11" ROM TST PRT2.<377>
120     001000      005377      041501  034055
121     001200      001200      .=1200
122     001200      177570      LIGHTS:
123     001202      177570      SWR: 177570
124
125      ;INDIRECT POINTERS TO TELETYPE VECTORS AND REGISTERS
126      ;-----
127     001204      177560      TKCSR: 177560      ;TELETYPE KEYBOARD CONTROL REGISTER
128     001206      177562      TKDBR: 177562      ;TELETYPE KEYBOARD DATA BUFFER
129     001210      177564      TPCSR: 177564      ;TELEPRINTER CONTROL REGISTER
130     001212      177566      TPDBR: 177566      ;TELEPRINTER DATA BUFFER
131
132      ;PROGRAM CONTROL PARAMETERS
133      ;-----
134
135     001214      000000      RETURN: 0      ;SCOPE ADDRESS FOR LOOP ON TEST
136     001216      000000      NEXT: 0        ;ADDRESS OF NEXT TEST TO BE EXECUTED
137     001220      000000      LOCK: 0        ;ADDRESS FOR LOCK ON CURRENT DATA

```

PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

138	001222	000003	ICOUNT:	3	; NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE EXECUTED
139	001224	000000	LPCNT:	0	; NUMBER OF ITERATIONS COMPLETED
140	001226	000000	TSTNO:	0	; NUMBER OF TEST IN PROGRESS
141	001230	000000	PASCNT:	0	; NUMBER OF PASSES COMPLETED
142	001232	000000	ERRCNT:	0	; TOTAL NUMBER OF ERRORS
143	001234	000000	LSTERR:	0	; PC OF LAST ERROR CALL
144					
145					
146					
147					
148	001236	000000	STAT:	0	; DV STATUS WORD STORAGE
149	001240	000000	SYNCX:	00	
150	001242	000000	CLKX:	00	
151	001244	000000	MASKX:	00	
152	001246	000000	TEMP1:	00	; TEMPORARY STORAGE
153	001250	000000	TEMP2:	00	; TEMPORARY STORAGE
154	001252	000000	TEMP3:	00	; TEMPORARY STORAGE
155	001254	000000	TEMP4:	00	; TEMPORARY STORAGE
156	001256	000000	TEMP5:	00	; TEMPORARY STORAGE
157	001260	000000	SAVR0:	00	; R0 STORAGE
158	001262	000000	SAVR1:	00	; R1 STORAGE
159	001264	000000	SAVR2:	00	; R2 STORAGE
160	001266	000000	SAVR3:	00	; R3 STORAGE
161	001270	000000	SAVR4:	00	; R4 STORAGE
162	001272	000000	SAVR5:	00	; R5 STORAGE
163	001274	000000	SAVSP:	00	; STACK POINTER STORAGE
164	001276	000000	SAVPC:	0	; PROGRAM COUNTER STORAGE
165	001300	000001	DVACTV:	.BLKB 1	; DV11'S SELECTED ACTIVE.
166	001301	000001	DVNUM:	.BLKB 1	; OCTAL NUMBER OF DV11'S.
167	001302	000001	SAVACT:	.BLKB 1	; ORIGINAL ACTV. DEVICES.
168	001303	000001	SAVNUM:	.BLKB 1	; WORKABLE NUMBER.
169	001304	000001	RUN:	.BLKB 1	; POINTER ONE PAST RUNNING DEVICE.
170		001306	.EVEN		
171	001306	001500	CREAM:	DV.MAP	; TABLE POINTER.

;PROGRAM VARIABLES

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173  
174  
175  
176  
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223

PROGRAM CONTROL FLAGS

-----  
INIFLG: .BYTE 0 ;PROGRAM INITIALIZATION FLAG  
ERRFLG: .BYTE 0 ;ERROR OCCURED FLAG  
LOKFLG: .BYTE 0 ;LOCK ON CURRENT TEST FLAG  
QV.FLG: .BYTE 0 ;QUICK VERIFY FLAG.  
;ON FIRST PASS OF EACH DV11 ITERATIONS WILL BE SUPPRESSE  
.EVEN  
SY=0

DEFINITIONS FOR TRAP SUBROUTINE CALLS  
POINTERS TO SUBROUTINES CAN BE FOUND  
IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS

\*\*\*\*\*

-----  
:TRPTAB:  
SCOPE=TRAP+0 ;CALL TO SCOPE LOOP AND ITERATION HANDLER  
;SCOPE  
SCOPI=TRAP+1 ;CALL TO LOOP ON CURRENT DATA HANDLER  
;SCOPI  
TYPE=TRAP+2 ;CALL TO TELETYPE OUTPUT ROUTINE  
;TYPE  
INSTR=TRAP+3 ;CALL TO ASCII STRING INPUT ROUTINE  
;INSTR  
INSTER=TRAP+4 ;CALL TO INPUT ERROR HANDLER  
;INSTER  
PARAM=TRAP+5 ;CALL TO NUMERICAL DATA INPUT ROUTINE  
;PARAM  
SAVOS=TRAP+6 ;CALL TO REGISTER SAVE ROUTINE  
;SAVOS  
RESOS=TRAP+7 ;CALL TO REGISTER RESTORE ROUTINE  
;RESOS  
CONVRT=TRAP+10 ;CALL TO DATA OUTPUT ROUTINE  
;CONVRT  
CNVRT=TRAP+11 ;CALL TO DATA OUTPUT ROUTINE WITHOUT CR/LF.  
;CNVRT  
MSTCLR=TRAP+12 ;CALL TO ISUE A MASTER CLEAR  
;MSTCLR  
RAMCLR=TRAP+13 ;CALL TO CLEAR THE RAMS  
;RAMCLR  
DELAY=TRAP+14 ;CALL TO VARIABLE DELAY COUNTER  
;DELAY  
ROMCLK=TRAP+15 ;CALL TO CLOCK ROM ONCE  
;ROMCLK  
DATACLK=TRAP+16 ;CALL TO CLK DATA  
;DATACLK

-----  
\*\*\*\*\*

PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

```

224 ;DV11 VECTOR AND REGISTER INDIRECT POINTERS
225
226 001352 000000 DVRVEC: 0 ; POINTER TO DV11 RECEIVER INTERRUPT VECTOR
227 001354 000000 DVRLVL: 0 ; POINTER TO DV11 RECEIVER INTERRUPT SERVICE PS
228 001356 000000 DVTVEC: 0 ; POINTER TO DV11 TRANSMITTER INTERRUPT VECTOR
229 001360 000000 DVTLVL: 0 ; POINTER TO DV11 TRANSMITTER INTERRUPT SERVICE PS
230 001362 000000 DVSCR: 0 ; POINTER TO DV11 SYSTEM CONTROL REGISTER
231 001364 000000 DVSCRH: 0 ; POINTER TO DV11 SYSTEM CONTROL REGISTER HIGH BYTE.
232 001366 000000 DVRIC: 0 ; POINTER TO DV11 NEXT RECEIVED CHARACTER REGISTER
233 001370 000000 DVLCR: 0 ; POINTER TO DV11 LINE PRAMETER REGISTER
234 001372 000000 DVSR: 0 ; POINTER TO DV11 SECONDARY REGISTER SELECT REGISTER
235 001374 000000 DVSRSH: 0 ; POINTER TO DV11 SECONDARY REGISTER SELECT HIGH BYTE.
236 001376 000000 DVSRA: 0 ; POINTER TO DV11 SECONDARY REGISTER ACCESS REGISTER
237 001400 000000 DVSFR: 0 ; POINTER TO DV11 SPECIAL FUNCTIONS REGISTER
238 001402 000000 DVNSR: 0 ; POINTER TO DV11 NPR STATUS REGISTER
239 001404 000000 RESV16: 0 ; POINTER TO RESERVED REGISTER.

```

;DV11 CONTROL INDICATORS FOR CURRENT DV11 UNDER TEST

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240 -----
241
242 ;DV11 CONTROL INDICATORS FOR CURRENT DV11 UNDER TEST
243 -----
244
245 001406 000 MASK.A: .BYTE 000 ; LAST CHAR TO TEST AND PARITY MASK FOR LINES 00-03
246 001407 000 MASK.B: .BYTE 000 ; LAST CHAR TO TEST AND PARITY MASK FOR LINES 04-07
247 001410 000 MASK.C: .BYTE 000 ; LAST CHAR TO TEST AND PARITY MASK FOR LINES 08-11
248 001411 000 MASK.D: .BYTE 000 ; LAST CHAR TO TEST AND PARITY MASK FOR LINES 12-15
249
250 001412 010 CLK.A: .BYTE 8. ; NUMBER OF CLOCKS NEEDED FOR ONE CHAR FOR LINES 00-03
251 001413 010 CLK.B: .BYTE 8. ; NUMBER OF CLOCKS NEEDED FOR ONE CHAR FOR LINES 04-07
252 001414 010 CLK.C: .BYTE 8. ; NUMBER OF CLOCKS NEEDED FOR ONE CHAR FOR LINES 08-11
253 001415 010 CLK.D: .BYTE 8. ; NUMBER OF CLOCKS NEEDED FOR ONE CHAR FOR LINES 12-15
254
255 001416 000000 L00.03: 000000 ; PARAMETERS FOR LINES 00-03
256 001420 000000 L04.07: 000000 ; PARAMETERS FOR LINES 04-07
257 001422 000000 L08.11: 000000 ; PARAMETERS FOR LINES 08-11
258 001424 000000 L12.15: 000000 ; PARAMETERS FOR LINES 12-15
259
260 001426 000000 SYNC2A: 000000 ; SYNC 2
261 001430 000000 SYNC2B: 000000 ;
262 001432 000000 SYNC2C: 000000 ;
263 001434 000000 SYNC2D: 000000 ;

```

;SUMMARY

```

264 -----
265
266 : MASK.X 040 5 BITS PER CHAR.
267 : 100 6 BITS PER CHAR.
268 : 200 7 BITS PER CHAR.
269 : 000 8 BITS PER CHAR.
270
271 : CLK.X 005 5 BITS PER CHAR.
272 : 006 6 BITS PER CHAR.
273 : 007 7 BITS PER CHAR.
274 : 010 8 BITS PER CHAR.
275

```

PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

Address	Hex	Dec	Label	Value	Description
276					:DV11 STATUS TABLE AND ADDRESS ASSIGNMENTS
277					-----
278					
279		001500		. =1500	
280	001500	000001	DV.MAP:	.BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 00
281	001500	000001	DVCRO0:	.BLKW 1	:VECTOR "A" FOR DV11 NUMBER 00
282	001502	000001	DVTR00:	.BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 00
283	001504	000001	DV00.A:	.BLKW 1	:SYNC TWO
284	001506	000001	SYNA00:	.BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 00
285	001510	000001	DV00.B:	.BLKW 1	:SYNC TWO
286	001512	000001	SYNB00:	.BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 00
287	001514	000001	DV00.C:	.BLKW 1	:SYNC TWO
288	001516	000001	SYNC00:	.BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 00
289	001520	000001	DV00.D:	.BLKW 1	:SYNC TWO
290	001522	000001	SYND00:	.BLKW 1	
291					
292	001524	000001	DVCRO1:	.BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 01
293	001526	000001	DVTR01:	.BLKW 1	:VECTOR "A" FOR DV11 NUMBER 01
294	001530	000001	DV01.A:	.BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 01
295	001532	000001	SYNA01:	.BLKW 1	:SYNC TWO
296	001534	000001	DV01.B:	.BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 01
297	001536	000001	SYNB01:	.BLKW 1	:SYNC TWO
298	001540	000001	DV01.C:	.BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 01
299	001542	000001	SYNC01:	.BLKW 1	:SYNC TWO
300	001544	000001	DV01.D:	.BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 01
301	001546	000001	SYND01:	.BLKW 1	:SYNC TWO
302					
303	001550	000001	DVCRO2:	.BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 02
304	001552	000001	DVTR02:	.BLKW 1	:VECTOR "A" FOR DV11 NUMBER 02
305	001554	000001	DV02.A:	.BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 02
306	001556	000001	SYNA02:	.BLKW 1	:SYNC TWO
307	001560	000001	DV02.B:	.BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 02
308	001562	000001	SYNB02:	.BLKW 1	:SYNC TWO
309	001564	000001	DV02.C:	.BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 02
310	001566	000001	SYNC02:	.BLKW 1	:SYNC TWO
311	001570	000001	DV02.D:	.BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 02
312	001572	000001	SYND02:	.BLKW 1	:SYNC TWO
313					
314	001574	000001	DVCRO3:	.BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 03
315	001576	000001	DVTR03:	.BLKW 1	:VECTOR "A" FOR DV11 NUMBER 03
316	001600	000001	DV03.A:	.BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 03
317	001602	000001	SYNA03:	.BLKW 1	:SYNC TWO
318	001604	000001	DV03.B:	.BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 03
319	001606	000001	SYNB03:	.BLKW 1	:SYNC TWO
320	001610	000001	DV03.C:	.BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 03
321	001612	000001	SYNC03:	.BLKW 1	:SYNC TWO
322	001614	000001	DV03.D:	.BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 03
323	001616	000001	SYND03:	.BLKW 1	:SYNC TWO
324					
325	001620	000001	DVCRO4:	.BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 04
326	001622	000001	DVTR04:	.BLKW 1	:VECTOR "A" FOR DV11 NUMBER 04
327	001624	000001	DV04.A:	.BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 04
328	001626	000001	SYNA04:	.BLKW 1	:SYNC TWO
329	001630	000001	DV04.B:	.BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 04
330	001632	000001	SYNB04:	.BLKW 1	:SYNC TWO
331	001634	000001	DV04.C:	.BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 04

## PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

332	001636	000001	SYNCO4:	.BLKW 1	: SYNC TWO
333	001640	000001	DV04.D:	.BLKW 1	: PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 04
334	001642	000001	SYNDO4:	.BLKW 1	: SYNC TWO
335					
336	001644	000001	DVCR05:	.BLKW 1	: CONTROL STATUS REGISTER FOR DV11 NUMBER 05
337	001646	000001	DVTR05:	.BLKW 1	: VECTOR "A" FOR DV11 NUMBER 05
338	001650	000001	DV05.A:	.BLKW 1	: PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 05
339	001652	000001	SYNA05:	.BLKW 1	: SYNC TWO
340	001654	000001	DV05.B:	.BLKW 1	: PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 05
341	001656	000001	SYNB05:	.BLKW 1	: SYNC TWO
342	001660	000001	DV05.C:	.BLKW 1	: PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 05
343	001662	000001	SYNCO5:	.BLKW 1	: SYNC TWO
344	001664	000001	DV05.D:	.BLKW 1	: PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 05
345	001666	000001	SYNDO5:	.BLKW 1	: SYNC TWO
346					
347	001670	000001	DVCR06:	.BLKW 1	: CONTROL STATUS REGISTER FOR DV11 NUMBER 06
348	001672	000001	DVTR06:	.BLKW 1	: VECTOR "A" FOR DV11 NUMBER 06
349	001674	000001	DV06.A:	.BLKW 1	: PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 06
350	001676	000001	SYNA06:	.BLKW 1	: SYNC TWO
351	001700	000001	DV06.B:	.BLKW 1	: PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 06
352	001702	000001	SYNB06:	.BLKW 1	: SYNC TWO
353	001704	000001	DV06.C:	.BLKW 1	: PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 06
354	001706	000001	SYNCO6:	.BLKW 1	: SYNC TWO
355	001710	000001	DV06.D:	.BLKW 1	: PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 06
356	001712	000001	SYNDO6:	.BLKW 1	: SYNC TWO
357					
358	001714	000001	DVCR07:	.BLKW 1	: CONTROL STATUS REGISTER FOR DV11 NUMBER 07
359	001716	000001	DVTR07:	.BLKW 1	: VECTOR "A" FOR DV11 NUMBER 07
360	001720	000001	DV07.A:	.BLKW 1	: PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 07
361	001722	000001	SYNA07:	.BLKW 1	: SYNC TWO
362	001724	000001	DV07.B:	.BLKW 1	: PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 07
363	001726	000001	SYNB07:	.BLKW 1	: SYNC TWO
364	001730	000001	DV07.C:	.BLKW 1	: PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 07
365	001732	000001	SYNCO7:	.BLKW 1	: SYNC TWO
366	001734	000001	DV07.D:	.BLKW 1	: PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 07
367	001736	000001	SYNDO7:	.BLKW 1	: SYNC TWO
368					
369	001740	000000	DV.END:	000000	

```

370
371
372
373
374
375
376
377
378 001742 012737 000340 177776 .START: MOV #340,PS ;LOCK OUT INTERRUPTS
379 001750 012706 001200 MOV #STACK,SP ;SET UP STACK
380 001754 012737 004402 000024 MOV #.PFAIL,2#24 ;SET UP POWER FAIL VECTOR
381 001762 113737 001301 001303 MOV#B DVNUM,SAVNUM ;SAVE NUMBER OF DEVICES IN SYSTEM.
382 001770 005037 001230 CLR PASCNT ;CLEAR PASS COUNT
383 001774 105037 001311 CLR#B ERRFLG ;CLEAR ERROR FLAG
384 002000 105037 001313 CLR#B QV.FLG ;ZERO QUICK VERIFY FLAG
385 002004 012737 001500 001306 MOV #DV.MAP,CREAM ;GET MAP POINTER.
386 002012 112737 000001 001304 MOV#B #1,RUN ;POINT POINTER TO FIRST DEVICE.
387 002020 005037 001232 CLR ERACNT ;CLEAR ERROR COUNT
388 002024 005037 001234 CLR LSTERR ;CLEAR LAST ERROR POINTER
389 002030 012737 000001 001226 MOV #1,TSTNO ;SET UP FOR TEST 1
390 002036 012737 001742 001214 MOV #.START,RETURN ;SET UP FOR POWER FAIL BEFORE
391 ;TESTING STARTS
392 002044 105737 001310 TSTB INIFLG ;HAS INITIALIZATION BEEN PERFORMED
393 002050 001063 BNE 1$ ;BR IF YES
394 002052 013746 000004 MOV 4,-(SP)
395 002056 013746 000006 MOV 6,-(SP)
396 002062 005037 000006 CLR 6
397 002066 012737 002104 000004 MOV #80$,4
398 002074 005777 177102 TST 2$SWR
399 002100 000240 NOP
400 002102 000407 BR
401 002104 022626 CMP (SP)+,(SP)+
402 002106 012737 000174 001200 80$: MOV #LIGHT,LIGHTS
403 002114 012737 000176 001202 MOV #SSWR,$WR
404 002122 012637 000006 81$: MOV (SP)+,6
405 002126 012637 000004 MOV (SP)+,4
406 002132 104402 001000 TYPE #TITLE
407 002136 105137 001310 COMB #INIFLG
408 002142 105777 177034 TSTB 2$SWR
409 002146 100402 BMI 16$
410 002150 004737 006624 JSR PC,CSRMAP ;GO DO THE AUTO SIZE
411 002154 104402 005461 16$: TYPE #XHEAD ;TYPE HEADER
412 002160 012737 001500 001246 MOV #DV.MAP,TEMP1 ;SET POINTER
413 002166 017737 177054 001250 5$: MOV 2$TEMP1,TEMP2 ;SET DATA
414 002174 022737 177777 001250 CMP #177777,TEMP2 ;ALL DONE?
415 002202 001406 BEQ 1$ ;BR IF YES
416 002204 104410 CONVRT
417 002206 005506 XSTATQ
418 002210 062737 000002 001246 ADD #2,TEMP1 ;UPDATE POINTER
419 002216 000763 BR 5$
420 002220 005737 000042 1$: TST 2#42 ;IS PROGRAM RUNNING UNDER MONITOR
421 002224 001030 BNE 3$ ;BR IF YES
422 002226 032777 000001 176746 BIT #SW00,2$SWR ;SELECT SPECIFIC DEVICES??
423 002234 001424 BEQ 3$ ;BR IF NO.
424 002236 104402 005402 TYPE #MNEW ;TYPE THE MESSAGE.
425 002242 005000 CLR R0 ;ZERO DATA LIGHTS

```

```

426 002244 000000          HALT
427 002246 127737 176730 001302  CMPB  @SWR, SAVACT
428 002254 101404          BLOS  2$
429 002256 104402 005243      TYPE  , MERR3
430 002262 000000          HALT
431 002264 000776          BR    .-2
432 002266 117737 176710 001300 2$:  MOVB  @SWR, DVACTV
433 002274 113700 001300      MOVB  DVACTV, RO
434 002300 042700 177400      BIC   #'C(377)', RO
435 002304 000000          HALT
436 002306 012700 000300      3$:  MOV   #300, RO
437 002312 012701 000302      MOV   #302, R1
438 002316 010120          4$:  MOV   R1, (R0)+
439 002320 005021          CLR   (R1)+
440 002322 022021          CMP   (RO)+, (R1)+
441 002324 022700 001000      CMP   #1000, RO
442 002330 001372          BNE   4$
443
444
445          ; TEST START AND RESTART
446          -----
447 002332 012737 000340 177776 .BEGIN: MOV   #340, PS
448 002340 012706 001200      MOV   #STACK, SP
449 002344 005737 000042      TST   @#42
450 002350 001023          BNE   3$
451 002352 032777 000004 176622  BIT   #BIT2, @SWR
452 002360 001411          BEQ   1$
453 002362 104402 005301      TYPE  , MLOCK
454 002366 012737 000240 002702  MOV   #NOP, TTST
455 002374 012737 000240 002704  MOV   #NOP, TTST+2
456 002402 000406          BR    2$
457 002404 013737 003014 002702 1$:  MOV   BRW, TTST
458 002412 013737 003016 002704  MOV   BRX, TTST+2
459 002420          2$:
460 002420 012737 005666 001214 3$:  MOV   #CYCLE, RETURN
461 002426 104402 005171      4$:  TYPE  MR
462 002432 000177 176556      JMP   @RETURN

```

```

;WAIT FOR USER TO TELL WHAT DEVICES TO RUN
;IS THE NUMBER VALID?
;BR IF NUMBER IS OK.
;TELL USER OF INVALID NUMBER.
;STOP EVERY THING.
;RESTART THE PROGRAM AGAIN.
;GET NEW DEVICE PATTERN
;SHOW THE USER WHAT HE SELECTED.
;USE ONLY LOW BYTE.
;CONTINUE DYNAMIC SWITCHES.
;PREPARE TO CLEAR THE FLOATING
;VECTOR AREA. 300-776
;START PUTTING "PC+2 - HALT"
;IN VECTOR AREA.
;POP POINTERS
;ALL DONE??
;BR IF NO.

```

```

;LOCK OUT INTERRUPTS
;SET UP STACK
;IS PROGRAM UNDER MONITOR CONTROL
;BR IF YES
;CHECK FOR LOCK ON TEST
;BR IF NO LOCK DESIRED.
;TYPE LOCK SELECTED.
;ADJUST SCOPE ROUTINE.
;SET UP TO LOCK
;CONTINUE ALONG.
;PREPARE NORMAL SCOPE ROUTINE
;LOCK NOT SELECTED, SET UP FOR NORMAL SCOPE LOOP
;START AT "CYCLE" FIND WHICH DEVICE TO TEST
;TYPE R
;START TESTING

```

```

463 ;END OF PASS
464 ;TYPE NAME OF TEST
465 ;UPDATE PASS COUNT
466 ;CHECK FOR EXIT TO ACT-11
467 ;RESTART TEST
468
469 002436 000005 .EOP: RESET ;MAKE THE WORLD CLEAN AGAIN.
470 002440 005037 001234 CLR LSTERR ;CLEAR LAST ERROR PC
471 002444 105037 001311 CLR8 ERRFLG ;CLEAR ERROR FLAG
472 002450 005237 001230 INC PASCNT ;UPDATE PASS COUNT
473 002454 013777 001230 176516 MOV PASCNT,ALIGHTS ;DISPLAY PASS COUNT
474 002462 104402 005145 TYPE ,MEPASS ;TYPE END PASS
475 002466 104402 005330 TYPE ,MCSRX ;TYPE CSR
476 002472 104411 002604 CNVRT ,XCSR ;SHOW IT
477 002476 104402 005336 TYPE ,MVECX ;TYPE VECTOR
478 002502 104411 002612 CNVRT ,XVEC ;SHOW IT
479 002506 104402 005344 TYPE ,MPASSX ;TYPE PASSES
480 002512 104411 002620 CNVRT ,XPASS ;SHOW IT
481 002516 104402 005355 TYPE ,MERRX ;TYPE ERRORS
482 002522 104411 002626 CNVRT ,XERR ;SHOW IT
483 002526 105337 001303 DECB SAVNUM ;ARE ALL DEVICES TESTED?
484 002532 001017 BNE RESTR ;BR IF NO.
485 002534 112737 000377 001313 MOV8 #377,QV.FLG ;SET THE QUICK VERIFY FLAG.
486 002542 113737 001301 001303 MOV8 DVNUM,SAVNUM ;RESTORE THE COUNT
487 002550 013701 000042 MOV #42,R1 ;CHECK FOR ACT-11 OR DDP
488 002554 001406 BEQ RESTR ;IF NOT, CONTINUE TESTING
489 002556 000005 RESET ;STOP THE SHOW--CLEAR THE WORLD
490
491 002560 004711 LOGICAL: JSR PC,(R1)
492 002562 000240 NOP
493 002564 000240 NOP
494 002566 000240 NOP
495 002570 000240 NOP
496 002572 012737 005666 001214 RESTR: MOV #CYCLE,RETURN
497 002600 000137 005666 JMP CYCLE
498 002604 000001 XCSR: 1
499 002606 006 002 .BYTE 6,2
500 002610 001362 DVSCR
501 002612 000001 XVEC: 1
502 002614 003 002 .BYTE 3,2
503 002616 001352 DVRVEC
504 002620 000001 XPASS: 1
505 002622 006 002 .BYTE 6,2
506 002624 001230 PASCNT
507 002626 000001 XERR: 1
508 002630 006 002 .BYTE 6,2
509 002632 001232 ERRCNT
510
511 ;SCOPE LOOP AND INTERATION HANDLER
512 ;-----
513
514 002634 .SCOPE:
515 002634 022737 177570 001202 CMP #177570,SWR ;IS THERE A REAL SWR?
516 002642 001411 BEQ 64$ ;BR IF YES
517 002644 017746 176336 MOV @TKDBR,-(SP) ;SAVE KEYBOARD CHAR
518 002650 042716 000200 BIC #BIT7,(SP) ;CLEAR PARITY BIT

```

# K02

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SEQ 0023

GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

519 002654 122726 000007      CMPB    #7 (SP)+      ; WAS IT CNTRL 'G' ?
520 002660 001002          BNE     .+6          ; BR IF NO.
521 002662 004737 004640      JSR     PC, SERV.G  ; SERVICE "CNTRL 'G'".
522 002666 005037 001234      CLR     LSTERR      ; CLEAR LAST ERROR PC.
523 002672 010016          MOV     RD, (SP)    ; SAVE RD ON THE STACK.
524 002674 032777 040000 176300  BIT     #BIT14, @SWR ; "LOOP ON THIS TEST"?
525 002702 001407          BEQ     1$          ; BR IF NO. (IF LOCK SW01=1; THIS LOC =240)
526 002704 000437          BR     3$          ; GOTO 3$ (IF LOCK SW01=1; THIS LOC =240)
527 002706 105777 176272      TSTB   @TKCSR      ; KEYBOARD DONE?
528 002712 100034          BPL     @TKDBR, RD ; BR IF NO. (LOCK: HIT KEY TO GOTO NEXT TEST)
529 002714 017700 176266      MOV     @TKDBR, RD ; CLEAR DONE BIT
530 002720 000415          BR     2$          ; CONTINUE
531 002722 032777 004000 176252 1$: BIT     #SW11, @SWR ; DELETE ITERATION? (QUICK PASS)
532 002730 001011          BNE     2$          ; BR IF YES
533 002732 105737 001313      TSTB   @V.FLG      ; HAVE PASSES BEECOMPLETED?
534 002736 001406          BEQ     2$          ; BR IF QUICK PASS.
535 002740 005237 001224      INC     LPCNT      ; UPDATE ITERATION COUNTER
536 002744 023737 001224 001222  CMP     LPCNT, ICOUNT ; ARE ALL ITERATIONS DONE??
537 002752 001014          BNE     3$          ; BR IF NOT YET
538 002754 105037 001311      CLRB   ERRFLG      ; PREPARE FOR NEW TEST
539 002760 005037 001224      LPCNT  LPCNT      ; START ICOUNTER AT 0
540 002764 005037 001220      CLR     LOCK       ;
541 002770 012737 000024 001222  MOV     #20, ICOUNT ; RESET ITERATIONS
542 002776 013737 001216 001214  MOV     NEXT, RETURN ; GET NEXT TEST
543 003004 011600          MOV     (SP), RD   ; POP RD OFF OF THE STACK
544 003006 022626          POP2SP ; FAKE AN "RTI"
545 003010 000177 176200      JMP     @RETURN    ; GO DO THE TEST
546 003014 001407          BRW:   1407
547 003016 000437          BRX:   437
548
549
550      ; CHECK FOR FREEZE ON CURRENT DATA
551      -----
552 003020 032777 001000 176154 .SCOPI: BIT     #SW09, @SWR ; IS SW09=1 (SET)?
553 003026 001405          BEQ     1$          ; BR IF NOT SET.
554 003030 005737 001220      TST    LOCK
555 003034 001402          BEQ     1$
556 003036 013716 001220      MOV     LOCK, (SP) ; GOTO THE ADDRESS IN LOCK.
557 003042 000002          RTI     ; GO BACK.
558
559      ; TELETYPE OUTPUT ROUTINE
560      -----
561
562 003044 010546          .TYPE: MOV     R5, -(SP) ; SAVE R5 ON THE STACK.
563 003046 017605 000002      MOV     @2(SP), R5 ; GET ADDRESS OF MESSAGE.
564 003052 062766 000002 000002  ADD     #2, 2(SP)   ; POP OVER ADDRESS.
565 003060 032777 010000 176114 1$: BIT     #SW12, @SWR ; INHIBIT ALL PRINT OUT??
566 003066 001012          BNE     3$          ; BR IF NO PRINT OUT WANTED (SW12=1)
567 003070 105715          TSTB   (R5)        ; IS NUMBER MINUS? (MSB=1 (BIT7))
568 003072 100002          BPL     2$          ; BR IF NUMBER IS PLUS
569 003074 104402 005104      TYPE   MCR LF      ; TYPE A CR/LF!
570 003100 105777 176104      2$: TSTB   @TPCSR    ; TTY READY?
571 003104 100375          BPL     2$          ; BR IF NO.
572 003106 112577 176100      MOVB   (R5)+, @TPDBR ; PRINT CURRENT CHAR.
573 003112 001362          BNE     1$          ; IF NOT ZERO KEEP PRINTING!
574 003114 012605          3$: MOV     (SP)+, R5  ; END OF OUTPUT. RESTORE R5

```



GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

```

575 003116 000002 RTI ;GO HOME
576 ;-----
577
578 003120 010346 .INSTR: MOV R3,-(SP) ;SAVE R3 ON STACK
579 003122 010446 MOV R4,-(SP) ;SAVE R4 ON STACK
580 003124 017637 000004 003142 MOV 24(SP),MSG
581 003132 062766 000C02 000004 ADD #2,4(SP)
582 003140 104402 .INST1: TYPE
583 003142 000000 .MSG: 0
584 003144 012704 005520 MOV #INBUF,R4
585 003150 012703 000007 MOV #7,R3
586 003154 105777 176024 1$: TSTB 2TKCSR
587 003160 100375 BPL 1$
588 003162 117714 176020 MOVB 2TKOBR,(R4)
589 003166 142714 000200 BICB #200,(R4)
590 003172 122427 000015 CMPB (R4),#15
591 003176 001417 BEQ INSTR2
592 003200 105777 176004 2$: TSTB 2TPCSR
593 003204 100375 BPL 2$
594 003206 017777 175774 175776 MOV 2TKOBR,2TPOBR
595 003214 005303 DEC R3
596 003216 001356 BNE 1$
597 003220 012604 MOV (SP)+,R4
598 003222 012603 MOV (SP)+,R3
599 003224 104402 005100 .INSTE: TYPE MQM
600 003230 010346 MOV R3,-(SP)
601 003232 010446 MOV R4,-(SP)
602 003234 000741 BR .INST1
603 003236 012604 INSTR2: MOV (SP)+,R4 ;RESTORE R4
604 003240 012603 MOV (SP)+,R3 ;RESTORE R3
605 003242 000002 RTI
606
607 ;CONVERT ASCII STRING TO OCTAL
608 ;-----
609
610 003244 010546 .PARAM: MOV R5,-(SP)
611 003246 010446 MOV R4,-(SP)
612 003250 016605 000004 MOV 4(SP),R5
613 003254 012537 003434 MOV (R5)+,LOLIM
614 003260 012537 003436 MOV (R5)+,HILIM
615 003264 012537 003440 MOV (R5)+,DEVADR
616 003270 112537 003442 MOVB (R5)+,LOBITS
617 003274 112537 003443 MOVB (R5)+,ADRCNT
618 003300 010566 000004 MOV R5,4(SP)
619 003304 005005 PARAM1: CLR R5
620 003306 012704 005520 MOV #INBUF,R4
621 003312 122714 000015 CMPB #15,(R4)
622 003316 001420 BEQ PARERR
623 003320 121427 000060 1$: CMPB (R4),#60
624 003324 002415 BLT PARERR
625 003326 121427 000067 CMPB (R4),#67
626 003332 003012 BGT PARERR
627 003334 142714 000060 BICB #60,(R4)
628 003340 152405 BICB (R4)+,R5
629 003342 122714 000015 CMPB #15,(R4)
630 003346 001406 BEQ LIMITS
    
```

GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

```

631 003350 006305 ASL R5
632 003352 006305 ASL R5
633 003354 006305 ASL R5
634 003356 000760 BR 1$
635 003360 104404 PARERR: INSTER
636 003362 000750 BR PARAM1
637
638 ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
639 -----
640
641 003364 020537 003436 LIMITS: CMP R5,HILIM
642 003370 101373 BHI PARERR
643 003372 020537 003434 CMP R5,LOLIM
644 003376 103770 BLO PARERR
645 003400 133705 003442 BITB LOBITS,R5
646 003404 001365 BNE PARERR
647
648 ;STORE NUMBER AT SPECIFIED ADDRESS
649
650 003406 013704 003440 1$: MOV DEVADR,R4
651 003412 010524 MOV R5,(R4)+
652 003414 062705 000002 ADD #2,R5
653 003420 105337 003443 DECB ADRCNT
654 003424 001372 BNE 1$
655 003426 012604 MOV (SP)+,R4
656 003428 012605 MOV (SP)+,R5
657 003430 000002 RTI
658 003434 000000 LOLIM: 0
659 003436 000000 HILIM: 0
660 003440 000000 DEVADR: 0
661 003442 000000 LOBITS: 0
662 003443 003443 ADRCNT=LOBITS+1
663
664 ;SAVE PC OF TEST THAT FAILED AND RO-R5
665 -----
666
667 003444 016637 000004 001276 .SAV05: MOV 4(SP),SAVPC ;SAVE R7 (PC)
668
669 ;SAVE RO-R5
670
671 003452 010537 001272 SV05: MOV R5,SAVR5 ;SAVE R5
672 003456 010437 001270 MOV R4,SAVR4 ;SAVE R4
673 003462 010337 001266 MOV R3,SAVR3 ;SAVE R3
674 003466 010237 001264 MOV R2,SAVR2 ;SAVE R2
675 003472 010137 001262 MOV R1,SAVR1 ;SAVE R1
676 003476 010037 001260 MOV R0,SAVR0 ;SAVE R0
677 003502 000002 RTI ;LEAVE.
678
679 ;RESTORE RO-R5
680
681 003504 013700 001260 .RES05: MOV SAVR0,R0 ;RESTORE R0
682 003510 013701 001262 MOV SAVR1,R1 ;RESTORE R1
683 003514 013702 001264 MOV SAVR2,R2 ;RESTORE R2
684 003520 013703 001266 MOV SAVR3,R3 ;RESTORE R3
685 003524 013704 001270 MOV SAVR4,R4 ;RESTORE R4
686 003530 013705 001272 MOV SAVR5,R5 ;RESTORE R5

```

```

687 003534 000002          RTI          ;LEAVE
688
689                          ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
690                          ;-----
691
692 003536 104402 005104    .CONVR: TYPE      MCRLF
693 003542 010046          .CNVRT: MOV        R0,-(SP)
694 003544 010146          MOV        R1,-(SP)
695 003546 010346          MOV        R3,-(SP)
696 003550 010446          MOV        R4,-(SP)
697 003552 010546          MOV        R5,-(SP)
698 003554 017601 000012    MOV        @12(SP),R1
699 003560 062766 000002 000012  ADD        #2,12(SP)
700 003566 012137 003742    MOV        (R1)+,WRDCNT
701 003572 112137 003744    1$: MOVB     (R1)+,CHRCNT
702 003576 112137 003745    MOVB     (R1)+,SPACNT
703 003602 013137 003746    MOV        @2(R1)+,BINWRD
704 003606 013704 003746    2$: MOV        BINWRD,R4
705 003612 113705 003744    MOVB     CHRCNT,R5
706 003616 012700 005562    MOV        #TEMP,R0
707 003622 010403 005562    3$: MOV        R4,R3
708 003624 042703 177770    BIC        #177770,R3
709 003630 062703 000060    ADD        #060,R3
710 003634 110320          MOVB     R3,(R0)+
711 003636 000241          CLC
712 003640 006004          ROR        R4
713 003642 000241          CLC
714 003644 006004          ROR        R4
715 003646 000241          CLC
716 003650 006004          ROR        R4
717 003652 005305          DEC        R5
718 003654 001362          BNE        3$
719 003656 012703 005624    MOV        #MDATA,R3
720 003662 114023 005624    4$: MOVB     -(R0),(R3)+
721 003664 105337 003744    DECB     CHRCNT
722 003670 001374          BNE        4$
723 003672 105737 003745    TSTB     SPACNT
724 003676 001405          BEQ        6$
725 003700 112723 000040    5$: MOVB     #040,(R3)+
726 003704 105337 003745    DECB     SPACNT
727 003710 001373          BNE        5$
728 003712 105013 005624    6$: CLRB     (R3)
729 003714 104402 005624    TYPE     ,MDATA
730 003720 005337 003742    DEC        WRDCNT
731 003724 001322          BNE        1$
732 003726 012605          MOV        (SP)+,R5
733 003730 012604          MOV        (SP)+,R4
734 003732 012603          MOV        (SP)+,R3
735 003734 012601          MOV        (SP)+,R1
736 003736 012600          MOV        (SP)+,R0
737 003740 000002          RTI
738 003742 000000          WRDCNT: 0
739 003744 000000          CHRCNT: 0
740                          SPACNT=CHRCNT+1
741 003746 000000          BINWRD: 0
742
    
```

```

743
744
745
746
747
748
749 003750 011646 .TRPSR: MOV (SP), -(SP) ;GET PC OF RETURN
750 003752 162716 000002 SUB #2, (SP) ;=PC OF TRAP
751 003756 017616 000000 MOV @ (SP), (SP) ;GET TRP
752 003762 006316 TRPOK: ASL (SP) ;MULTIPLY TRAP ARG BY 2
753 003764 042716 177001 BIC #177001, (SP) ;CLEAR UNWANTED BITS
754 003770 062716 001314 ADD #.TRPTAB, (SP) ;POINTER TO SUBROUTINE ADDRESS
755 003774 017616 000000 MOV @ (SP), (SP) ;SUBROUTINE ADDRESS
756 004000 000136 JMP @ (SP)+ ;GO TO SUBROUTINE
757
758 ;ERROR HANDLER
759 -----
760
761 004002 .HLT:
762 004002 022737 177570 001202 CMP #177570, -WR ;IS THERE A REAL SWR?
763 004010 001411 BEQ 64$ ;BR IF YES
764 004012 017746 175170 MOV @TKDBR, -(SP) ;SAVE KEYBOARD CHAR
765 004016 042716 000200 BIC #BIT7, (SP) ;CLEAR PARITY BIT
766 004022 122726 000007 CMPB #7, (SP)+ ;WAS IT CNTRL 'G' ?
767 004026 001002 BNE .+6 ;BR IF NO.
768 004030 004737 004640 JSR PC, SERV.G ;SERVICE "CNTRL 'G'".
769 004034 032777 010000 175140 64$: BIT #SW12, @SWR ;BELL ON ERROR?
770 004042 001406 BEQ XB$ ;BR IF NO BELL
771 004044 105777 175140 TSTB @TPCSR ;TTY READY.
772 004050 100003 BPL XB$ ;DON'T WAIT IF TTY NOT READY.
773 004052 112777 000207 175132 MOVB #207, @TPDBR ;PUSH A BELL AT THE TTY.
774 004060 032777 020000 175114 XB$: BIT #SW13, @SWR ;DELETE ERROR PRINT OUT?
775 004066 001105 BNE HALTS ;BR IF NO PRINT OUT WANTED.
776 004070 021637 001234 CMP (SP), LSTERR ;WAS THIS ERROR FOUND LAST TIME?
777 004074 001404 BEQ 1$ ;BR IF YES
778 004076 011637 001234 MOV (SP), LSTERR ;RECORD BEING HERE
779 004102 105037 001311 CLRB ERRFLG ;PREPARE HEADER
780 004106 104406 1$: SAVOS ;SAVE ALL PROC REGISTERS
781 004110 011605 MOV (SP), R5 ;GET THE PC OF ERROR
782 004112 162705 000002 SUB #2, R5 ;GET ADDRESS OF TRAP CALL
783 004116 011504 MOV (R5), R4 ;GET HLT INSTRUCTION
784 004120 006304 ASL R4 ;MULT BY TWO
785 004122 061504 ADD (R5), R4 ;DOUBLE IT
786 004124 006304 ASL R4 ;MULT AGAIN
787 004126 042704 177001 BIC #177001, R4 ;CLEAR JUNK
788 004132 062704 034404 ADD #.ERRTAB, R4 ;GET POINTER
789 004136 012437 004252 MOV (R4)+, ERMSG ;GET ERROR MESSAGE
790 004142 012437 004264 MOV (R4)+, DATAHD ;GET DATA HEADRER
791 004146 011437 004276 MOV (R4), DATABP ;GET DATA TABLE
792 004152 105737 001311 TSTB ERRFLG ;TYPE HEADREER
793 004156 001403 BEQ TYPMSG ;BR IF YES
794 004160 005737 004276 TST DATABP ;DOES DATA TABLE EXIST?
795 004164 001040 BNE TYPDAT ;BR IF YES.
796 004166 104402 005104 TYPMSG: TYPE ,MCRLF
797 004172 104402 005104 TYPE ,MCRLF
798 004176 005737 001220 TST LOCK
    
```

GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

```

799 004202 001402 BEQ 1$
800 004204 104402 005400 *TYPE ,MASTEK
801 004210 104402 005366 1$: TYPE ,MTSTN
802 004214 104411 004374 CNVRT ,XTSTN ;SHOW IT
803 004220 104402 005454 TYPE ,MERRPC ;TYPE PC.
804 004224 104411 004366 CNVRT ,ERTABO ;SHOW IT
805 004230 104402 005104 TYPE ,MCKLF ;GIVE A CR/LF
806 004234 112737 177777 001311 MOVB #-1,ERRFLG ;NO MORE HEADER UNLESS NO DATA TABLE.
807 004242 005737 004252 TST ERRMSG ;IS THERE AN ERROR MESSAGE?
808 004246 001402 BEQ WRKO.FM ;BR IF NO.
809 004250 104402 TYPE ;TYPE
810 004252 000000 ERRMSG: 0 ;ERROR MESSAGE
811 004254 WRKO.FM: ;
812 004254 005737 004264 TST DATAHD ;DATA HEADER?
813 004260 001402 BEQ TYPDAT ;BR IF NO
814 004262 104402 TYPE ;TYPE
815 004264 000000 DATAHD: 0 ;DATA HEADER
816 004266 005737 004276 TYPDAT: TST DATABP ;DATA TABLE?
817 004272 001402 BEQ RESREG ;BR IF NO.
818 004274 104410 CNVRT ;SHOW
819 004276 000000 DATABP: 0 ;DATA TABLE
820 004300 104407 RESREG: RESOS ;RESTORE PROC REGISTERS
821 004302 005777 174674 TST ;SWR ;HALT ON ERROR?
822 004306 100005 HALTS: BPL EXITER ;BR IF NO HALT ON ERROR
823 004310 010046 PUSHRO ;SAVE RO
824 004312 016600 000002 MOV 2(SP),RO ;SHOW ERROR PC IN DATA LIGHTS
825 004316 000000 HALT ;HALT
826 004320 012600 POPRO ;GET RO
827 004322 005237 001232 EXITER: INC ERRCNT ;UPDATE ERROR COUNT
828 004326 032777 000400 174646 BIT #SWOB,SWR ;GOTO TOP OF TEST?
829 004334 001007 BNE 1$ ;BR IF YES
830 004336 032777 002000 174636 BIT #SW10,SWR ;GOTO NEXT TEST?
831 004344 001407 BEQ 2$ ;BR IF NO
832 004346 013737 001216 001214 1$: MOV NEXT,RETURN ;SET FOR NEXT TEST
833 004354 012706 001200 MOV #STACK,SP ;RESET SP
834 004360 000177 174630 JMP ;RETURN ;GOTO SPECIFIED TEST
835 004364 000002 2$: RTI ;RETURN
836 004366 000001 ERTABO: 1
837 004370 006 002 .BYTE 6,2
838 004372 001276 SAVPC
839 004374 000001 XTSTN: 1
840 004376 003 002 .BYTE 3,2
841 004400 001226 TSTNO
842 ;ENTER HERE ON POWER FAILURE
843 ;-----
844
845
846 004402 .PFAIL:
847 004402 012737 004414 000024 MOV #RESTART,24 ;SET UP FOR POWER UP TRAP
848 004410 000000 HALT ;HALT ON POWER DOWN NORMAL
849 004412 000777 BR .
850
851 ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
852
853 004414 RESTAR:
854 004414 012737 004402 000024 MOV #.PFAIL,24 ;SET UP FOR POWER FAILURE

```

GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

```

855 004422 012706 001200      MOV      #STACK,SP      ;RESET THE STACK POINTER
856 004426 005037 005562      CLR      TEMP           ;READY FOR TIMER
857 004432 005237 005562      INC      TEMP           ;PLUS ONE TO THE TIMER!
858 004436 001375      BNE     .-4             ;BR IF MORE TO GO
859 004440 104402 005107      TYPE    ,MPFAIL        ;TYPE THE MESSAGE
860 004444 104411 004470      CNVRT   ,PFTAB         ;TELL WHAT TEST TO RETURN TO.
861 004450 105037 001311      CLR     ERRFLG         ;START CLEAN
862 004454 005037 001234      CLR     LSTERR         ;.....
863 004460 104412      MSTCLR          ;START CLEAN UP OF DEVICE
864 004462 104413      RAMCLR          ;CLEAR IT ALL!
865 004464 000177 174524      JMP     @RETURN        ;START DOING THAT TEST AGAIN.
866 004470 000001      PFTAB: 1
867 004472 003      .BYTE 3,2
868 004474 001226      .DELAY: TSTNO
869 004476 010046      .MOV    RO,-(SP)
870 004500 013700 004514      .MOV    1$,RO
871 004504 005300      .DEC    RO
872 004506 001376      .BNE    .-2
873 004510 012600      .MOV    (SP)+,RO
874 004512 000002      .RTI
875 004514 000036      1$: 30.
876
877 004516      .RAMCLR:
878 004516 012777 004000 174636      .MOV    #MRESET,@DVSCR ;ISSUE A MASTER CLEAR
879 004524 010146      .MOV    R1,-(SP)        ;SAVE R1 ON THE STACK
880 004526 010446      .MOV    R4,-(SP)        ;SAVE R4 ON THE STACK
881 004530 013701 001372      .MOV    DVSR,R1         ;GET SECONDARY SEL. REG.
882 004534 013704 001376      .MOV    DVSRA,R4        ;GET SECONDARY REGISTER ACCESS REG.
883 004540 005014      1$: .CLR    (R4)         ;ZERO THE SECONDARY REGISTER.
884 004542 062711 170361      .ADD    #1<BIT11+BIT10+BIT9+BIT8+BIT3+BIT2+BIT1+BIT0>+BITC,(R1)
885 004546 001374      .BNE    1$
886 004550 012604      .MOV    (SP)+,R4        ;RESTORE R4
887 004552 012601      .MOV    (SP)+,R1        ;RESTORE R1
888 004554 000002      .RTI
889
890 004556      .MSTCLR:
891 004556 012777 004000 174576      .MOV    #MRESET,@DVSCR ;ISSUE MASTER CLEAR.
892 004564 000002      .RTI
893
894 004566      .ROMCLK:
895 004566 052777 000002 174566      .BIS    #BIT1,@DVSCR
896 004574 000002      .RTI
897
898 004576      .DATACLK:
899 004576 010046      .MOV    RO,-(SP)
900 004600 005000      .CLR    RO
901 004602 052777 000400 174560      .BIS    #BIT8,@DVLCR
902 004610 017737 174554 004636      1$: .MOV    @DVLCR,3$
903 004616 106037 004637      .RORB   3$+1
904 004622 103003      .BCC    2$
905 004624 005200      .INC    RO
906 004626 001370      .BNE    1$
907 004630 104000      .HLT
908 004632 012600      2$: .MOV    (SP)+,RO
909 004634 000002      .RTI
910 004636 000001      3$: .BLKW 1

```

E03

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911
912 004640 032777 004000 174236 SERV.G: BIT #4000,ATKCSR :RX BUSY?
913 004646 001374 BNE SERV.G :ER IF YES
914 004650 017737 174326 005072 MOV @SWR,90$ :SAVE (SWR).
915 004656 013777 005072 174316 1$: MOV 90$,@SWR
916 004664 104402 005052 TYPE :89$
917 004670 104411 005064 CNVRT :84$
918 004674 104402 005074 TYPE :91$
919 004700 105777 174300 TSTB @TKCSR :WAIT FOR DONE.
920 004704 100375 BPL -4
921 004706 017746 174274 MOV @TKDDB,-(SP)
922 004712 042716 000200 BIC #BIT7,(SP)
923 00471E 122726 000015 CMPB #15,(SP)+
924 004722 001450 BEQ 5$
925 004724 005077 174252 CLR @SWR
926 004730 105777 174254 2$: TSTB @TPCSR
927 004734 100375 BPL -4
928 004736 016677 177776 174246 MOV -2(SP),@TPDDB
929 004744 000241 CLC
930 004746 006177 174230 ROL @SWR
931 004752 006177 174224 ROL @SWR
932 004756 006177 174220 ROL @SWR
933 004762 103735 BCS 1$ ERROR
934 004764 026627 177776 000060 CMP -2(SP),#60
935 004772 002731 BLT 1$
936 004774 026627 177776 000067 CMP -2(SP),#67
937 005002 003325 BGT 1$
938 005004 042766 177770 177776 BIC #C(7),-2(SP)
939 005012 056677 177776 174162 BIS -2(SP),@SWR
940 005020 105777 174160 TSTB @TKCSR
941 005024 100375 BPL -4
942 005026 017746 174154 MOV @TKDDB,-(SP)
943 005032 042716 000200 BIC #BIT7,(SP)
944 005036 122726 000015 CMPB #15,(SP)+
945 005042 001332 BNE 2$
946 005044 104402 005104 5$: TYPE MCRLF
947 005050 000207 RTS PC
948
949 005052 020377 051450 051127 89$: .ASCIZ <377>? (SWR)=/?
950 005060 036451 000057
951 .EVEN
952 005064 000001 88$: 1
953 005066 006 000 .BYTE 6,0
954 005070 005072 90$: .WORD 0
955 005072 000000 91$: .ASCIZ ?/=/?
956 005074 036457 000057 .EVEN
957
958 005100 020040 000077 MCM: .ASCIZ / ?/
(2) 005104 005015 000 MCRLF: .ASCIZ <15><12>
(2) 005107 377 053520 020122 MPFAIL: .ASCIZ <377>/PWR FAILED. RESTART AT TEST /
(2) 005145 377 047105 020104 MEPASS: .ASCIZ <377>/END PASS CZDVDCO /
(2) 005171 377 000122 MR: .ASCIZ <377>/R/
(2) 005174 050377 047522 051107 MERR2: .ASCIZ <377>/PROGRAM INDICATES NO DEVICES PRESENT./
(2) 005243 377 047111 052523 MERR3: .ASCIZ <377>/INSUFFICIENT DATA!/
(2) 005267 377 042524 052123 MTSTPC: .ASCIZ <377>/TEST PC-/
(2) 005301 377 047514 045503 MLOCK: .ASCIZ <377>/LOCK ON SELECTED TEST/

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F03

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SEQ 0031

GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

```

(2) 005330 051503 035122 000040 MCSRX: .ASCIZ /CSR: /
(2) 005336 042526 035103 000040 MVECX: .ASCIZ /VEC: /
(2) 005344 040520 051523 051505 MPASSX: .ASCIZ /PASSES: /
(2) 005355 105 051122 051117 MERRX: .ASCIZ /ERRORS: /
(2) 005366 042524 052123 047040 MTSTN: .ASCIZ /TEST NO: /
(2) 005400 000052 MASTEK: .ASCIZ /*/
(2) 005402 051777 052105 051440 MNEW: .ASCIZ <37> /SET SWITCH REG TO DV11'S DESIRED ACTIVE./
(2) 005454 041520 020072 000 MERRPC: .ASCIZ /PC: /
(2) 005461 377 040515 020120 XHEAD: .ASCIZ <377> /MAP OF DV11 STATUS<<377./
(2) 005506 000002 .EVEN
(2) 005510 006 003 XSTATQ: 2
959 005512 001246 .BYTE 6,3
960 005514 006 002 .TEMP1
961 005516 001250 .BYTE 6,2
962 .EVEN
963 .TEMP2
964 ;BUFFERS FOR INPUT-OUTPUT
965
966
967 005520 000000 INBUF: 0
968 005562 .=. +40
969 005562 000000 TEMP: 0
970 005624 .=. +40
971 005624 000000 MDATA: 0
972 005666 .=. +40

```



```

973
974
975      ; ROUTINE USED TO "CYCLE" THROUGH UP TO EIGHT DV11'S
976      ; THIS ROUTINE SETS UP THE CONTROL ADDRESS FOR THE DIAGNOSTIC
977      ; AND RUNS THE SPECIFIED DV11'S.  THIS ROUTINE *MUST*
978      ; BE RUN FIRST BEFORE ENTERING THE DIAGNOSTIC FOR THE
979      ; SETUP NECESSARY.
980
981
982      CYCLE:  TSTB   DVACTV   ; ARE ANY DV11'S TO BE TESTED?
983      BNE     1$      ; BR IF OK.
984      TYPE   ,MERR2   ; NO DV11'S SELECTED!!
985      HALT                               ; STOP THE SHOW.
986      BR     -2      ; DISQUALIFY CONT. SW.
987      BITB   RUN,DVACTV ; IS THIS ONE "ACTIVE"
988      BNE     2$      ; BR IF GOOD ONE FOUND.
989      CLC                               ; CLEAR PROC. CARRY BIT.
990      ROLB   RUN      ; UPDATE POINTER
991      ADCB   RUN      ; CATCH CARRY FROM RUN
992      ADD    #24,CREAM ; UPDATE ADDRESS POINTER.
993      CMP    #DV.END,CREAM
994      BNE     1$      ; KEEP GOING; NOT ALL TESTED FOR.
995      MOV    #DV.MAP,CREAM ; RESET ADDRESS POINTER.
996      BR     1$      ; KEEP LOOKING FOR ACTIVE DV11
997      CLC                               ; CLEAR PROC. CARRY.
998      ROLB   RUN      ; UPDATE POINTER.
999      ADCB   RUN      ; CATCH CARRY.
1000     MOV    CREAM,RO  ; GET ADDRESS POINTER.
1001     ADD    #24,CREAM ; UPDATE.
1002     CMP    #DV.END,CREAM
1003
1004     BNE     3$      ; ALL DONE?
1005     MOV    #DV.MAP,CREAM ; BR IF NO.
1006     MOV    (RO)+,DVSCR  ; RESTORE POINTER.
1007     MOV    (RO)+,DVRVEC ; LOAD SYSTEM CTRL. REG
1008     MOV    (RO)+,LO0.03 ; LOAD VECTOR
1009     MOV    (RO)+,SYNC2A ; GET LINE PARAMETERS. 00-03
1010     MOV    (RO)+,LO4.07 ;                               04-07
1011     MOV    (RO)+,SYNC2B ;                               08-11
1012     MOV    (RO)+,LO8.11 ;                               12-15
1013     MOV    (RO)+,SYNC2C ;
1014     MOV    (RO)+,L12.15 ;
1015     MOV    (RO)+,SYNC2D ;
1016     MOV    #2,RO     ; SAVE CORE THIS WAY!
1017     MOV    DVSCR,DVSCRH ; GET SYS CTRL. REG HIGH BYTE.
1018     INC    DVSCRH    ; GOT IT.
1019     MOV    DVSCRH,DVRIC ; GET NXT REC. CHAR REG.
1020     INC    DVRIC     ; GOT IT
1021     MOV    DVRIC,DVLCR ; GET LN. PAR.REG.
1022     ADD    RO,DVLCR  ; GOT IT
1023     MOV    DVLCR,DVSRS ; GET SEC. REG. SEL. REG.
1024     ADD    RO,DVSRS  ; GOT IT
1025     MOV    DVSRS,DVSRSH ; GET HIGH BYTE.
1026     INC    DVSRSH   ; GOT IT
1027     MOV    DVSRSH,DVSRA ; SEC. REG. ACCESS.
1028     INC    DVSRA    ; GOT IT

```

GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

1029	006166	013737	001376	001400		MOV	DVSRA, DVSFR	; SPEC. FUN. REG.
1030	006174	060037	001400			ADD	RO, DVSFR	:
1031	006200	013737	001400	001402		MOV	DVSFR, DVNSR	; NPR STAT. REG.
1032	006206	060037	001402			ADD	RO, DVNSR	:
1033	006212	013737	001402	001404		MOV	DVNSR, RESV16	; RESERVED REG
1034	006220	060037	001404			ADD	RO, RESV16	:
1035								
1036	006224	013737	001352	001354		MOV	DVRVEC, DVRLVL	; PTY LVL
1037	006232	060037	001354			ADD	RO, DVRLVL	:
1038	006236	013737	001354	001356		MOV	DVRLVL, DVTVEC	; TX VEC
1039	006244	060037	001356			ADD	RO, DVTVEC	:
1040	006250	013737	001356	001360		MOV	DVTVEC, DVTLVL	; TX LVL
1041	006256	060037	001360			ADD	RO, DVTLVL	:
1042								
1043	006262	012700	001416			MOV	#L00.03, RO	; LOAD STAU 00-03
1044	006266	012701	001406			MOV	#MASK.A, R1	; PREPARE MASK.
1045	006272	012702	001412			MOV	#CLK.A, R2	; PREPARE CLOCKS
1046	006276	004737	006516			JSR	PC, FIX.00	; GO AND CALCULATE CONFIGURATION.
1047								
1048	006302	012700	001420			MOV	#L04.07, RO	; LOAD STAU 00-03
1049	006306	012701	001407			MOV	#MASK.B, R1	; PREPARE MASK.
1050	006312	012702	001413			MOV	#CLK.B, R2	; PREPARE CLOCKS
1051	006316	004737	006516			JSR	PC, FIX.00	; GO AND CALCULATE CONFIGURATION.
1052								
1053	006322	012700	001422			MOV	#L08.11, RO	; LOAD STAU 00-03
1054	006326	012701	001410			MOV	#MASK.C, R1	; PREPARE MASK.
1055	006332	012702	001414			MOV	#CLK.C, R2	; PREPARE CLOCKS
1056	006336	004737	006516			JSR	PC, FIX.00	; GO AND CALCULATE CONFIGURATION.
1057								
1058	006342	012700	001424			MOV	#L12.15, RO	; LOAD STAU 00-03
1059	006346	012701	001411			MOV	#MASK.D, R1	; PREPARE MASK.
1060	006352	012702	001415			MOV	#CLK.D, R2	; PREPARE CLOCKS
1061	006356	004737	006516			JSR	PC, FIX.00	; GO AND CALCULATE CONFIGURATION.
1062	006362	032777	000002	172612		BIT	#SW01, QSWR	
1063	006370	001445				BEQ	7\$	
1064	006372				4\$:			
1065	006372	005737	000042			TST	Q#42	
1066	006376	001042				BNE	7\$	
1067	006400	104402	005104			TYPE	, MCRLF	
1068	006404	104403				INSTR		
1069	006406	005366				MTSTN		
1070	006410	104405				PARAM		
1071	006412	000001				1		
1072	006414	001000				1000		
1073	006416	001226				TSTNO		
1074	006420	000				0		
1075	006421	001				1		
1076	006422	012700	007256			MOV	#TST1, RO	
1077	006426	022710			5\$:	CMP	(PC)+, (RO)	
1078	006430	012737				MOV	(PC)+, Q(PC)+	
1079	006432	001015				BNE	6\$	
1080	006434	023760	001226	000002		CMP	TSTNO, 2(RO)	
1081	006442	001011				BNE	6\$	
1082	006444	022760	001226	000004		CMP	#TSTNO, 4(RO)	
1083	006452	001005				BNE	6\$	
1084	006454	010037	001214			MOV	RO, RETURN	

GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

1085 006460 104402 005104          TYPE      MCRLF
1086 006464 000412          BR        8$
1087 006466 005720          6$:      TST      (R0)+
1088 006470 020027 021152          CMP      RD, #TLAST+10
1089 006474 001354          BNE      5$
1090 006476 104402 005104          TYPE      MQM
1091 006502 000733          BR        4$
1092 006504 012737 007256 001214 7$:      MOV      #TST1 RETURN ; PREPARE RETURN ADDRESS
1093 006512 000177 172476          8$:      JMP      @RETURN ; GO START TESTING.
1094
1095 006516 011003          FIX.00: MOV      (R0), R3 ; GET PARAMETERS.
1096 006520 042703 176377          BIC      #C<1400>, R3 ; CLEAR JUNK.
1097 006524 005703          TST      R3 ; TEST FOR EIGHT BITS.
1098 006526 001004          BNE      1$ ; BR IF NOT 8 BITS.
1099 006530 105011          CLR      (R1) ; SET
1100 006532 112712 000010          MOV      #8., (R2) ;
1101 006536 000424          BR        4$ ;
1102 006540 022703 000400          1$:      CMP      #400, R3 ; CHECK FOR SEVEN BITS.
1103 006544 001005          BNE      2$ ; BR IF NOT 7 BITS.
1104 006546 112711 000200          MOV      #200, (R1) ;
1105 006552 112712 000007          MOV      #7, (R2) ;
1106 006556 000414          BR        4$ ;
1107 006560 022703 001000          2$:      CMP      #1000, R3 ; CHECK FOR SIX BITS.
1108 006564 001005          BNE      3$ ; BR IF NOT SIX BITS.
1109 006566 112711 000300          MOV      #300, (R1) ;
1110 006572 112712 000006          MOV      #6, (R2) ;
1111 006576 000404          BR        4$ ;
1112 006600 112711 000340          3$:      MOV      #340, (R1) ; IF NONE OF THE ABOVE: MUST BE 5 BITS.
1113 006604 112712 000005          MOV      #5, (R2) ;
1114 006610 032710 040000          4$:      BIT      #PARBIT, (R0) ; PARITY ENABLED?
1115 006614 001401          BEQ      5$ ; IF =0: THEN NO PARITY.
1116 006616 105212          INCB    (R2) ; PLUS ONE TO THE CLOCK!
1117 006620 000207          5$:      RTS      PC ;
1118
1119          ; *ROUTINE USED TO "AUTO SIZE" THE DV11
1120          ; *CSR AND VECTOR.
1121          ; *NOTE: THE CSR MAY BE ANY WHERE IN THE FLOATING
1122          ; * ADDRESS RANGE (175000:175400)
1123          ; * AND THE VECTOR MAY BE ANY WHERE IN THE
1124          ; * FLOATING VECTOR RANGE (300:770)
1125          ; *
1126
1127          AUTO.SIZE:
1128 006622 000005          RESET
1129 006624 012702 001500          CSRMAP: MOV      #DV.MAP, R2 ; INSURE A BUS INIT.
1130 006630 005022          1$:      CLR      (R2)+ ; LOAD MAP POINTER.
1131 006632 022702 001740          CMP      #DV.END, R2 ; ZERO ENTIRE MAP
1132 006636 001374          BNE      1$ ; ALL DONE?
1133 006640 105037 001301          CLR      DVNUM ; SET OCTAL NUMBER OF DV11'S TO 0
1134 006644 012702 001500          MOV      #DV.MAP, R2 ;
1135 006650 012701 175000          MOV      #175000, R1 ; SET FOR FIRST ADDRESS TO BE TESTED
1136 006654 012737 007074 000004          MOV      #6$, @#4 ; SET FOR NON-EXISTANT DEVICE TIME OUT
1137 006662 005711          2$:      TST      (R1) ; IF DV11 DVSCR S/B 0
1138 006664 001037          BNE      3$ ; IF NO DEV ; TRAP TO 4. IF NO BIT 8 THEN NO DV11
1139 006666 022761 177777 000012          CMP      #177777, 12(R1) ; IF DV11 THEN DVSCR S/B ALL 1'S ON INIT!
1140 006674 001033          BNE      3$ ; BR IF NOT DV11
    
```

GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

1141 006676 005761 000016          TST      16(R1)          ; IF DV11 THEN RESV16 S/B ALL 0'S
1142 006702 001030          BNE      3$             ; BR IF NOT DV11
1143          ; AT THIS POINT IT IS ASSUMED THAT R1 HOLDS A DV11 CSR ADDRESS.
1144 006704 010122          MOV      R1, (R2)+      ; STORE CSR IN CORE TABLE.
1145 006706 005722          TST      (R2)+          ; POP OVER VECTOR STORE AREA
1146 006710 052722 070226          BIS      #226, (R2)+    ; SET LINE CARD 1 STAT AND SYNC
1147 006714 052722 C70062          BIS      #62, (R2)+    ;
1148 006720 052722 0J0226          BIS      #226, (R2)+    ; SET LINE CARD 2 STAT AND SYNC
1149 006724 052722 000062          BIS      #62, (R2)+    ;
1150 006730 052722 000226          BIS      #226, (R2)+    ; SET LINE CARD 3 STAT AND SYNC
1151 006734 052722 000062          BIS      #62, (R2)+    ;
1152 006740 052722 000226          BIS      #226, (R2)+    ; SET LINE CARD 4 STAT AND SYNC
1153 006744 052722 000062          BIS      #62, (R2)+    ;
1154 006750 105237 001301          INCB     DVNUM          ; UPDATE DEVICE COUNTER
1155 006754 122737 000010 001301          CMPB     #10, DVNUM     ; ARE MAX. NO. OF DEV FOUND?
1156 006762 001405          BEQ      100$          ; YES DON'T LOOK FOR ANY IJRE.
1157 006764 062701 000010 3$:          ADD      #10, R1        ; UPDATE CSR POINTER ADDRESS
1158 006770 022701 175400          CMP      #175400, R1   ;
1159 006774 001332          BNE      2$             ; BR IF MORE ADDRESS TO CHECK.
1160 006776 012722 177777 100$:          MOV      #177777, (R2)+ ; TERMINATER.
1161 007002 105037 001300          CLRB     DVACTV        ;
1162 007006 105737 001301          TSTB     DVNUM          ; WERE ANY DV11'S FOUND AT ALL?
1163 007012 001423          BEQ      5$             ; ERROR AUTO SIZER FOUND NO DV11'S IN THIS SYS.
1164 007014 113701 001301          MOVB     DVNUM, R1      ;
1165 007020 110137 001303          MOVB     R1, SAVNUM     ; SAVE NUMBER OF DEVICES
1166 007024 000241 4$:          CLC          ;
1167 007026 106137 001300          ROLB     DVACTV        ; GENERATE ACTIVE REGISTER OF DEVICES.
1168 007032 105237 001300          INCB     DVACTV        ; SET THE BIT
1169 007036 005301          DEC      R1             ;
1170 007040 001371          BNE      4$             ; BR IF MORE TO GENERATE
1171 007042 012737 000006 000004          MOV      #6, #4        ; RESTORE TRAP VECTOR
1172 007050 113737 001300 001302          MOVB     DVACTV, SAVACT ; SAVE ACTIVE REGISTER
1173 007056 000137 007102          JMP      VECMAP        ; GO FIND THE VECTOR NOW.
1174 007062 104402 005174 5$:          TYPE     MERR2        ; NOTIFY OPR THAT NO DV11'S FOUND.
1175 007066 005000          CLR      RO            ; MAKE DATA LIGHTS ZERO
1176 007070 000000          HALT          ; STOP THE SHOW
1177 007072 000776          BR       -2            ; DISABLE CONT. SW.
1178 007074 012716 006764 6$:          MOV      #3$, (SP)     ; ENTERED BY NON-EXISTANT TIME-OUT.
1179 007100 000002          RTI          ; RETURN TO MAINSTREAM
1180
1181 007102 012737 000340 000022 VECMAP: MOV      #340, #22      ; SET IOT TRAP PRIO TO 7
1182 007110 012737 007232 000020          MOV      #4$, #20      ; SET IOT TRAP VECTOR
1183 007116 C12702 001500          MOV      #DV.MAP, R2    ; SET SOFTWARE POINTER
1184 007122 012700 000300          MOV      #300, RO       ; FLOATING VECTORS START HERE.
1185 007126 012701 000302          MOV      #302, R1       ; PC OF IOT INSTR.
1186 007132 010120 1$:          MOV      R1, (R0)+      ; START FILLING VECTOR AREA
1187 007134 012721 000004          MOV      #4, (R1)+      ; WITH .+2; IOT
1188 007140 022021          CMP      (R0)+, (R1)+   ; ADD 2 TO RO +R1
1189 007142 020127 001000          CMP      R1, #1000     ;
1190 007146 101771          BLOS     1$             ; BR IF MORE TO FILL
1191 007150 113737 001300 001246          MOVB     DVACTV, TEMP1  ; STORE TEMPORALLY
1192 007156 006037 001246 2$:          ROR      TEMP1         ; BRING OUT A BIT
1193 007162 103034          BCC      5$             ; BR IF ALL DONE
1194 007164 005037 177776          CLR      PS            ; ZERO CPU PRIO
1195 007170 012772 001300 000000          MOV      #BIT9+BIT7+BIT6, #2(R2)
1196 007176 005000          CLR      RO            ; ATTEMPT TO FORCE AN INTERRUPT
    
```

# K03

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SEG 0036

GENERAL UTILITIES (TYPE OUT,ERROR,SCOPE,ETC.)

1197	007200	005200				INC	R0	:STALL
1198	007202	001376				BNE	.-2	: FOR TIME TO INTERRUPT
1199	007204	052762	000300	000002		BIS	#300,2(R2)	:NO INTERRUPT ASSUME 300 AND FIX DV11 LATER
1200	007212	042772	176777	000000	3\$:	BIC	#1C<BIT9>,2(R2)	
1201	007220	005072	000000			CLR	2(R2)	
1202	007224	062702	000024			ADD	#24,R2	:POP SOFTWARE POINTER
1203	007230	000752				BR	2\$	:KEEP GOING
1204	007232	051662	000002		4\$:	BIS	(SP),2(R2)	:GET VECTOR ADDRESS
1205	007236	042762	000007	000002		BIC	#7,2(R2)	:CLEAR JUNK
1206	007244	022626				CMP	(SP)+,(SP)+	:POP IOT JUNK OFF STACK
1207	007246	012716	007212			MOV	#3\$,(SP)	:SET FOR RETURN
1208	007252	000002				RTI		
1209	007254	000207			5\$:	RTS	PC	:ALL DONE WITH "AUTO SIZING"
1210								

```

1211
1212
1213
1214
1215
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1218
1219
1220 007256 012737 000001 001226
1221 007264 012737 007664 001216
1222 007272 012700 000000
1223 007276 013737 001416 001236
1224 007304 100402
1225 007306 004737 007374
1226 007312 012700 000004
1227 007316 013737 001420 001236
1228 007324 100402
1229 007326 004737 007374
1230 007332 012700 000010
1231 007336 013737 001422 001236
1232 007344 100402
1233 007346 004737 007374
1234 007352 012700 000014
1235 007356 013737 001424 001236
1236 007364 100402
1237 007366 004737 007374
1238 007372 104400
1239 007374
1240 007374 012737 007422 001220
1241 007402 104413
1242 007404 005003
1243 007406 005001
1244 007410 112737 000025 022560
1245 007416 012702 000004
1246 007422 110137 023605
1247 007426 010077 171740
1248 007432 004537 022120
1249 007436 000 001
1250 007440 022560
1251 007442 177777
1252 007444 004537 022120
1253 007450 013 010
1254 007452 000004
1255 007454 023560
1256 007456 004537 022120
1257 007462 014 014
1258 007464 000000
1259 007466 000000
1260 007470 032737 004000 001236
1261 007476 001407
1262 007500 004537 022164
1263 007504 015000
1264 007506 004537 022164
1265 007512 072000
1266

```

```

***** TEST 1 *****
*TEST OF TRANSMITTER CONTROL BYTES.
*TEST OF "NEXT MODE" FOR TRANSMITTER.
*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
*****

```

TEST 1

```

-----
1ST1: MOV #1,TSTNO
      MOV #TST2,NEXT
      MOV #0,R0
      MOV L00.03,STAT
      BMI 100$
      JSR PC,105$
100$: MOV #4,R0
      MOV L04.07,STAT
      BMI 101$
      JSR PC,105$
101$: MOV #8,R0
      MOV L08.11,STAT
      BMI 102$
      JSR PC,105$
102$: MOV #12,R0
      MOV L12.15,STAT
      BMI 103$
      JSR PC,105$
103$: SCOPE
105$: SCOPE THIS TEST.
      TEST ENTRANCE.
      SET IF SW09=1 (LOCK)
      CLEAR ALL SEC REGISTERS
      SET IMAGE EXPECTED MODE=0
      SET IMAGE "NEXT MODE"=0
      SET TX DATA CHAR
      SET FOR 4 LINE GROUP
      LOAD CONTROL BYTE(MODE)
      LOAD LINE NUMBER
      TX PRINCIPLE BA, PRINCIPLE BC
      LINE STATE, CNTRL TABLE
      TXGO
      TX MODE REG
      MAKE
      IT=0
      #IS THIS ASYNC LINE CARD?
      #BR IF NO.
      #
      #B BITS/PER/CHAR
      #
      #9600 BAUD.

```

M03

```

1267 007514 000403          BR          61$
1268 007516 004537 022164    60$:  PERFORM  LOAD.MODE      ;LOAD
1269 007522 014000          BIT12+BIT11 ;MODE
1270 007524 012737 000340 177776 61$:  MOV      #340,PS      ;LOCK OUT INTERUPTS
1271 007532 012777 007574 171616    MOV      #3$,ADVTVEC    ;SET TRANS VECTOR
1272 007540 012777 000340 171612    MOV      #340,ADVTLVL   ;LOAD PRIO
1273 007546 052777 020001 171606    BIS      #BIT13+BIT0,ADVSCR ;SET STATUS IE AND UCPL GO.
1274 007554 005005          CLR      R5             ;WAIT
1275 007556 104414          DELAY                    ;STALL FOR TIME
1276 007560 005037 177776    CLR      PS             ;ALLOW ITERUPTS (NSR ENTRY)
1277 007564 005205          INC      R5             ;ENTRY
1278 007566 001373          BNE     2$
1279 007570 104000          HLT
1280 007572 024646          CMP      -(SP),-(SP)    ;NO SILO ENTRY (DVSCR 15 NOT=1)
1281 007574 042777 020000 171560 3$:  BIC      #BIT13,ADVSCR  ;FAKE INTERRUPT BECAUSE NO REAL ONE HAPPENED.
1282 007602 005037 177776    CLR      PS             ;CLR IE
1283 007606 022626          CMP      (SP)+,(SP)+   ;ZERO PSW
1284 007610 112777 000014 171556    MOVB    #14,ADVSRSH    ;FAKE AN RTI
1285 007616 017704          MOV     ADVSRA,R4      ;SEL TX MODE REGISTER
1286 007622 010305          MOV     R3,R5         ;READ MODE REG.
1287 007624 020504          CMP     R5,R4         ;SET EXPECTED
1288 007626 001401          BEQ     4$            ;WAS "NEXT MODE" LOADED CORRECTLY?
1289 007630 104003          HLT                    ;BR IF YES
1290 007632 104412          MSTCLR 3              ;TX MODE REGISTER WRONG
1291 007634 104401          SCOPI                    ;INIT DV11
1292 007636 005203          INC     R3             ;LOCK ON MODE LOCK ON LINE?
1293 007640 062701 000040    ADD     #BITS,R1      ;UPDATE EXPECTED MODE
1294 007644 105701          TSTB   R1             ;UPDATE CNTRL BYTE IMAGE
1295 007646 001665          BEQ     1$            ;ALL DONE??
1296 007650 005001          CLR     R1            ;BR IF NO
1297 007652 005003          CLR     R3            ;ZERO EXPECTE MODE
1298 007654 005200          INC     R0            ;ZERO CNTRL BYTE MODE
1299 007656 005302          DEC     R2            ;UPDATE LINE NO POINTER
1300 007660 001260          BNE     1$            ;4 LINES DONE
1301 007662 000207          RTS      PC           ;BR IF YES
1302
1303
1304
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1313
1314 007664 012737 000002 001226 ;-----
1315 007672 012737 010430 001216 1ST2: MOV     #2,TSTNO
1316 007700 012700 000000          MOV     #TST3,NEXT
1317 007704 113737 001406 001244    MOV     MASK.A,MASKX   ;PLACE LINE NUMBER INTO R0
1318 007712 013737 001416 001236    MOV     L00.03,STAT    ;PLACE "MASK"FOR CHARS INTO MASKX
1319 007720 100402          BMI     100$          ;LOAD LINE CARD STATUS INTO STAT
1320 007722 004737 010032          JSR     PC,105$       ;BR IF LINE CARD NOT TO BE TESTED
1321 007726 012700 000004          MOV     #4,R0         ;GO DO THE TEST FOR LINE CARD 1
1322 007732 113737 001407 001244 100$: MOV     MASK.B,MASKX   ;PLACE LINE NUMBER INTO R0
                                ;GET MASK

```

```

;***** TEST 2 *****
;TEST OF TRANSMITTER IDLE FUNCTIONS.
;TEST THAT THE TRANSMITTER WILL IDLE
;SYNC (IDLE) CHARS WHEN BIT 0 OF
;DLE/PROTOCOL REGISTER IS CLEARED.
;THIS TEST IS DONE FOR SYNC LINE CARDS ONLY.
;*****

```

; TEST 2

```

;-----
1ST2: MOV     #2,TSTNO
      MOV     #TST3,NEXT
      MOV     MASK.A,MASKX   ;PLACE LINE NUMBER INTO R0
      MOV     L00.03,STAT    ;PLACE "MASK"FOR CHARS INTO MASKX
      BMI     100$          ;LOAD LINE CARD STATUS INTO STAT
      JSR     PC,105$       ;BR IF LINE CARD NOT TO BE TESTED
100$: MOV     #4,R0         ;GO DO THE TEST FOR LINE CARD 1
      MOV     MASK.B,MASKX   ;PLACE LINE NUMBER INTO R0
                                ;GET MASK

```

1323	007740	013737	001420	001236	MOV	L04.07,STAT	:LOAD LINE CARD STATUS INTO STAT
1324	007746	100402			BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
1325	007750	004737	010032		JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
1326	007754	012700	000010		101\$:	MOV #8.,R0	:LOAD LINE NUMBER
1327	007760	113737	001410	001244	MOV	MASK.C,MASKX	:GET MASK
1328	007766	013737	001422	001236	MOV	L08.11,STAT	:LOAD LINE CARD STATUS INTO STAT
1329	007774	100402			BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
1330	007776	004737	010032		JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
1331	010002	012700	000014		102\$:	MOV #12.,R0	:LOAD LINE NO.
1332	010006	113737	001411	001244	MOV	MASK.D,MASKX	:GET MASK
1333	010014	013737	001424	001236	MOV	L12.15,STAT	:LOAD LINE CARD STATUS
1334	010022	100402			BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
1335	010024	004737	010032		JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
1336	010030	104400			103\$:	SCOPE	:SCOPE THIS TEST.
1337	010032				105\$:		:TEST ENTRANCE.
1338	010032	032737	004000	001236	BIT	#ASYNC,STAT	:IS THIS AN ASYNC LINE CARD?
1339	010040	001401			BEQ	.+4	:BR IF NOT ASYNC.
1340	010042	000207			RTS	PC	:EXIT TEST. (ASYNC LINE CARD NOT TESTED)
1341	010044	012737	010116	001220	MOV	#3\$,LOCK	:SET FOR RETURN IF SW09=1
1342	010052	104413			RAMCLR		:CLEAR ALL SEC REGISTERS
1343	010054	012705	023560		MOV	#TXTAB,R5	:CLEAR
1344	010060	012704	030160		MOV	#RXTAB,R4	:RECEIVER
1345	010064	005001			CLR	R1	:AND
1346	010066	005025			15:	CLR (R5)+	:TRANSMITTER
1347	010070	005024			CLR	(R4)+	:CONTROL
1348	010072	105201			INCB	R1	:TABLES
1349	010074	100374			BPL	1\$	
1350	010076	012737	000001	022560	MOV	#1,TXBAP	:LOAD TX
1351	010104	112737	000015	022561	MOV	#15,TXBAP+1	:DTA
1352	010112	012702	000004		MOV	#4,R2	:SET FOR 4 LINE GROUP
1353	010116	010077	171250		35:	MOV R0,ADVSR5	:LOAD LINE NUMBER
1354	010122	005037	027560		CLR	RXBA	:CLEAR
1355	010126	005037	027562		CLR	RXBA+2	:RECEIVER
1356	010132	005037	027564		CLR	RXBA+4	:BUFFER
1357	010136	032737	004000	001236	BIT	#ASYNC,STAT	:IS THIS AN ASYNC LINE CARD?
1358	010144	001406			BEQ	80\$	:BR IF NOT ASYNC.
1359	010146	004537	022120		PERFORM	SETREG	:ADJUST FOR ASYNC LINE CARD
1360	010152	000	001		.BYTE	000,001	:REGISTERS
1361	010154	022560			TXBAP		:LOAD FOR ASYNC
1362	010156	177776			-2		:LOAD FOR ASYNC
1363	010160	000405			BR	81\$	:CONTINUE TEST
1364	010162	004537	022120		80\$:	PERFORM SETREG	
1365	010166	000	001		.BYTE	000,001	:TX PRINCIPLE BA, PRINCIPLE BC
1366	010170	022556			SYNC		
1367	010172	177774			-4		
1368	010174	004537	022120		81\$:	PERFORM SETREG	
1369	010200	004	005		.BYTE	004,005	:RX BA, RX BC
1370	010202	027560			RXBA		
1371	010204	177772			-6		
1372	010206	004537	022120		PERFORM	SETREG	
1373	010212	010	011		.BYTE	010,011	:TX TABLE, RXTABLE
1374	010214	023560			TXTAB		
1375	010216	030160			RXTAB		
1376	010220	004537	022120		PERFORM	SETREG	
1377	010224	013	012		.BYTE	013,012	:LINE STATE, LINE PROTOCOL
1378	010226	000004			BIT2		:TX GOOD



1379	010230	000000			0		:DEFAULT-IDLE SYNC
1380	010232	032737	004000	001236	BIT	#ASYNC,STAT	:#IS THIS ASYNC LINE CARD?
1381	010240	001412			BEQ	60\$	:#BR IF NO.
1382	010242	004537	022164		PERFORM	,LOAD.MODE	:#LOAD PARAMETERS.
1383	010246	020000			BIT13		:#RECEIVER ENABLE
1384	010250	004537	022164		PERFORM	LOAD.MODE	:#
1385	010254	015000			<BIT12+BIT11>+BIT9		:#B BITS/PER/CHAR
1386	010256	004537	022164		PERFORM	LOAD.MODE	:#
1387	010262	072000			<BIT14+BIT13+BIT12>+BIT10		:#9600 BAUD.
1388							
1389	010264	000405			BR	4\$	
1390	010266	004537	022164	60\$:	PERFORM	LOAD.MODE	:LOAD
1391	010272	034000			BIT13+BIT12+BIT11		:MODE AND RX ENABLE
1392	010274	004537	021706		PERFORM	SETSINC	:GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
1393	010300	005277	171056	4\$:	INC	0DVSCR	:SET MICRO CPU GO
1394	010304	105777	171052		TSTB	0DVSCR	:WAIT FOR
1395	010310	100375			BPL	-4	:DVSCRO7=1
1396	010312	005004			CLR	R4	
1397	010314	012705	000001		MOV	#1,R5	:SET EXPECTED
1398	010320	113704	027560		MOVB	RXBA,R4	:READ 1ST CHAR
1399	010324	020504			CMP	R5,R4	:OK?
1400	010326	001401			BEQ	5\$	
1401	010330	104001			HLT	1	:1ST CHAR S/8=1!
1402	010332	112705	000015	5\$:	MOVB	#15,R5	:SET EXPECTED
1403	010336	113704	027561		MOVB	RXBA+1,R4	:GET 2ND CHAR
1404	010342	020504			CMP	R5,R4	
1405	010344	001401			BEQ	6\$	
1406	010346	104001			HLT	1	:2ND CHAR S/B=15
1407	010350			6\$:			
1408	010350	113705	001236		MOVB	STAT,R5	:SET EXPECTED=SYNC CHAR
1409	010354	042705	177400		BIC	#C<377>,R5	:CLEAR HIGH BYTE
1410	010360	143705	001244		BICB	MASKX,R5	:CLEAR BITS/PER/CHAR MASK.
1411	010364	012703	000004		MOV	#4,R3	:SET TO LOOK AT 4 CHARS
1412	010370	012701	027562		MOV	#RXBA+2,R1	:GET RX DATA POINTER
1413	010374	112104		7\$:	MOVB	(R1)+,R4	:GET FOUND DATA
1414	010376	042704	177400		BIC	#C<377>,R4	:CLEAN HIGH BYTE
1415	010402	020504			CMP	R5,R4	
1416	010404	001401			BEQ	8\$	
1417	010406	104001			HLT	1	:TRANSMITTER IDLED WRONG
1418	010410	005303		8\$:	DEC	R3	:4 CHARS CHECKED?
1419	010412	001370			BNE	7\$	:BR IF NO
1420	010414	104412			MSTCLR		:INIT DV11
1421	010416	104401			SCOPI		:LOCK ON LINE?
1422	010420	005200			INC	R0	:UPDATE LINE POINTER
1423	010422	005302			DEC	R2	:4 LINE GROUP DONE?
1424	010424	001234			BNE	3\$	:BR IF NO
1425	010426	000207			RTS	PC	:EXIT FOR NEXT GROUP

```

1426
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1434
:***** TEST 3 *****
:*TEST OF TRANSMITTER IDLE FUNCTIONS.
:*TEST THAT THE TRANSMITTER WILL IDLE
:*MARK STATE (377) WHEN BIT0 IS
:*SET IN THE DLE/PROTOCOL REGISTER.
:*THIS TEST IS DONE FOR SYNC LINE CARDS ONLY.
:*****

```

```

1435
1436 ; TEST 3
1437 -----
1438 010430 012737 000003 001226 †ST3: MOV #3,TSTNO
1439 010436 012737 011174 001216 MOV #TST4,NEXT
1440 010444 012700 000000 MOV #0.,RO ;PLACE LINE NUMBER INTO RO
1441 010450 113737 001406 001244 MOV#B MASK.A,MASKX ;PLACE "MASK"FOR CHARS INTO MASKX
1442 010456 013737 001416 001236 MOV L00.03,STAT ;LOAD LINE CARD STATUS INTO STAT
1443 010464 100402 BMI 100$ ;BR IF LINE CARD NOT TO BE TESTED
1444 010466 004737 010576 JSR PC,105$ ;GO DO THE TEST FOR LINE CARD 1
1445 010472 012700 000004 100$: MOV #4.,RO ;PLACE LINE NUMBER INTO RO
1446 010476 113737 001407 001244 MOV#B MASK.B,MASKX ;GET MASK
1447 010504 013737 001420 001236 MOV L04.07,STAT ;LOAD LINE CARD STATUS INTO STAT
1448 010512 100402 BMI 101$ ;BR IF LINE CARD NOT TO BE TESTED
1449 010514 004737 010576 JSR PC,105$ ;GO DO THE TEST FOR LINE CARD 2
1450 010520 012700 000010 101$: MOV #8.,RO ;LOAD LINE NUMBER
1451 010524 113737 001410 001244 MOV#B MASK.C,MASKX ;GET MASK
1452 010532 013737 001422 001236 MOV L08.11,STAT ;LOAD LINE CARD STATUS INTO STAT
1453 010540 100402 BMI 102$ ;BR IF LINE CARD NOT TO BE TESTED
1454 010542 004737 010576 JSR PC,105$ ;DO THE TEST FOR LINE CARD 3
1455 010546 012700 000014 102$: MOV #12.,RO ;LOAD LINE NO.
1456 010552 113737 001411 001244 MOV#B MASK.D,MASKX ;GET MASKK
1457 010560 013737 001424 001236 MOV L12.15,STAT ;LOAD LINE CARD STATUS
1458 010566 100402 BMI 103$ ;BR IF LINE CARD NOT TO BE TESTED
1459 010570 004737 010576 JSR PC,105$ ;DO THE TESTS FOR LINE CARD 4
1460 010574 104400 103$: SCOPE ;SCOPE THIS TEST.
1461 010576 105$: ;TEST ENTRANCE.
1462 010576 032737 004000 001236 BIT #ASYNC,STAT ;IS THIS AN ASYNC LINE CARD?
1463 010604 001401 BEQ .+4 ;BR IF NOT ASYNC.
1464 010606 000207 RTS PC ;EXIT TEST. (ASYNC LINE CARD NOT TESTED)
1465 010610 012737 010662 001220 MOV #3$,LOCK ;SET FOR RETURN IF SW09=1
1466 010616 104413 RAMCLR ;CLEAR ALL SEC REGISTERS
1467 010620 012705 023560 MOV #TXTAB,R5 ;CLEAR
1468 010624 012704 030160 MOV #RXTAB,R4 ;RECEIVER
1469 010630 005001 CLR R1 ;AND
1470 010632 005025 1$: CLR (R5)+ ;TRANSMITTER
1471 010634 005024 CLR (R4)+ ;CONTROL
1472 010636 105201 INCB R1 ;TABLES
1473 010640 100374 BPL 1$ ;LOAD TX
1474 010642 012737 000001 022560 MOV #1,TXBAP ;DTA
1475 010650 112737 000015 022561 MOV#B #1$,TXBAP+1 ;SET FOR 4 LINE GROUP
1476 010656 012702 000004 MOV #4,R2 ;LOAD LINE NUMBER
1477 010662 010077 170504 3$: MOV RO,ADVSR5 ;CLEAR
1478 010666 005037 027560 CLR RXBA ;RECEIVER
1479 010672 005037 027562 CLR RXBA+2 ;BUFFER
1480 010676 005037 027564 CLR RXBA+4 ;IS THIS AN ASYNC LINE CARD?
1481 010702 032737 004000 001236 BIT #ASYNC,STAT ;BR IF NOT ASYNC.
1482 010710 001406 BEQ 80$ ;ADJUST FOR ASYNC LINE CARD
1483 010712 004537 022120 PERFORM SETREG ;REGISTERS
1484 010716 000 001 .BYTE 000,001 ;LOAD FOR ASYNC
1485 010720 022560 TXBAP -2 ;LOAD FOR ASYNC
1486 010722 177776 BR 81$ ;CONTINUE TEST
1487 010724 000405 80$: PERFORM SETREG ;TX PRINCIPLE BA, PRINCIPLE BC
1488 010726 004537 022120 .BYTE 000,001
1489 010732 000 001 SYNC
1490 010734 022556
    
```

1491	010736	177774								
1492	010740	004537	022120	81\$:	PERFORM SETREG					
1493	010744	004	005		.BYTE 004,005					RX BA, RX BC
1494	010746	027560			AXBA					
1495	010750	177772			-6					
1496	010752	004537	022120		PERFORM SETREG					
1497	010756	010	011		.BYTE 010,011					TX TABLE, RXTABLE
1498	010760	023560			TXTAB					
1499	010762	030160			RXTAB					
1500	010764	004537	022120		PERFORM SETREG					
1501	010770	013	012		.BYTE 013,012					LINE STATE, LINE PROTOCOL
1502	010772	000004			BIT2					TX GOOD
1503	010774	000001			BIT0					IDLE MARK ON BYTE CNT=0
1504	010776	032737	004000	001236	BIT	#ASYNC, STAT				#IS THIS ASYNC LINE CARD?
1505	011004	001412			BEQ 60\$					#BR IF NO.
1506	011006	004537	022164		PERFORM LOAD.MODE					#LOAD PARAMETERS.
1507	011012	020000			BIT13					#RECEIVER ENABLE
1508	011014	004537	022164		PERFORM LOAD.MODE					#
1509	011020	015000			<BIT12+BIT11>+BIT9					#8 BITS/PER/CHAR
1510	011022	004537	022164		PERFORM LOAD.MODE					#
1511	011026	072000			<BIT14+BIT13+BIT12>+BIT10					#9600 BAUD.
1512										
1513	011030	000405			BR 4\$					
1514	011032	004537	022164	60\$:	PERFORM LOAD.MODE					:LOAD
1515	011036	034000			BIT13+BIT12+BIT11					:MODE AND RX ENABLE
1516	011040	004537	021706		PERFORM SETSYNC					:GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
1517	011044	005277	170312	4\$:	INC DVSCR					:SET MICRO CPU GO
1518	011050	105777	170306		TSTB DVSCR					:WAIT FOR
1519	011054	100375			BPL -4					:DVSCR07=1
1520	011056	005004			CLR R4					
1521	011060	012705	000001		MOV #1,R5					:SET EXPECTED
1522	011064	113704	027560		MOVB RXBA,R4					:READ 1ST CHAR
1523	011070	020504			CMP R5,R4					:OK?
1524	011072	001401			BEQ 5\$					
1525	011074	104001			HLT 1					:1ST CHAR S/B=1!
1526	011076	112705	000015	5\$:	MOVB #15,R5					:SET EXPECTED
1527	011102	113704	027561		MOVB RXBA+1,R4					:GET 2ND CHAR
1528	011106	020504			CMP R5,R4					
1529	011110	001401			BEQ 6\$					
1530	011112	104001			HLT 1					:2ND CHAR S/B=15
1531	011114			6\$:						
1532	011114	012705	000377		MOV #377,R5					:SET EXPECTED=MARK CHAR
1533	011120	042705	177400		BIC #C<377>,R5					:CLEAR HIGH BYTE
1534	011124	143705	001244		BICB MASKX,R5					:CLEAR BITS/PER/CHAR MASK.
1535	011130	012703	000004		MOV #4,R3					:SET TO LOOK AT 4 CHARS
1536	011134	012701	027562		MOV #RXBA+2,R1					:GET RX DATA POINTER
1537	011140	112104		7\$:	MOVB (R1),R4					:GET FOUND DATA
1538	011142	042704	177400		BIC #C<377>,R4					:CLEAN HIGH BYTE
1539	011146	020504			CMP R5,R4					
1540	011150	001401			BEQ 8\$					
1541	011152	104001			HLT 1					:TRANSMITTER IDLED WRONG
1542	011154	005303		8\$:	DEC R3					:4 CHARS CHECKED?
1543	011156	001370			BNE 7\$					:BR IF NO
1544	011160	104412			MSTCLR					:INIT DV11
1545	011162	104401			SCOPI					:LOCK ON LINE?
1546	011164	005200			INC R0					:UPDATE LINE POINTER

1547 011166 005302  
1548 011170 001234  
1549 011172 000207  
1550  
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1552  
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1570

DEC R2 ;4 LINE GROUP DONE?  
BNE 3\$ ;BR IF NO  
RTS PC ;EXIT FOR NEXT GROUP

\*\*\*\*\* TEST 4 \*\*\*\*\*  
\*TEST OF RECEIVER CONTROL BYTE OPERATIONS.  
\*TEST OF THE "STORE/DISCARD" FUNCTIONS.  
\*TEST THAT CHARS:  
\* 25 STORED  
\* 23 DISCARDED  
\* 31 STORED  
\* 32 DISCARDED  
\*SINCE TWO CHRS SHOULD BE THROWN AWAY;  
\*THE TX LINE IS SET TO GO BACK TO A MARK STATE;  
\*THEREFORE THE RX BUFFER S/B:  
\*RXBA 31,25  
\* 377,377  
\*(AT 8 BITS PER CHAR)  
\*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.  
\*\*\*\*\*

; TEST 4

1571 011174 012737 000004 001226  
1572 011202 012737 012004 001216  
1573 011210 012700 000000  
1574 011214 113737 001406 001244  
1575 011222 013737 001416 001236  
1576 011230 100402  
1577 011232 004737 011342  
1578 011236 012700 000004  
1579 011242 113737 001407 001244  
1580 011250 013737 001420 001236  
1581 011256 100402  
1582 011260 004737 011342  
1583 011264 012700 000010  
1584 011270 113737 001410 001244  
1585 011276 013737 001422 001236  
1586 011304 100402  
1587 011306 004737 011342  
1588 011312 012700 000014  
1589 011316 113737 001411 001244  
1590 011324 013737 001424 001236  
1591 011332 100402  
1592 011334 004737 011342  
1593 011340 104400  
1594 011342  
1595 011342 012737 011442 001220  
1596 011350 104413  
1597 011352 105037 023605  
1598 011356 105037 023603  
1599 011362 105037 023611  
1600 011366 105037 023612  
1601 011372 105037 024157  
1602 011376 012705 022560

TST4: MOV #4,TSTNO  
MOV #TST5,NEXT  
MOV #0,R0  
MOVB MASK.A,MASKX  
MOV LO0.03,STAT  
BMI 100\$  
JSR PC,105\$  
100\$: MOV #4,R0  
MOVB MASK.B,MASKX  
MOV LO4.07,STAT  
BMI 101\$  
JSR PC,105\$  
101\$: MOV #8,R0  
MOVB MASK.C,MASKX  
MOV LO8.11,STAT  
BMI 102\$  
JSR PC,105\$  
102\$: MOV #12,R0  
MOVB MASK.D,MASKX  
MOV L12.15,STAT  
BMI 103\$  
JSR PC,105\$  
103\$: SCOPE  
105\$: MOV #15,LOCK  
RAMCLR  
CLRB TXTAB+25  
CLRB TXTAB+23  
CLRB TXTAB+31  
CLRB TXTAB+32  
CLRB TXTAB+377  
MOV #TXBAP,R5

; PLACE LINE NUMBER INTO R0  
; PLACE "MASK" FOR CHARS INTO MASKX  
; LOAD LINE CARD STATUS INTO STAT  
; BR IF LINE CARD NOT TO BE TESTED  
; GO DO THE TEST FOR LINE CARD 1  
; PLACE LINE NUMBER INTO R0  
; GET MASK  
; LOAD LINE CARD STATUS INTO STAT  
; BR IF LINE CARD NOT TO BE TESTED  
; GO DO THE TEST FOR LINE CARD 2  
; LOAD LINE NUMBER  
; GET MASK  
; LOAD LINE CARD STATUS INTO STAT  
; BR IF LINE CARD NOT TO BE TESTED  
; DO THE TEST FOR LINE CARD 3  
; LOAD LINE NO.  
; GET MASK  
; LOAD LINE CARD STATUS  
; BR IF LINE CARD NOT TO BE TESTED  
; DO THE TESTS FOR LINE CARD 4  
; SCOPE THIS TEST.  
; TEST ENTRANCE.  
; SET RETURN IF SW09=1  
; CLEAR ALL DV11 SEC REGISTERS  
; ZERO  
; USED CONTROL BYTES  
; FOR TRANSMITTER  
; LOAD

# F04

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DV11 DEVICE DIAGNOSTICS. COPYRIGHT 1975 DIGITAL EQUIP. CORP.

SEQ 0044

1603	011402	012725				MOV	(PC)+,(R5)+	:TRANSMITTER
1604	011404	025	023			.BYTE	25,23	:DATA
1605	011406	012715				MOV	(PC)+,(R5)	:CHARS
1606	011410	031	032			.BYTE	31,32	
1607	011412	112737	000020	030203		MOVB	#BIT4,RXTAB+23	:DSCARC
1608	011420	112737	000020	030212		MOVB	#BIT4,RXTAB+32	:DSCARC
1609	011426	105037	030205			CLRB	RXTAB+25	:DEFAULT-STORE
1610	011432	105037	030211			CLRB	RXTAB+31	:DEFAULT-STORE
1611	011436	012702	000004			MOV	#4,R2	:SET FOR 4 LINE GROUP
1612	011442	010077	167724		1\$:	MOV	R0,ADVSR5	:LOAD LINE NO.
1613	011446	005037	027560			CLR	RXBA	:MAKE SURE
1614	011452	005037	027562			CLR	RXBA+2	:RX BUFFER=0
1615	011456	032737	004000	001236		BIT	#ASYNC,STAT	:#IS THIS AN ASYNC LINE CARD?
1616	011464	001406				BEQ	80\$	:#BR IF NOT ASYNC.
1617	011466	004537	022120			PERFORM	SETREG	:#ADJUST FOR ASYNC LINE CARD
1618	011472	000	001			.BYTE	000,001	:#REGISTERS
1619	011474	022560				TXBAP		:#LOAD FOR ASYNC
1620	011476	177774				-4		:#LOAD FOR ASYNC
1621	011500	000405				BR	81\$	:#CONTINUE TEST
1622	011502	004537	022120		80\$:	PERFORM	SETREG	
1623	011506	000	001			.BYTE	000,001	:TX PRINCIPLE BA, PRINCIPLE BC
1624	011510	022556				SYNC		:SYNC CHAR
1625	011512	177772				-6		:2 SYNC, 4 DATA=6
1626	011514				81\$:			
1627	011514	032737	004000	001236		BIT	#ASYNC,STAT	:#IS THIS AN ASYNC LINE CARD?
1628	011522	001406				BEQ	82\$	:#BR IF NOT ASYNC.
1629	011524	004537	022120			PERFORM	SETREG	:#ADJUST FOR ASYNC LINE CARD
1630	011530	004	005			.BYTE	004,005	:#REGISTERS
1631	011532	027560				RXBA		:#LOAD FOR ASYNC
1632	011534	177776				-2		:#LOAD FOR ASYNC
1633	011536	000405				BR	83\$	:#CONTINUE TEST
1634	011540	004537	022120		82\$:	PERFORM	SETREG	
1635	011544	004	005			.BYTE	004,005	:RXBA, RXBC
1636	011546	027560				RXBA		
1637	011550	177774				-4		
1638	011552	004537	022120		83\$:	PERFORM	SETREG	
1639	011556	010	011			.BYTE	010,011	:TX TABLE, RX TABLE
1640	011560	023560				TXTAB		
1641	011562	030160				RXTAB		
1642	011564	004537	022120			PERFORM	SETREG	
1643	011570	013	012			.BYTE	013,012	:LINE STATE, LINE PROTOCOL
1644	011572	000004				BIT2		:TX GO
1645	011574	000001				BIT0		:IDLE MARK ON BYTE COUNTS=0
1646	011576	032737	004000	001236		BIT	#ASYNC,STAT	:#IS THIS ASYNC LINE CARD?
1647	011604	001412				BEQ	60\$	:#BR IF NO.
1648	011606	004537	022164			PERFORM	LOAD.MODE	:#LOAD PARAMETERS.
1649	011612	020000				BIT13		:#RECEIVER ENABLE
1650	011614	004537	022164			PERFORM	LOAD.MODE	
1651	011620	015000				<BIT12+BIT11>+BIT9		:#8 BITS/PER/CHAR
1652	011622	004537	022164			PERFORM	LOAD.MODE	
1653	011626	072000				<BIT14+BIT13+BIT12>+BIT10		:#9600 BAUD.
1654								
1655	011630	000405				BR	2\$	
1656	011632	004537	022164		60\$:	PERFORM	LOAD.MODE	:LOAD
1657	011636	034000				BIT13+BIT12+BIT11		:MODE+RX ENABLE
1658	011640	004537	021706			PERFORM	SETSINC	:GET SYNC CHARS AND ADJUST FOR ONE OR TWO.

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1659 011644 005277 167512      2$:  INC      DVSCR      ;SET MICRO CPU GO
1660 011650 005005                CLR      R5           ;DELAY
1661 011652 105777 167504      3$:  TSTB     DVSCR      ;FOR
1662 011656 100404                BMI      4$          ;RX INTERRUPT (BIT 7)
1663 011660 104414                DELAY                    ;WASTE TIME
1664 011662 005205                INC      R5           ;KEEP COUNTING.
1665 011664 001372                BNE     3$           ;BR
1666 011666 104000                HLT                                ;BIT 7 OF DVSCR NOT SET!
1667 011670                4$:
1668 011670 012705 000025      MOV      #25,R5      ;SET EXPECTED
1669 011674 113704 027560      MOVB    RXBA,R4     ;GET FOUND
1670 011700 020504                CMP     R5,R4       ;OK?
1671 011702 001401                BEQ     5$          ;
1672 011704 104002                HLT      2          ;'25' NOT FIRST IN RX BUFFER
1673 011706 012705 000031      5$:  MOV      #31,R5     ;NEXT CHAR S/B '31'
1674 011712 113704 027561      MOVB    RXBA+1,R4   ;GET NEXT CHAR
1675 011716 120504                CMPB   R5,R4       ;OK
1676 011720 001401                BEQ     6$          ;
1677 011722 104002                HLT      2          ;'31' NOT SECOND IN RX BUFFER
1678 011724 032737 004000 001236 6$:  BIT     #ASYNC,STAT ;'IS THIS AN ASYNC LINE CARD?'
1679 011732 001016                BNE     8$          ;#BR IF YES.
1680 011734 112705 000377      MOVB    #377,R5     ;MARK=377 (NEXT CHAR)
1681
1682
1683 011740 143705 001244      BICB    MASKX,R5    ;CLEAR BITS/PER/CHAR MASK.
1684 011744 113704 027562      MOVB    RXBA+2,R4   ;GET FOUND
1685 011750 120504                CMPB   R5,R4       ;OK
1686 011752 001401                BEQ     7$          ;
1687 011754 104002                HLT      2          ;EITHER TX NOT AT MARK (377) OR RX WRONG.
1688 011756 113704 027563      7$:  MOVB    RXBA+3,R4   ;NEXT CHAR
1689 011762 120504                CMPB   R5,R4       ;
1690 011764 001401                BEQ     8$          ;
1691 011766 104002                HLT      2          ;IF ABOVE PASSED; RX WRONG!
1692 011770 104412                8$:  MSTCLR                    ;INIT DV11
1693 011772 104401                SCOPI                    ;LOCK ON CURRENT LINE?
1694 011774 005200                INC     RD          ;UPDATE LINE POINTER
1695 011776 005302                DEC     R2          ;4 LINES DONE?
1696 012000 001220                BNE     1$          ;BR IF NO
1697 012002 000207                RTS      PC         ;EXIT FOR NEXT GROUP

```

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1698
1699
1700      ;***** TEST 5 *****
1701      ;*TEST OF RECEIVER CONTROL BYTE OPERATIONS.
1702      ;*TEST OF THE "INCLUDE IN BCC YES/NO FUNCTION"
1703      ;*TEST THAT THE CHAR "031" IS INCLUDED
1704      ;*IN THE BCC WHEN AT:
1705      ;*LRCB
1706      ;*CRC16
1707      ;*CRC.CCITT
1708      ;*THE RECEIVER BCC STARTS AT 0 AND CALCULATES
1709      ;*ONLY ONE CHAR (31).
1710      ;*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
1711      ;*****

```

```

1712      ; TEST 5
1713      ;-----
1714

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1771 012310 005277 167046      INC      @DVSCR      ; SET MICRO CPU GO
1772 012314 105777 167042      TSTB     @DVSCR      ; WAIT FOR
1773 012320 100375          BPL      67$         ; BIT 7 OF DVSCR=1
1774 012322 112777 000007 167044  MOVB     #7,@DVSRSH  ; SEL RX BCC REG
1775 012330 017704 167042      MOV     @DVSR,A,R4  ; READ BCC
1776 012334 005037 022116      CLR     CALBCC      ; SET SOFTWARE BCC=0
1777 012340 012737 120001 022112  MOV     #CRC16,XPOLY ; SET SOFTWARE POLONOMINAL
1778 012346 004537 021740      JSR     R5,SIMBCC   ; GO GET SOFTWARE BCC
1779 012352 000010          8:        ; SHIFTS
1780 012354 000031          31       ; DATA
1781 012356 000000          0        ; PREVIOUS BCC
1782 012360 013705 022116      MOV     CALBCC,R5   ; GET SOFTWARE BCC
1783 012364 020504          CMP     R5,R4       ; SOFT=HARD?
1784 012366 001401          BEQ     +4          ;
1785 012370 104004          HLT     4           ; RECEIVER BCC INCORRECT!
1786 012372 104412          MSTCLR  ; INIT DV11
1787 012374 010077 166772      MOV     R0,@DVSR5  ; LOAD LINE NO.
1788 012400 004737 022224      JSR     PC,DV110N  ; GOSUB DV110N
1789 012404 004537 022120      PERFORM SETREG    ;
1790 012410 007 012      .BYTE 007,012    ; RXBCC, LINE PROTOCOL
1791 012412 000000          0        ; START BCC AT 0.
1792 012414 000030          BIT4+BIT3 ; POLONOMINAL SELECT
1793 012416 005277 166740      INC     @DVSCR      ; SET MICRO CPU GO
1794 012422 105777 166734      TSTB     @DVSCR      ; WAIT FOR
1795 012426 100375          BPL      69$         ; BIT 7 OF DVSCR=1
1796 012430 112777 000007 166736  MOVB     #7,@DVSRSH  ; SEL RX BCC REG
1797 012436 017704 166734      MOV     @DVSR,A,R4  ; READ BCC
1798 012442 005037 022116      CLR     CALBCC      ; SET SOFTWARE BCC=0
1799 012446 012737 102010 022112  MOV     #CRC.CCITT,XPOLY ; SET SOFTWARE POLONOMINAL
1800 012454 004537 021740      JSR     R5,SIMBCC   ; GO GET SOFTWARE BCC
1801 012460 000010          8:        ; SHIFTS
1802 012462 000031          31       ; DATA
1803 012464 000000          0        ; PREVIOUS BCC
1804 012466 013705 022116      MOV     CALBCC,R5   ; GET SOFTWARE BCC
1805 012472 020504          CMP     R5,R4       ; SOFT=HARD?
1806 012474 001401          BEQ     +4          ;
1807 012476 104004          HLT     4           ; RECEIVER BCC INCORRECT!
1808 012500 104401          SCOP1  ; LOCK ON SELECTED LINE?
1809 012502 005200          INC     R0          ; UPDATE LINE NO. POINTER
1810 012504 005302          DEC     R2          ; ALL LINES DONE?
1811 012506 001223          BNE     1$         ; BR IF NO
1812 012510 000207          RTS     PC          ; EXIT FOR NEXT GROUP

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***** TEST 6 *****
; *TEST OF RECEIVER CONTROL BYTE OPERATIONS.
; *TEST OF THE "NEXT MODE" FUNCTION.
; *TEST THAT THE NEXT MODE REGISTER (015)
; *CAN BE LOADED FROM THE CONTROL BYTES.
; *THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
; *****

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; TEST 6

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1824 ; TEST 6
1825 012512 012737 000006 001226 tst6: MOV     #6,TSTNO
1826 012520 012737 012772 001216 MOV     #TST7,NEXT

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1827	012526	012700	000000		MOV	#0, R0	: PLACE LINE NUMBER INTO R0
1828	012532	013737	001416	001236	MOV	L00.03, STAT	: LOAD LINE CARD STATUS INTO STAT
1829	012540	100402			BMI	100\$	: BR IF LINE CARD NOT TO BE TESTED
1830	012542	004737	012630		JSR	PC, 105\$	: GO DO THE TEST FOR LINE CARD 1
1831	012546	012700	000004		MOV	#4, R0	: PLACE LINE NUMBER INTO R0
1832	012552	013737	001420	001236	MOV	L04.07, STAT	: LOAD LINE CARD STATUS INTO STAT
1833	012560	100402			BMI	101\$	: BR IF LINE CARD NOT TO BE TESTED
1834	012562	004737	012630		JSR	PC, 105\$	: GO DO THE TEST FOR LINE CARD 2
1835	012566	012700	000010		MOV	#8, R0	: LOAD LINE NUMBER
1836	012572	013737	001422	001236	MOV	L08.11, STAT	: LOAD LINE CARD STATUS INTO STAT
1837	012600	100402			BMI	102\$	: BR IF LINE CARD NOT TO BE TESTED
1838	012602	004737	012630		JSR	PC, 105\$	: DO THE TEST FOR LINE CARD 3
1839	012606	012700	000014		MOV	#12, R0	: LOAD LINE NO.
1840	012612	013737	001424	001236	MOV	L12.15, STAT	: LOAD LINE CARD STATUS
1841	012620	100402			BMI	103\$	: BR IF LINE CARD NOT TO BE TESTED
1842	012622	004737	012630		JSR	PC, 105\$	: DO THE TESTS FOR LINE CF <D 4
1843	012626	104400			SCOPE		: SCOPE THIS TEST.
1844	012630						: TEST ENTRANCE.
1845	012630	012737	012662	001220	MOV	#15, LOCK	: SET IF SW09=1
1846	012636	104413			RAMCLR		: CLEAR ALL SEC REGISTERS
1847	012640	005003			CLR	R3	: SET EXPECT RESULTS OF MODE REGISTER
1848	012642	005001			CLR	R1	: SET CNTRL BYTE MODE
1849	012644	012702	000004		MOV	#4, R2	: SET FOR 4 LINE GROUP
1850	012650	012737	000031	022560	MOV	#31, TXBAP	: LOAD TX DATA CHAR
1851	012656	105037	023611		CLRB	TXTAB+31	: ZERO TX CNTRL BYTE
1852	012662	110137	030211		MOVB	R1, RXTAB+31	: LOAD RX CNTRL BYTE (WITH MODE)
1853	012666	004737	022224		JSR	PC, DV110N	: GO SETUP ROUTINE THINGS (BA, BC, LS, LP)
1854	012672	004537	022120		PERFORM	SETREG	: ZERO
1855	012676	015	015		.BYTE	015, 015	: RECEIVER
1856	012700	000000			0		: MODE
1857	012702	000000			0		: REGISTER
1858	012704	005277	166452		INC	DV5CR	: SET MICRO CPU GO
1859	012710	105777	166446		TSTB	DV5CR	: WAIT FOR
1860	012714	100375			BPL	-4	: DV5CR07=1
1861	012716	112777	000015	166450	MOVB	#15, DV5RSH	: SEL RX MODE REGISTER
1862	012724	017704	166446		MOV	DV5RA, R4	: READ MODE REGISTER
1863	012730	010305			MOV	R3, R5	: SET EXPECTED MODE
1864	012732	020504			CMP	R5, R4	
1865	012734	001401			BEQ	3\$	
1866	012736	104002			HLT	2	: RX MODE REGISTER WRONG
1867	012740	104412			MSTCLR		: INIT DV11
1868	012742	005203			INC	R3	: UPDATE EXPECTED MODE
1869	012744	062701	000040		ADD	#BITS, R1	: UPDATE LOADED (NEXT) MODE
1870	012750	105701			TSTB	R1	: ALL DONE?
1871	012752	001743			BEQ	1\$	: BR IF NO
1872	012754	005001			CLR	R1	: ZERO LOAD MODE
1873	012756	005003			CLR	R3	: ZERO EXPECTED MODE
1874	012760	104401			SCOPI		: LOCK ON SELECTED LINE?
1875	012762	005200			INC	R0	: UPDATE LINE POINTER
1876	012764	005302			DEC	R2	: 4 LINE GROUP DONE?
1877	012766	001335			BNE	1\$	: BR IF NO
1878	012770	000207			RTS	PC	: EXIT FOR NEXT GROUP OF LINES

:\*\*\*\*\* TEST 7 \*\*\*\*\*  
:\*TEST OF TRANSMITTER CONTROL BYTE OPERATIONS.

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012772 012737 000007 001226  
013000 012737 013244 001216  
013006 012700 000000  
013012 013737 001416 001236  
013020 100402  
013022 004737 013110  
013026 012700 000004  
013032 013737 001420 001236  
013040 100402  
013042 004737 013110  
013046 012700 000010  
013052 013737 001422 001236  
013060 100402  
013062 004737 013110  
013066 012700 000014  
013072 013737 001424 001236  
013100 100402  
013102 004737 013110  
013106 104400  
013110  
013110 012737 013144 001220  
013116 104413  
013120 112737 000002 023611  
013126 112737 000031 022560  
013134 105037 030211  
013140 012702 000004  
013144 004737 022224  
013150 004537 022120  
013154 012 012  
013156 012400  
013160 012400  
013162 005037 027560  
013166 005277 166170  
013172 105777 166164  
013176 100375  
013200 013704 027560  
013204 012705 000025  
013210 020504  
013212 001401  
013214 104003  
013216 104412  
013220 112777 000012 166146  
013226 005077 166144  
013232 104401  
013234 005200  
013236 005302  
013240 001341

```

; *TEST OF THE "SEND DLE NEXT" FUNCTION
; *THE "TRANSMITTER DLE REGISTER" IS LOADED
; *WITH CHAR "025". THE RECEIVER IS SET TO RECEIVE
; *ONE CHAR (THE DLE) SO RX BA S/B=25
; *THE TRANSMITTER DATA CHAR IS "031".
; *****

; TEST 7
-----
TST7: MOV #7,TSTNO
      MOV #TST10,NEXT
      MOV #0.,RO
      MOV LO0.03,STAT ;PLACE LINE NUMBER INTO RO
      BMI 100$ ;LOAD LINE CARD STATUS INTO STAT
      JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
      ;GO DO THE TEST FOR LINE CARD 1
      MOV #4.,RO ;PLACE LINE NUMBER INTO F.J
      MOV LO4.07,STAT ;LOAD LINE CARD STATUS INTO STAT
      BMI 101$ ;BR IF LINE CARD NOT TO BE TESTED
      JSR PC,105$ ;GO DO THE TEST FOR LINE CARD 2
      MOV #8.,RO ;LOAD LINE NUMBER
      MOV LO8.11,STAT ;LOAD LINE CARD STATUS INTO STAT
      BMI 102$ ;BR IF LINE CARD NOT TO BE TESTED
      JSR PC,105$ ;DO THE TEST FOR LINE CARD 3
      MOV #12.,RO ;LOAD LINE NO.
      MOV L12.15,STAT ;LOAD LINE CARD STATUS
      BMI 103$ ;BR IF LINE CARD NOT TO BE TESTED
      JSR PC,105$ ;DO THE TESTS FOR LINE CARD 4
      SCOPE 103$ ;SCOPE THIS TEST.
      SCOPE 105$ ;TEST ENTRANCE.
      MOV #15,LOCK ;SET IF SW09=1
      RAMCLR ;CLEAR ALL SEC REGISTERS
      MOVB #BIT1,TXTAB+31 ;SET "SND/DLE" IN CNTRL BYTE
      MOVB #31,TXBAP ;SET TX DATA CHAR
      CLRB RXTAB+31 ;ZERO RX CNTRL BYTE
      MOV #4,R2 ;SET FOR 4 LINE GROUP
      JSR PC,DV110N ;SET ROUTINE THING
      PERFORM SETREG ;
      .BYTE 012,012 ;LINE PROTOCOL REG
      25*400 ;PUT 25
      25*400 ;IN HIGH BYTE
      CLR RXBA ;ZERO RX BUFFER
      INC DVSCR ;SET MICRO CPU GO
      TSTB DVSCR ;WAIT FOR
      BPL -4 ;DVSCR07=1
      MOV RXBA,R4 ;GET DATA
      MOV #25,R5 ;LOAD DLE INTO EXPECTED
      CMP R5,R4 ;
      BEQ 25$ ;
      HLT 3 ;
      MSTCLR ;
      MOVB #12,DVSRSH ;
      CLR DVSRA ;
      SCOP1 ;
      INC RO ;LOCK ON SELECTED LINE?
      DEC R2 ;UPDATE LINE POINTER
      BNE 15$ ;4 LINE GROUP DONE?
      ;BR IF NO

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1939 013242 000207 RTS PC ;EXIT FOR NEXT GROUP OF LINES

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1992  
1993  
1994

\*\*\*\*\* TEST 10 \*\*\*\*\*  
\*TEST OF BOTH BITS 6 AND 5 OF THE LINE PROTOCOL REG.  
\*TEST THAT NEITHER THE TRANSMITTER OR RECEIVER  
\*CONTROL BYTES ARE USED AND THAT  
\*THE CHARS ARE AUTOMATICALLY INCLUDED INTO THE BCC.  
\*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.  
\*\*\*\*\*

TEST 10

1952	013244	012737	000010	001226	↑ST10:	MOV	#10,TSTNO		
1953	013252	012737	013554	001216		MOV	#TST11,NEXT		
1954	013260	012700	000000			MOV	#0.,RO		;PLACE LINE NUMBER INTO R0
1955	013264	013737	001416	001236		MOV	L00.03,STAT		;LOAD LINE CARD STATUS INTO STAT
1956	013272	100402				BMI	100\$		;BR IF LINE CARD NOT TO BE TESTED
1957	013274	004737	013362			JSR	PC,105\$		;GO DO THE TEST FOR LINE CARD 1
1958	013300	012700	000004		100\$:	MOV	#4.,RO		;PLACE LINE NUMBER INTO R0
1959	013304	013737	001420	001236		MOV	L04.07,STAT		;LOAD LINE CARD STATUS INTO STAT
1960	013312	100402				BMI	101\$		;BR IF LINE CARD NOT TO BE TESTED
1961	013314	004737	013362			JSR	PC,105\$		;GO DO THE TEST FOR LINE CARD 2
1962	013320	012700	000010		101\$:	MOV	#8.,RO		;LOAD LINE NUMBER
1963	013324	013737	001422	001236		MOV	L08.11,STAT		;LOAD LINE CARD STATUS INTO STAT
1964	013332	100402				BMI	102\$		;BR IF LINE CARD NOT TO BE TESTED
1965	013334	004737	013362			JSR	PC,105\$		;DO THE TEST FOR LINE CARD 3
1966	013340	012700	000014		102\$:	MOV	#12.,RO		;LOAD LINE NO.
1967	013344	013737	001424	001236		MOV	L12.15,STAT		;LOAD LINE CARD STATUS
1968	013352	100402				BMI	103\$		;BR IF LINE CARD NOT TO BE TESTED
1969	013354	004737	013362			JSR	PC,105\$		;DO THE TESTS FOR LINE CARD 4
1970	013360	104400			103\$:	SCOPE			;SCOPE THIS TEST.
1971	013362				105\$:				;TEST ENTRANCE.
1972	013362	012737	013412	001220		MOV	#1\$,LOCK		;SET RETURN IF SW09=1
1973	013370	104413				RAMCLR			;CLEAR ALL SEC REGISTERS
1974	013372	012702	000004			MOV	#4,R2		;SET FOR 4 LINE GROUP
1975	013376	112737	000340	023575		MOV	#BIT7+BIT6+BITS	↑XTAB+15	
1976	013404	113737	023575	030175		MOV	TXTAB+15,RXTAB+15		;SET RX AND TX NEXT MODE=7
1977	013412	004737	022224		1\$:	JSR	PC,DV110N		;SET UP MINOR DETAILS
1978	013416	112777	000012	165750		MOV	#12,ADVSRSH		;GET LINE PROTOCOL REGISTER
1979	013424	052777	000140	165744		BIS	#BIT6+BITS,ADVSR		;SET TX AND RX DDCMP MODE
1980	013432	112737	000015	022560		MOV	#15,TXBAP		;LOAD DATA CHAR
1981	013440	005277	165716			INC	ADVSCR		;SET MICRO CPU GO
1982	013444	105777	165712			TSTB	ADVSCR		;WAIT FOR
1983	013450	100375				BPL	.-4		;DVSCRO7=1
1984	013452	005005				CLR	R5		;EXPECTED=0
1985	013454	112777	000014	165712		MOV	#14,ADVSRSH		;GET TX MODE REG
1986	013462	017704	165710			MOV	ADVSR,R4		;READ MODE REG
1987	013466	001401				BEQ	.-4		;S/B=0
1988	013470	104001				HLT	1		;TX MODE REG S/B=0
1989	013472	105277	165676			INCB	ADVSRSH		;GET RX MODE REG
1990	013476	017704	165674			MOV	ADVSR,R4		;READ RX MODE
1991	013502	001401				BEQ	3\$		
1992	013504	104001				HLT	1		;RX MODE REG S/B=0
1993	013506	112777	000006	165660	3\$:	MOV	#6,ADVSRSH		;TX BCC REG.
1994	013514	017704	165656			MOV	ADVSR,R4		;READ TXBCC REG.

```

1995 013520 001001 BNE 4$ ;S/B NOT=0
1996 013522 104000 HLT 0 ;NOTHING IN BCC!! (TX)
1997 013524 105277 4$: INCB 00VSRSH ;GET RX BCC REG
1998 013530 017704 165644 MOV 00VSRRA,R4 ;READ INTO R4
1999 013534 001001 BNE 5$ ;
2000 013536 104000 HLT 0 ;NOTHING IN RXBCC!!
2001 013540 104412 5$: MSTCLR ;INIT DV11
2002 013542 104401 SCOPI ;LOCK ON SELECTED LINE?
2003 013544 005200 INC R0 ;UPDATE LINE POINTER
2004 013546 005302 DEC R2 ;4 LINES DONE?
2005 013550 001320 BNE 1$ ;BR IF NO
2006 013552 000207 RTS PC ;EXIT FOR NEXT 4 LINE GROUP

```

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***** TEST 11 *****
*TEST OF BIT 1 IN LINE PROTOCOL PARAMETER REGISTER.
*TEST OF "STRIP LEADING SYNCs".
*TEST TO XMIT 10. SYNC CHARS, 1 NON-SYNC, AND 2 SYNCs
*([13 CHARS TOTAL].
*DVI1 SHOULD RECEIVE 1 NON-SYNC, AND TWO SYNCs.
*([ 3 CHARS TOTAL].
*THE TEN LEADING SYNCs S/B STRIPPED
*THIS TEST IS DONE FOR SYNC LINE CARDS ONLY.
*****

```

TEST 11

```

2021 ; TEST 11
2022 013554 012737 000011 001226 TST11: MOV #11,TSTNO
2023 013562 012737 014166 001216 MOV #TST12,NEXT
2024 013570 012700 000000 MOV #0,R0
2025 013574 113737 001406 001244 MOV#B MASK.A,MASKX ;PLACE LINE NUMBER INTO R0
2026 013602 013737 001416 001236 MOV LO0.03,STAT ;PLACE "MASK" FOR CHARS INTO MASKX
2027 013610 100402 BMI 100$ ;LOAD LINE CARD STATUS INTO STAT
2028 013612 004737 013722 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2029 013616 012700 000004 100$: MOV #4,R0 ;GO DO THE TEST FOR LINE CARD 1
2030 013622 113737 001407 001244 MOV#B MASK.B,MASKX ;PLACE LINE NUMBER INTO R0
2031 013630 013737 001420 001236 MOV LO4.07,STAT ;GET MASK
2032 013636 100402 BMI 101$ ;LOAD LINE CARD STATUS INTO STAT
2033 013640 004737 013722 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2034 013644 012700 000010 101$: MOV #8,R0 ;GO DO THE TEST FOR LINE CARD 2
2035 013650 113737 001410 001244 MOV#B MASK.C,MASKX ;LOAD LINE NUMBER
2036 013656 013737 001422 001236 MOV LO8.11,STAT ;GET MASK
2037 013664 100402 BMI 102$ ;LOAD LINE CARD STATUS INTO STAT
2038 013666 004737 013722 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2039 013672 012700 000014 102$: MOV #12,R0 ;DO THE TEST FOR LINE CARD 3
2040 013676 113737 001411 001244 MOV#B MASK.D,MASKX ;LOAD LINE NO.
2041 013704 013737 001424 001236 MOV L12.15,STAT ;GET MASKK
2042 013712 100402 BMI 103$ ;LOAD LINE CARD STATUS
2043 013714 004737 013722 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2044 013720 104400 103$: SCOPE ;DO THE TESTS FOR LINE CARD 4
2045 013722 032737 004000 001236 105$: SCOPE THIS TEST.
2046 013730 001401 BEQ .+4 ;TEST ENTRANCE.
2047 013732 000207 RTS PC ;IS THIS AN ASYNC LINE CARD?
2048 013734 012737 014004 001220 MOV #2$,LOCK ;BR IF NOT ASYNC LINE CARD.
2049 013742 104413 RAMCLR ;EXIT TEST. (ASYNC LINE CARD NOT TESTED)
2050 ;SET RETURN IF SW09=1
;CLEAR ALL SEC REGISTERS

```

```

2051 013744 012702 000004      MOV      #4,R2      ;4 LINE GROUP
2052 013750 012704 000010      MOV      #8,R4      ;LOAD TX BUFFER
2053 013754 012705 022560      MOV      #TXBAP,R5  ;WITH
2054 013760 113725 001236      1$: MOVVB  STAT,(R5)+ ;B. SYNC
2055 013764 005304      DEC      R4         ;CHARS
2056 013766 001374      BNE     1$         ;
2057 013770 112725 000005      MOVVB   #5,(R5)+   ;LOAD "NON-SYNC" CHAR
2058 013774 113725 001236      MOVVB   STAT,(R5)+ ;SYNC
2059 014000 113725 001236      MOVVB   STAT,(R5)+ ;SYNC
2060 014004 004737 022224      2$: JSR     PC,DV11ON ;MINOR DETAIL SETUP
2061 014010 005037 027560      CLR     RXBA       ;CLEAR
2062 014014 005037 027562      CLR     RXBA+2     ;RX BUFFER
2063 014020 004537 022120      PERFORM SETREG    ;
2064 014024      .BYTE 001,005  ;TX PRINCIPLE BC, RX BC
2065 014026 177763      -13.
2066 014030 177775      -3
2067 014032 112777 000012 165334      MOVVB   #12,DVSRSH ;LINE PROTOCOL REG
2068 014040 012777 000143 165330      MOV     #BIT6+BITS+BIT1+BIT0,DVSRRA
2069 014046 005277 165310      INC     DVSCR      ;LP=TX+RX DDCMP, STRIP SYNC, IDLE MARK
2070 014052 105777 165304      TSTB   DVSCR      ;WAIT FOR
2071 014056 100375      BPL     -4         ;DVSC07=1
2072 014060 012705 000005      MOV     #5,R5      ;1ST DATA S/B=15
2073 014064 113704 027560      MOVVB  RXBA,R4     ;GET DATA
2074 014070 042704 177400      BIC    #1C<377>,R4 ;STRIP HIGH BYTE
2075 014074 020504      CMP     R5,R4      ;OK
2076 014076 001401      BEQ    3$         ;
2077 014100 104001      HLT    1          ;1ST CHAR NOT=15
2078 014102 113705 001236      3$: MOVVB  STAT,R5   ;LOAD SYNC INTO EXPECTED
2079 014106 042705 177400      BIC    #1C<377>,R5 ;STRIP HIGH BYTE
2080 014112 143705 001244      BICB   MASKX,R5    ;CLEAR BITS/PER/CHAR MASK.
2081 014116 113704 027561      MOVVB  RXBA+1,R4   ;GET 2ND CHAR
2082 014122 042704 177400      BIC    #1C<377>,R4 ;STRIP HIGH BYTE
2083 014126 020504      CMP     R5,R4      ;WERE *ONLY* LOADING SYNC STRIPPED?
2084 014130 001401      BEQ    4$         ;
2085 014132 104001      HLT    1          ;JUST *LEADING* SYNCs ARE TO BE STRIPPED
2086 014134 113704 027562      4$: MOVVB  RXBA+2,R4 ;GET 3RD CHAR
2087 014140 042704 177400      BIC    #1C<377>,R4 ;STRIP HIGH BYTE
2088 014144 020504      CMP     R5,R4      ;OK?
2089 014146 001401      BEQ    5$         ;
2090 014150 104001      HLT    1          ;JUST *LEADING* SYNCs ARE TO BE STRIPPED
2091 014152 104412      5$: MSTCLR ;INIT DV11
2092 014154 104401      SCOPI ;LOCK ON SELECTED LINES?
2093 014156 005200      INC     R0         ;UPDATE LINE POINTER
2094 014160 005302      DEC     R2         ;4 LINE GROUP DONE?
2095 014162 001310      BNE    2$         ;BR IF NO
2096 014164 000207      RTS     PC        ;EXIT FOR NEXT GROUP

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2097
2098
2099
2100 ;***** TEST 12 *****
2101 ;*TEST OF BIT08 OF DVSCR.
2102 ;*TEST OF "RECEIVER INTERRUPT RESPONSE COMPLETE"
2103 ;*TEST TO RECEIVE 6 CHARS INTERRUPTING
2104 ;*ON EACH CHAR HAVING IT BEING A "SPECIAL CHAR"
2105 ;*AND THE RESTARTING THE MICRO PROCESSOR AFTER EACH
2106 ;*INTERUPT FLAG.
;*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.

```

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2107 ;:*****
2108
2109 ; TEST 12
2110 ;-----
2111 014166 012737 000012 001226 †ST12: MOV #12,TSTNO
2112 014174 012737 014650 001216 MOV #TST13,NEXT
2113 014202 012700 000000 MOV #0,R0
2114 014206 013737 001416 001236 MOV L00.03,STAT ;PLACE LINE NUMBER INTO R0
2115 014214 100402 BMI 100$ ;LOAD LINE CARD STATUS INTO STAT
2116 014216 004737 014304 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2117 014222 012700 000004 100$: MOV #4,R0 ;GO DO THE TEST FOR LINE CARD 1
2118 014226 013737 001420 001236 MOV L04.07,STAT ;PLACE LINE NUMBER INTO R0
2119 014234 100402 BMI 101$ ;LOAD LINE CARD STATUS INTO STAT
2120 014236 004737 014304 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2121 014242 012700 000010 101$: MOV #8,R0 ;GO DO THE TEST FOR LINE CARD 2
2122 014246 013737 001422 001236 MOV L08.11,STAT ;LOAD LINE NUMBER
2123 014254 100402 BMI 102$ ;LOAD LINE CARD STATUS INTO STAT
2124 014256 004737 014304 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2125 014262 012700 000014 102$: MOV #12,R0 ;DO THE TEST FOR LINE CARD 3
2126 014266 013737 001424 001236 MOV L12.15,STAT ;LOAD LINE NO.
2127 014274 100402 BMI 103$ ;LOAD LINE CARD STATUS
2128 014276 004737 014304 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2129 014302 104400 103$: SCOPE ;DO THE TESTS FOR LINE CARD 4
2130 014304 105$: SCOPE THIS TEST.
2131 014304 012737 014362 001220 MOV #66$,LOCK ;TEST ENTRANCE.
2132 014312 104413 RAMCLR ;CLEAR ALL SEC REGISTERS
2133 014314 005001 CLR R1
2134 014316 012702 000004 MOV #4,R2 ;SET FOR 4 LINE GROUP
2135 014322 005005 CLR R5 ;LOAD
2136 014324 012704 022560 MOV #TXBAP,R4 ;TX DATA
2137 014330 110524 1$: MOVVB R5,(R4)+
2138 014332 005205 INC R5
2139 014334 022705 000007 CMP #7,R5
2140 014340 001373 BNE 1$
2141 014342 012705 000006 MOV #6,R5 ;FILL
2142 014346 012704 030160 MOV #RXTAB,R4 ;THE
2143 014352 112724 000001 2$: MOVVB #BIT0,(R4)+ ;RX CNTRL TABLE
2144 014356 005305 DEC R5 ;WITH SPECIAL
2145 014360 001374 BNE 2$ ;CHAR BITS
2146 014362 004737 022224 66$: JSR PC,DV110N ;SET UP DV11
2147 014366 004537 022120 PERFORM SETREG
2148 014372 001 005 .BYTE 001,005 ;TX PRINCIPLE BC, RX BC
2149 014374 177770 -8.
2150 014376 177772 -6.
2151 014400 112777 000012 164766 MOVB #12,ADVSRSH ;LINE PROTOCOL
2152 014406 052777 000100 164762 BIS #BIT6,ADVSRRA ;TX DDCMP
2153 014414 012737 000340 177776 MOV #340,PS ;LOCK OUT INTERRUPTS
2154 014422 012777 014472 164722 MOV #67$,ADVREVC ;SET RX INTER VECTOR.
2155 014430 012777 000340 164716 MOV #340,ADVRLVL ;SET PRIO. LEVEL TO 7
2156 014436 052777 000101 164716 BIS #BIT6+BIT0,ADVSCR
2157
2158 014444 005003 CLR R3 ;SET RX IE AND UCPU GO.
2159 014446 005037 014646 3$: CLR 69$ ;DATA IMAGE
2160 014452 005037 177776 CLR PS ;STALL COUNTER
2161 014456 104414 DELAY ;ENABLE INTERRUPTS
2162 014460 005237 014646 INC 69$ ;WASTE TIME
;UPDATE STALL

```

2163	014464	001372			BNE	.-12		:BR BACK
2164	014466	104000			HLT			:NO INTERRUPT OCCURED.
2165	014470	024646			CMP	-(SP),-(SP)		:FAKE AN INTERRUPT
2166	014472	010005		67\$:	MOV	R0,R5		:LOAD LINE NO.
2167	014474	000305			SWAB	R5		:PUT IN HIGH BYTE
2168	014476	050305			BIS	R3,R5		:SET DATA
2169	014500	017704	164662		MOV	DVVIC,R4		:READ FOUND RESULT
2170	014504	020504			CMP	R5,R4		
2171	014506	001401			BEQ	4\$		
2172	014510	104001			HLT	1		:DVRIC WRONG!
2173	014512	052777	000400	164642	4\$:	BIS	#BIT8,DVSCR	:SET "RECEIVER INT RESP COMP"
2174	014520	005203			INC	R3		:UPDATE DATA IMAGE
2175	014522	022703	000006		CMP	#6,R3		:ALL DONE?
2176	014526	001403			BEQ	70\$		:BR IF YES
2177	014530	012716	014446		MOV	#3\$, (SP)		:SET RETURN
2178	014534	000002			RTI			:CONTINUE
2179	014536	042777	000100	164616	70\$:	BIC	#BIT6,DVSCR	:NO MORE INTERRUPTS.
2180	014544	012716	014552		MOV	#68\$, (SP)		:SET RETURN
2181	014550	000002			RTI			:CONT.
2182	014552	105777	164604		68\$:	TSTB	DVSCR	:WAIT FOR
2183	014556	100375			BPL	.-4		:DVSCR07=1
2184	014560	010005			MOV	R0,R5		:LOAD LINE NO.
2185	014562	000305			SWAB	R5		:PUT IN HIGH BYTE
2186	014564	052705	040005		BIS	#BIT14+5,R5		: "BYTE CNT WARNING + DATA"
2187	014570	017704	164572		MOV	DVVIC,R4		:READ RESULTS
2188	014574	020504			CMP	R5,R4		
2189	014576	001401			BEQ	5\$		
2190	014600	104001			HLT	1		:DVRIC WRONG!
2191	014602	012701	027560		5\$:	MOV	#RXBA,R1	:GET RX POINTER
2192	014606	005005			CLR	R5		
2193	014610	005004			CLR	R4		
2194	014612	112104			6\$:	MOVB	(R1)+,R4	:GET RX DATA (INCORE)
2195	014614	020504			CMP	R5,R4		
2196	014616	001401			BEQ	7\$		
2197	014620	104001			HLT	1		:RECEIVER PLACED DATA IN CORE WRONG
2198	014622	005205			7\$:	INC	R5	:UPDATE DATA IMAGE
2199	014624	022705	000006		CMP	#6,R5		:ALL DONE?
2200	014630	001370			BNE	6\$		:BR IF NO
2201	014632	104412			MSTCLR			:INIT DV11
2202	014634	104401			SCOPI			:LOCK ON CURRENT LINE?
2203	014636	005200			INC	R0		:UPDATE LINE POINTER
2204	014640	005302			DEC	R2		:4 LINE GROUP DONE?
2205	014642	001247			BNE	66\$		:BR IF NO
2206	014644	000207			RTS	PC		:EXIT FOR NEXT GROUP OF LINES
2207	014646	000000		69\$:	0			

```

2208
2209
2210 :***** TEST 13 *****
2211 :*TEST OF THE "MARKED BYTE COUNT".
2212 :*TEST THAT WHEN BIT15=0 FOR THE RECEIVER THAT
2213 :*BITS 13,14,15 OF LINE STATE OCCUR IN
2214 :*THE RECEIVER MODE BITS REGISTER.
2215 :*TEST THAT WHEN BIT15=0 FOR THE TRANSMITTER
2216 :*THAT BITS 13,14,15 OF THE LINE PROGRESS REGISTER
2217 :*OCCUR INT THE TRANSMITTER MODE REG.
2218 :*ALSO VERIFY THAT BIT10=1 IN LINE STATE MAKES

```

```

2219
2220
2221
2222
2223
2224
2225
2226
2227
2228
2229 014650 012737 000013 001226
2230 014656 012737 015442 001216
2231 014664 012700 000000
2232 014670 013737 001416 001236
2233 014676 100402
2234 014700 004737 014766
2235 014704 012700 000004 100$:
2236 014710 013737 001420 001236
2237 014716 100402
2238 014720 004737 014766
2239 014724 012700 000010 101$:
2240 014730 013737 001422 001236
2241 014736 100402
2242 014740 004737 014766
2243 014744 012700 000014 102$:
2244 014750 013737 001424 001236
2245 014756 100402
2246 014760 004737 014766
2247 014764 104400 103$:
2248 014766 105$:
2249 014766 012737 015114 001220
2250 014774 032737 001400 001236
2251 015002 001401
2252 015004 000207
2253 015006 104413
2254 015010 012702 000004
2255 015014 012704 000012
2256 015020 012705 023560
2257 015024 112725 000010 1$:
2258 015030 005304
2259 015032 001374
2260 015034 012705 023560
2261 015040 013704 001236
2262 015044 042704 177400
2263 015050 060405
2264 015052 105015
2265 015054 012705 022560
2266 015060 005004
2267 015062 110425 2$:
2268 015064 005204
2269 015066 022704 000013
2270 015072 001373
2271 015074 012705 030160
2272 015100 012704 000012
2273 015104 112725 000010 3$:
2274 015110 005304

```

```

: *RECEIVER "EXPECT THE BCC"
: *AND THAT BIT10 IN LINE PROGRESS TELL TX TO SEND BCC.
: *THIS TEST USES CRC CCITT FOR THE POLYNOMIAL
: **NOTE*: IF LINE CARD IS SET FOR OTHER THAN "B" BITS
: *THE TEST WILL *NOT* BE EXECUTED ON THAT LINE CARD!!
: *THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
: *****

```

: TEST 13

```

↑ST13: MOV #13, TSTNO
MOV #TST↑14, NEXT
MOV #0, R0
MOV L00.03, STAT
BMI 100$
JSR PC, 105$
100$: MOV #4, R0
MOV L04.07, STAT
BMI 101$
JSR PC, 105$
101$: MOV #8, R0
MOV L08.11, STAT
BMI 102$
JSR PC, 105$
102$: MOV #12, R0
MOV L12.15, STAT
BMI 103$
JSR PC, 105$
103$: SCOPE
105$: MOV #65$, LOCK
BIT #BIT9+BIT8, STAT
BEQ .+4
RTS PC
RAMCLR
MOV #4, R2
MOV #10, R4
MOV #TXTAB, R5
1$: MOV #BIT3, (R5)+
DEC R4
BNE 1$
MOV #TXTAB, R5
STAT, R4
BIC #1C<377>, R4
ADD R4, R5
CLRB (R5)
MOV #TXBAP, R5
CLR R4
2$: MOV #R4, (R5)+
INC R4
CMP #11, R4
BNE 2$
MOV #RXTAB, R5
MOV #10, R4
3$: MOV #BIT3, (R5)+
DEC R4

```

```

: PLACE LINE NUMBER INTO R0
: LOAD LINE CARD STATUS INTO STAT
: BR IF LINE CARD NOT TO BE TESTED
: GO DO THE TEST FOR LINE CARD 1
: PLACE LINE NUMBER INTO R0
: LOAD LINE CARD STATUS INTO STAT
: BR IF LINE CARD NOT TO BE TESTED
: GO DO THE TEST FOR LINE CARD 2
: LOAD LINE NUMBER
: LOAD LINE CARD STATUS INTO STAT
: BR IF LINE CARD NOT TO BE TESTED
: DO THE TEST FOR LINE CARD 3
: LOAD LINE NO.
: LOAD LINE CARD STATUS
: BR IF LINE CARD NOT TO BE TESTED
: DO THE TESTS FOR LINE CARD 4
: SCOPE THIS TEST.
: TEST ENTRANCE.
: SET RETURN IF SW09=1
: "B BITS/PER/CHAR ?"
: BR IF YES
: EXIT TEST FOR THIS LINE CARD!
: CLEAR ALL SECONDARY REGISTERS
: SET FOR 4 LINE GROUP
: LOAD 10 BYTES
: WITH
: INC/BCC
:
: CLEAR
: SYNC
: CONTROL
: BYTE
:
: LOAD
: DATA
: INTO
: TRANSMITTER BUFFER
:
: LOAD
: 10
: RECEIVER
: CONTROL BYTES

```



E05

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DV11 DEVICE DIAGNOSTICS.

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SEG 0056

2275	015112	001374				BNE	3\$		; WITH "INC/BCC"
2276	015114	010077	164252		65\$:	MOV	RO, DVRS		; LOAD LINE NO.
2277	015120	032737	004000	001236		BIT	#ASYNC, STAT		; IS THIS AN ASYNC LINE CARD?
2278	015126	001406				BEQ	80\$		; BR IF NOT ASYNC.
2279	015130	004537	022120			PERFORM	SETREG		; ADJUST FOR ASYNC LINE CARD
2280	015134	000	001			.BYTE	000,001		; REGISTERS
2281	015136	022560				TXBAP			; LOAD FOR ASYNC
2282	015140	077766				<-10.>-BIT15			; #LOAD FOR ASYNC
2283	015142	000405				BR	81\$		; #CONTINUE TEST
2284	015144	004537	022120		80\$:	PERFORM	SETREG		
2285	015150	000	001			.BYTE	000,001		; TX PRINCIPLE BA. BC
2286	015152	022556				SYNC			
2287	015154	077764				<-12.>-BIT15			; MARKED BC!
2288	015156	004537	022120		81\$:	PERFORM	SETREG		
2289	015162	004	005			.BYTE	004,005		; RX BA, BC
2290	015164	027560				RXBA			
2291	015166	077766				<-10.>-BIT15			; MARKED BC!
2292	015170	004537	022120			PERFORM	SETREG		
2293	015174	010	011			.BYTE	010,011		; TX TABLE, RX TABLE
2294	015176	023560				TXTAB			
2295	015200	030160				RXTAB			
2296	015202	004537	022120			PERFORM	SETREG		
2297	015206	012	013			.BYTE	012,013		; LINE PROTOCOL, LINE STATE
2298	015210	000031				BIT4+BIT3+BIT0			; CRC.CCITT, IDLE MARK
2299	015212	162004				BIT15+BIT14+BIT13+BIT10+BIT2			
2300	015214	004537	022120			PERFORM	SETREG		; MODE 7, TXGO
2301	015220	016	017			.BYTE	016,017		; LINE PROGRESS REC, REC CNTR STORE
2302	015222	162000				BIT15+BIT14+BIT13+BIT10			; NEXT MODE=7
2303	015224	000000				0			; ZERO
2304	015226	032737	004000	001236		BIT	#ASYNC, STAT		; IS THIS ASYNC LINE CARD?
2305	015234	001412				BEQ	60\$		; BR IF NO.
2306	015236	004537	022164			PERFORM	LOAD.MODE		; LOAD PARAMETERS.
2307	015242	020000				BIT13			; RECEIVER ENABLE
2308	015244	004537	022164			PERFORM	LOAD.MODE		
2309	015250	015000				<BIT12+BIT11>+BIT9			; #8 BITS/PER/CHAR
2310	015252	004537	022164			PERFORM	LOAD.MODE		
2311	015256	072000				<BIT14+BIT13+BIT12>+BIT10			
2312									; #9600 BAUD.
2313	015260	000405				BR	61\$		
2314	015262	004537	022164		60\$:	PERFORM	LOAD.MODE		; LOAD
2315	015266	034000				BIT13+BIT12+BIT11			; MODE AND RECV ENABLE
2316	015270	004537	021706			PERFORM	SETSYNC		; GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
2317	015274	005277	164062		61\$:	INC	DVSCR		; SET MICRO CPU GO
2318	015300	105777	164056			TSTB	DVSCR		; WAIT FOR
2319	015304	100375				BPL	-4		; DVSCRO7=1
2320	015306	017704	164054			MOV	DVSCR, R4		; READ RESULT
2321	015312	010005				MOV	RO, R5		; LOAD LINE NUMBER
2322	015314	000305				SWAB	R5		; PUT IN HIGH BYTE
2323	015316	052705	050000			BIS	#BIT14+BIT12, R5		; SET "BLOCK CHECK COMPLETE"
2324	015322	020504				CMP	R5, R4		; RIC OK
2325	015324	001401				BEQ	4\$		
2326	015326	104001				HLT	1		; DVRIC INCORRECT
2327	015330	112777	000014	164036	4\$:	MOVB	#14, DVSRSH		; GET TX MODE REGISTER
2328	015336	017704	164034			MOV	DVSR, R4		
2329	015342	012705	000007			MOV	#BIT2+BIT1+BIT0, R5		; WAS NEXT MODE PICKED UP?
2330	015346	020504				CMP	R5, R4		

```

2331 015350 001401 BEQ 5$ ;
2332 015352 104001 HLT 1 ;NEXT MODE INCORRECT/ S/B=7
2333 015354 105277 164014 5$: INCB 3DVSRSR ;SEL RX MODE REG
2334 015360 017704 164012 MOV 3DVSRA,R4 ;READ
2335 015364 020504 CMP R5,R4 ;
2336 015366 001401 BEQ 6$ ;
2337 015370 104001 HLT 1 ;RX MODE REGISTER INCORRECT. S/B=7
2338 015372 005005 6$: CLR R5 ;SET EXPECTED=0
2339 015374 112777 000006 163772 MOVB #6,3DVSRSR ;SEL TX BCC REG
2340 015402 017704 163770 MOV 3DVSRA,R4 ;READ
2341 015406 001401 BEQ 7$ ;BR IF=0
2342 015410 104001 HLT 1 ;IF BCC WAS SENT; BCC S/B=0
2343 015412 105277 163756 7$: INCB 3DVSRSR ;SEL RX BCC REG
2344 015416 017704 163754 MOV 3DVSRA,R4 ;READ IT
2345 015422 001401 BEQ 8$ ;
2346 015424 104001 HLT 1 ;IF RX RECVD GOOD BCC; E.L.C S/B=0
2347 015426 104413 8$: RAMCLR ;CLEAR ALL SEC REG
2348 015430 104401 SCOPI ;LOCK ON CURRENT LINE?
2349 015432 005200 INC R0 ;UPDATE LINE POINTER
2350 015434 005302 DEC R2 ;4 LINE GROUP DONE?
2351 015436 001226 BNE 65$ ;BR IF NO
2352 015440 000207 RTS PC ;EXIT FOR NEXT 4 LINE GROUP

```

```

*****TEST 14*****
*TEST OF THE "MARKED BYTE COUNT"
*TEST THAT WHEN BIT15=0 FOR THE RECEIVER THAT
*BITS 13,14,15 OF LINE STATE OCCUR IN
*THE RECEIVER MODE BITS REGISTER.
*TEST THAT WHEN BIT15=0 FOR THE TRANSMITTER
*THAT BITS 13,14,15 OF THE LINE PROGRESS REGISTER
*OCCUR INT THE TRANSMITTER MODE REG.
*ALSO VERIFY THAT BIT10=1 IN LINE STATE MAKES
*RECEIVER "EXPECT THE BCC"
*AND THAT BIT10 IN LINE PROGRESS TELL TX TO SEND BCC.
*THIS TEST USES LRCB FOR THE POLYNOMIAL.
*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
*****

```

```

; TEST 14
-----
2372 015442 012737 000014 001226 †ST14: MOV #14,TSTNO
2373 015450 012737 016222 001216 MOV #TST15,NEXT
2374 015456 012700 000000 MOV #0.,RO
2375 015462 013737 001416 001236 MOV L00.03,STAT ;PLACE LINE NUMBER INTO RO
2376 015470 100402 BMI 100$ ;LOAD LINE CARD STATUS INTO STAT
2377 015472 004737 015560 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2379 015476 012700 000004 100$: MOV #4.,RO ;GO DO THE TEST FOR LINE CARD 1
2379 015502 013737 001420 001236 MOV L04.07,STAT ;PLACE LINE NUMBER INTO RO
2380 015510 100402 BMI 101$ ;LOAD LINE CARD STATUS INTO STAT
2381 015512 004737 015560 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2382 015516 012700 000010 101$: MOV #8.,RO ;GO DO THE TEST FOR LINE CARD 2
2383 015522 013737 001422 001236 MOV L08.11,STAT ;LOAD LINE NUMBER
2384 015530 100402 BMI 102$ ;LOAD LINE CARD STATUS INTO STAT
2385 015532 004737 015560 JSR PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
2386 015536 012700 000014 102$: MOV #12.,RO ;DO THE TEST FOR LINE CARD 3
;LOAD LINE NO.

```

G05

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DV11 DEVICE DIAGNOSTICS.

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SEG 0058

2387	015542	013737	001424	001236	MOV	L12.15,STAT	:LOAD LINE CARD STATUS
2388	015550	100402			BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
2389	015552	004737	015560		JSR	PC.105\$	:DO THE TESTS FOR LINE CARD 4
2390	015556	104400			SCOPE		:SCOPE THIS TEST.
2391	015560				103\$:		:TEST ENTRANCE.
2392	015560	012737	015674	001220	105\$:		:SET RETURN IF SW09=1
2393	015566	104413			MOV	#65\$,LOCK	:CLEAR ALL SECONDARY REGISTERS
2394	015570	012702	000004		RAMCLR		:SET FOR 4 LINE GROUP
2395	015574	012704	000012		MOV	#4,R2	:LOAD 10 BYTES
2396	015600	012705	023560		MOV	#10,R4	:WITH
2397	015604	112725	000010		MOV	#TXTAB,R5	:INC/BCC
2398	015610	005304			1\$:	MOV #BIT3,(R5)+	
2399	015612	001374			DEC	R4	
2400	015614	012705	023560		BNE	1\$	
2401	015620	013704	001236		MOV	#TXTAB,R5	:CLEAR
2402	015624	042704	177400		MOV	STAT,R4	:SYNC
2403	015630	060405			BIC	#C<377>,R4	:CONTROL
2404	015632	105015			ADD	R4,R5	:BYTE
2405	015634	012705	022560		CLRB	(R5)	
2406	015640	005004			MOV	#TXBAP,R5	:LOAD
2407	015642	110425			CLR	R4	:DATA
2408	015644	005204			2\$:	MOVB R4,(R5)+	:INTO
2409	015646	022704	000013		INC	R4	:TRANSMITTER BUFFER
2410	015652	001373			CMP	#11.,R4	
2411	015654	012705	030160		BNE	2\$	
2412	015660	012704	000012		MOV	#RXTAB,R5	:LOAD
2413	015664	112725	000010		MOV	#10,R4	:10
2414	015670	005304			3\$:	MOVB #BIT3,(R5)+	:RECEIVER
2415	015672	001374			DEC	R4	:CONTROL BYTES
2416	015674	010077	163472		BNE	3\$	:WITH "INC/BCC"
2417	015700	032737	004000	001236	65\$:	MOV R0,ADVSR5	:LOAD LINE NO.
2418	015706	001406			BIT	#ASYNC,STAT	:#IS THIS AN ASYNC LINE CARD?
2419	015710	004537	022120		BEQ	80\$	:#BR IF NOT ASYNC.
2420	015714	000	001		PERFORM	SETREG	:#ADJUST FOR ASYNC LINE CARD
2421	015716	022560			.BYTE	000,001	:#REGISTERS
2422	015720	077766			TXBAP		:#LOAD FOR ASYNC
2423	015722	000405			<-10.>-BIT15		:#LOAD FOR ASYNC
2424	015724	004537	022120		BR	81\$	:#CONTINUE TEST
2425	015730	000	001		80\$:	PERFORM SETREG	
2426	015732	022556			.BYTE	000,001	:TX PRINCIPLE BA, BC
2427	015734	077764			SYNC		
2428	015736	004537	022120		<-12.>-BIT15		:MARKED BC!
2429	015742	004	005		81\$:	PERFORM SETREG	
2430	015744	027560			.BYTE	004,005	:RX BA, BC
2431	015746	077766			RXBA		
2432	015750	004537	022120		<-10.>-BIT15		:MARKED B.!
2433	015754	010	011		PERFORM	SETREG	
2434	015756	023560			.BYTE	010,011	:TX TABLE, RX TABLE
2435	015760	030160			TXTAB		
2436	015762	004537	022120		RXTAB		
2437	015766	012	013		PERFORM	SETREG	
2438	015770	000001			.BYTE	012,013	:LINE PROTOCOL, LINE STATE
2439	015772	162004			BIT0		:L RCC, IDLE MARK
2440	015774	004537	022120		BIT15+BIT14+BIT13+BIT10+BIT2		:MODE 7, TXGO
2441	016000	016	017		PERFORM	SETREG	:LINE PROGRESS REC. REC CNTR STORE
2442	016002	162000			.BYTE	016,017	
					BIT15+BIT14+BIT13+BIT10		:NEXT MODE=7

H05

```

2443 016004 000000 0 ;ZERO
2444 016006 032737 004000 001236 BIT #ASYNC,STAT ;#IS THIS ASYNC LINE CARD?
2445 016014 001412 BEQ 60$ ;#BR IF NO
2446 016016 004537 022164 PERFORM ,LOAD.MODE ;#LOAD PARAMETERS.
2447 016022 020000 BIT13 ;#RECEIVER ENABLE
2448 016024 004537 022164 PERFORM ,LOAD.MODE ;#
2449 016030 015000 <BIT12+BIT11>+BIT9 ;#8 BITS/PER/CHAR
2450 016032 004537 022164 PERFORM ,LOAD.MODE ;#
2451 016036 072000 <BIT14+BIT13+BIT12>+BIT10 ;#9600 BAUD.
2452
2453 016040 000405 BR 61$
2454 016042 004537 022164 60$: PERFORM ,LOAD.MODE ;LOAD
2455 016046 034000 BIT13+BIT12+BIT11 ;MODE AND RECV ENABLE
2456 016050 004537 021706 PERFORM ,SETSYNC ;GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
2457 016054 005277 163302 61$: INC #DVSCR ;SET MICRO CPU GO
2458 016060 105777 163276 TSTB #DVSCR ;WAIT FOR
2459 016064 100375 BPL -4 ;DVSCRO7=1
2460 016066 017704 163274 MOV #DVRIC,R4 ;READ RESULT
2461 016072 010005 MOV R0,R5 ;LOAD LINE NUMBER
2462 016074 000305 SWAB R5 ;PUT IN HIGH BYTE
2463 016076 052705 050000 BIS #BIT14+BIT12,R5 ;SET "BLOCK CHECK COMPLETE"
2464 016102 020504 CMP R5,R4 ;RIC OK
2465 016104 001401 BEQ 4$
2466 016106 104001 HLT 1 ;DVRIC INCORRECT
2467 016110 112777 000014 163256 4$: MOVB #14,#DVSRSH ;GET TX MODE REGISTER
2468 016116 017704 163254 MOV #DVSR,R4
2469 016122 012705 000007 MOV #BIT2+BIT1+BIT0,R5 ;# WAS NEXT MODE PICKED UP?
2470 016126 020504 CMP R5,R4
2471 016130 001401 BEQ 5$
2472 016132 104001 HLT 1 ;NEXT MODE INCORRECT/ S/B=7
2473 016134 105277 163234 5$: INCB #DVSRSH ;SEL RX MODE REG
2474 016140 017704 163232 MOV #DVSR,R4 ;READ
2475 016144 020504 CMP R5,R4
2476 016146 001401 BEQ 6$
2477 016150 104001 HLT 1 ;RX MODE REGISTER INCORRECT. S/B=7
2478 016152 005005 6$: CLR R5 ;SET EXPECTED=0
2479 016154 112777 000006 163212 6$: MOVB #6,#DVSRSH ;SEL TX BCC REG
2480 016162 017704 163210 MOV #DVSR,R4 ;READ
2481 016166 001401 BEQ 7$ ;BR IF=0
2482 016170 104001 HLT 1 ;IF BCC WAS SENT; BCC S/B=0
2483 016172 105277 163176 7$: INCB #DVSRSH ;SEL RX BCC REG
2484 016176 017704 163174 MOV #DVSR,R4 ;READ IT
2485 016202 001401 BEQ 8$
2486 016204 104001 HLT 1 ;IF RX RECVD GOOD BCC; BCC S/B=0
2487 016206 104413 8$: RAMCLR ;CLEAR ALL SEC REG
2488 016210 104401 SCOP1 ;LOCK ON CURRENT LINE?
2489 016212 005200 INC R0 ;UPDATE LINE POINTER
2490 016214 005302 DEC R2 ;4 LINE GROUP DONE?
2491 016216 001226 BNE 65$ ;BR IF NO
2492 016220 000207 RTS PC ;EXIT FOR NEXT 4 LINE GROUP
2493
2494
2495 ***** TEST 15 *****
2496 ;*TEST OF RECIEVER AND TRANSMITTER MODE BITS.
2497 ;*TEST TO TRANSMIT AND RECEIVE
2498 ;*A DIFFERENT CHAR FROM EACH

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```
: *MODE. THE TX TABLE WILL BE
: *FILLED WITH "SEND DLE" SO IF CHAR
: *GOES TO WRONG TABLE RX WILL
: *RECEIVE A DLE CHAR(31). THE RX
: *FILLS TABLE WITH "INCLUDE IN BCC"
: *SO THAT IF RECV GOES TO WRONG
: *TABLE THE RX BCC REG WILL
: *BE NON-ZERO!
: *CHAR CURRENT MODE NEXT MODE
: * 15 0 1
: * 16 1 2
: * 21 2 3
: * 23 3 4
: * 25 4 5
: * 7 5 6
: * 34 6 7
: * 32 7 7
: * 36 7 7
: *
```

: \*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.  
: \*\*\*\*\*

: TEST 15

```
-----
TST15: MOV #15,TSTNO
MOV #TST16,NEXT
MOV #0,R0 ; PLACE LINE NUMBER INTO R0
MOV L00.03,STAT ; LOAD LINE CARD STATUS INTO STAT
BMI 100$ ; BR IF LINE CARD NOT TO BE TESTED
JSR PC,105$ ; GO DO THE TEST FOR LINE CARD 1
100$: MOV #4,R0 ; PLACE LINE NUMBER INTO R0
MOV L04.07,STAT ; LOAD LINE CARD STATUS INTO STAT
BMI 101$ ; BR IF LINE CARD NOT TO BE TESTED
JSR PC,105$ ; GO DO THE TEST FOR LINE CARD 2
101$: MOV #8,R0 ; LOAD LINE NUMBER
MOV L08.11,STAT ; LOAD LINE CARD STATUS INTO STAT
BMI 102$ ; BR IF LINE CARD NOT TO BE TESTED
JSR PC,105$ ; DO THE TEST FOR LINE CARD 3
102$: MOV #12,R0 ; LOAD LINE NO.
MOV L12.15,STAT ; LOAD LINE CARD STATUS
BMI 103$ ; BR IF LINE CARD NOT TO BE TESTED
JSR PC,105$ ; DO THE TESTS FOR LINE CARD 4
103$: SCOPE ; SCOPE THIS TEST.
105$: MOV #12$,LOCK ; LOCK ON LINE RETURN
RAMCLR ; CLEAR ALL SEC REGISTERS
MOV #TXTAB,R5 ; LOAD
MOV #RXTAB,R4
MOV #4000,R1 ; ALL CNTRL BYTES
1$: MOVB #BIT1,(R5)+ ; WITH "SND/DLE"
2$: MOVB #BIT3,(R4)+ ; WITH "INCL/BCC"
DEC R1
BNE 1$
PERFORM ,SETSYNC ; GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
11$: MOV #4,R2 ; SET FOR 4 LINE GROUP
```

# J05

2555	016410	113705	001236		MOV B	STAT, R5	; CLEAR
2556	016414	042705	177400		BIC	#1C<377>, R5	; SYNC
2557	016420	012704	023560		MOV	#TXTAB, R4	; ENTRY
2558	016424	060504			ADD	R5, R4	; IN
2559	016426	105014			CLRB	(R4)	; CONTROL TABLE
2560	016430	112737	000040	023575	MOV B	#BITS, TXTAB+15	
2561	016436	112737	000100	024176	MOV B	#BIT6, TXTAB+BIT8+16	
2562	016444	112737	000140	024601	MOV B	#BIT6+BITS, TXTAB+BIT9+21	
2563	016452	112737	000200	025203	MOV B	#BIT7, TXTAB+BIT9+BIT8+23	
2564	016460	112737	000240	025605	MOV B	#BIT7+BITS, TXTAB+BIT10+25	
2565	016466	112737	000300	026167	MOV B	#BIT7+BIT6, TXTAB+BIT10+BIT8+7	
2566	016474	112737	000340	026614	MOV B	#BIT7+BIT6+BITS, TXTAB+BIT10+BIT9+34	
2567	016502	112737	000340	027212	MOV B	#BIT7+BIT6+BITS, TXTAB+BIT10+BIT9+BIT8+32	
2568	016510	112737	000340	027216	MOV B	#BIT7+BIT6+BITS, TXTAB+BIT10+BIT9+BIT8+36	
2569							
2570	016516	112737	000040	030175	MOV B	#BITS, RXTAB+15	
2571	016524	112737	000100	030576	MOV B	#BIT6, RXTAB+BIT8+16	
2572	016532	112737	000140	031201	MOV B	#BIT6+BITS, RXTAB+BIT9+21	
2573	016540	112737	000200	031603	MOV B	#BIT7, RXTAB+BIT9+BIT8+23	
2574	016546	112737	000240	032205	MOV B	#BIT7+BITS, RXTAB+BIT10+25	
2575	016554	112737	000300	032567	MOV B	#BIT7+BIT6, RXTAB+BIT10+BIT8+7	
2576	016562	112737	000340	033214	MOV B	#BIT7+BIT6+BITS, RXTAB+BIT10+BIT9+34	
2577	016570	112737	000340	033612	MOV B	#BIT7+BIT6+BITS, RXTAB+BIT10+BIT9+BIT8+32	
2578	016576	112737	000340	033616	MOV B	#BIT7+BIT6+BITS, RXTAB+BIT10+BIT9+BIT8+36	
2579	016604	012705	027560		MOV	#RXBA, R5	; SET RX POINTER
2580	016610	005025			CLR	(R5)+	; Z
2581	016612	005025			CLR	(R5)+	; E
2582	016614	005025			CLR	(R5)+	; R
2583	016616	005025			CLR	(R5)+	; O
2584	016620	005025			CLR	(R5)+	; BUFFER!
2585	016622	012705	022560		MOV	#TXBAP, R5	; L
2586	016626	012725			MOV	(PC)+, (R5)+	; O
2587	016630	015	016		.BYTE	15, 16	; A
2588	016632	012725			MOV	(PC)+, (R5)+	; D
2589	016634	021	023		.BYTE	21, 23	; T
2590	016636	012725			MOV	(PC)+, (R5)+	; R
2591	016640	025	007		.BYTE	25, 7	; A
2592	016642	012725			MOV	(PC)+, (R5)+	; N
2593	016644	034	032		.BYTE	34, 32	; S
2594	016646	112725	000036		MOV B	#36, (R5)+	; BUFFER
2595	016652	010077	162514		MOV	RO, ADVSRS	; LOAD LINE NO.
2596	016656	032737	004000	001236	BIT	#ASYNC, STAT	; #IS THIS AN ASYNC LINE CARD?
2597	016664	001406			BEQ	80\$	; #BR IF NOT ASYNC.
2598	016666	004537	022120		PERFORM	SETREG	; #ADJUST FOR ASYNC LINE CARD
2599	016672	000	001		.BYTE	000, 001	; #REGISTERS
2600	016674	022560			TXBAP		; #LOAD FOR ASYNC
2601	016676	177767			-9.		; #LOAD FOR ASYNC
2602	016700	000405			BR	81\$	; #CONTINUE TEST
2603	016702	004537	022120		PERFORM	SETREG	
2604	016706	000	001		.BYTE	000, 001	; PRINCIPLE BA, BC
2605	016710	022556			SYNC		
2606	016712	177765			-11.		
2607	016714	004537	022120		PERFORM	SETREG	
2608	016720	004	005		.BYTE	004, 005	; RX BA, BC
2609	016722	027560			RXBA		
2610	016724	177767			-9.		

# K05

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SEG 0062

2611	016726	004537	022120			PERFORM SETREG	
2612	016732	010	011			.BYTE 010,011	: TX TABLE, RX TAB
2613	016734	023560				TXTAB	
2614	016736	030160				RXTAB	
2615	016740	004537	022120			PERFORM SETREG	
2616	016744	012	013			.BYTE 012,013	: LINE PROTOCOL, LINE STATE
2617	016746	014400				31*400	: 31 IN HIGH BYTE
2618	016750	000004				BIT2	: TX GO
2619	016752	032737	004000	001236		BIT #ASYNC, STAT	: #IS THIS ASYNC LINE CARD?
2620	016760	001412				BEQ 60\$	: #BR IF NO.
2621	016762	004537	022164			PERFORM ,LOAD.MODE	: #LOAD PARAMETERS.
2622	016766	020000				BIT13	: #RECEIVER ENABLE
2623	016770	004537	022164			PERFORM ,LOAD.MODE	: #
2624	016774	015000				<BIT12+BIT11>+BIT9	: #8 BITS/PER/CHAR
2625	016776	004537	022164			PERFORM ,LOAD.MODE	: #
2626	017002	072000				<BIT14+BIT13+BIT12>+BIT10	: #9600 BAUD.
2627							
2628	017004	000403				BR 61\$	
2629	017006	004537	022164		60\$:	PERFORM ,LOAD.MODE	: LOAD
2630	017012	034000				BIT13+BIT12+BIT11	: MODE AND RX ENABLE
2631	017014	005277	162342		61\$:	INC @DVSCR	: SET MICRO CPU GO
2632	017020	105777	162336			TSTB @DVSCR	: WAIT FOR
2633	017024	100375				BPL .-4	: DVSCR07=1
2634	017026	012701	022560			MOV #TXBAP,R1	: SET TX POINTER
2635	017032	012703	027560			MOV #RXBA,R3	: SET RX POINTER
2636	017036	012737	000011	001246		MOV #9.,TEMP1	: CHECK 9. CHAR
2637	017044	005005				CLR R5	
2638	017046	005004				CLR R4	
2639	017050	112105			3\$:	MOVB (R1)+,R5	: SET EXPECTED
2640	017052	112304				MOVB (R3)+,R4	: SET FOUND
2641	017054	020504				CMP R5,R4	: GOOD?
2642	017056	001401				BEQ 4\$	
2643	017060	104001				HLT 1	: DATA COMPARE ERROR (IS IT IDLE)?
2644	017062	005337	001246		4\$:	DEC TEMP1	: ALL CHARS DONE?
2645	017066	001370				BNE 3\$	: BR IF NO
2646	017070	005005				CLR R5	
2647	017072	112777	000007	162274		MOVB #7,@DVSRSH	: SEL RX BCC REG
2648	017100	017704	162272			MOV @DVSR,R4	: READ IT
2649	017104	001401				BEQ 5\$	: IF RX WENT TO GOOD CNTRL BYTE;
2650	017106	104001				HLT 1	: RX BCC S/B=0
2651	017110	012705	000007		5\$:	MOV #7,R5	: SET MODE=0
2652	017114	112777	000014	162252		MOVB #14,@DVSRSH	: SEL TX MODE REG
2653	017122	017704	162250			MOV @DVSR,R4	: READ TX MODE REG
2654	017126	020504				CMP R5,R4	
2655	017130	001401				BEQ 6\$	
2656	017132	104001				HLT 1	: TX MODE NOT=7!
2657	017134	105277	162234		6\$:	INCB @DVSRSH	: SEL RX MODE REG
2658	017140	017704	162232			MOV @DVSR,R4	: READ IT
2659	017144	020504				CMP R5,R4	
2660	017146	001401				BEQ 7\$	
2661	017150	104001				HLT 1	: RX MODE NOT=7!
2662	017152	104412			7\$:	MSTCLR	: INIT DV11
2663	017154	104401				SCOPI	: LOCK ON CURRENT LINE.
2664	017156	005200				INC R0	: INC LINE POINTER
2665	017160	005302				DEC R2	: 4 LINE GROUP DONE?
2666	017162	001210				BNE 12\$	: BR IF NO

L05

2667 017164 000207

RTS PC

;EXIT FOR NEXT GROUP OF LINES

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017164 000207  
017166 012737 000016 001226  
017174 012737 020144 001216  
017202 012700 000000  
017206 013737 001416 001236  
017214 100402  
017216 004737 017304  
017222 012700 000004  
017226 013737 001420 001236  
017234 100402  
017236 004737 017304  
017242 012700 000010  
017246 013737 001422 001236  
017254 100402  
017256 004737 017304  
017262 012700 000014  
017266 013737 001424 001236  
017274 100402  
017276 004737 017304  
017302 104400  
017304  
017304 012737 017504 001220  
017312 032737 001400 001236  
017320 001401  
017322 000207  
017324 104413  
017326 012705 023560  
017332 012703 030160  
017336 005004  
017340 005025  
017342 005023  
017344 105204  
017346 100374  
017350 012705 000010  
017354 110537 023560  
017360 110537 023561  
017364 110537 023562

```
***** TEST 16 *****
*TEST OF RECEIVER AND TRANSMITTER MULTIPLE FUNCTIONS.
*TEST OF RECV BCC AND TRANS BCC.
*CHAR      RX FUNC.      TX FUNC.
* 0          INC/BCC      INC/BCC
* 1          INC/BCC/DSCARD INC/BCC
* 2          INC/BCC      INC/BCC/SND/DLE
* 3          INC/BCC      INC/BCC
* 4          NO FUNC      SND/DLE
* 5          INC/BCC/DSCARD INC/BCC
* 6          INC/BCC/EXP/BCC INC/BCC/SND/BCC
*          NEXT MODE =7      NEXT MODE =7
*
*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
*****
```

TEST 16

```
TEST16: MOV #16,TSTNO
MOV #TST17,NEXT
MOV #0,R0 ;PLACE LINE NUMBER INTO R0
MOV LO0.03,STAT ;LOAD LINE CARD STATUS INTO STAT
BMI 100$ ;BR IF LINE CARD NOT TO BE TESTED
JSR PC,105$ ;GO DO THE TEST FOR LINE CARD 1
100$: MOV #4,R0 ;PLACE LINE NUMBER INTO R0
MOV LO4.07,STAT ;LOAD LINE CARD STATUS INTO STAT
BMI 101$ ;BR IF LINE CARD NOT TO BE TESTED
JSR PC,105$ ;GO DO THE TEST FOR LINE CARD 2
101$: MOV #8,R0 ;LOAD LINE NUMBER
MOV LO8.11,STAT ;LOAD LINE CARD STATUS INTO STAT
BMI 102$ ;BR IF LINE CARD NOT TO BE TESTED
JSR PC,105$ ;DO THE TEST FOR LINE CARD 3
102$: MOV #12,R0 ;LOAD LINE NO.
MOV LO12.15,STAT ;LOAD LINE CARD STATUS
BMI 103$ ;BR IF LINE CARD NOT TO BE TESTED
JSR PC,105$ ;DO THE TESTS FOR LINE CARD 4
103$: SCOPE ;SCOPE THIS TEST.
105$: MOV #3$,LOCK ;TEST ENTRANCE.
BIT #BIT9+BIT8,STAT ;RETURN IF SW09=1
BEQ .+4 ;"8 BITS/PER/CHAR ?"
RTS PC ;BR IF YES
RAMCLR ;EXIT TEST FOR THIS LINE CARD!
MOV #TXTAB,R5 ;CLEAR ALL SEC REGISTERS
MOV #RXTAB,R3 ;CLEAR
CLR R4 ;TRANSMITTER
CLR (R5)+ ;AND
CLR (R3)+ ;RECEIVER
INCB R4 ;CONTROL
BPL 1$ ;TABLES
MOV #BIT3,R5 ;INC/BCC IS IN R5
MOVB R5,TXTAB ;INC/BCC
MOVB R5,TXTAB+1 ;INC/BCC
MOVB R5,TXTAB+2 ;INC/BCC
```



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SEG 0064

2723	017370	152737	000002	023562	BISB	#BIT1,TXTAB+2	:	SND/DLE
2724	017376	110537	023563		MOV8	R5,TXTAB+3	:	INC/BCC
2725	017402	112737	000002	023564	MOV8	#BIT1,TXTAB+4	:	SND/DLE
2726	017410	110537	023565		MOV8	R5,TXTAB+5	:	INC/BCC
2727	017414	110537	023566		MOV8	R5,TXTAB+6	:	INC/BCC
2728	017420	052737	000344	023566	BIS	#BIT7+BIT6+BIT5+BIT2,TXTAB+6	:	INC/BCC SND/BCC MOD=7
2729	017426	110537	030160		MOV8	R5,RXTAB	:	INC/BCC
2730	017432	110537	030161		MOV8	R5,RXTAB+1	:	INC/BCC
2731	017436	152737	000020	030161	BISB	#BIT4,RXTAB+1	:	DSCARD
2732	017444	110537	030162		MOV8	R5,RXTAB+2	:	INC/BCC
2733	017450	110537	030163		MOV8	R5,RXTAB+3	:	INC/BCC
2734	017454	105037	030164		CLR8	RXTAB+4	:	NO FUNC.
2735	017460	110537	030165		MOV8	R5,RXTAB+5	:	INC/BCC
2736	017464	152737	000020	030165	BISB	#BIT4,RXTAB+5	:	DSCARD
2737	017472	112737	000354	030166	MOV8	#BIT7+BIT6+BIT5+BIT3+BIT2,RXTAB+6	:	INC/BCC EXP/BCC MODE=7
2738	017500	012702	000004		MOV	#4,R2	:	SET FOR 4 LINE GROUP
2739	017504	005037	027560		CLR	RXBA	:	ZERO
2740	017510	005037	027562	35:	CLR	RXBA+2	:	RX
2741	017514	005037	027564		CLR	RXBA+4	:	BUFFER
2742	017520	005037	027566		CLR	RXBA+6	:	AREA
2743	017524	010077	161642		MOV	R0,ADVSR5	:	LOAD LINE NO.
2744	017530	032737	004000	001236	BIT	#ASYNC,STAT	:	#IS THIS AN ASYNC LINE CARD?
2745	017536	001406			BEG	60\$	:	#BR IF NOT ASYNC.
2746	017540	004537	022120		PERFORM	SETREG	:	#ADJUST FOR ASYNC LINE CARD
2747	017544	000	001		.BYTE	000,001	:	#REGISTERS
2748	017546	022560			TXBAP		:	#LOAD FOR ASYNC
2749	017550	177771			-7.		:	#LOAD FOR ASYNC
2750	017552	000405			BR	BIS	:	#CONTINUE TEST
2751	017554	004537	022120	80\$:	PERFORM	SETREG	:	
2752	017560	000	001		.BYTE	000,001	:	PRINCIPLE BA, BC
2753	017562	022556			SYNC		:	
2754	017564	177767			-9.		:	
2755	017566	004537	022120	81\$:	PERFORM	SETREG	:	
2756	017572	004	005		.BYTE	004,005	:	RX BA, BC
2757	017574	027560			RXBA		:	
2758	017576	177766			-10.		:	
2759	017600	004537	022120		PERFORM	SETREG	:	
2760	017604	010	011		.BYTE	010,011	:	TX TAB, RXTAB
2761	017606	023560			TXTAB		:	
2762	017610	030160			RXTAB		:	
2763	017612	004537	022120		PERFORM	SETREG	:	
2764	017616	013	012		.BYTE	013,012	:	LINE STATE, LINE PROTOCOL
2765	017620	000004			BIT2		:	TX GO
2766	017622	010031			<20*400>+BIT4+BIT3+BIT0		:	DLE(20 HIGH BYTE),CRC.CCITT, IDLE MARK
2767	017624	032737	004000	001236	BIT	#ASYNC,STAT	:	#IS THIS ASYNC LINE CARD?
2768	017632	001412			BEG	60\$	:	#BR IF NO.
2769	017634	004537	022164		PERFORM	LOAD.MODE	:	#LOAD PARAMETERS.
2770	017640	020000			BIT13		:	#RECEIVER ENABLE
2771	017642	004537	022164		PERFORM	LOAD.MODE	:	#
2772	017646	015000			<BIT12+BIT11>+BIT9		:	#8 BITS/PER/CHAR
2773	017650	004537	022164		PERFORM	LOAD.MODE	:	#
2774	017654	072000			<BIT14+BIT13+BIT12>+BIT10		:	#9600 BAUD.
2775							:	
2776	017656	000405			BR	4\$	:	
2777	017660	004537	022164	60\$:	PERFORM	LOAD.MODE	:	LOAD
2778	017664	034000			BIT13+BIT12+BIT11		:	MODE AND RX ENABLE

# N05

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SEQ 0065

2779	017666	004537	021706		PERFORM SETSYNC	:GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
2780	017672	005004		4\$:	CLR R4	:LOAD
2781	017674	012705	022560		MOV #TXBAP,R5	:TX
2782	017700	110425		5\$:	MOVB R4,(R5)+	:DATA
2783	017702	005204			INC R4	
2784	017704	020427	000007		CMP R4,#7	
2785	017710	001373			BNE 5\$	
2786	017712	005277	161444		INC @DVSCR	:SET MICRO CODE GO
2787	017716	105777	161440		TSTB @DVSCR	:WAIT FOR
2788	017722	100375			BPL -4	:DVSCRO7=1
2789	017724	012701	027560		MOV #RXBA,R1	:GET RX POINTER
2790	017730	012703	020134		MOV #SOS,R3	:GET DATA EXPECTED POINTER
2791	017734	012737	000007	001252	MOV #7,TEMP3	:CHECK 7 CHARS
2792	017742	112104		6\$:	MOVB (R1)+,R4	:GET RECEIVED CHAR
2793	017744	112305			MOVB (R3)+,R5	:GET EXPECTED CHAR
2794	017746	020504			CMP R5,R4	:OK?
2795	017750	001401			BEQ 7\$	:YES
2796	017752	104001			HLT 1	:DATA IS WRONG!!
2797	017754	005337	001252	7\$:	DEC TEMP3	:ALL CHARS DONE?
2798	017760	001370			BNE 6\$	:BR IF NO
2799	017762	112777	000014	161404	MOVB #14,@DVSRSH	:GET TX MODE REG.
2800	017770	017704	161402		MOV @DVSR,R4	
2801	017774	042704	177770		BIC #1<BIT2+BIT1+BIT0>,R4	:CLEAR JUNK
2802	020000	012705	000007		MOV #7,R5	:SET EXPECTED=7
2803	020004	020504			CMP R5,R4	
2804	020006	001401			BEQ 8\$	
2805	020010	104001			HLT 1	:TX MODE REG NOT=7
2806	020012	105277	161356	8\$:	INCB @DVSRSH	:RX MODE REG
2807	020016	017704	161354		MOV @DVSR,R4	
2808	020022	042704	177770		BIC #1<BIT2+BIT1+BIT0>,R4	
2809	020026	020504			CMP R5,R4	
2810	020030	001401			BEQ 9\$	
2811	020032	104001			HLT 1	:RX MODE REG NOT=7
2812	020034	112777	000006	161332	9\$:	TX BCC REG
2813	020042	017704	161330		MOV #6,@DVSRSH	
2814	020046	001402			MOV @DVSR,R4	
2815	020050	005005			BEQ 10\$	
2816	020052	104001			CLR R5	
2817	020054	105277	161314	10\$:	HLT 1	:TX BCC REG S/B=0
2818	020060	017704	161312		INCB @DVSRSH	:TXBCC
2819	020064	001402			MOV @DVSR,R4	
2820	020066	005005			BEQ 11\$	
2821	020070	104001			CLR R5	
2822	020072	010005			HLT 1	:RX BCC REG S/B=0
2823	020074	000305		11\$:	MOV R0,R5	:LOAD LINE NO.
2824	020076	052705	050000		SWAB R5	:PUT IN HIGH BYTE
2825	020102	017704	161260		BIS #BIT14+BIT12,R5	:SET BCC COMPLETE
2826	020106	020504			MOV @DVRIC,R4	:READ RIC
2827	020110	001401			CMP R5,R4	
2828	020112	104001			BEQ 12\$	
2829	020114	104413		12\$:	HLT 1	:DVRIC INCORRECT
2830	020116	104401			RAMCLR	:CLEAR ALL SEC REGS
2831	020120	005200			SCOPI	:RETURN WITH SAME LINE
2832	020122	005302			INC R0	:UPDATE LINE POINTER
2833	020124	001402			DEC R2	:4 LINES DONE?
2834	020126	000137	017504		BEQ +6	:BR IF NO
					JMP 3\$	:JMP IF YES

2835	020132	000207	
2836	020134	000	020
2837	020136	002	003
2838	020140	020	004
2839	020142	006	000

```

RTS      PC      ;EXIT
50$:     .BYTE  0,20
         .BYTE  2,3
         .BYTE  20,4
         .BYTE  6,0

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***** TEST 17 *****
*TEST OF RECEIVER RESYNC
*TEST TO TRANSMIT A BLOCK OF
*DATA (SYN SYN 1,2,3,4,5)
*HAVING CHAR "1" BEING A "SPECIAL CHAR" TO THE RECEIVER
*AT WHICH TIME A "RE-SYNC" PULSE WILL BE ISSUED
*AND A RESTART CHAR PROC. (DVSCROB=1) WILL BE DONE.
*WHEN THE TRANSMITTER IS DONE (DVSCRIS=1) A SECOND
*BLOCK OF DATA (SYN SYN, SYN SYN, 6,7,10)
*WILL BE SENT EXPECTING THAT THE NEXT TIME DVSCFJ7=1
*THAT THE DVRIC WILL HAVE:
*14=1 11:08=LINE NO. 07:00="10"
*RXBUFFER (CORE) S/B= 1,6,7,10.
*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
*****

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020144	012737	000017	001226
020152	012737	021142	001216
020160	012700	000000	
020164	013737	001416	001236
020172	100402		
020174	004737	020262	
020200	012700	000004	
020204	013737	001420	001236
020212	100402		
020214	004737	020262	
020220	012700	000010	
020224	013737	001422	001236
020232	100402		
020234	004737	020262	
020240	012700	000014	
020244	013737	001424	001236
020252	100402		
020254	004737	020262	
020260	104400		
020262			
020262	012737	020314	001220
020270	104413		
020272	112737	000001	030161
020300	005037	030166	
020304	005037	030170	
020310	012702	000004	
020314	010077	161052	
020320	032737	004000	001236
020326	001406		
020330	004537	022120	
020334	000	001	
020336	022560		

```

; TEST 17
-----
TST17:  MOV    #17,TSTNO
        MOV    #TST20,NEXT
        MOV    #0,R0
        MOV    L00.03,STAT
        BMI   100$
        JSR   PC,105$
100$:   MOV    #4,R0
        MOV    L04.07,STAT
        BMI   101$
        JSR   PC,105$
101$:   MOV    #8,R0
        MOV    L08.11,STAT
        BMI   102$
        JSR   PC,105$
102$:   MOV    #12,R0
        MOV    L12.15,STAT
        BMI   103$
        JSR   PC,105$
103$:   SCOPE
105$:   MOV    #1$,LOCK
        RAMCLR
        MOVB   #BIT0,RXTAB+1
        CLR   RXTAB+6
        CLR   RXTAB+10
        MOV   #4,R2
1$:     MOV    R0,DVRSR
        BIT   #ASYNC,STAT
        BEQ   80$
        PERFORM SETREG
        .BYTE 000,001
        TXBAP

```

```

; PLACE LINE NUMBER INTO R0
; LOAD LINE CARD STATUS INTO STAT
; BR IF LINE CARD NOT TO BE TESTED
; GO DO THE TEST FOR LINE CARD 1
; PLACE LINE NUMBER INTO R0
; LOAD LINE CARD STATUS INTO STAT
; BR IF LINE CARD NOT TO BE TESTED
; GO DO THE TEST FOR LINE CARD 2
; LOAD LINE NUMBER
; LOAD LINE CARD STATUS INTO STAT
; BR IF LINE CARD NOT TO BE TESTED
; DO THE TEST FOR LINE CARD 3
; LOAD LINE NO.
; LOAD LINE CARD STATUS
; BR IF LINE CARD NOT TO BE TESTED
; DO THE TESTS FOR LINE CARD 4
; SCOPE THIS TEST.
; TEST ENTRANCE.
; SET RETURN
; CLEAR ALL SEC. REGS
; SET "SPECIAL CHAR" CNTRL BYTE
; CLEAR
; OTHER CNTRL BYTES
; SET FOR 4 LINE GROUP
; LOAD LINE NUMBER
; IS THIS AN ASYNC LINE CARD?
; BR IF NOT ASYNC.
; ADJUST FOR ASYNC LINE CARD
; REGISTERS
; LOAD FOR ASYNC

```

2891	020340	177773			-5		: #LOAD FOR ASYNC
2892	020342	000405			BR	#1\$	: #CONTINUE TEST
2893	020344	004537	022120		PERFORM	SETREG	
2894	020350	000	001	80\$:	.BYTE	000,001	: RX BA P, RX BC P
2895	020352	022556			SYNC		
2896	020354	177771			-7		
2897	020356	004537	022120		PERFORM	SETREG	
2898	020362	004	005	81\$:	.BYTE	004,005	: RX BA RX BC
2899	020364	027560			RxBA		
2900	020366	177774			-4		
2901	020370	004537	022120		PERFORM	SETREG	
2902	020374	010	011		.BYTE	010,011	: RX CNTRL TAB, RX CNTRL TAB
2903	020376	023560			TXTAB		
2904	020400	030160			RXTAB		
2905	020402	004537	022120		PERFORM	SETREG	
2906	020406	013	012		.BYTE	013,012	: LINE STATE, LINE PROTOCL PARAMS.
2907	020410	000004			BIT2		: TX GO
2908	020412	000101			BIT6+BIT0		: TX DDCMP, IDLE MARK
2909	020414	032737	004000	001236	BIT	#ASYNC, STAT	: #IS THIS ASYNC LINE CARD?
2910	020422	001412			BEQ	60\$	: #BR IF NO.
2911	020424	004537	022164		PERFORM	LOAD.MODE	: #LOAD PARAMETERS.
2912	020430	020000			BIT13		: #RECEIVER ENABLE
2913	020432	004537	022164		PERFORM	LOAD.MODE	
2914	020436	015000			<BIT12+BIT11>+BIT9		: #8 BITS/PER/CHAR
2915	020440	004537	022164		PERFORM	LOAD.MODE	
2916	020444	072000			<BIT14+BIT13+BIT12>+BIT10		: #9600 BAUD.
2917							
2918	020446	000403			BR	61\$	
2919	020450	004537	022164		PERFORM	LOAD.MODE	: LOAD
2920	020454	034000			BIT13+BIT12+BIT11		: MODE + RX ENABLE
2921	020456	005037	027560		CLR	RxBA	: CLEAR
2922	020462	005037	027562		CLR	RxBA+2	: RX BUFFER
2923	020466	012705	022560		MOV	#TXBAP, R5	: SET TX POINTER
2924	020472	005004			CLR	R4	: LOAD
2925	020474	005204			INC	R4	: DATA
2926	020476	110425			MOVB	R4, (R5)+	: INTO
2927	020500	022704	000005		CMP	#5, R4	: TX BUFFER
2928	020504	001373			BNE	2\$	: (1-5)
2929	020506	004537	021706		PERFORM	SETSYNC	: GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
2930	020512	005277	160644		INC	#DVSCR	: SET UCPU GO
2931	020516	005005			CLR	R5	: SET COUNTER TO 0
2932	020520	105777	160636		TSTB	#DVSCR	: WAIT FOR DVSCR07=1
2933	020524	100404			BMI	.+12	: BR IF SET.
2934	020526	104414			DELAY		: STALL TIME
2935	020530	005205			INC	R5	: UPDATE
2936	020532	001372			BNE	.-12	: WAIT
2937	020534	104000			HLT		: DVSCR07 NOT SET.
2938	020536	005005			CLR	R5	: SET COUNTER TO 0
2939	020540	005777	160616		TST	#DVSCR	: TX DONE?
2940	020544	100404			BMI	.+12	: BR IF DVSCR15=1
2941	020546	104414			DELAY		: STALL TIME
2942	020550	005205			INC	R5	: UPDATE
2943	020552	001372			BNE	.-12	
2944	020554	104000			HLT		: DVSCR15 NOT SET.
2945	020556	012705	022560		MOV	#TXBAP, R5	: SET TX POINTER
2946	020562	113725	001236		MOVB	STAT, (R5)+	: SYNC

2947	020566	113725	001236		MOV B STAT, (R5)+	: SYNC
2948	020572	012704	000006		MOV #6, R4	: SET 1ST DATA TO 6
2949	020576	110425		3\$:	MOV B R4, (R5)+	: LOAD
2950	020600	005204			INC R4	: DATA
2951	020602	022704	000011		CMP #11, R4	: ALL DONE?
2952	020606	001373			BNE 3\$	: BR IF NO
2953	020610	032737	004000	001236	BIT #ASYNC, STAT	: #IS THIS AN ASYNC LINE CARD?
2954	020616	001406			BEQ 82\$	: #BR IF NOT ASYNC.
2955	020620	004537	022120		PERFORM SETREG	: #ADJUST FOR ASYNC LINE CARD
2956	020624	000	001		BYTE 000,001	: #REGISTERS
2957	020626	022562			TXBAP+2	: #LOAD FOR ASYNC
2958	020630	177775			-3	: #LOAD FOR ASYNC
2959	020632	000405			BR 83\$	: #CONTINUE TEST
2960	020634	004537	022120	82\$:	PERFORM SETREG	
2961	020640	000	001		BYTE 000,001	: TX BA P, TX BC P
2962	020642	022556			SYNC	
2963	020644	177771			-7	
2964	020646	032737	004000	001236	83\$:	BIT #ASYNC, STAT
2965	020654	001403			BEQ .+10	: #ASYNC LINE CARD?
2966	020656	004537	022164		PERFORM ,LOAD.MODE	: #BR IF NO
2967	020662	000000			0	: #CLEAR RX ENABLE
2968	020664	112777	000013	160502	MOV B #13, DVSRSH	: #
2969	020672	042777	000200	160476	BIC #BIT7, DVSRA	: LINE STATE
2970	020700	052777	000002	160470	BIS #BIT1, DVSRA	: CLEAR "USE SEC TABLES"
2971	020706	112777	000012	160460	MOV B #12, DVSRSH	: SET RE-SYNC
2972	020714	052777	000002	160454	BIS #BIT1, DVSRA	: SEL LINE PROTOCOL PARAM.
2973	020722	012737	006000	020732	MOV #6000, B4\$	: SET STRIP LEADING SYNC
2974	020730	005327			DEC (PC)+	: GIVE UCPU TIME
2975	020732	000000			84\$:	: TO RESYNC SILO
2976	020734	001375			0	
2977	020736	032737	004000	001236	BNE .-4	: #ASYNC LINE CARD?
2978	020744	001403			BIT #ASYNC, STAT	: #BR IF NOT ASYNC LINE CARD.
2979	020746	004537	022164		BEQ .+10	: #SET RX ENABLE FOR ASYNC LINE CARD
2980	020752	020000			PERFORM ,LOAD.MODE	: #RX ENABLE
2981	020754	112777	000013	160412	BIT13	: SEL LINE STATE.
2982	020762	052777	000004	160406	MOV B #13, DVSRSH	: SET TX GO.
2983	020770	052777	000400	160364	BIS #BIT2, DVSRA	: RESTART CPU
2984	020776	005004			BIS #BIT8, DVSCR	: SET FOR TIME OUT.
2985	021000	105777	160356		CLR R4	: RX DONE?
2986	021004	100404			TSTB DVSCR	: BR IF YES
2987	021006	104414			BMI .+12	: WASTE TIME
2988	021010	005204			DELAY	: LOOP DONE?
2989	021012	001372			INC R4	: BR IF NO
2990	021014	104000			BNE .-12	: DVSCRO7 NOT SET AFTER RESYNC.
2991	021016	017704	160344		HLT	: READ DVRIC
2992	021022	010005			MOV DVVIC, R4	: LOAD LINE NO
2993	021024	000305			MOV R0, R5	: PLACE IN HIGH BYTE
2994	021026	052705	040010		SWAB R5	: SET BC WARNING + CHAR 10
2995	021032	020504			BIS #BIT14+10, R5	: RIC OK
2996	021034	001401			CMP R5, R4	
2997	021036	104001			BEQ 4\$	
2998	021040	012703	027560	4\$:	HLT 1	: DVRIC WRONG
2999	021044	112304			MOV #RXBA, R3	: CHECK RX DATA
3000	021046	012705	000001		MOV (R3)+, R4	
3001	021052	020504			MOV #1, R5	
3002	021054	001401			CMP R5, R4	
					BEQ 5\$	

3003 021056 104001  
 3004 021060 112304  
 3005 021062 012705 000006  
 3006 021066 020504  
 3007 021070 001401  
 3008 021072 104001  
 3009 021074 112304  
 3010 021076 012705 000007  
 3011 021102 020504  
 3012 021104 001401  
 3013 021106 104001  
 3014 021110 005205  
 3015 021112 112304  
 3016 021114 020504  
 3017 021116 001401  
 3018 021120 104001  
 3019 021122 104412  
 3020 021124 104401  
 3021 021126 005200  
 3022 021130 005302  
 3023 021132 001402  
 3024 021134 000137 020314  
 3025 021140 000207  
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```

5$:  HLT      1           ;1ST CHAR NOT "1"!
      MOVB   (R3)+,R4
      MOV    #6,R5
      CMP    R5,R4
      BEQ    6$
      HLT    1           ;2ND CHAR NOT "6"!
6$:  MOVB   (R3)+,R4
      MOV    #7,R5
      CMP    R5,R4
      BEQ    7$
      HLT    1           ;3RD CHAR NOT "7"!
7$:  INC     R5
      MOVB   (R3)+,R4
      CMP    R5,R4
      BEQ    8$
      HLT    1           ;4TH CHAR NOT "10"!
8$:  MSTCLR
      SCOP1
      INC    R0
      DEC    R2
      BEQ    .+6
      JMP    1$
      RTS    PC
  
```

```

;RESET DV11
;LOCK ON CURRENT LINE?
;UPDATE LINE NO.
;4 LINES DONE
;BR IF YES
;JMP IF NO
;EXIT FOR NEXT 4 LINE GROUP
  
```

```

;***** TEST 20 *****
;*TEST OF RECEIVER OVERRUN.
;*TEST TO TXMIT 134. CHARS AND RECV 129
;*SERVICING THE FIRST CHAR AS A SPECIAL CHAR
;*AND STOPING THE CHAR PROCESSOR.
;*WHEN THE TRANSMITTER FINISHES ALL 134. CHARS
;*THE RECEIVER IS RESTARTED AND THE NEXT ENTRY
;*IN THE RIC REG S/B OVER RUN ON CHAR 202(8).
;*THIS TEST IS DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
;*****
  
```

; TEST 20

3040 021142 012737 000020 001226  
 3041 021150 012737 002436 001216  
 3042 021156 012700 000000  
 3043 021162 113737 001406 001244  
 3044 021170 013737 001416 001236  
 3045 021176 100402  
 3046 021200 004737 021310  
 3047 021204 012700 000004  
 3048 021210 113737 001407 001244  
 3049 021216 013737 001420 001236  
 3050 021224 100402  
 3051 021226 004737 021310  
 3052 021232 012700 000010  
 3053 021236 113737 001410 001244  
 3054 021244 013737 001422 001236  
 3055 021252 100402  
 3056 021254 004737 021310  
 3057 021260 012700 000014  
 3058 021264 113737 001411 001244

```

;-----
;1ST20: MOV    #20,TSTNO
;        MOV    #.EOP,NEXT
;        MOV    #0.,R0
;        MOVB   MASK.A,MASKX ;PLACE LINE NUMBER INTO R0
;        MOV    LOO.03,STAT ;PLACE "MASK"FOR CHARS INTO MASKX
;        BMI    100$ ;LOAD LINE CARD STATUS INTO STAT
;        JSR    PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
;        MOV    #4.,R0 ;GO DO THE TEST FOR LINE CARD 1
;        MOVB   MASK.B,MASKX ;PLACE LINE NUMBER INTO R0
;        MOV    LO4.07,STAT ;GET MASK
;        BMI    101$ ;LOAD LINE CARD STATUS INTO STAT
;        JSR    PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
;        MOV    #8.,R0 ;GO DO THE TEST FOR LINE CARD 2
;        MOVB   MASK.C,MASKX ;LOAD LINE NUMBER
;        MOV    LO8.11,STAT ;GET MASK
;        BMI    102$ ;LOAD LINE CARD STATUS INTO STAT
;        JSR    PC,105$ ;BR IF LINE CARD NOT TO BE TESTED
;        MOV    #12.,R0 ;DO THE TEST FOR LINE CARD 3
;        MOVB   MASK.D,MASKX ;LOAD LINE NO.
;        ;GET MASKK
  
```

F06

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SEQ 0070

3059	021272	013737	001424	001236	MOV	L12,15,STAT	:LOAD LINE CARD STATUS
3060	021300	100402			BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
3061	021302	004737	021310		JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
3062	021306	104400			103\$: 105\$: SCOPE		:SCOPE THIS TEST.
3063	021310						:TEST ENTRANCE.
3064	021310	012737	021346	001220	MOV	#1\$,LOCK	:RETURN FOR SW09
3065	021316	104413			RAMCLR		:CLEAR ALL SEC REGISTERS
3066	021320	005004			CLR	R4	:CLEAR
3067	021322	012705	030160		MOV	#RXTAB,R5	:THE
3068	021326	005025			CLR	(R5)+	:RECEIVER
3069	021330	105204			INCB	R4	:CONTROL
3070	021332	100375			BPL	-4	:TABLE
3071	021334	112737	000001	030161	MOV	#BIT0,RXTAB+1	:SET "SPECIAL CHAR"(1)
3072	021342	012702	000004		MOV	#4,R2	:4 LINE GROUP
3073	021346	010077	160020		1\$: MOV	R0,ADVSR5	:LOAD LINE NO.
3074	021352	032737	004000	001236	BIT	#ASYNC,STAT	:#IS THIS AN ASYNC LINE CARD?
3075	021360	001406			BEQ	80\$	:#BR IF NOT ASYNC.
3076	021362	004537	022120		PERFORM	SETREG	:#ADJUST FOR ASYNC LINE CARD
3077	021366	000	001		.BYTE	000,001	:#REGISTERS
3078	021370	022560			TXBAP		:#LOAD FOR ASYNC
3079	021372	177573			-133.		:#LOAD FOR ASYNC
3080	021374	000405			BR	81\$	:#CONTINUE TEST
3081	021376	004537	022120		80\$: PERFORM	SETREG	
3082	021402	000	001		.BYTE	000,001	:TX BA P, TX BC P
3083	021404	022556			SYNC		
3084	021406	177572			-134.		
3085	021410				81\$: BIT	#ASYNC,STAT	:#IS THIS AN ASYNC LINE CARD?
3086	021410	032737	004000	001236	BEQ	82\$	:#BR IF NOT ASYNC.
3087	021416	001406			PERFORM	SETREG	:#ADJUST FOR ASYNC LINE CARD
3088	021420	004537	022120		.BYTE	004,005	:#REGISTERS
3089	021424	004	005		RXBA		:#LOAD FOR ASYNC
3090	021426	027560			-130.		:#LOAD FOR ASYNC
3091	021430	177576			BR	83\$	:#CONTINUE TEST
3092	021432	000405			PERFORM	SETREG	
3093	021434	004537	022120		.BYTE	004,005	:RX BA, RX BC
3094	021440	004	005		RXBA		
3095	021442	027560			-129.		
3096	021444	177577			PERFORM	SETREG	
3097	021446	004537	022120		.BYTE	010,011	:TX TAB, RX TAB
3098	021452	010	011		TXTAB		
3099	021454	023560			RXTAB		
3100	021456	030160			PERFORM	SETREG	
3101	021460	004537	022120		.BYTE	013,012	:LINE STATE, LINE PROTOCOL PARAM
3102	021464	013	012		BIT2		:TX GO
3103	021466	000004			BIT6+BIT0		:TX ODCMP + IDLE MARK
3104	021470	000101			BIT	#ASYNC,STAT	:#IS THIS ASYNC LINE CARD?
3105	021472	032737	004000	001236	BEQ	60\$	:#BR IF NO.
3106	021500	001412			PERFORM	LOAD.MODE	:#LOAD PARAMETERS.
3107	021502	004537	022164		BIT13		:#RECEIVER ENABLE
3108	021506	020000			PERFORM	LOAD.MODE	:#
3109	021510	004537	022164		<BIT12+BIT11>+BIT9		:#8 BITS/PER/CHAR
3110	021514	015000			PERFORM	LOAD.MODE	:#
3111	021516	004537	022164		<BIT14+BIT13+BIT12>+BIT10		:#9600 BAUD.
3112	021522	072000			BR	61\$	
3113							
3114	021524	000403					

3115	021526	004537	022164	60\$:	PERFORM	LOAD.MODE	:LOAD
3116	021532	034000			BIT13+BIT12+BIT11		:MODE
3117	021534	012705	022560	61\$:	MOV	#TXBAP,FS	:LOAD
3118	021540	005004			CLR	R4	:TX
3119	021542	105204		2\$:	INCB	R4	:DATA
3120	021544	001402			BEQ	21\$	:BUFFER
3121	021546	110425			MOVB	R4,(R5)+	
3122	021550	000774			BR	2\$	
3123	021552	004537	021706	21\$:	PERFORM	SETSUNC	:GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
3124	021556	005277	157600		INC	ADVSCR	:SET UCPU GO
3125	021562	105777	157574		TSTB	ADVSCR	:DVSCRO7=1?
3126	021566	100375			BPL	-4	:BR IF NO
3127	021570	005777	157566		TST	ADVSCR	:DVSCR15=1?
3128	021574	100375			BPL	-4	:BR IF NO
3129	021576	112777	000012	157570	MOVB	#12,ADVSRSH	:LINE PROTOCOL PARAM.
3130	021604	052777	000040	157564	BIS	#BIT5,ADVSR	:SET RX DDCMP
3131	021612	052777	000400	157542	BIS	#BIT8,ADVSCR	:RESTART
3132	021620	105777	157536		TSTB	ADVSCR	:DVSCRO7=1?
3133	021624	100375			BPL	-4	:BR IF NO
3134	021626	017704	157534		MOV	ADVRC,R4	:READ RIC
3135	021632	010005			MOV	R0,R5	:LINE
3136	021634	000305			SWAB	R5	:HIGH BYTE
3137	021636	052705	020202		BIS	#BIT13+202,R5	:130.
3138	021642	032737	004000	001236	BIT	#ASYNC,STAT	:#IS THIS AN ASYNC LINE CARD?
3139	021650	001401			BEQ	+4	:#BR IF NOT ASYNC
3140	021652	005205			INC	R5	:#ADJUST FOR ASYNC. DOUBLE BUFFER CAUSES
3141							:#CHAR TO BE ONE MORE THAN SYNC LINE CARD.
3142	021654	143705	001244		BICB	MASKX,R5	:CLEAR UNUSED BITS
3143	021660	020504			CMP	R5,R4	:RIC OK?
3144	021662	001401			BEQ	3\$	
3145	021664	104001			HLT	1	:NO OVER-RUN; OR ON WRONG CHAR!
3146	021666	104412		3\$:	MSTCLR		:RESET DVA
3147	021670	104401			SCOPI		:LOCK ON CURRENT LINE?
3148	021672	005200			INC	R0	:UPDATE LINE NO.
3149	021674	005302			DEC	R2	:4 LINES DONE
3150	021676	001402			BEQ	+6	:BR IF YES
3151	021700	000137	021346		JMP	1\$	:JMP IF YES
3152	021704	000207			RTS	PC	:EXIT
3153							
3154	021706			SETSUNC:			
3155	021706	113737	001236	022556	MOVB	STAT,SYNC	:SET SYNC FOR THIS LINE.
3156	021714	113737	022556	022557	MOVB	SYNC,SYNC+1	:PLACE SYNC IN HIGH BYTE
3157	021722	032737	010000	001236	BIT	#TWO\$YN,STAT	:ONE SYNC OR TWO?
3158	021730	001402			BEQ	1\$	:BR IF JUMPERED FOR TWO.
3159	021732	105037	022556		CLRB	SYNC	:SET FIRST SYNC TO NON-SYNC
3160	021736	000205		1\$:	EXIT		
3161	021740	010046		SIMBCC:			
3162	021742	010146			MOV	R0,-(SP)	
3163	021744	010246			MOV	R1,-(SP)	
3164	021746	012537	001246		MOV	R2,-(SP)	
3165	021752	012537	001250		MOV	(R5)+,TEMP1	
3166	021756	012537	001252		MOV	(R5)+,TEMP2	
3167	021762	005037	022114		MOV	(R5)+,TEMP3	
3168	021766	013700	001252	1\$:	CLR	BCCFBK	
3169	021772	006037	001250		MOV	TEMP3,R0	
3170	021776	005500			ROR	TEMP2	
					ADC	R0	



3171	022000	032700	000001		BIT	#BIT0,RO
3172	022004	001402			BEQ	2\$
3173	022006	005137	022114		COM	BCCFBK
3174	022012	013700	022112	2\$:	MOV	XPOLY,RO
3175	022016	005100			COM	RO
3176	022020	040037	022114		BIC	RO,BCCFBK
3177	022024	000241			CLC	
3178	022026	006037	001252		ROR	TEMP3
3179	022032	013700	022114		MOV	BCCFBK,RO
3180	022036	013701	001252		MOV	TEMP3,R1
3181	022042	010102			MOV	R1,R2
3182	022044	040100			BIC	R1,RO
3183	022046	043702	022114		BIC	BCCFBK,R2
3184	022052	050200			BIS	R2,RO
3185	022054	043737	022112	001252	BIC	XPOLY,TEMP3
3186	022062	050037	001252		BIS	RO,TEMP3
3187	022066	005337	001246		DEC	TEMP1
3188	022072	001333			BNE	1\$
3189	022074	013737	001252	022116	MOV	TEMP3,CALBCC
3190	022102	012602			MOV	(SP)+,R2
3191	022104	012601			MOV	(SP)+,R1
3192	022106	012600			MOV	(SP)+,RO
3193	022110	000205			RTS	R5
3194	022112	000000				
3195	022114	000000			XPOLY:	0
3196	022116	000000			BCCFBK:	0
3197		000200			CALBCC:	0
3198		120001			LRCB=200	
3199		102010			CRC16=120001	
3200					CRC.CCITT=102010	
3201						
3202	022120	010046			SETREG: MOV	RO,-(SP)
3203	022122	010146			MOV	R1,-(SP)
3204	022124	112500			MOVB	(R5)+,RO
3205	022126	112501			MOVB	(R5)+,R1
3206	022130	110077	157240		MOVB	RO,ADVSRSH
3207	022134	012577	157236		MOV	(R5)+,ADVSR
3208	022140	042777	000060	157214	BIC	#BITS+BIT4,ADVSCR
3209	022146	110177	157222		MOVB	R1,ADVSRSH
3210	022152	012577	157220		MOV	(R5)+,ADVSR
3211	022156	012601			MOV	(SP)+,R1
3212	022160	012600			MOV	(SP)+,RO
3213	022162	000205			EXIT	
3214						
3215	022164				LOAD.MODE:	
3216	022164	012577	157200		MOV	(R5)+,ADVLCR
3217	022170	052777	100000	157172	BIS	#BIT15,ADVLCR
3218	022176	010046			MOV	RO,-(SP)
3219	022200	005000			CLR	RO
3220	022202	005777	157162	1\$:	TST	ADVLCR
3221	022206	100004			BPL	2\$
3222	022210	104414			DELAY	
3223	022212	005200			INC	RO
3224	022214	001372			BNE	1\$
3225	022216	104000			HLT	0
3226	022220	012600		2\$:	MOV	(SP)+,RO

:BIT 15 FAILED TO CLEAR

```

3227 022222 000205          EXIT
3228
3229          :SUBROUTINE.
3230          :CORE TABLES ALREAY SET UP
3231          :XMIT 3 CHARS 2SYNC+ 1 DATA
3232          :RCV      1 CHAR
3233 022224 010077 157142    DV110N: MOV      RD, DVSR5
3234 022230 032737 004000 001236 BIT      #ASYNC, STAT      ; #IS THIS AN ASYNC LINE CARD?
3235 022236 001406          BEQ      80$              ; #BR IF NOT ASYNC.
3236 022240 004537 022120   PERFORM  SETREG      ; #ADJUST FOR ASYNC LINE CARD
3237 022244      000      001      .BYTE   000,001          ; #REGISTERS
3238 022246 022560          TXBAP          ; #LOAD FOR ASYNC
3239 022250 177777          -1              ; #LOAD FOR ASYNC
3240 022252 000405          BR      81$              ; #CONTINUE TEST
3241 022254 004537 022120   80$: PERFORM  SETREG
3242 022260      000      001      .BYTE   000,001
3243 022262 022556          SYNC
3244 022264 177775          -3
3245 022266 004537 022120   81$: PERFORM  SETREG
3246 022272      004      005      .BYTE   004,005
3247 02  274 027560          RXBA
3248 022276 177777          -1
3249 022300 004537 022120   PERFORM  SETREG
3250 022304      010      011      .BYTE   010,011
3251 022306 023560          TXTAB
3252 022310 030160          RXTAB
3253 022312 004537 022120   PERFORM  SETREG
3254 022316      013      012      .BYTE   013,012
3255 022320 000004          BIT2
3256 022322 000001          BIT0
3257 022324 032737 004000 001236 BIT      #ASYNC, STAT      ; #IS THIS ASYNC LINE CARD?
3258 022332 001412          BEQ      60$              ; #BR IF NO.
3259 022334 004537 022164   PERFORM  ,LOAD.MODE      ; #LOAD PARAMETERS.
3260 022340 020000          BIT13          ; #RECEIVER ENABLE
3261 022342 004537 022164   PERFORM  ,LOAD.MODE      ; #
3262 022346 015000          <BIT12+BIT11>+BIT9      ; #B BITS/PER/CHAR
3263 022350 004537 022164   PERFORM  ,LOAD.MODE      ; #
3264 022354 072000          <BIT14+BIT13+BIT12>+BIT10 ; #9600 BAUD.
3265
3266 022356 000405          BR      61$
3267 022360 004537 022164   60$: PERFORM  ,LOAD.MODE
3268 022364 034000          BIT13+BIT12+BIT11
3269 022366 004537 021706   PERFORM  ,SETSYNC      ; GET SYNC CHARS AND ADJUST FOR ONE OR TWO.
3270 022372 000207          61$: RTS      PC
3271
3272
3273          SETSCAN:
3274 022374 010346          MOV      R3, -(SP)
3275 022376 052777 000010 156756 BIS      #BIT3, DVSCR
3276 022404 012503          MOV      (R5)+, R3
3277 022406 001414          BEQ      2$
3278 022410 012777 050102 156762 1$: MOV      #BIT14+BIT12+BIT6+BIT1, DVSFR
3279 022416 104415          ROMCLK
3280 022420 005201          INC      R1
3281 022422 012777 050102 156750 MOV      #BIT14+BIT12+BIT6+BIT1, DVSFR
3282 022430 104415          ROMCLK

```

3283	022432	005201		INC	R1
3284	022434	005303		DEC	R3
3285	022436	001364		BNE	IS
3286	022440	012603	2\$:	MOV	(SP)+,R3
3287	022442	010100		MOV	R1,R0
3288	022444	000241		CLC	
3289	022446	006000		ROR	R0
3290	022450	000205		EXIT	

3291					
3292	022452	000042		REGBUF:	.BLKW 34.
3293	022556	000001		SYNC:	.BLKW 1
3294	022560	000400		TXBAP:	.BLKB 400
3295	023160	000400		TXBAS:	.BLKB 400
3296	023560	000400		TXTAB:	.BLKB 400
3297	024160	000400			.BLKB 400
3298	024560	000400			.BLKB 400
3299	025160	000400			.BLKB 400
3300	025560	000400			.BLKB 400
3301	026160	000400			.BLKB 400
3302	026560	000400			.BLKB 400
3303	027160	000400			.BLKB 400
3304	027560	000400		RXBA:	.BLKB 400
3305	030160	000400		RXTAB:	.BLKB 400
3306	030560	000400			.BLKB 400
3307	031160	000400			.BLKB 400
3308	031560	000400			.BLKB 400
3309	032160	000400			.BLKB 400
3310	032560	000400			.BLKB 400
3311	033160	000400			.BLKB 400
3312	033560	000400			.BLKB 400

3313	034160	000000		DATA:	0
3314	034162	043377	042522	EM1:	.ASCIZ <377>/FREE RUNNING ROM TESTS/
	034212	051377	020105	EM2:	.ASCIZ <377>/RECEIVER CONTROL BYTE TEST./
	034247	377	041505	EM3:	.ASCIZ <377>/TRANSMITTER CONTROL BYTE TEST./
	034307	377	051124	EM4:	.ASCIZ <377>/RECEIVER BCC ERROR/
	034333	377	042522	DH1:	.ASCIZ <377>/EXPECTED FOUND LINE(8)/
			042503	.EVEN	
			054105	DT1:	3

3315	034366	000003			
3316	034370	006	004	.BYTE	6,4
3317	034372	001272		SAVR5	
3318	034374	006	002	.BYTE	6,2
3319	034376	001270		SAVR4	
3320	034400	002	001	.BYTE	2,1
3321	034402	001260		SAVR0	

3322	034404			.ERRTAB:	
3323	034404	000000			0
3324	034406	000000			0
3325	034410	000000			0
3326	034412	034162		EM1	
3327	034414	034333		DH1	;HALT 1
3328	034416	034366		DT1	
3329	034420	034212		EM2	
3330	034422	034333		DH1	;HALT 2
3331	034424	034366		DT1	
3332	034426	034247		EM3	

K06

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DV11 DEVICE DIAGNOSTICS.

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SEG 0075

3333 034430 034333  
3334 034432 034366  
3335 034434 034307  
3336 034436 034333  
3337 034440 034366  
3338  
3339 034442  
3340 000001

DH1 ;HALT 3  
DTI  
EM4  
DH1 ;HALT 4  
DTI

::\*\*\*\*\*  
CORMAX:  
.END





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 CZDVDC.P11 02-FEB-78 13:55 CROSS REFERENCE TABLE -- USER SYMBOLS

DVTVEC	001356	228#	1038*	1039*	1040	1271*				
DV.END	001740	369#	993	1002	1131					
DV.MAP	001500	171	280#	385	412	995	1005	1129	1134	1183
DV00.A	001504	283#								
DV00.B	001510	285#								
DV00.C	001514	287#								
DV00.D	001520	289#								
DV01.A	001530	294#								
DV01.B	001534	296#								
DV01.C	001540	298#								
DV01.D	001544	300#								
DV02.A	001554	305#								
DV02.B	001560	307#								
DV02.C	001564	309#								
DV02.D	001570	311#								
DV03.A	001600	316#								
DV03.B	001604	318#								
DV03.C	001610	320#								
DV03.D	001614	322#								
DV04.A	001624	327#								
DV04.B	001630	329#								
DV04.C	001634	331#								
DV04.D	001640	333#								
DV05.A	001650	338#								
DV05.B	001654	340#								
DV05.C	001660	342#								
DV05.D	001664	344#								
DV06.A	001674	349#								
DV06.B	001700	351#								
DV06.C	001704	353#								
DV06.D	001710	355#								
DV07.A	001720	360#								
DV07.B	001724	362#								
DV07.C	001730	364#								
DV07.D	001734	366#								
DV110N	022224	1744	1766	1788	1853	1918	1977	2060	2146	3233#
EM1	034162	3314#	3326							
EM2	034212	3314#	3329							
EM3	034247	3314#	3332							
EM4	034307	3314#	3335							
ERRCNT	001232	142#	387*	509	827*					
ERRFLG	001311	177#	383*	471*	538*	779*	792	806*	861*	
ERRMSG	004252	789#	807	810#						
ERTAB0	004366	804	836#							
EXIT =	000205	81#	3160	3213	3227	3290				
EXITER	004322	822	827#							
FIX.OO	006516	1046	1051	1056	1061	1095#				
HALTS	004302	775	821#							
HILIM	003436	614*	641	659#						
ICOUNT	001222	138#	536	541*						
INBUF	005520	584	620	967#						
INIFLG	001310	176#	392	407*						
INSTER=	104404	199#	635							
INSTR =	104403	197#	1068							
INSTR2	003236	591	603#							
LIGHT	000174	110#	402							











F07

TST5	012004	1572	1715*											
TST6	012512	1716	1825*											
TST7	012772	1826	1892*											
TTST	002702	454*	455*	457*	458*	525*								
TWOSYN=	010000	81*	3157											
TXBAP	022560	1244*	1250	1350*	1351*	1361	1474*	1475*	1485	1602	1619	1739*	1850*	1915*
		1980*	2053	2136	2265	2261	2405	2421	2585	2600	2634	2748	2781	2890
		2923	2945	2957	3078	3117	3238	3294*						
TXBAS	023160	3295*												
TXTAB	023560	1246*	1255	1343	1374	1467	1498	1597*	1598*	1599*	1600*	1601*	1640	1737*
		1851*	1914*	1975*	1976	2256	2260	2294	2396	2400	2434	2546	2557	2560*
		2561*	2562*	2563*	2564*	2565*	2566*	2567*	2568*	2613	2712	2720*	2721*	2722*
		2723*	2724*	2725*	2726*	2727*	2728*	2761	2903	3099	3251	3296*		
TYPDAT	004266	795	813	816*										
TYPE =	104402	195*	406	411	424	429	453	461	474	475	477	479	481	569
		582	599	692	729	796	797	800	801	803	805	809	814	859
		916	918	946	984	1067	1085	1090	1174					
TYPMSG	004166	793	796*											
VECMAP	007102	1173	1181*											
WRDCNT	003742	700*	730*	738*										
WRKO.F	004254	808	811*											
XBX	004060	770	772	774*										
XCSR	002604	476	498*											
XERR	002626	482	507*											
XFR =	030000	75*												
XHEAD	005461	411	958*											
XPASS	002620	480	504*											
XPOLY	022112	1755*	1777*	1799*	3174	3185	3194*							
XSTATQ	005506	417	958*											
XTSTN	004374	802	839*											
XVEC	002612	478	501*											
SCRAP =	177777	1*	1212*	1216*	1304*	1310*	1428*	1434*	1552*	1567*	1700*	1711*	1815*	1821*
		1881*	1888*	1942*	1948*	2009*	2018*	2099*	2107*	2210*	2225*	2355*	2368*	2495*
		2520*	2669*	2683*	2841*	2855*	3027*	3036*						
SE =	000022	1*	1221	1222*	1315	1316*	1439	1440*	1572	1573*	1716	1717*	1826	1827*
		1893	1894*	1953	1954*	2023	2024*	2112	2113*	2230	2231*	2373	2374*	2525
		2526*	2688	2689*	2860	2861*	3041	3042*						
SN =	000020	1*	1212	1218	1222*	1304	1312	1316*	1428	1436	1440*	1552	1569	1573*
		1700	1713	1717*	1815	1823	1827*	1881	1890	1894*	1942	1950	1954*	2009
		2020	2024*	2099	2109	2113*	2210	2227	2231*	2355	2370	2374*	2495	2522
		2526*	2669	2685	2689*	2841	2857	2861*	3027	3038	3042*	3314*		
\$1 =	000017	1*	182*	191	193*	195*	197*	199*	201*	203*	205*	207*	209*	211*
		213*	215*	217*	219*	221*								
		92*	93	96*	103*	104*	105*	106*	109*	111*	114*	118*	120*	165*
		166*	167*	168*	169*	170*	279*	281*	282*	283*	284*	285*	286*	287*
		288*	289*	290*	292*	293*	294*	295*	296*	297*	298*	299*	300*	301*
		303*	304*	305*	306*	307*	308*	309*	310*	311*	312*	314*	315*	316*
		317*	318*	319*	320*	321*	322*	323*	325*	326*	327*	328*	329*	330*
		331*	332*	333*	334*	336*	337*	338*	339*	340*	341*	342*	343*	344*
		345*	347*	348*	349*	350*	351*	352*	353*	354*	355*	356*	358*	359*
		360*	361*	362*	363*	364*	365*	366*	367*	431	520	767	849	858
		872	910*	920	927	941	968*	970*	972*	986	1177	1198	1339	1395
		1463	1519	1762	1784	1806	1860	1926	1983	1987	2047	2071	2163	2183
		2251	2319	2459	2633	2709	2788	2833	2933	2936	2940	2943	2965	2976
		2978	2986	2989	3023	3070	3126	3128	3133	3139	3150	3292*	3293*	3294*
		3295*	3296*	3297*	3298*	3299*	3300*	3301*	3302*	3303*	3304*	3305*	3306*	3307*

		3308#	3309#	3310#	3311#	3312#
.BEGIN	002332	447#				
.CNVRT	003542	210	693#			
.CONVR	003536	208	692#			
.DATAC	004576	220	898#			
.DELAY	004476	216	869#			
.EOP	002436	469#	3041			
.ERRTA	034404	788	3322#			
.HLT	004002	99	761#			
.INSTE	003224	200	599#			
.INSTR	003120	198	578#			
.INST1	003140	582#	602			
.MSG	003142	580#	583#			
.MSTCL	004556	212	890#			
.PARAM	003244	202	610#			
.PFAIL	004402	97	380	846#	854	
.RAMCL	004516	214	877#			
.RESOS	003504	206	681#			
.ROMCL	004566	218	894#			
.SAVOS	003444	204	667#			
.SCOPE	002634	192	514#			
.SCOPI	003020	194	552#			
.START	001742	115	378#	390		
.TRPSR	003750	101	749#			
.TRPTA	001314	190#	754			
.TYPE	003044	196	562#			



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CZDVDC.P11 02-FEB-78 13:55 CROSS REFERENCE TABLE -- MACRO NAMES

SEG 0086

ERRORS DETECTED: 0

CZDVDC,CZDVDC.SOL/CRF=CZDVDC.MAC,CZDVDC.P11

RUN-TIME: 9 13 1 SECONDS

RUN-TIME RATIO: 112/24=4.6

CORE USED: 25K (49 PAGES)