

DV11

STATIC LINE CARD TEST
MD-11-DZDVB-B

EP DZDVB B DL A

NOV 1976

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MADE IN USA

.REV 8

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZDVB-B-D
PRODUCT NAME: STATIC LINE CARD TESTS
DATE RELEASED: 21-APRIL-1976
MAINTAINER: DIAGNOSTICS
AUTHOR: JOHN EGOLF

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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).

DZDVB EXERCISES ALL EXISTING LINE CARDS IN A STATIC STATE (MICRO PROCESSOR IS NEVER TURNED ON). TRANSMITTER AND RECEIVER FLAGS, TRANSMITTER AND RECEIVER DATA, RECEIVER SYNCING AND CHAR SILO ARE TESTED. MOST TESTS EXERCISE A "GROUP" OF 4 LINES AT A TIME (00-03, 04-07, 08-11, 12-15). FOR EASE OF TROUBLESHOOTING; ONLY ONE LINE CARD MAY BE INSTALLED AND BY ALERTING THE DIAGNOSTIC AS TO WHICH LINE CARDS ARE PHYSICALLY REMOVED (SEE SECTION 8.4A) PROGRAM WILL RUN ANY COMBINATION OF LINE CARDS.

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. DZDVF [REV] 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 8K OF MEMORY EXCEPT WHERE ABL AND BOOTSTRAP LOADER RESIDE. LOCATION 1500 THRU 1736 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 READ 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 NEXT 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.

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 HASS 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 CAN'T BE SINGLED OUT.

ERROR SWITCHES

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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).

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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 ENABLED; AND THERE IS A \*HARD\* ERROR (CONSTANT); SW08 IS BEST.  
(SW14=1,0, SW10=0, SW09=0, SW08=1). FOR INTERMITTENT 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 |

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 ACT-11 OR XXDP CONTROL AND WILL ACT ACCORDINGLY AFTER \*ALL\* AVAILABLE DV11'S ARE TESTED THE PROGRAM WILL RETURN TO 'XXDP' OR 'ACT-11'.

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

AND PROGRAM WILL BEGIN RUNNING THE DIAGNOSTIC



THE TYPICAL APPROACH SHOULD BE

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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)

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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.

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.

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.

7.1. 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 DIAGNOSTICS 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 DZDVB-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 LENGTHLY. THEREFORE EACH CHAR IS AN "END PASS AND THE ENTIRE "END" IS NOT REQUIRED FOR ACCEPTANCE.

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3.4 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.
TSTNO (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) 1302/0000000001000000 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) 1276/0000000000011111 MEANS THAT DV11 NO. 00,01,02,03,04 WILL BE TESTED. EXAMPLE: (DVACTV) 1276/0000000000010001 MEANS THAT DV11 NO. 00,04 WILL BE TESTED.

DVSCR (1356) CONTAINS THE RECEIVER CSR OF THE CURRENT DV11 UNDEP TEST.

L00.03 (1412)
L04.07 (1414)
L08.11 (1416)
L12.15 (1420)

CONTAINS THE STATUS OF THE CURRENT DV11 UNDER TEST.
SET: LINE CARD *NOT INSTALLED (AND WONT BE TESTED)
SET: RESERVED
SET: RESERVED
SET: ONE SYNC, =0: TWO SYNC.
SET: ASYNC LINE CARD, =0 SYNC LINE CARD.
SET: RESERVED
SET: BITS PER CHAR. (USED WITH BIT8)
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.

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8.4A 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 SYNCs.
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 CARDS.
- 5) SYNC "A"=226 AND SYNC "B"=062

IN ALL ADJUSTMENTS PLEASE REFER TO SECTION 8.4A FOR GREATER DETAIL.
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DZDVBB.P11 INTRODUCTION TO DV11 DIAGNOSTIC

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```
;STARTING PROCEDURE
;LOAD PROGRAM
;LOAD ADDRESS 000200
;PRESS START
;PROGRAM WILL TYPE "MAINDEC-11-DZDVB-B/<377>/STATIC LINE CARD TESTS "
;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
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```
;SWITCH REGISTER OPTIONS
;-----
```

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

SW15=100000
SW14=40000
SW13=20000
SW12=10000
SW11=4000
SW10=2000
SW09=1000
SW08=400
SW07=200
SW06=100
SW05=40
SW04=20
SW03=10
SW02=4
SW01=2
SW00=1

```
;=1, HALT ON ERROR
;=1, LOOP ON CURRENT TEST
;=1, INHIBIT ERROR TIMEOUT
;=1, DELETE TIMEOUT/BELL ON ERROR.
;=1, INHIBIT ITERATIONS
;=1, ESCAPE TO NEXT TEST ON ERROR
;=1, LOOP WITH CURRENT DATA
;=1, LOOP ON ERROR
;=1, DO "AUTO SIZING" ON INITIAL START UP.
```

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

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564      ;REGISTER DEFINITIONS
565      ;-----
566
567      000000      R0=%0      ;GENERAL REGISTER
568      000001      R1=%1      ;GENERAL REGISTER
569      000002      R2=%2      ;GENERAL REGISTER
570      000003      R3=%3      ;GENERAL REGISTER
571      000004      R4=%4      ;GENERAL REGISTER
572      000005      R5=%5      ;GENERAL REGISTER
573      000006      SP=%6      ;PROCESSOR STACK POINTER
574      000007      PC=%7      ;PROGRAM COUNTER
575
576      ;LOCATION EQUIVALENCIES
577      ;-----
578
579      177776      PS=177776    ;PROCESSOR STATUS WORD
580      001200      STACK=1200  ;START OF PROCESSOR STACK
581
582      100000      BIT15=100000
583      040000      BIT14=40000
584      020000      BIT13=20000
585      010000      BIT12=10000
586      004000      BIT11=4000
587      002000      BIT10=2000
588      001000      BIT9=1000
589      000400      BIT8=400
590      000200      BIT7=200
591      000100      BIT6=100
592      000040      BIT5=40
593      000020      BIT4=20
594      000010      BIT3=10
595      000004      BIT2=4
596      000002      BIT1=2
597      000001      BIT0=1
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599      010000      ALU=BIT12
600      020000      RAM=BIT13
601      030000      XFR=BIT13+BIT12
602      040000      NPR=BIT14
603      050000      S.C=BIT14+BIT12
604      060000      BCC=BIT14+BIT13
605      070000      BRB=BIT14+BIT13+BIT12
606
607
608

```


.....

:ADDRESS FOR LOCK ON CURRENT DATA

DZDVS MACY11 27(732) 17-SEP-71 11:14 PAGE 17
 DZDVBB.P11 PROGRAM PARAMETERS VARIABLES. AND TRAP CALLS.

664	001222	000000	ICOUNT:	3	: NUMBER OF ITERATIONS THAT CURRENT TEST WILL BE EXECUTED
665	001224	000000	LPCNT:	0	: NUMBER OF ITERATIONS COMPLETED
666	001226	000000	TSTNO:	0	: NUMBER OF TEST IN PROGRESS
667	001230	000000	PASCNT:	0	: NUMBER OF PASSES COMPLETED
668	001232	000000	ERRCNT:	0	: TOTAL NUMBER OF ERRORS
669	001234	000000	LSTERR:	0	: PC OF LAST ERROR CALL
670					
671			: PROGRAM VARIABLES		
672					
673					
674	001236	000000	STAT:	0	: DV STATUS WORD STORAGE
675	001240	000000	SYNEX:	0	
676	001242	000000	CLKX:	0	
677	001244	000000	MASKX:	0	
678	001246	000000	TEMP1:	0	: TEMPORARY STORAGE
679	001250	000000	TEMP2:	0	: TEMPORARY STORAGE
680	001252	000000	TEMP3:	0	: TEMPORARY STORAGE
681	001254	000000	TEMP4:	0	: TEMPORARY STORAGE
682	001256	000000	TEMP5:	0	: TEMPORARY STORAGE
683	001260	000000	SAVR0:	0	: R0 STORAGE
684	001262	000000	SAVR1:	0	: R1 STORAGE
685	001264	000000	SAVR2:	0	: R2 STORAGE
686	001266	000000	SAVR3:	0	: R3 STORAGE
687	001270	000000	SAVR4:	0	: R4 STORAGE
688	001272	000000	SAVR5:	0	: R5 STORAGE
689	001274	000000	SAVSP:	0	: STACK POINTER STORAGE
690	001276	000000	SAVPC:	0	: PROGRAM COUNTER STORAGE
691	001300	000001	DVACTV:	.BLKB 1	: DV11'S SELECTED ACTIVE.
692	001301	000001	DVNUM:	.BLKB 1	: OCTAL NUMBER OF DV11'S.
693	001302	000001	SAVACT:	.BLKB 1	: ORIGINAL ACTV. DEVICES.
694	001303	000001	SAVNUM:	.BLKB 1	: WORKABLE NUMBER.
695	001304	000001	RUN:	.BLKB 1	: POINTER ONE PAST RUNNING DEVICE.
696		001306	.EVEN		
697	001306	001500	CREAM:	DV.MAP	: TABLE POINTER.

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 DZDVBS.P11 PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

```

698
699
700
701
702 001310 000
703 001311 000
704 001312 000
705 001313 000
706
707
708 000000
709
710
711
712
713
714
715
716 001314
717 104400
718 001314 002634
719 104401
720 001316 003020
721 104402
722 001320 003044
723 104403
724 001322 003120
725 104404
726 001324 003224
727 104405
728 001326 003244
729 104406
730 001330 003444
731 104407
732 001332 003504
733 104410
734 001334 003536
735 104411
736 001336 003542
737 104412
738 001340 004556
739 104413
740 001342 004516
741 104414
742 001344 004476
743 104415
744 001346 004566
745 104416
746 001350 004576
747
748
749

```

: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
 \$Y=0

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

:*****

 .TRFTAB:
 SCOPE=TRAP+0 ;CALL TO SCOPE LOOP AND ITERATION HANDLER
 .SCOPE
 SCOP1=TRAP+1 ;CALL TO LOOP ON CURRENT DATA HANDLER
 .SCOP1
 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
 SAV05=TRAP+6 ;CALL TO REGISTER SAVE ROUTINE
 .SAV05
 RES05=TRAP+7 ;CALL TO REGISTER RESTORE ROUTINE
 .RES05
 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

:*****

DZDV6 MACY11 27(732) 17-SEP-76 11:14 PAGE 19
 DZDVBB.P11 PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

```

750                                :DV11 VECTOR AND REGISTER INDIRECT POINTERS
751
752 001352 0000000 DVRVEC: 0          : POINTER TO DV11 RECEIVER INTERRUPT VECTOR
753 001354 0000000 DVRLVL: 0         : POINTER TO DV11 RECEIVER INTERRUPT SERVICE PS
754 001356 0000000 DVTVEC: 0         : POINTER TO DV11 TRANSMITTER INTERRUPT VECTOR
755 001360 0000000 DVTLVL: 0         : POINTER TO DV11 TRANSMITTER INTERRUPT SERVICE PS
756 001362 0000000 DVSCR: 0          : POINTER TO DV11 SYSTEM CONTROL REGISTER
757 001364 0000000 DVSCRH: 0         : POINTER TO DV11 SYSTEM CONTROL REGISTER HIGH BYTE.
758 001366 0000000 DVRIC: 0         : POINTER TO DV11 NEXT RECEIVED CHARACTER REGISTER
759 001370 0000000 DVLCR: 0         : POINTER TO DV11 LINE PRAMETER REGISTER
760 001372 0000000 DVSRs: 0         : POINTER TO DV11 SECONDARY REGISTER SELECT REGISTER
761 001374 0000000 DVSRSH: 0        : POINTER TO DV11 SECONDARY REGISTER SELECT HIGH BYTE.
762 001376 0000000 DVSRa: 0         : POINTER TO DV11 SECONDARY REGISTER ACCESS REGISTER
763 001400 0000000 DVSFR: 0         : POINTER TO DV11 SPECIAL FUNCTIONS REGISTER
764 001402 0000000 DVNSR: 0         : POINTER TO DV11 NPR STATUS REGISTER
765 001404 0000000 RESV16: 0        : POINTER TO RESERVED REGISTER.
766
767
768
769
770

```

:DV11 CONTROL INDICATORS FOR CURRENT DV11 UNDER TEST

```

771 001406 000 MASK.A: .BYTE 000    : LAST CHAR TO TEST AND PARITY MASK FOR LINES 00-03
772 001407 000 MASK.B: .BYTE 000    : LAST CHAR TO TEST AND PARITY MASK FOR LINES 04-07
773 001410 000 MASK.C: .BYTE 000    : LAST CHAR TO TEST AND PARITY MASK FOR LINES 08-11
774 001411 000 MASK.D: .BYTE 000    : LAST CHAR TO TEST AND PARITY MASK FOR LINES 12-15
775
776 001412 010 CLK.A: .BYTE 8.      : NUMBER OF CLOCKS NEEDED FOR ONE CHAR FOR LINES 00-03
777 001413 010 CLK.B: .BYTE 8.      : NUMBER OF CLOCKS NEEDED FOR ONE CHAR FOR LINES 04-07
778 001414 010 CLK.C: .BYTE 9.      : NUMBER OF CLOCKS NEEDED FOR ONE CHAR FOR LINES 08-11
779 001415 010 CLK.D: .BYTE 9.      : NUMBER OF CLOCKS NEEDED FOR ONE CHAR FOR LINES 12-15
780
781 001416 0000000 L00.03: 000000    : PARAMETERS FOR LINES 00-03
782 001420 0000000 L04.07: 000000    : PARAMETERS FOR LINES 04-07
783 001422 0000000 L08.11: 000000    : PARAMETERS FOR LINES 08-11
784 001424 0000000 L12.15: 000000    : PARAMETERS FOR LINES 12-15
785
786 001426 0000000 SYNC2A: 000000    : SYNC 2
787 001430 0000000 SYNC2B: 000000    :
788 001432 0000000 SYNC2C: 000000    :
789 001434 0000000 SYNC2D: 000000    :
790
791
792
793
794
795
796
797
798
799
800
801

```

:SUMMARY

```

: MASK.X      040    5 BITS PER CHAR.
:             100    6 BITS PER CHAR.
:             200    7 BITS PER CHAR.
:             000    8 BITS PER CHAR.
:
: CLK.X       005    5 BITS PER CHAR.
:             006    6 BITS PER CHAR.
:             007    7 BITS PER CHAR.
:             010    8 BITS PER CHAR.

```


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 DZDVBS.F11 PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

			:DV11 STATUS TABLE AND ADDRESS ASSIGNMENTS	

802				
803				
804				
805		001500	.=1500	
806	001500	000001	DV.MAP:	
807	001500	000001	DVCRO0: .BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 00
808	001502	000001	DVTR00: .BLKW 1	:VECTOR "A" FOR DV11 NUMBER 00
809	001504	000001	DVO0.A: .BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 00
810	001506	000001	SYNA00: .BLKW 1	:SYNC TWO
811	001510	000001	DVO0.B: .BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 00
812	001512	000001	SYNB00: .BLKW 1	:SYNC TWO
813	001514	000001	DVO0.C: .BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 00
814	001516	000001	SYNC00: .BLKW 1	:SYNC TWO
815	001520	000001	DVO0.D: .BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 00
816	001522	000001	SYND00: .BLKW 1	:SYNC TWO
817				
818	001524	000001	DVCRO1: .BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 01
819	001526	000001	DVTR01: .BLKW 1	:VECTOR "A" FOR DV11 NUMBER 01
820	001530	000001	DVO1.A: .BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 01
821	001532	000001	SYNA01: .BLKW 1	:SYNC TWO
822	001534	000001	DVO1.B: .BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 01
823	001536	000001	SYNB01: .BLKW 1	:SYNC TWO
824	001540	000001	DVO1.C: .BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 01
825	001542	000001	SYNC01: .BLKW 1	:SYNC TWO
826	001544	000001	DVO1.D: .BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 01
827	001546	000001	SYND01: .BLKW 1	:SYNC TWO
828				
829	001550	000001	DVCRO2: .BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 02
830	001552	000001	DVTR02: .BLKW 1	:VECTOR "A" FOR DV11 NUMBER 02
831	001554	000001	DVO2.A: .BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 02
832	001556	000001	SYNA02: .BLKW 1	:SYNC TWO
833	001560	000001	DVO2.B: .BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 02
834	001562	000001	SYNB02: .BLKW 1	:SYNC TWO
835	001564	000001	DVO2.C: .BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 02
836	001566	000001	SYNC02: .BLKW 1	:SYNC TWO
837	001570	000001	DVO2.D: .BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 02
838	001572	000001	SYND02: .BLKW 1	:SYNC TWO
839				
840	001574	000001	DVCRO3: .BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 03
841	001576	000001	DVTR03: .BLKW 1	:VECTOR "A" FOR DV11 NUMBER 03
842	001600	000001	DVO3.A: .BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 03
843	001602	000001	SYNA03: .BLKW 1	:SYNC TWO
844	001604	000001	DVO3.B: .BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 03
845	001606	000001	SYNB03: .BLKW 1	:SYNC TWO
846	001610	000001	DVO3.C: .BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 03
847	001612	000001	SYNC03: .BLKW 1	:SYNC TWO
848	001614	000001	DVO3.D: .BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 03
849	001616	000001	SYND03: .BLKW 1	:SYNC TWO
850				
851	001620	000001	DVCRO4: .BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 04
852	001622	000001	DVTR04: .BLKW 1	:VECTOR "A" FOR DV11 NUMBER 04
853	001624	000001	DVO4.A: .BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 04
854	001626	000001	SYNA04: .BLKW 1	:SYNC TWO
855	001630	000001	DVO4.B: .BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 04
856	001632	000001	SYNB04: .BLKW 1	:SYNC TWO
857	001634	000001	DVO4.C: .BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 04

DZDVB MACY11 27(732) 17-SEP-76 11:14 PAGE 21
 DZDVBB.P11 PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

858	001636	000001	SYNCO4: .BLKW 1	:SYNC TWO
859	001640	000001	DVO4.D: .BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 04
860	001642	000001	SYNDO4: .BLKW 1	:SYNC TWO
861				
862	001644	000001	DVCR05: .BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 05
863	001646	000001	DVTR05: .BLKW 1	:VECTOR "A" FOR DV11 NUMBER 05
864	001650	000001	DVO5.A: .BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 05
865	001652	000001	SYNA05: .BLKW 1	:SYNC TWO
866	001654	000001	DVO5.B: .BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 05
867	001656	000001	SYNB05: .BLKW 1	:SYNC TWO
868	001660	000001	DVO5.C: .BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 05
869	001662	000001	SYNCO5: .BLKW 1	:SYNC TWO
870	001664	000001	DVO5.D: .BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 05
871	001666	000001	SYNDO5: .BLKW 1	:SYNC TWO
872				
873	001670	000001	DVCR06: .BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 06
874	001672	000001	DVTR06: .BLKW 1	:VECTOR "A" FOR DV11 NUMBER 06
875	001674	000001	DVO6.A: .BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 06
876	001676	000001	SYNA06: .BLKW 1	:SYNC TWO
877	001700	000001	DVO6.B: .BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 06
878	001702	000001	SYNB06: .BLKW 1	:SYNC TWO
879	001704	000001	DVO6.C: .BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 06
880	001706	000001	SYNCO6: .BLKW 1	:SYNC TWO
881	001710	000001	DVO6.D: .BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 06
882	001712	000001	SYNDO6: .BLKW 1	:SYNC TWO
883				
884	001714	000001	DVCR07: .BLKW 1	:CONTROL STATUS REGISTER FOR DV11 NUMBER 07
885	001716	000001	DVTR07: .BLKW 1	:VECTOR "A" FOR DV11 NUMBER 07
886	001720	000001	DVO7.A: .BLKW 1	:PARAMETER FOR LINES 00-03 FOR DV11 NUMBER 07
887	001722	000001	SYNA07: .BLKW 1	:SYNC TWO
888	001724	000001	DVO7.B: .BLKW 1	:PARAMETER FOR LINES 04-07 FOR DV11 NUMBER 07
889	001726	000001	SYNB07: .BLKW 1	:SYNC TWO
890	001730	000001	DVO7.C: .BLKW 1	:PARAMETER FOR LINES 08-11 FOR DV11 NUMBER 07
891	001732	000001	SYNCO7: .BLKW 1	:SYNC TWO
892	001734	000001	DVO7.D: .BLKW 1	:PARAMETER FOR LINES 12-15 FOR DV11 NUMBER 07
893	001736	000001	SYNDO7: .BLKW 1	:SYNC TWO
894				
895	001740	000000	DV.END: 000000	

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 DZDVB.F11 PROGRAM INITIALIZATION AND START UP.

```

896
897
898
899
900
901
902
903
904 001742 012737 000340 177776 .START: MOV #340,PS ;LOCK OUT INTERRUPTS
905 001750 012706 001200 MOV #STACK,SP ;SET UP STACK
906 001754 012737 004402 000024 MOV #.PFAIL,2#24 ;SET UP POWER FAIL VECTOR
907 001752 113737 001301 001303 MOV DVNUM,SAVNUM ;SAVE NUMBER OF DEVICES IN SYSTEM.
908 001770 005037 001230 CLR PASCNT ;CLEAR PASS COUNT
909 001774 105037 001311 CLRB ERRFLG ;CLEAR ERROR FLAG
910 002000 105037 001313 CLRB QV.FLG ;ZERO QUICK VERIFY FLAG
911 002004 012737 001500 001306 MOV #DV.MAP,CREAM ;GET MAP POINTER.
912 002012 112737 000001 001304 MOV #1,RUN ;POINT POINTER TO FIRST DEVICE.
913 002020 005037 001232 CLR ERRCNT ;CLEAR ERROR COUNT
914 002024 005037 001234 CLR LSTERR ;CLEAR LAST ERROR POINTER
915 002030 012737 000001 001226 MOV #1,TSTNO ;SET UP FOR TEST 1
916 002036 012737 001742 001214 MOV #.START,RETURN ;SET UP FOR POWER FAIL BEFORE
917 ;TESTING STARTS
918 002044 105737 001310 TSTB INIFLG ;HAS INITIALIZATION BEEN PERFORMED
919 002050 001063 BNE 1$ ;BR IF YES
920 002052 013746 000004 MOV 4,-(SP)
921 002056 013746 000006 MOV 6,-(SP)
922 002062 005037 000006 CLR 6
923 002066 012737 002104 000004 MOV #80$,4
924 002074 005777 177102 TST 2SWR
925 002100 000240 NOP
926 002102 000407 BR 81$
927 002104 022626 80$: CMP (SP)+,(SP)+
928 002106 012737 000174 001200 MOV #LIGHT,LIGHTS
929 002114 012737 000176 001202 MOV #SSWR,SWR
930 002122 012637 000006 81$: MOV (SP)+,6
931 002126 012637 000004 MOV (SP)+,4
932 002132 104402 001000 TYPE MTITLE ;TYPE TITLE MESSAGE
933 002136 105137 001310 COMB INIFLG ;IF NOT SET FLAG AND DO
934 002142 105777 177034 TSTB 2SWR ;BIT7=1??
935 002146 100402 BMI 16$ ;BR IF NO AUTO SIZE
936 002150 004737 006624 JSR PC,CSRMAP ;GO DO THE AUTO SIZE
937 002154 104402 005461 16$: TYPE XHEAD ;TYPE HEADER
938 002160 012737 001500 001246 MOV #DV.MAP,TEMP1 ;SET POINTER
939 002166 017737 177054 001250 5$: MOV 2TEMP1,TEMP2 ;SET DATA
940 002174 022737 177777 001250 CMP #177777,TEMP2 ;ALL DONE?
941 002202 001406 BEQ 1$ ;BR IF YES
942 002204 104410 CONVRT
943 002206 005506 XSTATQ
944 002210 062737 000002 001246 ADD #2,TEMP1 ;UPDATE POINTER
945 002216 000763 BR 5$
946 002220 005737 000042 1$: TST 2#42 ;IS PROGRAM RUNNING UNDER MONITOR
947 002224 001030 BNE 3$ ;BR IF YES
948 002226 032777 000001 176746 BIT #SW00,2SWR ;SELECT SPECIFIC DEVICES??
949 002234 001424 BEQ 3$ ;BR IF NO.
950 002236 104402 005402 TYPE MNEW ;TYPE THE MESSAGE.
951 002242 005000 CLR RD ;ZERO DATA LIGHTS

```

952	002244	000000				HALT	
953	002246	127737	176730	001302		CMPB	DSWR, SAVACT
954	002254	101404				BLOS	2\$
955	002256	104402	005243			TYPE	, MERR3
956	002262	000000				HALT	
957	002264	000776				BR	.-2
958	002266	117737	176710	001300	2\$:	MOVB	DSWR, DVACTV
959	002274	113700	001300			MOVB	DVACTV, RO
960	002300	042700	177400			BIC	#1C<377>, RO
961	002304	000000				HALT	
962	002306	012700	000300		3\$:	MOV	#300, RO
963	002312	012701	000302			MOV	#302, R1
964	002316	010120			4\$:	MOV	R1, (RO)+
965	002320	005021				CLR	(R1)+
966	002322	022021				CMP	(RO)+, (R1)+
967	002324	022700	001000			CMP	#1000, RO
968	002330	001372				BNE	4\$
969							
970							: TEST START AND RESTART
971							:
972							-----
973	002332	012737	000340	177776	.BEGIN:	MOV	#340, PS
974	002340	012706	001200			MOV	#STACK, SP
975	002344	005737	000042			TST	a#42
976	002350	001023				BNE	3\$
977	002352	032777	000004	176622		BIT	#BIT2, DSWR
978	002360	001411				BEQ	1\$
979	002362	104402	005301			TYPE	, MLOCK
980	002366	012737	000240	002702		MOV	#NOP, TTST
981	002374	012737	000240	002704		MOV	#NOP, TTST+2
982	002402	000406				BR	2\$
983	002404	013737	003014	002702	1\$:	MOV	BRW, TTST
984	002412	013737	003016	002704		MOV	BRX, TTST+2
985	002420				2\$:		
986	002420	012737	005666	001214	3\$:	MOV	#CYCLE, RETURN
987	002426	104402	005171		4\$:	TYPE	, MR
988	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

```


DZDVB MACY11 27(732) 17-SEP-76 11:14 PAGE 24
 DZDVB.P11 END OF PASS ROUTINE

```

999          :END OF PASS
990          :TYPE NAME OF TEST
991          :UPDATE PASS COUNT
992          :CHECK FOR EXIT TO ACT-11
993          :RESTART TEST
994
995 002436 000005          .EOP: RESET          :MAKE THE WORLD CLEAN AGAIN.
996 002440 005037 001234 CLR          LSTERR      :CLEAR LAST ERROR PC
997 002444 105037 001311 CLRB          ERRFLG      :CLEAR ERROR FLAG
998 002450 005237 001230 INC          PASCNT      :UPDATE PASS COUNT
999 002454 013777 001230 176516 MOV          PASCNT,ALIGHTS :DISPLAY PASS COUNT
1000 002462 104402 005145 TYPE          ,MEPASS    :TYPE END PASS
1001 002466 104402 005330 TYPE          ,MCSRX     :TYPE CSR
1002 002472 104411 002604 CNVRT          ,XCSR      :SHOW IT
1003 002476 104402 005336 TYPE          ,MVECX     :TYPE VECTOR
1004 002502 104411 002612 CNVRT          ,XVEC      :SHOW IT
1005 002506 104402 005344 TYPE          ,MPASSX    :TYPE PASSES
1006 002512 104411 002620 CNVRT          ,XPASS     :SHOW IT
1007 002516 104402 005355 TYPE          ,MERRX    :TYPE ERRORS
1008 002522 104411 002626 CNVRT          ,XERR      :SHOW IT
1009 002526 105337 001303 DECB          SAVNUM    :ARE ALL DEVICES TESTED?
1010 002532 001017      BNE          RESTRT      :BR IF NO.
1011 002534 112737 000377 001313 MOV          #377,QV.FLG  :SET THE QUICK VERIFY FLAG.
1012 002542 113737 001301 001303 MOV          DVNUM,SAVNUM :RESTORE THE COUNT
1013 002550 013701 000042 MOV          #42,R1    :CHECK FOR ACT-11 OR DDP
1014 002554 001406      BEQ          RESTRT      :IF NOT, CONTINUE TESTING
1015 002556 000005      RESET          :STOP THE SHOW--CLEAR THE WORLD
1016
1017 002560 004711          LOGICAL: JSR          PC,(R1)
1018 002562 000240      NOP
1019 002564 000240      NOP
1020 002566 000240      NOP
1021 002570 000240      NOP
1022 002572 012737 005666 001214 RESTRT: MOV          #CYCLE,RETURN
1023 002600 000137 005666      JMP          CYCLE
1024 002604 000001      XCSR: 1
1025 002606      006      002      .BYTE      6,2
1026 002610 001362      DVSCR
1027 002612 000001      XVEC: 1
1028 002614      003      002      .BYTE      3,2
1029 002616 001352      DVRVEC
1030 002620 000001      XPASS: 1
1031 002622      006      002      .BYTE      6,2
1032 002624 001230      PASCNT
1033 002626 000001      XERR: 1
1034 002630      006      002      .BYTE      6,2
1035 002632 001232      ERRCNT
1036
1037          :SCOPE LOOP AND INTERATION HANDLER
1038          :-----
1039
1040 002634          .SCOPE:
1041 002634 022737 177570 001202 CMP          #177570,SWR  :IS THERE A REAL SWR?
1042 002642 001411      BEQ          64$        :BR IF YES
1043 002644 017746 176336 MOV          JTKDBR,-(SP) :SAVE KEYBOARD CHAR
1044 002650 042716 000200 BIC          #BIT7,(SP) :CLEAR PARITY BIT

```

K02

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 DZDVBB.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

1045	002654	122726	000007		CMPB	#7, (SP)+	; WAS IT CNTRL 'G' ?
1046	002660	001002			BNE	+6	; BR IF NO.
1047	002662	004737	004640		JSR	PC, SERV.G	; SERVICE "CNTRL 'G'".
1048	002666	005037	001234	64\$:	CLR	LSTERR	; CLEAR LAST ERROR PC.
1049	002672	010016			MOV	RO, (SP)	; SAVE RO ON THE STACK
1050	002674	032777	040000	176300	BIT	#BIT14, QSWR	; "LOOP ON THIS TEST"?
1051	002702	001407		TTST:	BEQ	1\$	; BR IF NO. (IF LOCK SW01=1; THIS LOC =240)
1052	002704	000437			BR	3\$	; GOTO 3\$ (IF LOCK SW01=1; THIS LOC =240)
1053	002706	105777	176272		TSTB	QTKCSR	; KEYBOARD DONE?
1054	002712	100034			BPL	3\$	; BR IF NO. (LOCK: HIT KEY TO GOTO NEXT TEST)
1055	002714	017700	176266		MOV	QTKDBR, RO	; CLEAR DONE BIT
1056	002720	000415			BR	2\$	; CONTINUE
1057	002722	032777	004000	176252	1\$:	BIT	#SW11, QSWR
1058	002730	001011			BNE	2\$	; BR IF YES
1059	002732	105737	001313		TSTB	QV.FLG	; HAVE PASSES BEEN COMPLETED?
1060	002736	001406			BEQ	2\$	; BR IF QUICK PASS.
1061	002740	005237	001224		INC	LPCNT	; UPDATE ITERATION COUNTER
1062	002744	023737	001224	001222	CMP	LPCNT, ICOUNT	; ARE ALL ITERATIONS DONE??
1063	002752	001014			BNE	3\$	; BR IF NOT YET
1064	002754	105037	001311	2\$:	CLRB	ERRFLG	; PREPARE FOR NEW TEST
1065	002760	005037	001224		CLR	LPCNT	; START ICOUNTER AT 0
1066	002764	005037	001220		CLR	LOCK	
1067	002770	012737	000020	001222	MOV	#20, ICOUNT	; RESET ITERATIONS
1068	002776	013737	001216	001214	MOV	NEXT, RETURN	; GET NEXT TEST
1069	003004	011600		3\$:	MOV	(SP), RO	; POP RO OFF OF THE STACK
1070	003006	022626			POP2SP		; FAKE AN "RTI"
1071	003010	000177	176200		JMP	QRETURN	; GO DO THE TEST
1072	003014	001407		BRW:	1407		
1073	003016	000437		BRX:	437		
1074							
1075							
1076							
1077							
1078	003020	032777	001000	176154	.SCOPI:	BIT	#SW09, QSWR
1079	003026	001405			BEQ	1\$	; IS SW09=1 (SET)?
1080	003030	005737	001220		TST	LOCK	; BR IF NOT SET.
1081	003034	001402			BEQ	1\$	
1082	003036	013716	001220		MOV	LOCK, (SP)	; GOTO THE ADDRESS IN LOCK.
1083	003042	000002		1\$:	RTI		; GO BACK.
1084							
1085							
1086							
1087							
1088	003044	010546		.TYPE:	MOV	R5, -(SP)	; SAVE R5 ON THE STACK.
1089	003046	017605	000002		MOV	Q2(SP), R5	; GET ADDRESS OF MESSAGE.
1090	003052	062766	000002	000002	ADD	#2, 2(SP)	; POP OVER ADDRESS.
1091	003060	032777	010000	176114	1\$:	BIT	#SW12, QSWR
1092	003066	001012			BNE	3\$	; INHIBIT ALL PRINT OUT??
1093	003070	105715			TSTB	(R5)	; BR IF NO PRINT OUT WANTED (SW12=1)
1094	003072	100002			BPL	2\$	; IS NUMBER MINUS? (MSB=1 (BIT7))
1095	003074	104402	005104		TYPE	MCRLF	; BR IF NUMBER IS PLUS
1096	003100	105777	176104	2\$:	TSTB	QTPCSR	; TYPE A CR/LF!
1097	003104	100375			BPL	2\$	; TTY READY?
1098	003106	112577	176100		MOVB	(R5)+, QTPDBR	; BR IF NO.
1099	003112	001362			BNE	1\$	; PRINT CURRENT CHAR.
1100	003114	012605		3\$:	MOV	(SP)+, R5	; IF NOT ZERO KEEP PRINTING!
							; END OF OUTPUT. RESTORE R5

; CHECK FOR FREEZE ON CURRENT DATA

; TELETYPE OUTPUT ROUTINE

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 DZDVBB.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

1101 003116 000002 RTI ;GO HOME
1102 ;-----
1103
1104 003120 010346 .INSTR: MOV R3, -(SP) ;SAVE R3 ON STACK
1105 003122 010446 MOV R4, -(SP) ;SAVE R4 ON STACK
1106 003124 017637 000004 003142 MOV @4(SP), .MSG
1107 003132 062766 000002 000004 ADD #2, 4(SP)
1108 003140 104402 .INST1: TYPE
1109 003142 000000 .MSG: 0
1110 003144 012704 005520 MOV #INBUF, R4
1111 003150 012703 000007 MOV #7, R3
1112 003154 105777 176024 1$: TSTB @TKCSR
1113 003160 100375 BPL 1$
1114 003162 117714 176020 MOVB @TKDBR, (R4)
1115 003166 142714 000200 BICB #200, (R4)
1116 003172 122427 000015 CMPB (R4)+, #15
1117 003176 001417 BEQ INSTR2
1118 003200 105777 176004 2$: TSTB @TPCSR
1119 003204 100375 BPL 2$
1120 003206 017777 175774 175776 MOV @TKDBR, @TPDBR
1121 003214 005303 DEC R3
1122 003216 001356 BNE 1$
1123 003220 012604 MOV (SP)+, R4
1124 003222 012603 MOV (SP)+, R3
1125 003224 104402 005100 .INSTE: TYPE .MQM
1126 003230 010346 MOV R3, -(SP)
1127 003232 010446 MOV R4, -(SP)
1128 003234 000741 BR .INST1
1129 003236 012604 INSTR2: MOV (SP)+, R4 ;RESTORE R4
1130 003240 012603 MOV (SP)+, R3 ;RESTORE R3
1131 003242 000002 RTI
1132
1133 ;CONVERT ASCII STRING TO OCTAL
1134 ;-----
1135
1136 003244 010546 .PARAM: MOV R5, -(SP)
1137 003246 010446 MOV R4, -(SP)
1138 003250 016605 000004 MOV 4(SP), R5
1139 003254 012537 003434 MOV (R5)+, LOLIM
1140 003260 012537 003436 MOV (R5)+, HILIM
1141 003264 012537 003440 MOV (R5)+, DEVADR
1142 003270 112537 003442 MOV (R5)+, LOBITS
1143 003274 112537 003443 MOV (R5)+, ADRCNT
1144 003300 010566 000004 MOV R5, 4(SP)
1145 003304 005005 PARAM1: CLR R5
1146 003306 012704 005520 MOV #INBUF, R4
1147 003312 122714 000015 CMPB #15, (R4)
1148 003316 001420 BEQ PARERR
1149 003320 121427 000060 1$: CMPB (R4), #60
1150 003324 002415 BLT PARERR
1151 003326 121427 000067 CMPB (R4), #67
1152 003332 003012 BGT PARERR
1153 003334 142714 000060 BICB #60, (R4)
1154 003340 152405 BISB (R4)+, R5
1155 003342 122714 000015 CMPB #15, (R4)
1156 003346 001406 BEQ LIMITS

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 DZDVB8.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

1157 003350 006305      ASL      R5
1158 003352 006305      ASL      R5
1159 003354 006305      ASL      R5
1160 003356 000760      BR        1$
1161 003360 104404      PARERR: INSTER
1162 003362 000750      BR        PARAM1
1163
1164      ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
1165      ;-----
1166
1167 003364 020537 003436  LIMITS: CMP      R5, HILIM
1168 003370 101373      BHI      PARERR
1169 003372 020537 003434  CMP      R5, LOLIM
1170 003376 103770      BLO      PARERR
1171 003400 133705 003442  BITB     LOBITS, R5
1172 003404 001365      BNE      PARERR
1173
1174      ;STORE NUMBER AT SPECIFIED ADDRESS
1175
1176 003406 013704 003440  1$:      MOV      DEVADR, R4
1177 003412 010524      MOV      R5, (R4)+
1178 003414 062705 000002  ADD      #2, R5
1179 003420 105337 003443  DECB     ADCNT
1180 003424 001372      BNE      1$
1181 003426 012604      MOV      (SP)+, R4
1182 003430 012605      MOV      (SP)+, R5
1183 003432 000002      RTI
1184 003434 000000  LOLIM: 0
1185 003436 000000  HILIM: 0
1186 003440 000000  DEVADR: 0
1187 003442 000000  LOBITS: 0
1188      ADCNT=LOBITS+1
1189
1190      ;SAVE PC OF TEST THAT FAILED AND R0-R5
1191      ;-----
1192
1193 003444 016637 000004 001276 .SAV05: MOV      4(SP), SAVPC      ;SAVE R7 (PC)
1194
1195      ;SAVE R0-R5
1196
1197 003452 010537 001272  SV05:  MOV      R5, SAVR5      ;SAVE R5
1198 003456 010437 001270  MOV      R4, SAVR4      ;SAVE R4
1199 003462 010337 001266  MOV      R3, SAVR3      ;SAVE R3
1200 003466 010237 001264  MOV      R2, SAVR2      ;SAVE R2
1201 003472 010137 001262  MOV      R1, SAVR1      ;SAVE R1
1202 003476 010037 001260  MOV      R0, SAVR0      ;SAVE R0
1203 003502 000002      RTI      ;LEAVE.
1204
1205      ;RESTORE R0-R5
1206
1207 003504 013700 001260  .RES05: MOV      SAVR0, R0      ;RESTORE R0
1208 003510 013701 001262  MOV      SAVR1, R1      ;RESTORE R1
1209 003514 013702 001264  MOV      SAVR2, R2      ;RESTORE R2
1210 003520 013703 001266  MOV      SAVR3, R3      ;RESTORE R3
1211 003524 013704 001270  MOV      SAVR4, R4      ;RESTORE R4
1212 003530 013705 001272  MOV      SAVR5, R5      ;RESTORE R5

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 DZDVBB.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

1213 003534 000002 RTI ;LEAVE
1214
1215 ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
1216 -----
1217
1218 003536 104402 005104 .CONVR: TYPE .MCRLF
1219 003542 010046 .CNVRT: MOV R0, -(SP)
1220 003544 010146 MOV R1, -(SP)
1221 003546 010346 MOV R3, -(SP)
1222 003550 010446 MOV R4, -(SP)
1223 003552 010546 MOV R5, -(SP)
1224 003554 017601 000012 MOV @12(SP), R1
1225 003560 062766 000002 000012 ADD #2, 12(SP)
1226 003566 012137 003742 MOV (R1)+, WRDCNT
1227 003572 112137 003744 1$: MOV (R1)+, CHRCNT
1228 003576 112137 003745 MOV (R1)+, SPACNT
1229 003602 013137 003746 MOV @ (R1)+, BINWRD
1230 003606 013704 003746 2$: MOV BINWRD, R4
1231 003612 113705 003744 MOV CHRCNT, R5
1232 003616 012700 005562 MOV #TEMP, R0
1233 003622 010403 3$: MOV R4, R3
1234 003624 042703 177770 BIC #177770, R3
1235 003630 062703 000060 ADD #060, R3
1236 003634 110320 MOV R3, (R0)+
1237 003636 000241 CLC
1238 003640 006004 ROR R4
1239 003642 000241 CLC
1240 003644 006004 ROR R4
1241 003646 000241 CLC
1242 003650 006004 ROR R4
1243 003652 005305 DEC R5
1244 003654 001362 BNE 3$
1245 003656 012703 005624 MOV #MDATA, R3
1246 003662 114023 4$: MOV (R0), (R3)+
1247 003664 105337 003744 DECB CHRCNT
1248 003670 001374 BNE 4$
1249 003672 105737 003745 TSTB SPACNT
1250 003676 001405 BEQ 6$
1251 003700 112723 000040 5$: MOV #040, (R3)+
1252 003704 105337 003745 DECB SPACNT
1253 003710 001373 BNE 5$
1254 003712 105013 6$: CLRB (R3)
1255 003714 104402 005624 TYPE ,MDATA
1256 003720 005337 003742 DEC WRDCNT
1257 003724 001322 BNE 1$
1258 003726 012605 MOV (SP)+, R5
1259 003730 012604 MOV (SP)+, R4
1260 003732 012603 MOV (SP)+, R3
1261 003734 012601 MOV (SP)+, R1
1262 003736 012600 MOV (SP)+, R0
1263 003740 000002 RTI
1264 003742 000000 WRDCNT: 0
1265 003744 000000 CHRCNT: 0
1266 003746 000000 SPACNT=CHRCNT+1
1267 003746 000000 BINWRD: 0
1268

```

ADDRESS	PC	PC+1	PC+2	PC+3	PC+4	PC+5	PC+6	PC+7	PC+8	PC+9	PC+10	PC+11	PC+12	PC+13	PC+14	PC+15	PC+16	PC+17	PC+18	PC+19	PC+20	PC+21	PC+22	PC+23	PC+24	PC+25	PC+26	PC+27	PC+28	PC+29	PC+30	PC+31	PC+32	PC+33	PC+34	PC+35	PC+36	PC+37	PC+38	PC+39	PC+40	PC+41	PC+42	PC+43	PC+44	PC+45	PC+46	PC+47	PC+48	PC+49	PC+50	PC+51	PC+52	PC+53	PC+54	PC+55	PC+56	PC+57	PC+58	PC+59	PC+60	PC+61	PC+62	PC+63	PC+64	PC+65	PC+66	PC+67	PC+68	PC+69	PC+70	PC+71	PC+72	PC+73	PC+74	PC+75	PC+76	PC+77	PC+78	PC+79	PC+80	PC+81	PC+82	PC+83	PC+84	PC+85	PC+86	PC+87	PC+88	PC+89	PC+90	PC+91	PC+92	PC+93	PC+94	PC+95	PC+96	PC+97	PC+98	PC+99	PC+100	PC+101	PC+102	PC+103	PC+104	PC+105	PC+106	PC+107	PC+108	PC+109	PC+110	PC+111	PC+112	PC+113	PC+114	PC+115	PC+116	PC+117	PC+118	PC+119	PC+120	PC+121	PC+122	PC+123	PC+124	PC+125	PC+126	PC+127	PC+128	PC+129	PC+130	PC+131	PC+132	PC+133	PC+134	PC+135	PC+136	PC+137	PC+138	PC+139	PC+140	PC+141	PC+142	PC+143	PC+144	PC+145	PC+146	PC+147	PC+148	PC+149	PC+150	PC+151	PC+152	PC+153	PC+154	PC+155	PC+156	PC+157	PC+158	PC+159	PC+160	PC+161	PC+162	PC+163	PC+164	PC+165	PC+166	PC+167	PC+168	PC+169	PC+170	PC+171	PC+172	PC+173	PC+174	PC+175	PC+176	PC+177	PC+178	PC+179	PC+180	PC+181	PC+182	PC+183	PC+184	PC+185	PC+186	PC+187	PC+188	PC+189	PC+190	PC+191	PC+192	PC+193	PC+194	PC+195	PC+196	PC+197	PC+198	PC+199	PC+200	PC+201	PC+202	PC+203	PC+204	PC+205	PC+206	PC+207	PC+208	PC+209	PC+210	PC+211	PC+212	PC+213	PC+214	PC+215	PC+216	PC+217	PC+218	PC+219	PC+220	PC+221	PC+222	PC+223	PC+224	PC+225	PC+226	PC+227	PC+228	PC+229	PC+230	PC+231	PC+232	PC+233	PC+234	PC+235	PC+236	PC+237	PC+238	PC+239	PC+240	PC+241	PC+242	PC+243	PC+244	PC+245	PC+246	PC+247	PC+248	PC+249	PC+250	PC+251	PC+252	PC+253	PC+254	PC+255	PC+256	PC+257	PC+258	PC+259	PC+260	PC+261	PC+262	PC+263	PC+264	PC+265	PC+266	PC+267	PC+268	PC+269	PC+270	PC+271	PC+272	PC+273	PC+274	PC+275	PC+276	PC+277	PC+278	PC+279	PC+280	PC+281	PC+282	PC+283	PC+284	PC+285	PC+286	PC+287	PC+288	PC+289	PC+290	PC+291	PC+292	PC+293	PC+294	PC+295	PC+296	PC+297	PC+298	PC+299	PC+300	PC+301	PC+302	PC+303	PC+304	PC+305	PC+306	PC+307	PC+308	PC+309	PC+310	PC+311	PC+312	PC+313	PC+314	PC+315	PC+316	PC+317	PC+318	PC+319	PC+320	PC+321	PC+322	PC+323	PC+324	PC+325	PC+326	PC+327	PC+328	PC+329	PC+330	PC+331	PC+332	PC+333	PC+334	PC+335	PC+336	PC+337	PC+338	PC+339	PC+340	PC+341	PC+342	PC+343	PC+344	PC+345	PC+346	PC+347	PC+348	PC+349	PC+350	PC+351	PC+352	PC+353	PC+354	PC+355	PC+356	PC+357	PC+358	PC+359	PC+360	PC+361	PC+362	PC+363	PC+364	PC+365	PC+366	PC+367	PC+368	PC+369	PC+370	PC+371	PC+372	PC+373	PC+374	PC+375	PC+376	PC+377	PC+378	PC+379	PC+380
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 DZDVBS.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

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1325 004202 001402 BEQ 1$
1326 004204 104402 005400 TYPE ,MASTEK
1327 004210 104402 005366 1$: TYPE ,MTSTN
1328 004214 104411 004374 CNVRT ,XTSTN
1329 004220 104402 005454 TYPE ,MERRPC
1330 004224 104411 004366 CNVRT ,ERTABO
1331 004230 104402 005104 TYPE ,MCRLF
1332 004234 112737 177777 001311 MOVB #-1,ERRFLG
1333 004242 005737 004252 TST ERRMSG
1334 004246 001402 BEQ WRKO.FM
1335 004250 104402 TYPE
1336 004252 000000 ERRMSG: 0
1337 004254 005737 004264 WRKO.FM: TST DATAHD
1338 004260 001402 BEQ TYPDAT
1339 004262 104402 TYPE
1340 004264 000000 DATAHD: 0
1341 004266 005737 004276 TYPDAT: TST DATABP
1342 004272 001402 BEQ RESREG
1343 004274 104410 CNVRT
1344 004276 000000 DATABP: 0
1345 004300 104407 RESREG: RESOS
1346 004302 005777 174674 HALTS: TST JSWR
1347 004306 100005 BPL EXITER
1348 004310 010046 PUSHRO
1349 004312 016600 000002 MOV 2(SP),RO
1350 004316 000000 HALT
1351 004320 012600 POPRO
1352 004322 005237 001232 EXITER: INC ERRCNT
1353 004326 032777 000400 174646 BIT #SW08,JSWR
1354 004334 001007 1$ BNE 1$
1355 004336 032777 002000 174636 BIT #SW10,JSWR
1356 004344 001407 BEQ 2$
1357 004346 013737 001216 001214 MOV NEXT,RETURN
1358 004354 012706 001200 1$: MOV #STACK,SP
1359 004360 000177 174630 JMP #RETURN
1360 004364 000002 2$: RTI
1361 004366 000001 ERTABO: 1
1362 004370 006 002 .BYTE 6,2
1363 004372 001276 SAVPC
1364 004374 000001 XTSTN: 1
1365 004376 003 002 .BYTE 3,2
1366 004400 001226 TSTNO
1367 :ENTER HERE ON POWER FAILURE
1368 :-----
1369
1370
1371
1372 004402 .PFAIL: MOV #RESTART,24
1373 004402 012737 004414 000024 HALT
1374 004410 000000 BR
1375 004412 000777
1376
1377 ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
1378
1379 004414 RESTAR: MOV #.PFAIL,24
1380 004414 012737 004402 000024 ;SET UP FOR POWER FAILURE
  
```

```

:SHOW IT
:TYPE PC.
:SHOW IT
:GIVE A CR/LF
:NO MORE HEADER UNLESS NO DATA TABLE.
:IS THERE AN ERROR MESSAGE?
:BR IF NO.
:TYPE
:ERROR MESSAGE
:DATA HEADER?
:BR IF NO
:TYPE
:DATA HEADER
:DATA TABLE?
:BR IF NO.
:SHOW
:DATA TABLE
:RESTORE PROC REGISTERS
:HALT ON ERROR?
:BR IF NO HALT ON ERROR
:SAVE RO
:SHOW ERROR PC IN DATA LIGHTS
:HALT
:GET RO
:UPDATE ERROR COUNT
:GOTO TOP OF TEST?
:BR IF YES
:GOTO NEXT TEST?
:BR IF NO
:SET FOR NEXT TEST
:RESET SP
:GOTO SPECIFIED TEST
:RETURN
  
```

```

:SET UP FOR POWER UP TRAP
:HALT ON POWER DOWN NORMAL
  
```

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 DZDVB8.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

1391 004422 012706 001200      MOV      #STACK, SP      :RESET THE STACK POINTER
1392 004426 005037 005562      CLR      TEMP          :READY FOR TIMER
1393 004432 005237 005562      INC      TEMP          :PLUS ONE TO THE TIMER!
1394 004436 001375              BNE      -4              :BR IF MORE TO GO
1395 004440 104402 005107      TYPE     .MPFAIL        :TYPE THE MESSAGE
1396 004444 104411 004470      CNVRT    PFTAB          :TELL WHAT TEST TO RETURN TO.
1397 004450 105037 001311      CLRB     ERRFLG        :START CLEAN
1398 004454 005037 001234      CLR      LSTERR        :.....
1399 004460 104412              MSTCLR          :START CLEAN UP OF DEVICE
1400 004462 104413              RAMCLR         :CLEAR IT ALL!
1401 004464 000177 174524      JMP      @RETURN        :START DOING THAT TEST AGAIN.
1402 004470 000001              PFTAB: 1
1403 004472 003      002      .BYTE 3,2
1404 004474 001226              .DELAY: TSTNO
1405 004476 010046              MOV      RO, -(SP)
1406 004500 013700 004514      MOV      1$, RO
1407 004504 005300              DEC      RO
1408 004506 001376              BNE      -2
1409 004510 012600              MOV      (SP)+, RO
1410 004512 000002              RTI
1411 004514 000036              1$: 30.
1412 004516              .RAMCLR:
1413 004516 012777 004000 174536      MOV      #MRESET, @DVSCR :ISSUE A MASTER CLEAR
1414 004524 010146              MOV      R1, -(SP) :SAVE R1 ON THE STACK
1415 004526 010446              MOV      R4, -(SP) :SAVE R4 ON THE STACK
1416 004530 013701 001372              MOV      DVSR, R1 :GET SECONDARY SEL. REG.
1417 004534 013704 001376              MOV      DVSR, R4 :GET SECONDARY REGISTER ACCESS REG.
1418 004540 005014              1$: CLR      (R4) :ZERO THE SECONDARY REGISTER.
1419 004542 062711 170361              ADD      #1<BIT11+BIT10+BIT9+BIT8+BIT3+BIT2+BIT1+BIT0>+BIT0, (R1)
1420 004546 001374              BNE      1$
1421 004550 012604              MOV      (SP)+, R4 :RESTORE R4
1422 004552 012601              MOV      (SP)+, R1 :RESTORE R1
1423 004554 000002              RTI
1424 004556              .MSTCLR:
1425 004556 012777 004000 174576      MOV      #MRESET, @DVSCR :ISSUE MASTER CLEAR.
1426 004564 000002              RTI
1427 004566              .ROMCLK:
1428 004566 052777 000002 174566      BIS      #BIT1, @DVSCR
1429 004574 000002              RTI
1430 004576              .DATACLK:
1431 004576 010046              MOV      RO, -(SP)
1432 004600 005000              CLR      RO
1433 004602 052777 000400 174560      BIS      #BIT8, @DVLCR
1434 004610 017737 174554 004636      1$: MOV      @DVLCR, 3$
1435 004616 106037 004637              RORB     3$+1
1436 004622 103003              BCC      2$
1437 004624 005200              INC      RO
1438 004626 001370              BNE      1$
1439 004630 104000              HLT
1440 004632 012600              2$: MOV      (SP)+, RO
1441 004634 000002              RTI
1442 004636 000001              3$: .BLKW 1

```


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DZDVB MACY11 27(732) 17-SEP-76 11:14 PAGE 32
 DZDVB8.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

1437
1438 004640 032777 004000 174336 SERV.G: BIT #4000, @TKCSR :RX BUSY?
1439 004646 001374 BNE SERV.G :BR IF YES
1440 004650 017737 174326 005072 MOV @SWR, 90$ :SAVE (SWR).
1441 004656 013777 005072 174316 1$: MOV 90$, @SWR
1442 004664 104402 005052 TYPE .89$
1443 004670 104411 005064 CNVRT .88$
1444 004674 104402 005074 TYPE .91$
1445 004700 105777 174300 TSTB @TKCSR :WAIT FOR DONE.
1446 004704 100375 BPL -4
1447 004706 017746 174274 MOV @TKDBR, -(SP)
1448 004712 042716 000200 BIC #BIT7, (SP)
1449 004716 122726 000015 CMPB #15, (SP)+
1450 004722 001450 BEQ 5$
1451 004724 005077 174252 CLR @SWR
1452 004730 105777 174254 2$: TSTB @TPCSR
1453 004734 100375 BPL -4
1454 004736 016677 177776 174246 MOV -2(SP), @TPDBR
1455 004744 000241 CLC
1456 004746 006177 174230 ROL @SWR
1457 004752 006177 174224 ROL @SWR
1458 004756 006177 174220 ROL @SWR
1459 004762 103735 BCS 1$ :ERROR
1460 004764 026627 177776 000060 CMP -2(SP), #60
1461 004772 002731 BLT 1$
1462 004774 026627 177776 000067 CMP -2(SP), #67
1463 005002 003325 BGT 1$
1464 005004 042766 177770 177776 BIC #10<7>, -2(SP)
1465 005012 056677 177776 174162 BIS -2(SP), @SWR
1466 005020 105777 174160 TSTB @TKCSR
1467 005024 100375 BPL -4
1468 005026 017746 174154 MOV @TKDBR, -(SP)
1469 005032 042716 000200 BIC #BIT7, (SP)
1470 005036 122726 000015 CMPB #15, (SP)+
1471 005042 001332 BNE 2$
1472 005044 104402 005104 5$: TYPE .MCRLF
1473 005050 000207 RTS PC
1474
1475 005052 020377 051450 051127 89$: .ASCIZ <377>? (SWR)=/?
1476 005060 036451 000057 .EVEN
1477 89$: 1
1478 005064 000001 .BYTE 6,0
1479 005066 006 000 90$
1480 005070 005072 90$: .WORD 0
1481 005072 000000 91$: .ASCIZ ?/?/?
1482 005074 036457 000057 .EVEN
1483 005100 020040 000077 MQM: .ASCIZ / ?/
1484 (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 DZDVB-B /
(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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DZDV8 MACY11 27(732) 17-SEP-76 11:14 PAGE 33
 DZDVBB.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

(2)	005330	051503	035122	000040	MCSR: .ASCIZ	/CSR: /
(2)	005336	042526	035103	000040	MVEC: .ASCIZ	/VEC: /
(2)	005344	040520	051523	051505	MPASS: .ASCIZ	/PASSES: /
(2)	005355	105	051122	051117	MERR: .ASCIZ	/ERRORS: /
(2)	005366	042524	052123	047040	MTSTN: .ASCIZ	/TEST NO: /
(2)	005400	000052			MASTEK: .ASCIZ	/*
(2)	005402	051777	052105	051440	MNEW: .ASCIZ	<377>/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)					.EVEN	
(2)	005506	000002			XSTATQ: 2	
1485	005510	006	003		.BYTE	6,3
1486	005512	001246			TEMP1	
1487	005514	006	002		.BYTE	6,2
1488	005516	001250			TEMP2	
1489					.EVEN	
1490						
1491					:BUFFERS FOR INPUT-OUTPUT	
1492						
1493	005520	000000			INBUF: 0	
1494		005562			.+.40	
1495	005562	000000			TEMP: 0	
1496		005624			.+.40	
1497	005624	000000			MDATA: 0	
1498		005666			.+.40	


```

1499
1500
1501
1502
1503
1504
1505
1506
1507
1508 005666 105737 001300 CYCLE: TSTB DVACTV :ARE ANY DV11'S TO BE TESTED?
1509 005672 001004 BNE 1$ :BR IF OK.
1510 005674 104402 005174 TYPE ,MERR2 :NO DV11'S SELECTED!!
1511 005700 000000 HALT :STOP THE SHOW.
1512 005702 000776 BR -.2 :DISQUALIFY CONT. SW.
1513 005704 133737 001304 001300 1$: BITB RUN,DVACTV :IS THIS ONE "ACTIVE"
1514 005712 001020 BNE 2$ :BR IF GOOD ONE FOUND.
1515 005714 000241 CLC :CLEAR PROC. CARRY BIT.
1516 005716 106137 001304 ROLB RUN :UPDATE POINTER
1517 005722 105537 001304 ADCB RUN :CATCH CARRY FROM RUN
1518 005726 062737 000024 001306 ADD #24,CREAM :UPDATE ADDRESS POINTER.
1519 005734 022737 001740 001306 CMP #DV.END,CREAM
1520 005742 001360 BNE 1$ :KEEP GOING: NOT ALL TESTED FOR.
1521 005744 012737 001500 001306 MOV #DV.MAP,CREAM :RESET ADDRESS POINTER.
1522 005752 000754 BR 1$ :KEEP LOOKING FOR ACTIVE DV11
1523 005754 000241 2$: CLC :CLEAR PROC. CARRY.
1524 005756 106137 001304 ROLB RUN :UPDATE POINTER.
1525 005762 105537 001304 ADCB RUN :CATCH CARRY.
1526 005766 013700 001306 MOV CREAM,RO :GET ADDRESS POINTER.
1527 005772 062737 000024 001306 ADD #24,CREAM :UPDATE.
1528 006000 022737 001740 001306 CMP #DV.END,CREAM
1529
1530 006006 001003 BNE 3$ :ALL DONE?
1531 006010 012737 001500 001306 MOV #DV.MAP,CREAM :BR IF NO.
1532 006016 012037 001362 3$: MOV (RO)+,DVSCR :RESTORE POINTER.
1533 006022 012037 001352 MOV (RO)+,DVRVEC :LOAD SYSTEM CTRL. REG
1534 006026 012037 001416 MOV (RO)+,LO0.03 :LOAD VECTOR
1535 006032 012037 001426 MOV (RO)+,SYNC2A :GET LINE PARAMETERS. 00-03
1536 006036 012037 001420 MOV (RO)+,LO4.07 :04-07
1537 006042 012037 001430 MOV (RO)+,SYNC2B :08-11
1538 006046 012037 001422 MOV (RO)+,LO9.11 :12-15
1539 006052 012037 001432 MOV (RO)+,SYNC2C :
1540 006056 012037 001424 MOV (RO)+,L12.15 :
1541 006062 012037 001434 MOV (RO)+,SYNC2D :
1542 006066 012700 000002 MOV #2,RO :SAVE CORE THIS WAY!
1543 006072 013737 001362 001364 MOV DVSCR,DVSCRH :GET SYS CTRL. REG HIGH BYTE.
1544 006100 005237 001364 INC DVSCRH :GOT IT.
1545 006104 013737 001364 001366 MOV DVSCRH,DVRIC :GET NXT REC. CHAR REG.
1546 006112 005237 001366 INC DVRIC :GOT IT
1547 006116 013737 001366 001370 MOV DVRIC,DVLCR :GET LN. PAR.REG.
1548 006124 060037 001370 ADD RO,DVLCR :GOT IT
1549 006130 013737 001370 001372 MOV DVLCR,DVSRS :GET SEC. REG. SEL. REG.
1550 006136 060037 001372 ADD RO,DVSRS :GOT IT
1551 006142 013737 001372 001374 MOV DVSRS,DVSRSH :GET HIGH BYTE.
1552 006150 005237 001374 INC DVSRSH :GOT IT
1553 006154 013737 001374 001376 MOV DVSRSH,DVSRA :SEC. REG. ACCESS.
1554 006162 005237 001376 INC DVSRA :GOT IT

```

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DZDV8 MACY11 27(732) 17-SEP-76 11:14 PAGE 35
 DZDV8B.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

1555	006166	013737	001376	001400	MOV	DVSRA, DVSFR	: SPEC. FUN. REG.
1556	006174	060037	001400		ADD	RO, DVSFR	
1557	006200	013737	001400	001402	MOV	DVSFR, DVNSR	: NPR STAT. REG.
1558	006206	060037	001402		ADD	RO, DVNSR	
1559	006212	013737	001402	001404	MOV	DVNSR, RESV16	: RESERVED REG
1560	006220	060037	001404		ADD	RO, RESV16	
1561							
1562	006224	013737	001352	001354	MOV	DVRVEC, DVRLVL	: PTY LVL
1563	006232	060037	001354		ADD	RO, DVRLVL	
1564	006236	013737	001354	001356	MOV	DVRLVL, DVTVEC	: TX VEC
1565	006244	060037	001356		ADD	RO, DVTVEC	
1566	006250	013737	001356	001360	MOV	DVTVEC, DVTLVL	: TX LVL
1567	006256	060037	001360		ADD	RO, DVTLVL	
1568							
1569	006262	012700	001416		MOV	#L00.03, RO	: LOAD STAU5 00-03
1570	006266	012701	001406		MOV	#MASK.A, R1	: PREPARE MASK.
1571	006272	012702	001412		MOV	#CLK.A, R2	: PREPARE CLOCKS
1572	006276	004737	006516		JSR	PC, FIX.00	: GO AND CALCULATE CONFIGURATION.
1573							
1574	006302	012700	001420		MOV	#L04.07, RO	: LOAD STAU5 00-03
1575	006306	012701	001407		MOV	#MASK.B, R1	: PREPARE MASK.
1576	006312	012702	001413		MOV	#CLK.B, R2	: PREPARE CLOCKS
1577	006316	004737	006516		JSR	PC, FIX.00	: GO AND CALCULATE CONFIGURATION.
1578							
1579	006322	012700	001422		MOV	#L08.11, RO	: LOAD STAU5 00-03
1580	006326	012701	001410		MOV	#MASK.C, R1	: PREPARE MASK.
1581	006332	012702	001414		MOV	#CLK.C, R2	: PREPARE CLOCKS
1582	006336	004737	006516		JSR	PC, FIX.00	: GO AND CALCULATE CONFIGURATION.
1583							
1584	006342	012700	001424		MOV	#L12.15, RO	: LOAD STAU5 00-03
1585	006346	012701	001411		MOV	#MASK.D, R1	: PREPARE MASK.
1586	006352	012702	001415		MOV	#CLK.D, R2	: PREPARE CLOCKS
1587	006356	004737	006516		JSR	PC, FIX.00	: GO AND CALCULATE CONFIGURATION.
1588	006362	032777	000002	172612	BIT	#SW01, 2SWR	
1589	006370	001445			BEQ	7\$	
1590	006372						
1591	006372	005737	000042		TST	2#42	
1592	006376	001042			BNE	7\$	
1593	006400	104402	005104		TYPE	, MCRLF	
1594	006404	104403			INSTR		
1595	006406	005366			MTSTN		
1596	006410	104405			PARAM		
1597	006412	000001			1		
1598	006414	001000			1000		
1599	006416	001226			TSTNO		
1600	006420	000			0		
1601	006421	001			1		
1602	006422	012700	007256		MOV	#TST1, RO	
1603	006426	022710			CMP	(PC)+, (RO)	
1604	006430	012737			MOV	(PC)+, 2(PC)+	
1605	006432	001015			BNE	6\$	
1606	006434	023760	001226	000002	CMP	TSTNO, 2(RO)	
1607	006442	001011			BNE	6\$	
1608	006444	022760	001226	000004	CMP	#TSTNO, 4(RO)	
1609	006452	001005			BNE	6\$	
1610	006454	010037	001214		MOV	RO, RETURN	

DZDVB MACY11 27(732) 17-SEP-76 11:14 PAGE 36
 DZDVBB.F11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

```

1611 006460 104402 005104          TYPE      ,MCRLF
1612 006464 000412          BR          9$
1613 006466 005720          6$:      TST      (R0)+
1614 006470 020027 021754      CMP      R0, #TLAST+10
1615 006474 001354          BNE      5$
1616 006476 104402 005100          TYPE      ,MQM
1617 006502 000733          BR          4$
1618 006504 012737 007256 001214 7$:      MOV      #TST1, RETURN      ;PREPARE RETURN ADDRESS
1619 006512 000177 172476          8$:      JMP      @RETURN      ;GO START TESTING.
1620
1621 006516 011003          FIX.00: MOV      (R0), R3      ;GET PARAMETERS.
1622 006520 042703 176377          BIC      1400, R3      ;CLEAR JUNK.
1623 006524 005703          TST      R3      ;TEST FOR EIGHT BITS.
1624 006526 001004          BNE      1$      ;BR IF NOT 8 BITS.
1625 006530 105011          CLRB      (R1)      ;SET
1626 006532 112712 000010          MOVB     #8., (R2)
1627 006536 000424          BR          4$
1628 006540 022703 000400          1$:      CMP      #400, R3      ;CHECK FOR SEVEN BITS.
1629 006544 001005          BNE      2$      ;BR IF NOT 7 BITS.
1630 006546 112711 000200          MOVB     #200, (R1)
1631 006552 112712 000007          MOVB     #7, (R2)
1632 006556 000414          BR          4$
1633 006560 022703 001000          2$:      CMP      #1000, R3      ;CHECK FOR SIX BITS.
1634 006564 001005          BNE      3$      ;BR IF NOT SIX BITS.
1635 006566 112711 000300          MOVB     #300, (R1)
1636 006572 112712 000006          MOVB     #6, (R2)
1637 006576 000404          BR          4$
1638 006600 112711 000340          3$:      MOVB     #340, (R1)      ;IF NONE OF THE ABOVE; MUST BE 5 BITS.
1639 006604 112712 000005          MOVB     #5, (R2)
1640 006610 032710 040000          4$:      BIT      #PARBIT, (R0)      ;PARITY ENABLED?
1641 006614 001401          BEQ      5$      ;IF =0; THEN NO PARITY.
1642 006616 105212          INCB     (R2)      ;PLUS ONE TO THE CLOCK!
1643 006620 000207          5$:      RTS      PC
1644
1645          ;*ROUTINE USED TO "AUTO SIZE" THE DV11
1646          ;*CSR AND VECTOR.
1647          ;*NOTE: THE CSR MAY BE ANY WHERE IN THE FLOATING
1648          ;*      ADDRESS RANGE (175000:175400)
1649          ;*      AND THE VECTOR MAY BE ANY WHERE IN THE
1650          ;*      FLOATING VECTOR RANGE (300:770)
1651          ;*
1652
1653          AUTO.SIZE:
1654          006622 000005          RESET
1655 006624 012702 001500          CSRMAP: MOV      #DV.MAP, R2      ;INSURE A BUS INIT.
1656 006630 005022          1$:      CLR      (R2)+      ;LOAD MAP POINTER.
1657 006632 022702 001740          CMP      #DV.END, R2      ;ZERO ENTIRE MAP
1658 006636 001374          BNE      1$      ;ALL DONE?
1659 006640 105037 001301          CLRB      DVNUM      ;BR IF NO
1660 006644 012702 001500          MOV      #DV.MAP, R2      ;SET OCTAL NUMBER OF DV11'S TO 0
1661 006650 012701 175000          MOV      #175000, R1
1662 006654 012737 007074 000004          MOV      #6$, @#4      ;SET FOR FIRST ADDRESS TO BE TESTED
1663 006662 005711          2$:      TST      (R1)      ;SET FOR NON-EXISTANT DEVICE TIME OUT
1664 006664 001037          BNE      3$      ;IF DV11 DVSCR S/B 0
1665 006666 022761 177777 000012          CMP      #177777, 12(R1)      ;IF NO DEV ; TRAP TO 4. IF NO BIT 8 THEN NO DV11
1666 006674 001033          BNE      3$      ;IF DV11 THEN DVSCR S/B ALL 1'S ON INIT!
          ;BR IF NOT DV11

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 DZDV8B.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

1667	006676	005761	000016		TST	16(R1)	;IF DV11 THEN RESV16 S/B ALL 0'S
1668	006702	001030			BNE	3\$	;BR IF NOT DV11
1669					;AT THIS POINT IT IS ASSUMED THAT R1 HOLDS A DV11 CSR ADDRESS.		
1670	006704	010122			MOV	R1, (R2)+	;STORE CSR IN CORE TABLE.
1671	006706	005722			TST	(R2)+	;POP OVER VECTOR STORE AREA
1672	006710	052722	000226		BIS	#226, (R2)+	;SET LINE CARD 1 STAT AND SYNC
1673	006714	052722	000062		BIS	#62, (R2)+	
1674	006720	052722	000226		BIS	#226, (R2)+	;SET LINE CARD 2 STAT AND SYNC
1675	006724	052722	000062		BIS	#62, (R2)+	
1676	006730	052722	000226		BIS	#226, (R2)+	;SET LINE CARD 3 STAT AND SYNC
1677	006734	052722	000062		BIS	#62, (R2)+	
1678	006740	052722	000226		BIS	#226, (R2)+	;SET LINE CARD 4 STAT AND SYNC
1679	006744	052722	000062		BIS	#62, (R2)+	
1680	006750	105237	001301		INCB	DVNUM	;UPDATE DEVICE COUNTER
1681	006754	122737	000010	001301	CMPB	#10, DVNUM	;ARE MAX. NO. OF DEV FOUND?
1682	006762	001405			BEQ	100\$	;YES DON'T LOOK FOR ANY MORE.
1683	006764	062701	000010		ADD	#10, R1	;UPDATE CSR POINTER ADDRESS
1684	006770	022701	175400		CMP	#175400, R1	
1685	006774	001332			BNE	2\$	;BR IF MORE ADDRESS TO CHECK.
1686	006776	012722	177777		MOV	#177777, (R2)+	;TERMINATER.
1687	007002	105037	001300		CLRB	DVACTV	
1688	007006	105737	001301		TSTB	DVNUM	;WERE ANY DV11'S FOUND AT ALL?
1689	007012	001423			BEQ	5\$	;ERROR AUTO SIZER FOUND NO DV11'S IN THIS SYS.
1690	007014	113701	001301		MOVB	DVNUM, R1	
1691	007020	110137	001303		MOVB	R1, SAVNUM	;SAVE NUMBER OF DEVICES
1692	007024	000241			CLC		
1693	007026	106137	001300		ROLB	DVACTV	;GENERATE ACTIVE REGISTER OF DEVICES.
1694	007032	105237	001300		INCB	DVACTV	;SET THE BIT
1695	007036	005301			DEC	R1	
1696	007040	001371			BNE	4\$	;BR IF MORE TO GENERATE
1697	007042	012737	000006	000004	MOV	#6, 3#4	;RESTORE TRAP VECTOR
1698	007050	113737	001300	001302	MOVB	DVACTV, SAVACT	;SAVE ACTIVE REGISTER
1699	007056	000137	007102		JMP	VECMAP	;GO FIND THE VECTOR NOW.
1700	007062	104402	005174		TYPE	MERR2	;NOTIFY OPR THAT NO DV11'S FOUND.
1701	007066	005000			CLR	RO	;MAKE DATA LIGHTS ZERO
1702	007070	000000			HALT		;STOP THE SHOW
1703	007072	000776			BR	.-2	;DISABLE CONT. SW.
1704	007074	012716	006754		MOV	#3\$, (SP)	;ENTERED BY NON-EXISTANT TIME-OUT.
1705	007100	000002			RTI		;RETURN TO MAINSTREAM
1706							
1707	007102	012737	000340	000022	VECMAP: MOV	#340, 3#22	;SET IOT TRAP PRIO TO 7
1708	007110	012737	007232	000020	MOV	#4\$, 3#20	;SET IOT TRAP VECTOR
1709	007116	012702	001500		MOV	#DV, MAP, R2	;SET SOFTWARE POINTER
1710	007122	012700	000300		MOV	#300, RO	;FLOATING VECTORS START HERE.
1711	007126	012701	000302		MOV	#302, R1	;PC OF IOT INSTR.
1712	007132	010120			MOV	R1, (RO)+	;START FILLING VECTOR AREA
1713	007134	012721	000004		MOV	#4, (R1)+	;WITH .+2; IOT
1714	007140	022021			CMP	(RO)+, (R1)+	;ADD 2 TO RO +R1
1715	007142	020127	001000		CMP	R1, #1000	
1716	007146	101771			BLOS	1\$	;BR IF MORE TO FILL
1717	007150	113737	001300	001246	MOVB	DVACTV, TEMP1	;STORE TEMPORALLY
1718	007156	006037	001246		ROR	TEMP1	;BRING OUT A BIT
1719	007162	103034			BCC	5\$	;BR IF ALL DONE
1720	007164	005037	177776		CLR	PS	;ZERO CPU PRIO
1721	007170	012772	001300	000000	MOV	#BIT9+BIT7+BIT6, 3(R2)	
1722	007176	005000			CLR	RO	;ATTEMPT TO FORCE AN INTERRUPT

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 DZDVBB.P11 GENERAL UTILITIES (TYPE OUT, ERROR, SCOPE, ETC.)

1723	007200	005200			INC	R0	;STALL
1724	007202	001376			BNE	.-2	; FOR TIME TO INTERRUPT
1725	007204	052762	000300	000002	BIS	#300,2(R2)	;NO INTERRUPT ASSUME 300 AND FIX DV11 LATER
1726	007212	042772	176777	000000	BIC	#1C<BIT9>,2(R2)	
1727	007220	005072	000000		CLR	2(R2)	
1728	007224	062702	000024		ADD	#24,R2	;POP SOFTWARE POINTER
1729	007230	000752			BR	2\$	;KEEP GOING
1730	007232	051662	000002		BIS	(SP),2(R2)	;GET VECTOR ADDRESS
1731	007236	042762	000007	000002	BIC	#7,2(R2)	;CLEAR JUNK
1732	007244	022626			CMP	(SP)+,(SP)+	;POP IOT JUNK OFF STACK
1733	007246	012716	007212		MOV	#3\$, (SP)	;SET FOR RETURN
1734	007252	000002			RTI		
1735	007254	000207			RTS	PC	;ALL DONE WITH "AUTO SIZING"
1736							

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1747 007256 012737 000001 001226
1748 007264 012737 007540 001216
1749 007272 012700 000000
1750 007276 013737 001416 001236
1751 007304 100402
1752 007306 004737 007374
1753 007312 012700 000004
1754 007316 013737 001420 001236
1755 007324 100402
1756 007326 004737 007374
1757 007332 012700 000010
1758 007336 013737 001422 001236
1759 007344 100402
1760 007346 004737 007374
1761 007352 012700 000014
1762 007356 013737 001424 001236
1763 007364 100402
1764 007366 004737 007374
1765 007372 104400
1766 007374
1767 007374 104413
1768 007376 010037 007410
1769 007402 005001
1770 007404 004537 022470
1771 007410 000001
1772 007412 012703 000004
1773 007416 012705 000003
1774 007422 012702 002000
1775 007426 010277 171746
1776 007432 017704 171732
1777 007436 020504
1778 007440 001401
1779 007442 104001
1780 007444 012777 050102 171726
1781 007452 104415
1782 007454 005201
1783 007456 010100
1784 007460 000241
1785 007462 006000
1786 007464 012702 001000
1787 007470 010277 171704
1788 007474 017704 171670
1789 007500 012705 000002
1790 007504 020504
1791 007506 001401
1792 007510 104001

```

***** TEST 1 *****
 *TEST THAT "TRANSMITTER FLAG WAITING"
 *IS TRUE AND THAT "RCV FLAG WAITING" IS
 *FALSE AFTER AN INIT.
 *THIS TEST WILL BE DONE FOR BOTH ASYNC AND SYNC LINE CARDS.

; TEST 1

 TST1: 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\$: RAMCLR
 MOV R0,65\$
 CLR R1
 1\$: PERFORM ,SETSCAN
 55\$: .BLKW 1
 2\$: MOV #4,R3
 3\$: MOV #BIT1+BIT0,R5
 MOV #BIT10,R2
 MOV R2,ADVSR
 MOV ADVLCR,R4
 CMP R5,R4
 BEQ 4\$
 HLT 1
 4\$: MOV #S.C+BIT6+BIT1,ADVSR
 ROMCLK
 INC R1
 MOV R1,R0
 CLC
 ROR R0
 MOV #BIT9,R2
 MOV R2,ADVSR
 MOV ADVLCR,R4
 MOV #BIT1,R5
 CMP R5,R4
 BEQ 5\$
 HLT 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 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.
 ;CLEAR ALL DV11 SEC. REGS.
 ;STORE LINE NO. POINTER.
 ;ZERO MSCANNER POINTER
 ;POSITION SCANNER TO LINE NUMBER.
 ;INITIAL LINE NUMBER HERE.
 ;SET TO DO 4 LINES AT A TIME
 ;SET EXPECTED RESULTS IN R5
 ;BR-A "RX FLAG WAITING"?
 ;LOAD DV11 INSTRUCTION
 ;READ BR TEST POINTS
 ;TEST POINTS OK?
 ;BR IF YES
 ;EXPECT DVLCR BIT1+BIT0=1
 ;S/C "ADVANCE SCANNER"
 ;UPDATE MSCAN POINTER
 ;PREPARE TO SET LINE POINTER
 ;TO CORRECT POSITION
 ;BR-A "TX FLAG WAITING"?
 ;LOAD DV11 INSTRUCTION
 ;READ BR TEST POINT
 ;SET EXPECTED RESULTS
 ;TX FLAG WAITING TRUE?
 ;BR IF LCR BIT1=1 AND BIT0=0
 ;ERROR.

MO3

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DZDVB8.P11 DV11 DEVICE DIAGNOSTICS. COPYRIGHT 1975 DIGITAL EQUIP. CORP.

```

1793 007512 012777 050102 171660 5$: MOV #S.C+BIT6+BIT1,ADVSR
1794 007520 104415 ROMCLK ;S/C "ADVANCE SCANNER"
1795 007522 005201 INC R1 ;UPDATE MSCAN POINTER
1796 007524 010100 MOV R1,R0 ;UPDATE LINE POINTER
1797 007526 000241 CLC ;
1798 007530 006000 ROR R0 ;
1799 007532 005303 DEC R3 ;ARE ALL 4 LINES TESTED?
1800 007534 001330 BNE 3$ ;BR IF NO!
1801 007536 000207 RTS PC ;CHECK NEXT SET OF LINES.

```

```

;***** TEST 2 *****
;TEST THAT "MATCH DETECT" IS
;FALSE AFTER AN INIT.
;THIS TEST WILL BE DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
;*****

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; TEST 2
-----
1812 007540 012737 000002 001226 TST2: MOV #2,TSTNO
1813 007546 012737 007742 001216 MOV #TST3,NEXT
1814 007554 012700 000000 MOV #0,R0 ;PLACE LINE NUMBER INTO R0
1815 007560 013737 001416 001236 MOV L00.03,STAT ;LOAD LINE CARD STATUS INTO STAT
1816 007566 100402 BMI 100$ ;BR IF LINE CARD NOT TO BE TESTED
1817 007570 004737 007656 JSR PC,105$ ;GO DO THE TEST FOR LINE CARD 1
1818 007574 012700 000004 100$: MOV #4,R0 ;PLACE LINE NUMBER INTO R0
1819 007600 013737 001420 001236 MOV L04.07,STAT ;LOAD LINE CARD STATUS INTO STAT
1820 007606 100402 BMI 101$ ;BR IF LINE CARD NOT TO BE TESTED
1821 007610 004737 007656 JSR PC,105$ ;GO DO THE TEST FOR LINE CARD 2
1822 007614 012700 000010 101$: MOV #8,R0 ;LOAD LINE NUMBER
1823 007620 013737 001422 001236 MOV L08.11,STAT ;LOAD LINE CARD STATUS INTO STAT
1824 007626 100402 BMI 102$ ;BR IF LINE CARD NOT TO BE TESTED
1825 007630 004737 007656 JSR PC,105$ ;DO THE TEST FOR LINE CARD 3
1826 007634 012700 000014 102$: MOV #12,R0 ;LOAD LINE NO.
1827 007640 013737 001424 001236 MOV L12.15,STAT ;LOAD LINE CARD STATUS
1828 007646 100402 BMI 103$ ;BR IF LINE CARD NOT TO BE TESTED
1829 007650 004737 007656 JSR PC,105$ ;DO THE TESTS FOR LINE CARD 4
1830 007654 104400 103$: SCOPE ;SCOPE THIS TEST.
1831 007656 105$: ;TEST ENTRANCE.
1832 007656 010037 007672 MOV R0,65$ ;SET LINE POINTER
1833 007662 104412 MSTCLR ;RESET THE DV11
1834 007664 005001 CLR R1 ;ZERO MSCANNER POINTER
1835 007666 004537 022470 1$: PERFORM ,SETSCAN ;SET MSCAN TO CORRECT LINE
1836 007672 000001 65$: .BLKW 1 ;INITIAL LINE POINTER PLACED HERE.
1837 007674 012703 000004 2$: MOV #4,R3 ;SET FOR A FOUR LINE GROUP.
1838 007700 012705 000003 3$: MOV #BIT1+BIT0,R5 ;SET EXPECTED RESULTS.
1839 007704 012702 076400 4$: MOV #BRB+BIT11+BIT10+BIT8,R2 ;BR-B "MATCH DET"?
1840 007710 010277 171464 MOV R2,ADVSR ;READ DVLCR INTO R4
1841 007714 017704 171450 MOV ADVLCR,R4 ;MATCH DET FALSE??
1842 007720 020504 CMP R5,R4 ;BR IF YES
1843 007722 001401 BEQ 5$ ;LCR BIT1=1+BIT0=1 EXPECTED.
1844 007724 104001 HLT 1 ;UPDATE MSCAN POINTER TO NEXT LINE.
1845 007726 004537 022470 5$: PERFORM ,SETSCAN ;1 LINE
1846 007732 000001 1 ;ALL FOUR LINES DONE YET?
1847 007734 005303 DEC R3 ;BR IF NO
1848 007736 001362 BNE 4$

```

N03.

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1849 007740 000207 RTS PC ;CHECK NEXT SET OF LINES

```

***** TEST 3 *****
;TEST THAT MAINT BIT WINDOW IS CLEARED
; AFTER AN INIT.
;THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
*****

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					; TEST 3			

1861	007742	012737	000003	001226	TST3:	MOV	#3, TSTNO	
1862	007750	012737	010150	001216		MOV	#TST4, NEXT	
1863	007756	012700	000000			MOV	#0, R0	;PLACE LINE NUMBER INTO R0
1864	007762	013737	001416	001236		MOV	L00.03, STAT	;LOAD LINE CARD STATUS INTO STAT
1865	007770	100402				BMI	100\$	;BR IF LINE CARD NOT TO BE TESTED
1866	007772	004737	010060			JSR	PC, 105\$	;GO DO THE TEST FOR LINE CARD 1
1867	007776	012700	000004		100\$:	MOV	#4, R0	;PLACE LINE NUMBER INTO R0
1868	010002	013737	001420	001236		MOV	L04.07, STAT	;LOAD LINE CARD STATUS INTO STAT
1869	010010	100402				BMI	101\$	;BR IF LINE CARD NOT TO BE TESTED
1870	010012	004737	010060			JSR	PC, 105\$	;GO DO THE TEST FOR LINE CARD 2
1871	010016	012700	000010		101\$:	MOV	#8, R0	;LOAD LINE NUMBER
1872	010022	013737	001422	001236		MOV	L08.11, STAT	;LOAD LINE CARD STATUS INTO STAT
1873	010030	100402				BMI	102\$	;BR IF LINE CARD NOT TO BE TESTED
1874	010032	004737	010060			JSR	PC, 105\$	;DO THE TEST FOR LINE CARD 3
1875	010036	012700	000014		102\$:	MOV	#12, R0	;LOAD LINE NO.
1876	010042	013737	001424	001236		MOV	L12.15, STAT	;LOAD LINE CARD STATUS
1877	010050	100402				BMI	103\$	;BR IF LINE CARD NOT TO BE TESTED
1878	010052	004737	010060			JSR	PC, 105\$	;DO THE TESTS FOR LINE CARD 4
1879	010056	104400			103\$:	SCOPE		;SCOPE THIS TEST.
1880	010060				105\$:			;TEST ENTRANCE.
1881	010060	032737	004000	001236		BIT	#ASYNC, STAT	;IS THIS A SYNC LINE CARD?
1882	010066	001401				BEQ	.+4	;BR IF SYNC LINE CARD.
1883	010070	000207				RTS	PC	;EXIT TEST
1884	010072	104412				MSTCLR		;RESET DV11
1885	010074	005002				CLR	R2	;ZERO SFR IMAGE
1886	010076	017705	171266			MOV	ADVLCR, R5	;READ THE DVLCR INTO R5
1887	010102	042705	000200			BIC	#BIT7, R5	;CLEAR MAINT BIT WINDOW EXPECTED
1888	010106	012703	000004			MOV	#4, R3	;SET TO DO 4 LINES.
1889	010112	010077	171254		1\$:	MOV	R0, ADVSR5	;LOAD LINE NUMBER
1890	010116	017704	171246			MOV	ADVLCR, R4	;READ DVLCR RESULTS INTO R4
1891	010122	042705	000060			BIC	#BIT5+BIT4, R5	;CLEAR EXTENDED ADDRESS BITS
1892	010126	042704	000060			BIC	#BIT5+BIT4, R4	
1893	010132	020504				CMP	R5, R4	
1894	010134	001401				BEQ	2\$	;OK?
1895	010136	104001				HLT	1	
1896	010140	005200			2\$:	INC	R0	;BIT7 INCORRECT
1897	010142	005303				DEC	R3	;UPDATE LINE POINTER
1898	010144	001362				BNE	1\$	;ALL LINES DONE?
1899	010146	000207				RTS	PC	;BR IF NO
1900								;RETURN FOR NEXT SET OF LINES.

```

***** TEST 4 *****
;TEST THAT THE BIT WINDOW WILL
;STAY CLEARED WHEN MAINT INTERNAL

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: *MODE IS SELECTED BUT COND. STROBE IS
: *NOT ASSERTED.
: *THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
: *****

```

: TEST 4

1905	010150	012737	000004	001226	1ST4:	MOV	#4, TSTNO	
1906	010156	012737	010364	001216		MOV	#TST5, NEXT	
1907	010164	012700	000000			MOV	#0, R0	: PLACE LINE NUMBER INTO R0
1908	010170	013737	001416	001236		MOV	LOC.03, STAT	: LOAD LINE CARD STATUS INTO STAT
1909	010176	100402				BMI	100\$	: BR IF LINE CARD NOT TO BE TESTED
1910	010200	004737	010266			JSR	PC, 105\$	: GO DO THE TEST FOR LINE CARD 1
1911	010204	012700	000004		100\$:	MOV	#4, R0	: PLACE LINE NUMBER INTO R0
1912	010210	013737	001420	001236		MOV	LOC.07, STAT	: LOAD LINE CARD STATUS INTO STAT
1913	010216	100402				BMI	101\$	: BR IF LINE CARD NOT TO BE TESTED
1914	010220	004737	010266			JSR	PC, 105\$	: GO DO THE TEST FOR LINE CARD 2
1915	010224	012700	000010		101\$:	MOV	#8, R0	: LOAD LINE NUMBER
1916	010230	013737	001422	001236		MOV	LOC.11, STAT	: LOAD LINE CARD STATUS INTO STAT
1917	010236	100402				BMI	102\$	: BR IF LINE CARD NOT TO BE TESTED
1918	010240	004737	010266			JSR	PC, 105\$	: DO THE TEST FOR LINE CARD 3
1919	010244	012700	000014		102\$:	MOV	#12, R0	: LOAD LINE NO.
1920	010250	013737	001424	001236		MOV	LOC.15, STAT	: LOAD LINE CARD STATUS
1921	010256	100402				BMI	103\$	: BR IF LINE CARD NOT TO BE TESTED
1922	010260	004737	010266			JSR	PC, 105\$	: DO THE TESTS FOR LINE CARD 4
1923	010264	104400			103\$:	SCOPE		: SCOPE THIS TEST.
1924	010266				105\$:			: TEST ENTRANCE.
1925	010266	032737	004000	001236		BIT	#ASYNC, STAT	: IS THIS A SYNC LINE CARD?
1926	010274	001401				BEQ	+4	: BR IF SYNC LINE CARD.
1927	010276	000207				RTS	PC	: EXIT TEST
1928	010300	104412				MSTCLR		: RESET DV11
1929	010302	005002				CLR	R2	: ZERO SFR IMAGE
1930	010304	012777	004000	171056		MOV	#BIT11, DVLCR	: SET INTERNAL MAINT MODE
1931	010312	017705	171052			MOV	DVLCR, R5	: READ THE DVLCR INTO R5
1932	010316	042705	000200			BIC	#BIT7, R5	: CLEAR MAINT BIT WINDOW EXPECTED
1933	010322	012703	000004			MOV	#4, R3	: SET TO DO 4 LINES.
1934	010326	010077	171040		1\$:	MOV	R0, DVSR5	: LOAD LINE NUMBER
1935	010332	017704	171032			MOV	DVLCR, R4	: READ DVLCR RESULTS INTO R4
1936	010336	042705	000060			BIC	#BIT5+BIT4, R5	: CLEAR EXTENDED ADDRESS BITS
1937	010342	042704	000060			BIC	#BIT5+BIT4, R4	: ...
1938	010346	020504				CMP	R5, R4	: OK?
1939	010350	001401				BEQ	2\$	
1940	010352	104001				HLT	!	: BIT7 INCORRECT
1941	010354	005200			2\$:	INC	R0	: UPDATE LINE POINTER
1942	010356	005303				DEC	R3	: ALL LINES DONE?
1943	010360	001362				BNE	1\$	: BR IF NO
1944	010362	000207				RTS	PC	: RETURN FOR NEXT SET OF LINES.

```

: ***** TEST 5 *****
: *TEST THAT THE BIT WINDOW WILL
: *SET WHEN MAINT INTERNAL MODE IS SELECTED
: *AND COND. STROBE IS ASSERTED.
: *THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
: *****

```

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1961
1962
1963 : TEST 5
1964 -----
1965 010264 012737 000005 001226 TST5: MOV #5,TSTNO
1966 010372 012737 010612 001216 MOV #TST6,NEXT
1967 010400 012700 000000 MOV #0,R0
1968 010404 013737 001416 001236 MOV L00.03,STAT
1969 010412 100402 BMI 100$
1970 010414 004737 010502 JSR PC,105$
1971 010420 012700 000004 100$: MOV #4,R0
1972 010424 013737 001420 001236 MOV L04.07,STAT
1973 010432 100402 BMI 101$
1974 010434 004737 010502 JSR PC,105$
1975 010440 012700 000010 101$: MOV #8,R0
1976 010444 013737 001422 001236 MOV L08.11,STAT
1977 010452 100402 BMI 102$
1978 010454 004737 010502 JSR PC,105$
1979 010460 012700 000014 102$: MOV #12,R0
1980 010464 013737 001424 001236 MOV L12.15,STAT
1981 010472 100402 BMI 103$
1982 010474 004737 010502 JSR PC,105$
1983 010500 104400 103$: SCOPE
1984 010502 105$:
1985 010502 032737 004000 001236 BIT #ASYNC,STAT
1986 010510 001401 BEQ .+4
1987 010512 000207 RTS PC
1988 010514 104412 MSTCLR
1989 010516 005002 CLR R2
1990 010520 012777 004000 170642 MOV #BIT11,DVLCR
1991 010526 017705 170636 MOV DVLCR,R5
1992 010532 052705 000200 BIS #BIT7,R5
1993 010536 012703 000004 MOV #4,R3
1994 010542 010077 170624 1$: MOV R0,DVSR5
1995 010546 052777 100000 170614 BIS #BIT15,DVLCR
1996 010554 004737 022406 JSR PC,CKBIT15
1997 010560 017704 170604 MOV DVLCR,R4
1998 010564 042705 000060 BIC #BIT5+BIT4,R5
1999 010570 042704 000060 BIC #BIT5+BIT4,R4
2000 010574 020504 CMP R5,R4
2001 010576 001401 BEQ 2$
2002 010600 104001 HLT 1
2003 010602 005200 2$: INC R0
2004 010604 005303 DEC R3
2005 010606 001355 BNE 1$
2006 010610 000207 RTS PC

```

```

: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.
:IS THIS A SYNC LINE CARD?
:BR IF SYNC LINE CARD.
:EXIT TEST
:RESET DV11
:ZERO SFR IMAGE
:SET INTERNAL MAINT MODE
:READ THE DVLCR INTO R5
:SET MAINT BIT WINDOW EXP RESULTS
:SET TO DO 4 LINES.
:LOAD LINE NUMBER
:SET STROBE
:GO WAIT FOR BIT15 TO =0
:READ DVLCR RESULTS INTO R4
:CLEAR EXTENDED ADDRESS BITS
:OK?
:BIT7 INCORRECT
:UPDATE LINE POINTER
:ALL LINES DONE?
:BR IF NO
:RETURN FOR NEXT SET OF LINES.

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***** TEST 6 *****
:TEST THAT THE BIT WINDOW WILL BE CLEARED
:WHEN MAINT INTERNAL MODE IS SELECTED AND TX DSABLE
:IS ASSERTED.
:THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
*****

```


004

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```

2017      : TEST 6
2018
2019      :-----
2020      010612 012737 000006 001226 1ST6: MOV      #6,TSTNO
2021      010620 012737 011040 001216      MOV      #TST7,NEXT
2022      010626 012700 000000      MOV      #0.,R0
2023      010632 013737 001416 001236      MOV      L00.03,STAT
2024      010640 100402      BMI      100$
2025      010642 004737 010730      JSR      PC,105$
2026      010646 012700 000004      100$: MOV      #4.,R0
2027      010652 013737 001420 001236      MOV      L04.07,STAT
2028      010660 100402      BMI      101$
2029      010662 004737 010730      JSR      PC,105$
2030      010666 012700 000010      101$: MOV      #8.,R0
2031      010672 013737 001422 001236      MOV      L08.11,STAT
2032      010700 100402      BMI      102$
2033      010702 004737 010730      JSR      PC,105$
2034      010706 012700 000014      102$: MOV      #12.,R0
2035      010712 013737 001424 001236      MOV      L12.15,STAT
2036      010720 100402      BMI      103$
2037      010722 004737 010730      JSR      PC,105$
2038      010726 104400      103$: SCOPE
2039      010730 032737 004000 001236      105$: BIT      #ASYNC,STAT
2040      010736 001401      BEQ      +4
2041      010740 000207      RTS      PC
2042      010742 104412      MSTCLR
2043      010744 005002      CLR      R2
2044      010746 012777 005000 170414      MOV      #BIT11+BIT9,3DVLOR
2045      010754 017705 170410      MOV      3DVLOR,R5
2046      010760 042705 000200      BIC      #BIT7,R5
2047      010764 012703 000004      MOV      #4,R3
2048      010770 010077 170376      1$: MOV      R0,3DVSR5
2049      010774 052777 100000 170366      BIS      #BIT15,3DVLOR
2050      011002 004737 022406      JSR      PC,CKBIT15
2051      011006 017704 170356      MOV      3DVLOR,R4
2052      011012 042705 000060      BIC      #BIT5+BIT4,R5
2053      011016 042704 000060      BIC      #BIT5+BIT4,R4
2054      011022 020504      CMP      R5,R4
2055      011024 001401      BEQ      2$
2056      011026 104001      HLT      1
2057      011030 005200      2$: INC      R0
2058      011032 005303      DEC      R3
2059      011034 001355      BNE      1$
2060      011036 000207      RTS      PC

```

```

***** TEST 7 *****
*TEST THAT "MAINT DATA" WILL SHOW
*UP IN "MAINT BIT WINDOW".
*THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
*****

```

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2061
2062
2063      : TEST 7
2064      :-----
2065      011040 012737 000007 001226 1ST7: MOV      #7,TSTNO
2066      011046 012737 011344 001216      MOV      #TST10,NEXT

```

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2073	011054	012700	000000		MOV	#0.,R0	:PLACE LINE NUMBER INTO R0
2074	011060	013737	001416	001236	MOV	L00.03,STAT	:LOAD LINE CARD STATUS INTO STAT
2075	011066	100402			BMI	100\$	:BR IF LINE CARD NOT TO BE TESTED
2076	011070	004737	011156		JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 1
2077	011074	012700	000004	100\$:	MOV	#4.,R0	:PLACE LINE NUMBER INTO R0
2078	011100	013737	001420	001236	MOV	L04.07,STAT	:LOAD LINE CARD STATUS INTO STAT
2079	011106	100402			BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
2080	011110	004737	011156		JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
2081	011114	012700	000010	101\$:	MOV	#8.,R0	:LOAD LINE NUMBER
2082	011120	013737	001422	001236	MOV	L08.11,STAT	:LOAD LINE CARD STATUS INTO STAT
2083	011126	100402			BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
2084	011130	004737	011156		JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
2085	011134	012700	000014	102\$:	MOV	#12.,R0	:LOAD LINE NO.
2086	011140	013737	001424	001236	MOV	L12.15,STAT	:LOAD LINE CARD STATUS
2087	011146	100402			BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
2088	011150	004737	011156		JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
2089	011154	104400		103\$:	SCOPE		:SCOPE THIS TEST.
2090	011156			105\$:			:TEST ENTRANCE.
2091	011156	032737	004000	001236	BIT	#ASYNC,STAT	:IS THIS A SYNC LINE CARD?
2092	011164	001401			BEQ	.+4	:BR IF SYNC LINE CARD.
2093	011166	000207			RTS	PC	:EXIT TEST
2094	011170	104412			MSTCLR		:RESET DV11
2095	011172	005002			CLR	R2	:CLEAR DVSFR IMAGE
2096	011174	012703	000004		MOV	#4,R3	:SET TO DO 4 LINES
2097	011200	010077	170156	1\$:	MOV	R0,3DVSR5	:LOAD LINE NUMBER
2098	011204	004537	022266		PERFORM	LOAD.MODE	:LOAD THE MODE
2099	011210	005000			BIT11+BIT9		:INT MAIT MODE AND TX DSABLE
2100	011212	017705	170152		MOV	3DVLCR,R5	:READ LSR
2101	011216	010504			MOV	R5,R4	
2102	011220	042705	000200		BIC	#BIT7,R5	:CLEAR MAIT BIT WINDOW RESULT
2103	011224	020504			CMP	R5,R4	:WAS BIT WINDOW =TO 0
2104	011226	001401			BEQ	.+4	:BR IF YES
2105	011230	104001			HLT	1	:BIT7 OF LCR S/B=0
2106	011232	012737	000012	001250	MOV	#10. TEMP2	:SET FOR 10 BITS
2107	011240	052705	040200	2\$:	BIS	#BIT14+BIT7,R5	:SET MAINT DATA AND MAINT BIT WINDOW
2108	011244	052777	140000	170116	BIS	#BIT15+BIT14,3DVLCR	
2109	011252	004737	022406		JSR	PC,CKBIT15	:STROBE MAINT DATA. WAIT BIT15=0
2110	011256	017704	170106		MOV	3DVLCR,R4	:READ THE LCR
2111	011262	020504			CMP	R5,R4	:BIT14+BIT7=1?
2112	011264	001401			BEQ	3\$	:YES
2113	011266	104001			HLT	1	:MAINT DATA DID NOT SHOW UP IN WINDOW
2114	011270	042705	040200	3\$:	BIC	#BIT14+BIT7,R5	:CLEAR DATA AND WINDOW
2115	011274	042777	040000	170066	BIC	#BIT14,3DVLCR	:CLEAR MAIT DATA
2116	011302	052777	100000	170060	BIS	#BIT15,3DVLCR	:SET STROBE ON DV11
2117	011310	004737	022406		JSR	PC,CKBIT15	:WAIT 15=0
2118	011314	017704	170050		MOV	3DVLCR,R4	:READ DVLCR
2119	011320	020504			CMP	R5,R4	:WINDOW =0?
2120	011322	001401			BEQ	4\$	:BR IF YES
2121	011324	104001			HLT	1	:BIT7 S/B=0
2122	011326	005337	001250	4\$:	DEC	TEMP2	:10 BITS DONE?
2123	011332	001342			BNE	2\$	:BR IF NO
2124	011334	005200			INC	R0	:UPDATE LINE POINTER
2125	011336	005303			DEC	R3	:4 LINE GROUP DONE?
2126	011340	001317			BNE	1\$	:BR IF NO
2127	011342	000207			RTS	PC	:RETURN FOR NEXT GROUP

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 ***** TEST 10 *****
 *TEST TO XMIT A BINARY COUNT PATTERN
 *THUR THE USE OF THE BIT WINDOW.
 *ONLY ONE LINE AT A TIME WILL BE EXERCISED.
 *THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.

: TEST 10

1ST10:	MOV	#10, TSTNO	
	MOV	#TST11, NEXT	
	MOV	#0, R0	: PLACE LINE NUMBER INTO R0
	MOVB	CLK.A, CLKX	: PLACE "SHIFTS/PER/CHAR" IN CLKX
	MOVB	MASK.A, MASKX	: PLACE "MASK" FOR CHARS INTO MASKX
	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
	MOVB	CLK.B, CLKX	: PLACE "SHIFTS/PER/CHAR" IN CLKX
	MOVB	MASK.B, MASKX	: GET MASK
	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
	MOVB	CLK.C, CLKX	: GET SHIFTS PER CHAR
	MOVB	MASK.C, MASKX	: GET MASK
	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.
	MOVB	CLK.D, CLKX	: GET SHIFTS
	MOVB	MASK.D, MASKX	: GET MASKK
	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\$:	BIT	#ASYNC, STAT	: TEST ENTRANCE.
	BEQ	.+4	: IS THIS A SYNC LINE CARD?
	RTS	PC	: BR IF SYNC LINE CARD.
	MOV	R0, 65\$	: EXIT TEST
	MSTCLR		: SET LINE NO. POINTER
	CLR	R1	: CLEAR DV11
	PERFORM	.SETSCAN	: ZERO MSCANNER POINTER
1\$:			: ADJUST SCANNER FOR PROPER LINE
65\$:	.BLKW 1		: LINE NUMBER POINTER.
2\$:	MOV	#4, R3	: SET FOR 4 LINES EXERCISED
3\$:	CLR	R5	: SET DATA POINTER TO 0
	MOV	#S.C+BIT6+BIT1, 30VSFR	: SET DATA POINTER TO 0
	ROMCLK		: CLOCK SCANNER BY ONE
	INC	R1	: ADD +1 TO SCANNER POINTER
	MOV	R0, 30VSRS	: LOAD LINE NUMBER
	PERFORM	.LOAD.MODE	: LOAD MODE
	BIT11		
7\$:	PERFORM	.CLR.TMARK	: CLEAR TMARK BIT.
	MOV	#BIT9, 30VSFR	: DO A BR "A" TEST FOR TX FLAG

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2185	011636	005005			CLR	R5	:SET EXPECTED DATA TO 0
2186	011640	032777	000001	167522	BIT	#BIT0,ADVLCR	:IF FLAG TRUE?
2187	011646	001401			BEQ	.+4	:BR IF YES
2188	011650	104000			HLT		:TX FLAG NO TRUE(LOW(LPRO=0))
2189	011652	005077	167514		CLR	ADVSR5	:ZERO LINE TO LINE 0
2190	011656	010577	167514		MOV	R5,ADVSR5	:LOAD DATA INTO DVSRA
2191	011662	012777	020000	167510	MOV	#BIT13,ADVSR5	:EXECUTE A "ROM READ" INTSTR
2192	011670	104415			ROMCLK		:CLOCK.
2193	011672	012777	030260	167500	MOV	#XFR+BIT7+BIT5+BIT4,ADVSR5	
2194	011700	104415			ROMCLK		:DO A DATA XFER FROM RAM OUTPUT TO TX BUFFER
2195	011702	104416			DATACLK		:ISSUE A MAINT CLK.
2196	011704	012777	001000	167466	MOV	#BIT9,ADVSR5	:DO A "BR A" TEST FOR TX FLAG
2197	011712	032777	000001	167450	BIT	#BIT0,ADVLCR	:IS FLAG FALSE?
2198	011720	001001			BNE	.+4	:BR IF YES
2199	011722	104000			HLT		:TX FLAG NOT FALSE(HIGH(LPRO=1))
2200	011724	012737	011732	001220	MOV	#4\$,LOCK	:SET IF SW09=1 GOTO 4\$
2201	011732	113702	001242		MOV8	CLKX,R2	:SET REQUIRED SHIFTS
2202	011736	005037	022622		CLR	DATA	:CLEAR STUFFER LOCATION
2203	011742	010077	167424		MOV	R0,ADVSR5	:LOAD LINE NUMBER
2204	011746	104416			DATACLK		:ISSUE MAINT CLK
2205	011750	004537	022246		PERFORM	TXSHIFT	:WORK THE TRANSMITTER
2206	011754	005302			DEC	R2	:ALL SHIFTS DONE?
2207	011756	022702	000001		CMP	#1,R2	:IS THE BUFFER ALMOST EMPTY?
2208	011762	001030			BNE	8\$	:BR IF NO
2209	011764	005077	167402		CLR	ADVSR5	:ZERO LINE NUMBER
2210	011770	032777	001000	167204	BIT	#BIT9,ASWR	:LOCK ON DATA?
2211	011776	001001			BNE	.+4	:BR IF YES!!
2212	012000	005205			INC	R5	:UPDATE DATA.
2213	012002	010577	167370		MOV	R5,ADVSR5	:LOAD DATA INTO DVSRA
2214	012006	012777	020000	167364	MOV	#BIT13,ADVSR5	:DO A ROM READ
2215	012014	104415			ROMCLK		:CLK
2216	012016	012777	030260	167354	MOV	#XFR+BIT7+BIT5+BIT4,ADVSR5	
2217	012024	104415			ROMCLK		:DO A DATA XFER TO TX BUFF
2218	012026	010077	167340		MOV	R0,ADVSR5	:RESELECT LINE NUMBER
2219	012032	032777	001000	167142	BIT	#BIT9,ASWR	:LOCK ON DATA?
2220	012040	001001			BNE	.+4	:BR IF YES!!
2221	012042	005305			DEC	R5	:READJUST DATA CHAR.
2222	012044	005702			TST	R2	:ALL SHIFTS DONE?
2223	012046	001337			BNE	5\$	:BR IF NO
2224	012050	022737	000010	001242	CMP	#8,CLKX	:IS LINE CARD SET TO 8 BITS?
2225	012056	001414			BEQ	15\$	:BR IF YES
2226	012060	013737	001242	001246	MOV	CLKX,TEMP1	:SAVE NUMBER OF SHIFTS DONE.
2227	012066	000241			CLC		:CLEAR CARRY
2228	012070	006037	022622		ROR	DATA	:RIGHT JUSTIFY TX RESULTS.
2229	012074	005237	001246		INC	TEMP1	:ALL DONE?
2230	012100	022737	000010	001246	CMP	#8,TEMP1	:?
2231	012106	001367			BNE	16\$	:BR IF NO
2232	012110						
2233	012110	013704	022622		MOV	DATA,R4	:READ IMAGE CHAR FROM TX
2234	012114	143704	001244		BICB	MASKX,R4	:STRIP PARITY IF IT EXISTS.
2235	012120	020504			CMP	R5,R4	:ARE DATA CHARS THE SAME?
2236	012122	001401			BEQ	.+4	:BR IF GOOD DATA FROM TX
2237	012124	104003			HLT	3	:TX DATA COMPARE ERROR
2238	012126	104401			SCOP1		:LOCK ON DATA?
2239	012130	105205			INCB	R5	:UPDATE DATA CHAR.
2240	012132	001403			BEQ	6\$	:BR IF 8BIT CODE DONE.

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2241	012134	133705	001244		BITB	MASKX,R5	; IF <BBIT SEE IF ALL DONE.
2242	012140	001674			BEQ	4\$	; BR IF NOT ALL DONE
2243	012142	004537	022546	6\$:	PERFORM	.SET.TMARK	; SET TMARK BIT
2244						; *VERIFY THAT SETTING TMARK BIT PUTS LINE AT MARK.	
2245						; *	
2246	012146	113702	001242		MOVB	CLKX,R2	; SET COUNTER
2247	012152	010077	167214		MOV	RO,ADVSR5	; SET LINE
2248	012156	104416		9\$:	DATACLK		; CLOCK
2249	012160	005302			DEC	R2	; FLUSH LAST CHARACTER.
2250	012162	001375			BNE	9\$	; CHAR FLUSHED?
2251	012164	012702	000024		MOV	#20.,R2	; LOOK AT 20. BITS.
2252	012170	104416		10\$:	DATACLK		; MAINT CLK
2253	012172	032777	000200	167170	BIT	#BIT7,ADVLCR	; BIT WINDOW
2254	012200	001001			BNE	11\$	; SET (MARK)
2255	012202	104000			HLT	0	; TX BIT WINDOW NOT SET (MARK)
2256	012204	005302		11\$:	DEC	R2	; ALL BITS LOOKED AT?
2257	012206	001370			BNE	10\$	; BR IF NO
2258	012210	004537	022470		PERFORM	.SETSCAN	; ADVANCE SCANNER TO NEXT LINE
2259	012214	000001			1		; ONE LINE ADVANCE
2260	012216	005303			DEC	R3	; ALL LINES(4) DONE?
2261	012220	001201			BNE	7\$	; BR IF NO
2262	012222	000207			RTS	PC	; GET NEXT GROUP OF 4 LINES.

***** TEST 11 *****
 *TEST TO CHECK THE IDLE CHARACTER
 *FOR EACH LINE OF THE TRANSMITTER.
 *THIS TEST USES "SYNCA".
 *THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.

				:	TEST 11		
2274	012224	012737	000011	001226	TST11:	MOV	#11,TSTNO
2275	012232	012737	001240	001216		MOV	#TST12,NEXT
2276	012240	012700	000000			MOV	#0.,RO
2277	012244	113737	001412	001242		MOVB	CLK.A,CLKX
2278	012252	113737	001406	001244		MOVB	MASK.A,MASKX
2279	012260	013737	001416	001236		MOV	LO0.03,STAT
2280	012266	100402				BMI	100\$
2281	012270	004737	012422			JSR	PC,105\$
2282	012274	012700	000004		100\$:	MOV	#4.,RO
2283	012300	113737	001413	001242		MOVB	CLK.B,CLKX
2284	012306	113737	001407	001244		MOVB	MASK.B,MASKX
2285	012314	013737	001420	001236		MOV	LO4.07,STAT
2286	012322	100402				BMI	101\$
2287	012324	004737	012422			JSR	PC,105\$
2288	012330	012700	000010		101\$:	MOV	#8.,RO
2289	012334	113737	001414	001242		MOVB	CLK.C,CLKX
2290	012342	113737	001410	001244		MOVB	MASK.C,MASKX
2291	012350	013737	001422	001236		MOV	LO8.11,STAT
2292	012356	100402				BMI	102\$
2293	012360	004737	012422			JSR	PC,105\$
2294	012364	012700	000014		102\$:	MOV	#12.,RO
2295	012370	113737	001415	001242		MOVB	CLK.D,CLKX
2296	012376	113737	001411	001244		MOVB	MASK.D,MASKX

; PLACE LINE NUMBER INTO RO
 ; PLACE "SHIFTS/PER/CHAR" IN CLKX
 ; 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 RO
 ; PLACE "SHIFTS/PER/CHAR" IN CLKX
 ; 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 SHIFTS PER CHAR
 ; 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 SHIFTS
 ; GET MASK

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2297	012404	013737	001424	001236	MOV	L12.15,STAT	:LOAD LINE CARD STATUS
2298	012412	100402			BMT	103\$	:BR IF LINE CARD NOT TO BE TESTED
2299	012414	004737	012422		JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
2300	012420	104400			SCOPE		:SCOPE THIS TEST.
2301	012422						:TEST ENTRANCE.
2302	012422	032737	004000	001236	BIT	#ASYNC,STAT	:IS THIS A SYNC LINE CARD?
2303	012430	001401			SEQ	.+4	:BR IF SYNC LINE CARD.
2304	012432	000207			RTS	PC	:EXIT TEST
2305	012434	010037	012450		MOV	RO,65\$	:LOAD LINE NO. POINTER
2306	012440	104412			MSTCLR		:RESET THE DV11
2307	012442	005001			CLR	R1	:ZERO MSCANNER POINTER
2308	012444	004537	022470		PERFORM	,SETSCAN	:SET MSCANNER TO LINES TESTED
2309	012450	000001			.BLKW 1		:INITIAL LINE VALUE
2310	012452	012703	000004		MOV	#4,R3	:SET TO DO 4 LINE GROUP
2311	012456	005005			CLR	R5	:ZERO
2312	012460	012777	050102	166712	MOV	#5.C+BIT6+BIT1,ADVSR	:ADVSR
2313	012466	104415			ROMCLK		:SET/CLEAR "ADVANCE MSCANNER"
2314	012470	005201			INC	R1	:UPDATE MSCANNER POINTER
2315	012472	010077	166674		MOV	RO,ADVSR5	:LOAD LINE NUMBER INTO DV11
2316	012476	004537	022560		PERFORM	,CLR.TMARK	:CLR TMARK BIT.
2317	012502	004537	022266		PERFORM	,LOAD.MODE	:LOAD THE MODE
2318	012506	004000			BIT11		:INT MAINT MODE
2319	012510	005077	166662		CLR	ADVSR4	:ZERO DATA FOR XFR
2320	012514	012777	020000	166656	MOV	#BIT13,ADVSR	:DO A RAM READ INSTR.
2321	012522	104415			ROMCLK		
2322	012524	012777	030260	166646	MOV	#XFR+BIT7+BIT5+BIT4,ADVSR	:ADVSR
2323	012532	104415			ROMCLK		:DATA XFR TXBUFFER+RAM OUTPUT
2324	012534	104416			DATACLK		:ISSUE MAIT CLOCK PULSE
2325	012536	012737	012570	001220	MOV	#4\$,LOCK	:SET FOR SCOPI
2326	012544	113702	001242		MOVB	CLKX,R2	:NUMBER OF CLOCK PULSES NEEDED
2327	012550	104416			DATACLK		:MAINT CLOCK PULSE
2328	012552	005302			DEC	R2	:ALL CLOCKS DONE?
2329	012554	001375			BNE	.-4	:NO, DO MORE
2330	012556	113705	001236		MOVB	STAT,R5	:GET SYNC (IDLE) CHAR.
2331	012562	012737	000005	001250	MOV	#5,TEMP2	:SET FOR 5 CHARS
2332	012570	113702	001242		MOVB	CLKX,R2	:GET CLOCKS NEEDED
2333	012574	005037	022622		CLR	DATA	:ZERO STORAGE AREA
2334	012600	010077	166566		MOV	RO,ADVSR5	:LOAD LINE NUMBER
2335	012604	104416			DATACLK		:ISSUE MAINT CLK PULSE
2336	012606	004537	022246		PERFORM	,TXSHIFT	:CLOCK THE TRANSMITTER
2337	012612	005302			DEC	R2	:MORE SHIFTS REQUIRED?
2338	012614	001373			BNE	5\$	:BR IF YES
2339	012616	022737	000010	001242	CMP	#8.,CLKX	:IS LINE CARD SET TO 8 BITS?
2340	012624	001414			BEG	15\$	:BR IF YES
2341	012626	013737	001242	001246	MOV	CLKX,TEMP1	:SAVE NUMBER OF SHIFTS DONE.
2342	012634	000241			CLC		:CLEAR CARRY
2343	012636	006037	022622		ROR	DATA	:RIGHT JUSTIFY TX RESULTS.
2344	012642	005237	001246		INC	TEMP1	:ALL DONE?
2345	012646	022737	000010	001246	CMP	#8.,TEMP1	:?
2346	012654	001367			BNE	16\$	:BR IF NO
2347	012656						
2348	012656	013704	022622		MOV	DATA,R4	:SAVE DATA SHIFTED OUT OF TX.
2349	012662	143704	001244		BICB	MASKX,R4	:CLEAR UNWANTED BITS.
2350	012666	042705	177400		BIC	#1C<377>,R5	:CLEAR SIGN EXTEND.
2351	012672	143705	001244		BICB	MASKX,R5	:CLEAR UNUSED BITS
2352	012676	042704	177400		BIC	#1C<377>,R4	:CLEAR SIGN EXTEND.

2353	012702	020504		CMP	R5,R4	:EXPECTED = FOUND ??
2354	012704	001401		BEQ	.+4	:BR IF OK
2355	012706	104003		HLT	3	:IDLE CHAR NOT WHAT EXPECTED.
2356	012710	005337	001250	DEC	TEMP2	:ALL IDLE CHARS DONE?
2357	012714	001325		BNE	4\$	:BR IF NO
2358	012716	104401		SCOP1		:LOCK (SW09=1)?
2359	012720	004537	022546	PERFORM	,SET.TMARK	:SET TMARK BIT
2360	012724	004537	022470	PERFORM	,SETSCAN	:UPDATE SCANNER TO NEXT LINE
2361	012730	000001		1		
2362	012732	005303		DEC	R3	:ALL LINES DONE
2363	012734	001256		BNE	6\$	:BR IF NO
2364	012736	000207		RTS	PC	:EXIT FOR NEXT GROUP OF LINES.

```

***** TEST 12 *****
*TEST TO CHECK THE IDLE CHARACTER
*FOR EACH LINE OF THE TRANSMITTER.
*THIS TEST USES "SYNCS".
*THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
*****

```

: TEST 12

2376	012740	012737	000012	001226	TST12:	MOV	#12,TSTNO	
2377	012746	012737	013504	001216		MOV	#TST13,NEXT	
2378	012754	012700	000000			MOV	#0.,RO	:PLACE LINE NUMBER INTO RO
2379	012760	113737	001412	001242		MOVB	CLK.A,CLKX	:PLACE "SHIFTS/PER/CHAR" IN CLKX
2380	012766	113737	001406	001244		MOVB	MASK.A,MASKX	:PLACE "MASK"FOR CHARS INTO MASKX
2381	012774	013737	001426	001240		MOV	SYNC2A,SYNCX	
2382	013002	013737	001416	001236		MOV	LO0.C3,STAT	:LOAD LINE CARD STATUS INTO STAT
2383	013010	100402				BMI	100\$	:BR IF LINE CARD NOT TO BE TESTED
2384	013012	004737	013166			JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 1
2385	013016	012700	000004		100\$:	MOV	#4.,RO	:PLACE LINE NUMBER INTO RO
2386	013022	113737	001413	001242		MOVB	CLK.B,CLKX	:PLACE "SHIFTS/PER/CHAR" IN CLKX
2387	013030	113737	001407	001244		MOVB	MASK.B,MASKX	:GET MASK
2388	013036	013737	001430	001240		MOV	SYNC2B,SYNCX	
2389	013044	013737	001420	001236		MOV	LO4.07,STAT	:LOAD LINE CARD STATUS INTO STAT
2390	013052	100402				BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
2391	013054	004737	013166			JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
2392	013060	012700	000010		101\$:	MOV	#8.,RO	:LOAD LINE NUMBER
2393	013064	113737	001414	001242		MOVB	CLK.C,CLKX	:GET SHIFTS PER CHAR
2394	013072	113737	001410	001244		MOVB	MASK.C,MASKX	:GET MASK
2395	013100	013737	001432	001240		MOV	SYNC2C,SYNCX	
2396	013106	013737	001422	001236		MOV	LO8.11,STAT	:LOAD LINE CARD STATUS INTO STAT
2397	013114	100402				BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
2398	013116	004737	013166			JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
2399	013122	012700	000014		102\$:	MOV	#12.,RO	:LOAD LINE NO.
2400	013126	113737	001415	001242		MOVB	CLK.D,CLKX	:GET SHIFTS
2401	013134	113737	001411	001244		MOVB	MASK.D,MASKX	:GET MASKK
2402	013142	013737	001434	001240		MOV	SYNC2D,SYNCX	
2403	013150	013737	001424	001236		MOV	L12.15,STAT	:LOAD LINE CARD STATUS
2404	013156	100402				BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
2405	013160	004737	013166			JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
2406	013164	104400			103\$:	SCOPE		:SCOPE THIS TEST.
2407	013166				105\$:			:TEST ENTRANCE.
2408	013166	032737	004000	001236		BIT	#ASYNC,STAT	:IS THIS A SYNC LINE CARD?

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2409	013174	001401		BEQ	.+4	;BR IF SYNC LINE CARD.
2410	013176	000207		RTS	PC	;EXIT TEST
2411	013200	010037	013214	MOV	RO,65\$	;LOAD LINE NO. POINTER
2412	013204	104412		MSTCLR		;RESET THE DV11
2413	013206	005001		CLR	R1	;ZERO MSCANNER POINTER
2414	013210	004537	022470	PERFORM	,SETSCAN	;SET MSCANNER TO LINES TESTED
2415	013214	000001		.BLKW	1	;INITIAL LINE VALUE
2416	013216	012703	000004	MOV	#4,R3	;SET TO DO 4 LINE GROUP
2417	013222	005005		CLR	R5	;ZERO
2418	013224	012777	050102 166146	MOV	#5.C+BIT6+BIT1,ADVSR	;SET/CLEAR "ADVANCE MSCANNER"
2419	013232	104415		ROMCLK		;UPDATE MSCANNER POINTER
2420	013234	005201		INC	R1	;LOAD LINE NUMBER INTO DV11
2421	013236	010077	166130	MOV	RO,ADVSR	;CLR TMARK BIT.
2422	013242	004537	022560	PERFORM	,CLR.TMARK	;LOAD THE MODE
2423	013246	004537	022266	PERFORM	,LOAD.MODE	;INT MAINT MODE AND SECOND SYNC
2424	013252	006000		BIT11+BIT10		;ZERO DATA FOR XFR
2425	013254	005077	166116	CLR	ADVSR	;DO A RAM READ INSTR.
2426	013260	012777	020000 166112	MOV	#BIT13,ADVSR	
2427	013266	104415		ROMCLK		
2428	013270	012777	030260 166102	MOV	#XFR+BIT7+BIT5+BIT4,ADVSR	
2429	013276	104415		ROMCLK		;DATA XFR TXBUFFER+RAM OUTPUT
2430	013300	104416		DATACLK		;ISSUE MAIT CLOCK PULSE
2431	013302	012737	013334 001220	MOV	#4\$,LOCK	;SET FOR SC-1
2432	013310	113702	001242	MOVB	CLKX,R2	;NUMBER OF CLOCK PULSES NEEDED
2433	013314	104416		DATACLK		;MAINT CLOCK PULSE
2434	013316	005302		DEC	R2	;ALL CLOCKS DONE?
2435	013320	001375		BNE	.-4	;NO, DO MORE
2436	013322	113705	001240	MOVB	SYNCR,R5	;GET SYNC (IDLE CHAR).
2437	013326	012737	000005 001250	MOV	#5,TEMP2	;SET FOR 5 CHARS
2438	013334	113702	001242	MOVB	CLKX,R2	;GET CLOCKS NEEDED
2439	013340	005037	022622	CLR	DATA	;ZERO STORAGE AREA
2440	013344	010077	166022	MOV	RO,ADVSR	;LOAD LINE NUMBER
2441	013350	104416		DATACLK		;ISSUE MAINT CLK PULSE
2442	013352	004537	022246	PERFORM	,TXSHIFT	;CLOCK THE TRANSMITTER
2443	013356	005302		DEC	R2	;MORE SHIFTS REQUIRED?
2444	013360	001373		BNE	5\$	;BR IF YES
2445	013362	022737	000010 001242	CMP	#8.,CLKX	;IS LINE CARD SET TO 8 BITS?
2446	013370	001414		BEQ	15\$	;BR IF YES
2447	013372	013737	001242 001246	MOV	CLKX,TEMP1	;SAVE NUMBER OF SHIFTS DONE.
2448	013400	000241		CLC		;CLEAR CARRY
2449	013402	006037	022622	ROR	DATA	;RIGHT JUSTIFY TX RESULTS.
2450	013406	005237	001246	INC	TEMP1	;ALL DONE?
2451	013412	022737	000010 001246	CMP	#8.,TEMP1	;?
2452	013420	001367		BNE	16\$	;BR IF NO
2453	013422					
2454	013422	013704	022622	MOV	DATA,R4	;SAVE DATA SHIFTED OUT OF TX.
2455	013426	143704	001244	BICB	MASKX,R4	;CLEAR UNWANTED BITS.
2456	013432	042705	177400	BIC	#1C<377>,R5	;CLEAR SIGN EXTEND.
2457	013436	143705	001244	BICB	MASKX,R5	;CLEAR UNUSED BITS
2458	013442	042704	177400	BIC	#1C<377>,R4	;CLEAR SIGN EXTEND.
2459	013446	020504		CMP	R5,R4	;EXPECTED = FOUND ??
2460	013450	001401		BEQ	.+4	;BR IF OK
2461	013452	104003		HLT	3	;IDLE CHAR NOT WHAT EXPECTED.
2462	013454	005337	001250	DEC	TEMP2	;ALL IDLE CHARS DONE?
2463	013460	001325		BNE	4\$	;BR IF NO
2464	013462	104401		SCOP1		;LOCK (SW09=1)?

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2465	013464	004537	022546	PERFORM ,SET.TMARK	;SET TMARK BIT
2466	013470	004537	022470	PERFORM ,SETSCAN	;UPDATE SCANNER TO NEXT LINE
2467	013474	000001		1	
2468	013476	005303		DEC R3	;ALL LINES DONE
2469	013500	001256		BNE 6\$	;BR IF NO
2470	013502	000207		RTS PC	;EXIT FOR NEXT GROUP OF LINES.

***** TEST 13 *****
 ;THIS TEST CHECKS "RECEIVE CHAR SILO" TO BE
 ;ALL ZERO'S WHEN "DATA ENABLE" IS NOT SET.
 ;EXPECTED DATA SHOULD BE LINE NUMBER ONLY
 ;DATA 0'S AND ERROR FLAGS 0.
 ;THIS TEST WILL BE DONE FOR BOTH ASYNC AND SYNC LINE CARDS.
 ;*****

2471						
2472						
2473						
2474						
2475						
2476						
2477						
2478						
2479						
2480						
2481						
2482						
2483	013504	012737	000013	001226	TEST 13	
2484	013512	012737	014012	001216	ST13: MOV #13,TSTNO	
2485	013520	012700	000000		MOV #TST14,NEXT	
2486	013524	013737	001416	001236	MOV #0,R0	;PLACE LINE NUMBER INTO R0
2487	013532	100402			MOV L00.03,STAT	;LOAD LINE CARD STATUS INTO STAT
2488	013534	004737	013622		BMI 100\$	;BR IF LINE CARD NOT TO BE TESTED
2489	013540	012700	000004		JSR PC,105\$	;GO DO THE TEST FOR LINE CARD 1
2490	013544	013737	001420	001236	100\$: MOV #4,R0	;PLACE LINE NUMBER INTO R0
2491	013552	100402			MOV L04.07,STAT	;LOAD LINE CARD STATUS INTO STAT
2492	013554	004737	013622		BMI 101\$	;BR IF LINE CARD NOT TO BE TESTED
2493	013560	012700	000010		JSR PC,105\$	;GO DO THE TEST FOR LINE CARD 2
2494	013564	013737	001422	001236	101\$: MOV #8,R0	;LOAD LINE NUMBER
2495	013572	100402			MOV L08.11,STAT	;LOAD LINE CARD STATUS INTO STAT
2496	013574	004737	013622		BMI 102\$	;BR IF LINE CARD NOT TO BE TESTED
2497	013600	012700	000014		JSR PC,105\$	;DO THE TEST FOR LINE CARD 3
2498	013604	013737	001424	001236	102\$: MOV #12,R0	;LOAD LINE NO.
2499	013612	100402			MOV L12.15,STAT	;LOAD LINE CARD STATUS
2500	013614	004737	013622		BMI 103\$	;BR IF LINE CARD NOT TO BE TESTED
2501	013620	104400			JSR PC,105\$	;DO THE TESTS FOR LINE CARD 4
2502	013622				103\$: SCOPE	;SCOPE THIS TEST.
2503	013622	010037	013642		105\$: MOV R0,65\$	;TEST ENTRANCE.
2504	013626	012703	000004		MOV #4,R3	;STORE LINE NO. POINTER
2505	013632	104412			1\$: MSTCLR	;SET FOR 4 LINE GROUP
2506	013634	005001			CLR R1	;RESET DV11
2507	013636	004537	022470		PERFORM ,SETSCAN	;ZERO MSCANNER POINTER
2508	013642	000001			.BLKW 1	;ADJUST SCANNER
2509	013644	010005			65\$: MOV R0,R5	;TO CORRECT LINE NO.
2510	013646	000305			SWAB R5	;PLACE LINE NUMBER INTO R5
2511	013650	105005			CLRB R5	;PLACE LINE NO. IN HIGH BYTE
2512	013652				3\$: MOV #S.C+BIT4+BIT0,ADVSR	;CLEAR LOW BYTE OF EXPECTED
2513	013652	012777	050021	165520	ROMCLK	
2514	013660	104415			CLR R2	;SET/CLEAR SILO IN
2515	013662	005002			MOV #BIT9+BIT8,ADVSR	
2516	013664	012777	001400	165506	BIT #BIT0,ADVLCR	; "RECV CHAR WAITING TRUE"
2517	013672	032777	000001	165470	4\$: BEQ 5\$	;BR IF YES
2518	013700	001403			INC R2	;DELAY IF NOT READY
2519	013702	005202			BNE 4\$	;END OF DELAY?
2520	013704	001372				

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2521	013706	104000			HLT	0	:"RECV CHAR WAITING" NOT TRUE
2522	013710	012777	030306	165462	5\$:	MOV	#XFR+BIT7+BIT6+BIT2+BIT1,ADVSR
2523	013716	017702	165456		MOV	ADVSR,R2	:"XFR RICR+SILO OUT
2524	013722	104415			ROMCLK		:"DATA/XFER RICR+SILO OUT
2525	013724	017704	165436		MOV	ADVSR,R4	:"READ RIC
2526	013730	020504			CMP	R5,R4	:"EXPECTED OK?"
2527	013732	001401			BEQ	:+4	
2528	013734	104001			HLT	1	
2529	013736	062705	000400		ADD	#400,R5	:"UPDATE LINE NO. (POINTER)
2530	013742	005002			CLR	R2	:"SFR IMAGE
2531	013744	012777	050020	165426	MOV	#S.C+BIT4,ADVSR	
2532	013752	104415			ROMCLK		:"S/C "SET SILO OUT"
2533	013754	012777	001400	165416	MOV	#BIT9+BIT8,ADVSR	
2534	013762	032777	000001	165400	6\$:	BIT	#BIT0,ADVLCR
2535	013770	001003			BNE	7\$	:"RECV CHAR WAITING"
2536	013772	005202			INC	R2	:"FALSE?"
2537	013774	001372			BNE	6\$	:"DELAY WAITING...."
2538	013776	104000			HLT	0	:"DELAY DONE?"
2539	014000	005237	013642		7\$:	INC	65\$
2540	014004	005303			DEC	R3	:"UPDATE MSCANNER POINTER(LINE)
2541	014006	001311			BNE	1\$	:"GROUP OF 4 LINES DONE."
2542	014010	000207			RTS	PC	:"BR IF YES"
2543							:"EXIT FOR NEXT GROUP OF LINES"

***** TEST 14 *****
 *THIS TEST CHECKS "RECEIVER CHAR SILO"
 *WHEN "DATA ENABLE IS SET" EXPECTED DATA S/B
 *ALL 1'S FOR RX DATA, LINE NUMBER CORRECT,
 *AND ERROR FLAGS =0.
 *THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.

2553					;	TEST 14	
2554					-----		
2555	014012	012737	000014	001226	TST14:	MOV	#14,TSTNO
2556	014020	012737	014344	001216		MOV	#TST15,NEXT
2557	014026	012700	000000			MOV	#0,R0
2558	014032	013737	001416	001236		MOV	L00.03,STAT
2559	014040	100402				BMI	100\$
2560	014042	004737	014130			JSR	PC,105\$
2561	014046	012700	000004		100\$:	MOV	#4,R0
2562	014052	013737	001420	001236		MOV	L04.07,STAT
2563	014060	100402				BMI	101\$
2564	014062	004737	014130			JSR	PC,105\$
2565	014066	012700	000010		101\$:	MOV	#8,R0
2566	014072	013737	001422	001236		MOV	L08.11,STAT
2567	014100	100402				BMI	102\$
2568	014102	004737	014130			JSR	PC,105\$
2569	014106	012700	000014		102\$:	MOV	#12,R0
2570	014112	013737	001424	001236		MOV	L12.15,STAT
2571	014120	100402				BMI	103\$
2572	014122	004737	014130			JSR	PC,105\$
2573	014126	104400			103\$:	SCOPE	
2574	014130				105\$:		
2575	014130	032737	004000	001236		BIT	#ASYNC,STAT
2576	014136	001401				BEQ	:+4

:"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.
 :IS THIS A SYNC LINE CARD?
 :BR IF SYNC LINE CARD.

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2577	014140	000207			RTS	PC	:EXIT TEST
2578	014142	010037	014162		MOV	RO,65\$	:STORE LINE NO. POINTER
2579	014146	012703	000004		MOV	#4,R3	:SET FOR 4 LINE GROUP
2580	014152	104412		1\$:	MSTCLR		:RESET DV11
2581	014154	005001			CLR	R1	:ZERO MSCANNER POINTER
2582	014156	004537	022470		PERFORM	,SETSCAN	:ADJUST SCANNER
2583	014162	000001		65\$:	.BLKW 1		:TO CORRECT LINE NO.
2584	014164	010005			MOV	RO,R5	:PLACE LINE NUMBER INTO R5
2585	014166	000305			SWAB	R5	:PLACE LINE NO. IN HIGH BYTE
2586	014170	052705	000377		BIS	#377,R5	:SET LOW BYTE TO ALL 1'S
2587	014174			3\$:			
2588	014174	012777	050023	165176	MOV	#S.C+BIT4+BIT1+BIT0,ADVSR	
2589	014202	104415			ROMCLK		:S/C "SET RECV DATA ENABLE"
2590	014204	012777	050021	165166	MOV	#S.C+BIT4+BIT0,ADVSR	
2591	014212	104415			ROMCLK		:SET/CLEAR SILO IN
2592	014214	005002			CLR	R2	
2593	014216	012777	001400	165154	MOV	#BIT9+BIT8,ADVSR	
2594	014224	032777	000001	165136	BIT	#BIT0,ADVLCR	: "RECV CHAR WAITING TRUE"
2595	014232	001403			BEQ	5\$	:BR IF YES
2596	014234	005202			INC	R2	:DELAY IF NOT READY
2597	014236	001372			BNE	4\$	:END OF DELAY?
2598	014240	104000			HLT	0	: "RECV CHAR WAITING" NOT TRUE
2599	014242	012777	030306	165130	MOV	#XFR+BIT7+BIT6+BIT2+BIT1,ADVSR	
2600	014250	017702	165124		MOV	ADVSR,R2	:XFR RICR+SILO OUT
2601	014254	104415			ROMCLK		:DATA/XFER RICR+SILO OUT
2602	014256	017704	165104		MOV	ADVSR,R4	:READ RIC
2603	014262	020504			CMP	R5,R4	:EXPECTED OK?
2604	014264	001401			BEQ	+4	
2605	014266	104001			HLT	1	
2606	014270	062705	000400		ADD	#400,R5	:UPDATE LINE NO. (POINTER)
2607	014274	005002			CLR	R2	:SFR IMAGE
2608	014276	012777	050020	165074	MOV	#S.C+BIT4,ADVSR	
2609	014304	104415			ROMCLK		:S/C "SET SILO OUT"
2610	014306	012777	001400	165064	MOV	#BIT9+BIT8,ADVSR	
2611	014314	032777	000001	165046	BIT	#BIT0,ADVLCR	: "RECV CHAR WAITING"
2612	014322	001003			BNE	7\$	:FALSE?
2613	014324	005202			INC	R2	:DELAY WAITING....
2614	014326	001372			BNE	6\$	:DELAY DONE?
2615	014330	104000			HLT	0	
2616	014332	005237	014162		INC	65\$	:UPDATE MSCANNER POINTER(LINE)
2617	014336	005303			DEC	R3	:GROUP OF 4 LINES DONE.
2618	014340	001304			BNE	1\$	:BR IF YES
2619	014342	000207			RTS	PC	:EXIT FOR NEXT GROUP OF LINES

***** TEST 15 *****
 :*TEST THAT EACH RECEIVER WILL SET
 :*"MATCH DETECT" WHEN THE FIRST SYNC
 :*CHARACTER IS PUMPED INTO IT.
 :*THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
 :*****

TEST 15

2630							
2631	014344	012737	000015	001226	TST15:	MOV	#15,TSTNO
2632	014352	012737	014642	001216		MOV	#TST16,NEXT

2633	014360	012700	000000		MOV	#0.,R0	:PLACE LINE NUMBER INTO R0
2634	014364	113737	001412	001242	MOV	CLK.A,CLKX	:PLACE "SHIFTS/PER/CHAR" IN CLKX
2635	014372	013737	001416	001236	MOV	L00.03,STAT	:LOAD LINE CARD STATUS INTO STAT
2636	014400	100402			BMI	100\$	:BR IF LINE CARD NOT TO BE TESTED
2637	014402	004737	014512		JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 1
2638	014406	012700	000004	100\$:	MOV	#4.,R0	:PLACE LINE NUMBER INTO R0
2639	014412	113737	001413	001242	MOV	CLK.B,CLKX	:PLACE "SHIFTS/PER/CHAR" IN CLKX
2640	014420	013737	001420	001236	MOV	L04.07,STAT	:LOAD LINE CARD STATUS INTO STAT
2641	014426	100402			BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
2642	014430	004737	014512		JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
2643	014434	012700	000010	101\$:	MOV	#8.,R0	:LOAD LINE NUMBER
2644	014440	113737	001414	001242	MOV	CLK.C,CLKX	:GET SHIFTS PER CHAR
2645	014446	013737	001422	001236	MOV	L08.11,STAT	:LOAD LINE CARD STATUS INTO STAT
2646	014454	100402			BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
2647	014456	004737	014512		JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
2648	014462	012700	000014	102\$:	MOV	#12.,R0	:LOAD LINE NO.
2649	014466	113737	001415	001242	MOV	CLK.D,CLKX	:GET SHIFTS
2650	014474	013737	001424	001236	MOV	L12.15,STAT	:LOAD LINE CARD STATUS
2651	014502	100402			BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
2652	014504	004737	014512		JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
2653	014510	104400		103\$:	SCOPE		:SCOPE THIS TEST.
2654	014512			105\$:			:TEST ENTRANCE.
2655	014512	032737	004000	001236	BIT	#ASYNC,STAT	:IS THIS A SYNC LINE CARD?
2656	014520	001401			BEQ	.+4	:BR IF SYNC LINE CARD.
2657	014522	000207			RTS	PC	:EXIT TEST
2658	014524	012703	000004		MOV	#4,R3	
2659	014530	010037	014544		MOV	R0,65\$	:SET LINE NO. POINTER
2660	014534	104412		1\$:	MSTCLR		:RESET DV11
2661	014536	005001			CLR	R1	:ZERO MSCANNER POINTER
2662	014540	004537	022470		PERFORM	.SETSCAN	
2663	014544	000001		65\$:	.BLKW 1		:SET MSCANNER TO CORRECT LINE.
2664	014546	010077	164620	3\$:	MOV	R0,3DVSRS	:LOAD LINE NO.
2665	014552	004537	022266		PERFORM	.LOAD.MODE	:LOAD THE MODE
2666	014556	025000			BIT13+BIT11+BIT9		:RECV ENABLE,INT MAINT,TX DSABLE
2667	014560	113737	001236	022622	MOV	STAT,DATA	:GET "SYNC" CHAR.
2668	014566	104416			DATA CLK		:PRIME DV11
2669	014570	004537	022326		PERFORM	.RXSHIFT	:SHIFT DATA INTO RECEIVER
2670	014574	001242			CLKX		:NO. OF SHIFTS GIVEN
2671	014576	012777	076400	164574	MOV	#BRB+BIT11+BIT10	:BITS,3DVSFR
2672	014604	017704	164560		MOV	3DVLOR,R4	:BRB "MATCH DET"
2673	014610	010405			MOV	R4,R5	
2674	014612	052705	000001		BIS	#BIT0,R5	
2675	014616	042705	000002		BIC	#BIT1,R5	
2676	014622	020504			CMP	R5,R4	:MATCH DET TRUE??
2677	014624	001401			BEQ	4\$	:BR IF YES
2678	014626	104001			HLT	1	
2679	014630	005237	014544	4\$:	INC	65\$	:UPDATE TO NEXT LINE.
2680	014634	005303			DEC	R3	:4 LINE GROUP DONE?
2681	014636	001336			BNE	1\$	:BR IF NO
2682	014640	000207			RTS	PC	:OBTAIN NEXT 4 LINE GROUP

***** TEST 16 *****
 :*TEST TO VERIFY THAT IF THE DV11 RECEIVER
 :*IS SET FOR ONE SYNC CHAR:
 :*"MATCH DET" *AND* "CHAR FLAG" ARE


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;*SET AFTER ONE SYNC IS PUSHED INTO THE RECEIVER
;*      HOWEVER...
;*IF THE DV11 RECEIVER IS SET FOR
;*TWO SYNC CHARS...
;*VERIFY THAT "MATCH DET" SETS ON THE FIRST SYNC
;*AND VERIFY THAT "MATCH DET" *AND* "CHAR FLAG"
;*ARE SET ON THE SECOND SYNC.
;*THIS TEST USES "SYNC A"
;*THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
;*****

```

: TEST 16

2699					TST16:	MOV	#16,TSTNO	
2700						MOV	#TST17,NEXT	
2701						MOV	#0,R0	
2702	014642	012737	000016	001226		MOV	CLK.A,CLKX	:PLACE LINE NUMBER INTO R0
2703	014650	012737	015276	001216		MOV	L00.03,STAT	:PLACE "SHIFTS/PER/CHAR" IN CLKX
2704	014656	012700	000000			BMI	100\$	:LOAD LINE CARD STATUS INTO STAT
2705	014662	113737	001412	001242		JSR	PC,105\$	:BR IF LINE CARD NOT TO BE TESTED
2706	014670	013737	001416	001236		MOV	#4,R0	:GO DO THE TEST FOR LINE CARD 1
2707	014676	100402			100\$:	MOV	CLK.B,CLKX	:PLACE LINE NUMBER INTO R0
2708	014700	004737	015010			MOV	L04.07,STAT	:PLACE "SHIFTS/PER/CHAR" IN CLKX
2709	014704	012700	000004			BMI	101\$	:LOAD LINE CARD STATUS INTO STAT
2710	014710	113737	001413	001242		JSR	PC,105\$	:BR IF LINE CARD NOT TO BE TESTED
2711	014716	013737	001420	001236		MOV	#8,R0	:GO DO THE TEST FOR LINE CARD 2
2712	014724	100402			101\$:	MOV	CLK.C,CLKX	:LOAD LINE NUMBER
2713	014726	004737	015010			MOV	L08.11,STAT	:GET SHIFTS PER CHAR
2714	014732	012700	000010			BMI	102\$	:LOAD LINE CARD STATUS INTO STAT
2715	014736	113737	001414	001242		JSR	PC,105\$	:BR IF LINE CARD NOT TO BE TESTED
2716	014744	013737	001422	001236		MOV	#12,R0	:DO THE TEST FOR LINE CARD 3
2717	014752	100402			102\$:	MOV	CLK.D,CLKX	:LOAD LINE NO.
2718	014754	004737	015010			MOV	L12.15,STAT	:GET SHIFTS
2719	014760	012700	000014			BMI	103\$	:LOAD LINE CARD STATUS
2720	014764	113737	001415	001242		JSR	PC,105\$	:BR IF LINE CARD NOT TO BE TESTED
2721	014772	013737	001424	001236		MOV	SCOPE	:DO THE TESTS FOR LINE CARD 4
2722	015000	100402			103\$:	SCOPE		:SCOPE THIS TEST.
2723	015002	004737	015010		105\$:	BIT	#ASYNC,STAT	:TEST ENTRANCE.
2724	015006	104400				BEQ	+4	:IS THIS A SYNC LINE CARD?
2725	015010					RTS	PC	:BR IF SYNC LINE CARD.
2726	015010	032737	004000	001236		MOV	#4,R3	:EXIT TEST
2727	015016	001401				MOV	R0,65\$	:SET FOR 4 LINES
2728	015020	000207			1\$:	MSTCLR		:PLACE LINE NO. POINTER
2729	015022	012703	000004			CLR	R1	:INIT DV11
2730	015026	010037	015042			PERFORM	,SETSCAN	:ZERO MSCANNER POINTER
2731	015032	104412				.BLKW 1		:SET SCANNER TO LINE DESIRED
2732	015034	005001			65\$:	MOV	R0,DZVSRS	:INITIAL LINE NUMBER.
2733	015036	004537	022470		3\$:	PERFORM	,LOAD.MODE	:LOAD LINE NUMBER
2734	015042	000001				BIT13+BIT11+BIT9		:LOAD
2735	015044	010077	164322			MOV	STAT,DATA	:MODE AND RX ENABLE AND TX DSABLE
2736	015050	004537	022266			DATA CLK		:PLACE SYNC CHAR IN DATA
2737	015054	025000				PERFORM	,RXSHIFT	:INIT DATA CLOCK.
2738	015056	113737	001236	022622		CLKX		:SHIFT DATA INTO RX
2739	015064	104416				MOV	#BRB+BIT11+BIT10+BIT8,DZVSFR	:NUMBER OF SHIFTS NEEDED
2740	015066	004537	022326			MOV	DZVLCR,R4	:SET BR "B" AND MATCH DET.
2741	015072	001242						:SAVE LPR IN R4
2742	015074	012777	076400	164276				
2743								
2744	015102	017704	164262					

2745	015106	010405		MOV	R4,R5	:SET FOR COMPARE
2746	015110	052705	000001	BIS	#BIT0,R5	:BR "A" FALSE
2747	015114	042705	000002	BIC	#BIT1,R5	:BR "B" TRUE
2748	015120	020504		CMP	R5,R4	
2749	015122	001401		BEQ	+4	:BR IF LPR OK.
2750	015124	104001		HLT	1	:EXPECT B TRUE; A FALSE
2751	015126	012777	002000 164244	MOV	#BIT10,DV5FR	:SET BR "A" AND RX CHAR FLAG.
2752	015134	017704	164230	MOV	DVLCR,R4	:SAVE LPR IN R4
2753	015140	010405		MOV	R4,R5	:SET FOR COMPARE
2754	015142	032737	010000 001236	BIT	#TWO5YN,STAT	:SET FOR ONE SYNC OR TWO?
2755	015150	001036		BNE	4\$	:BR IF SET FOR ONE SYNC
2756	015152	052705	000003	BIS	#BIT1+BIT0,R5	
2757	015156	020504		CMP	R5,R4	
2758	015160	001401		BEQ	+4	
2759	015162	104001		HLT	1	
2760	015164	113737	001236 022622	MOV8	STAT,DATA	
2761	015172	004537	022326	PERFORM	.RXSHIFT	
2762	015176	001242		CLKX		
2763	015200	012777	076400 164172	MOV	#BRB+BIT11+BIT10+BIT9,DV5FR	
2764						:SET BR "B" AND MATCH DET.
2765	015206	017704	164156	MOV	DVLCR,R4	:SAVE LPR IN R4
2766	015212	010405		MOV	R4,R5	:SET FOR COMPARE
2767	015214	052705	000001	BIS	#BIT0,R5	:BR "A" FALSE
2768	015220	042705	000002	BIC	#BIT1,R5	:BR "B" TRUE
2769	015224	020504		CMP	R5,R4	
2770	015226	001401		BEQ	+4	:BR IF LPR OK.
2771	015230	104001		HLT	1	:EXPECT B TRUE; A FALSE
2772	015232	012777	002000 164140	MOV	#BIT10,DV5FR	:SET BR "A" AND RX CHAR FLAG.
2773	015240	017704	164124	MOV	DVLCR,R4	:SAVE LPR IN R4
2774	015244	010405		MOV	R4,R5	:SET FOR COMPARE
2775	015246	052705	000002	BIS	#BIT1,R5	
2776	015252	042705	000001	BIC	#BIT0,R5	
2777	015256	020504		CMP	R5,R4	
2778	015260	001401		BEQ	+4	
2779	015262	104001		HLT	1	
2780	015264	005237	015042	INC	65\$	:UPDATE LINE NUMBER
2781	015270	005303		DEC	R3	
2782	015272	001257		BNE	1\$	
2783	015274	000207		RTS	PC	

```

***** TEST 17 *****
*TEST TO VERIFY THAT IF THE DV11 RECEIVER
*IS SET FOR ONE SYNC CHAR:
*"MATCH DET" *AND* "CHAR FLAG" ARE
*SET AFTER ONE SYNC IS PUSHED INTO THE RECEIVER
*
*HOWEVER...
*IF THE DV11 RECEIVER IS SET FOR
*TWO SYNC CHARS...
*VERIFY THAT "MATCH DET" SETS ON THE FIRST SYNC
*AND VERIFY THAT "MATCH DET" *AND* "CHAR FLAG"
*ARE SET ON THE SECOND SYNC.
*THIS TEST USES "SYNC B".
*THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
*****

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: TEST 17				
015276	012737	000017	001226	TST17: MOV #17,TSTNO
015304	012737	015762	001216	MOV #TST20,NEXT
015312	012700	000000		MOV #0.,RO
015316	113737	001412	001242	MOVB CLK.A,CLKX
015324	013737	001426	001240	MOV SYNC2A,SYNCX
015332	013737	001416	001236	MOV L00.03,STAT
015340	100402			BMI 100\$
015342	004737	015474		JSR PC,105\$
015346	012700	000004	100\$:	MOV #4.,RO
015352	113737	001413	001242	MOVB CLK.B,CLKX
015360	013737	001430	001240	MOV SYNC2B,SYNCX
015366	013737	001420	001236	MOV L04.07,STAT
015374	100402			BMI 101\$
015376	004737	015474		JSR PC,105\$
015402	012700	000010	101\$:	MOV #8.,RO
015406	113737	001414	001242	MOVB CLK.C,CLKX
015414	013737	001432	001240	MOV SYNC2C,SYNCX
015422	013737	001422	001236	MOV L08.11,STAT
015430	100402			BMI 102\$
015432	004737	015474		JSR PC,105\$
015436	012700	000014	102\$:	MOV #12.,RO
015442	113737	001415	001242	MOVB CLK.D,CLKX
015450	013737	001434	001240	MOV SYNC2D,SYNCX
015456	013737	001424	001236	MOV L12.15,STAT
015464	100402			BMI 103\$
015466	004737	015474		JSR PC,105\$
015472	104400		103\$:	SCOPE
015474			105\$:	
015474	032737	004000	001236	BIT #ASYNC,STAT
015502	001401			BEQ +4
015504	000207			RTS PC
015506	012703	000004		MOV #4,R3
015512	010037	015526		MOV RO,65\$
015516	104412		1\$:	MSTCLR
015520	005001			CLR R1
015522	004537	022470		PERFORM ,SETSCAN
015526	000001		65\$:	.BLKW 1
015530	010077	163636	3\$:	MOV RO,ADVSR5
015534	004537	022266		PERFORM ,LOAD.MODE
015540	027000			BIT13+BIT11+BIT10+BIT9
015542	013737	001240	022622	MOV SYNCX,DATA
015550	104416			DATACLK
015552	004537	022326		PERFORM ,RXSHIFT
015556	001242			CLKX
015560	012777	076400	163612	MOV #BRB+BIT11+BIT10
015566	017704	163576		MOV ADVLCR,R4
015572	010405			MOV R4,R5
015574	052705	000001		BIS #BIT0,R5
015600	042705	000002		BIC #BIT1,R5
015604	020504			CMP R5,R4
015606	001401			BEQ +4
015610	104001			HLT 1
015612	012777	002000	163560	MOV #BIT10,ADVSR6

2857	015620	017704	163544		MOV	3DVLCR,R4	:SAVE LPR IN R4
2858	015624	010405			MOV	R4,R5	:SET FOR COMPARE
2859	015626	032737	010000	001236	BIT	#TWO SYN,STAT	:SET FOR ONE SYNC OR TWO?
2860	015634	001036			BNE	4\$	:BR IF SET FOR ONE SYNC
2861	015636	052705	000003		BIS	#BIT1+BIT0,R5	
2862	015642	020504			CMP	R5,R4	
2863	015644	001401			BEQ	.+4	
2864	015646	104001			HLT	1	
2865	015650	013737	001240	022622	MOV	SYNCR,DATA	
2866	015656	004537	022326		PERFORM	RXSHIFT	
2867	015662	001242			CLKX		
2868	015664	012777	076400	163506	MOV	#BRB+BIT11+BIT10+BIT8,3DVSFR	
2869							:SET BR "B" AND MATCH DET.
2870	015672	017704	163472		MOV	3DVLCR,R4	:SAVE LPR IN R4
2871	015676	010405			MOV	R4,R5	:SET FOR COMPARE
2872	015700	052705	000001		BIS	#BIT0,R5	:BR "A" FALSE
2873	015704	042705	000002		BIC	#BIT1,R5	:BR "B" TRUE
2874	015710	020504			CMP	R5,R4	
2875	015712	001401			BEQ	.+4	:BR IF LPR OK.
2876	015714	104001			HLT	1	:EXPECT B TRUE; A FALSE
2877	015716	012777	002000	163454	MOV	#BIT10,3DVSFR	:SET BR "A" AND RX CHAR FLAG.
2878	015724	017704	163440		MOV	3DVLCR,R4	:SAVE LPR IN R4
2879	015730	010405			MOV	R4,R5	:SET FOR COMPARE
2880	015732	052705	000002		BIS	#BIT1,R5	
2881	015736	042705	000001		BIC	#BIT0,R5	
2882	015742	020504			CMP	R5,R4	
2883	015744	001401			BEQ	.+4	
2884	015746	104001			HLT	1	
2885	015750	005237	015526		INC	65\$	:UPDATE LINE NUMBER
2886	015754	005303			DEC	R3	
2887	015756	001257			BNE	1\$	
2888	015760	000207			RTS	PC	

***** TEST 20 *****
 :*TEST TO FORCE RECEIVER OVERRUN.
 :*THIS TEST WILL PUSH INTO THE RECEIVER
 :*TWO FULL CHARS (SYNCS) AND ONE MORE CHAR MINUS
 :*ONE BIT. THE PROGRAM WILL VERIFY NO OVERRUN EXISTS
 :*THEN THE LAST BITS WILL BE PUSHED IN VERIFYING
 :*THAT THE OVERRUN WAS GENERATED.
 :*THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
 :*****

					: TEST 20		
					:-----		
2903	015762	012737	000020	001226	TST20:	MOV	#20,TSTNO
2904	015770	012737	016600	001216		MOV	#TST21,NEXT
2905	015776	012700	000000			MOV	#0.,RO
2906	016002	113737	001412	001242		MOVB	CLK.A,CLKX
2907	016010	113737	001406	001244		MOVB	MASK.A,MASKX
2908	016016	013737	001416	001236		MOV	LOC.03,STAT
2909	016024	100402				BMI	100\$
2910	016026	004737	016160			JSR	PC,105\$
2911	016032	012700	000004		100\$:	MOV	#4.,RO
2912	016036	113737	001413	001242		MOVB	CLK.B,CLKX

:PLACE LINE NUMBER INTO RO
 :PLACE "SHIFTS/PER/CHAR" IN CLKX
 :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 RO
 :PLACE "SHIFTS/PER/CHAR" IN CLKX

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2913	016044	113737	001407	001244	MOV8	MASK.B,MASKX	:GET MASK
2914	016052	013737	001420	001236	MOV	L04.07,STAT	:LOAD LINE CARD STATUS INTO STAT
2915	016060	100402			BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
2916	016062	004737	016160		JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
2917	016066	012700	000010		MOV	#8.,R0	:LOAD LINE NUMBER
2918	016072	113737	001414	001242	MOV8	CLK.C,CLKX	:GET SHIFTS PER CHAR
2919	016100	113737	001410	001244	MOV8	MASK.C,MASKX	:GET MASK
2920	016106	013737	001422	001236	MOV	L08.11,STAT	:LOAD LINE CARD STATUS INTO STAT
2921	016114	100402			BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
2922	016116	004737	016160		JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
2923	016122	012700	000014		MOV	#12.,R0	:LOAD LINE NO.
2924	016126	113737	001415	001242	MOV8	CLK.D,CLKX	:GET SHIFTS
2925	016134	113737	001411	001244	MOV8	MASK.D,MASKX	:GET MASKK
2926	016142	013737	001424	001236	MOV	L12.15,STAT	:LOAD LINE CARD STATUS
2927	016150	100402			BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
2928	016152	004737	016160		JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
2929	016156	104400			SCOPE		:SCOPE THIS TEST.
2930	016160						:TEST ENTRANCE.
2931	016160	032737	004000	001236	BIT	#ASYNC,STAT	:IS THIS A SYNC LINE CARD?
2932	016166	001401			BEQ	.+4	:BR IF SYNC LINE CARD.
2933	016170	000207			RTS	PC	:EXIT TEST
2934	016172	012703	000004		MOV	#4,R3	:SET FOR 4 LINE GROUP
2935	016176	010037	016212		MOV	R0,65\$	:SET LINE POINTER
2936	016202	104412			MSTCLR		:RESET DV11
2937	016204	005001			CLR	R1	:ZERO MSCANNER POINTER
2938	016206	004537	022470		PERFORM	,SETSCAN	:ADJUST MSCANNER
2939	016212	000001			.BLKW 1		:LINE POINTER
2940	016214	010077	163152		MOV	R0,ADVSR5	:LOAD LINE NUMBER
2941	016220	012777	125000	163142	MOV	#BIT15+BIT13+BIT11+BIT9,ADVLCR	
2942	016226	004737	022406		JSR	PC,CKBIT15	
2943	016232	113737	001236	022622	MOV8	STAT,DATA	:GET SYNC CHAR
2944	016240	104416			DATACLK		:INIT DV11 BY ONE CLOCK
2945	016242	113737	001242	016576	MOV8	CLKX,10\$	:GET NUMBER OF SHIFTS PER CHAR.
2946	016250	004537	022326		PERFORM	,RXSHIFT	:CLOCK RX
2947	016254	016576			10\$		:NUMBER OF SHIFTS
2948	016256	113737	001236	022622	MOV8	STAT,DATA	:GET ANOTHER SYNC
2949	016264	004537	022326		PERFORM	,RXSHIFT	:SHIFT RX
2950	016270	016576			10\$		:NUMBER OF SHIFTS
2951	016272	113737	001236	022622	MOV8	STAT,DATA	:SYNC CHAR
2952	016300	162737	000001	016576	SUB	#1,10\$	:SET NUMBER OF SHIFTS -1
2953	016306	004537	022326		PERFORM	,RXSHIFT	:SHIFT RX
2954	016312	016576			10\$		:SHIFTS
2955	016314	012777	050023	163056	MOV	#S.C+BIT4+BIT1+BIT0,ADVSR	
2956	016322	104415			ROMCLK		:S/C "SET RECV DATA ENABLE"
2957	016324	012777	050021	163046	MOV	#S.C+BIT4+BIT0,ADVSR	
2958	016332	104415			ROMCLK		:SET/CLEAR SILO IN
2959	016334	012777	001400	163036	MOV	#BIT9+BIT8,ADVSR	
2960	016342	032777	000001	163020	BIT	#BIT0,ADVLCR	:RCV CHAR WAITING??
2961	016350	001374			BNE	4\$	:BR IF YES
2962	016352	012702	030306		MOV	#XFR+BIT7+BIT6+BIT2+BIT1,R2	
2963	016356	010277	163016		MOV	R2,ADVSR	:XFR RIC+SILO OUT
2964	016362	104415			ROMCLK		:DATA/XFER RIC+SILO OUT
2965	016364	017704	162776		MOV	ADVRC,R4	:READ DVRIC REG
2966	016370	010405			MOV	R4,R5	
2967	016372	042705	020000		BIC	#BIT13,R5	
2968	016376	020504			CMP	R5,R4	:OVERRUN??

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2969	016400	001401			BEQ	+4		:BR IF NO
2970	016402	104001			HLT	1		:OVERRUN OCCURED TO SOON.
2971	016404	004537	022456		PERFORM	SILO.OUT		:SILO OUT
2972	016410	113737	001236	022622	MOVB	STAT,DATA		
2973	016416	113704	001242		MOVB	CLKX,R4		
2974	016422	005304			DEC	R4		
2975	016424	000241		66\$:	CLC			
2976	016426	106037	022622		RORB	DATA		
2977	016432	105304			DECB	R4		
2978	016434	001373			BNE	66\$		
2979	016436	012737	000001	016576	MOV	#1,10\$		
2980	016444	004537	022326		PERFORM	RXSHIFT		
2981	016450	016576			10\$			
2982	016452	012777	050021	162720	MOV	#S.C+BIT4+BIT0,ADVSR		
2983	016460	104415			ROMCLK			:SET/CLEAR SILO IN
2984	016462	012777	001400	162710	MOV	#BIT9+BIT8,ADVSR		
2985	016470	032777	000001	162672	BIT	#BIT0,ADVLCR		:RECV CHAR WAITING
2986	016476	001374		5\$:	BNE	5\$		
2987	016500	010005			MOV	R0,R5		:GET LINE NUMBER
2988	016502	000305			SWAB	R5		:PUT LINE NUMBER INTO HIGH BYTE
2989	016504	153705	001236		BISB	STAT,R5		:PLACE SYNC INTO EXPECTED
2990	016510	143705	001244		BICB	MASKX,R5		:CLEAR UNUSED BITS.
2991	016514	052705	020000		BIS	#BIT13,R5		:SET OVERRUN
2992	016520	012702	030306		MOV	#XFR+BIT7+BIT6+BIT2+BIT1,R2		
2993	016524	010277	162650		MOV	R2,ADVSR		
2994	016530	104415			ROMCLK			:DATA/XFER RICR+SILO OUT
2995	016532	017704	162630		MOV	ADVRC,R4		:READ DVRC
2996	016536	032737	040000	001236	BIT	#PARBIT,STAT		:PARITY?
2997	016544	001402			BEQ	6\$		:BR IF NO
2998	016546	042704	010000		BIC	#BIT12,R4		:CLEAR PARITY ERROR IF IT EXISTS
2999	016552	020504		6\$:	CMP	R5,R4		:OVERRUN SET?
3000	016554	001401			BEQ	+4		:BR IF YES
3001	016556	104001			HLT	1		:LINE,CHAR,AND OVERRUN EXPECTED.
3002	016560	004537	022456		PERFORM	SILO.OUT		:SILO OUT
3003	016564	005237	016212		INC	65\$		:UPDATE LINE POINTER
3004	016570	005303			DEC	R3		:4 LINE GROUP DONE?
3005	016572	001203			BNE	1\$		:BR IF NO
3006	016574	000207			RTS	PC		:RETURN FOR NEXT 4 LINE GROUP
3007	016576	000001		10\$:	.BLKW 1			

***** TEST 21 *****
 :TEST OF RECEIVER DATA.
 :THIS TEST RUNS A BINARY COUNT PATTERN THROUGH
 :THE RECEIVER OF EACH LINE
 :THROUGH THE USE OF MAINT. DATA BIT.
 :THE TX IS NEVER ENABLED.
 :THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
 :*****

: TEST 21

3021	016600	012737	000021	001226	TST21:	MOV	#21,TSTNO	
3022	016606	012737	017346	001216		MOV	#TST22,NEXT	
3023	016614	012700	000000			MOV	#0,R0	:PLACE LINE NUMBER INTO R0
3024	016620	113737	001412	001242		MOVB	CLK.A,CLKX	:PLACE "SHIFTS/PER/CHAR" IN CLKX.

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3025	016626	113737	001406	001244	MOV	MASK.A,MASKX	PLACE "MASK" FOR CHARS INTO MASKX
3026	016634	013737	001416	001236	MOV	L00.03,STAT	LOAD LINE CARD STATUS INTO STAT
3027	016642	100402			BMI	100\$	BR IF LINE CARD NOT TO BE TESTED
3028	016644	004737	016776		JSR	PC,105\$	GO DO THE TEST FOR LINE CARD 1
3029	016650	012700	000004		MOV	#4.,RO	PLACE LINE NUMBER INTO RO
3030	016654	113737	001413	001242	MOV	CLK.B,CLKX	PLACE "SHIFTS/PER/CHAR" IN CLKX
3031	016662	113737	001407	001244	MOV	MASK.B,MASKX	GET MASK
3032	016670	013737	001420	001236	MOV	L04.07,STAT	LOAD LINE CARD STATUS INTO STAT
3033	016676	100402			BMI	101\$	BR IF LINE CARD NOT TO BE TESTED
3034	016700	004737	016776		JSR	PC,105\$	GO DO THE TEST FOR LINE CARD 2
3035	016704	012700	000010		MOV	#8.,RO	LOAD LINE NUMBER
3036	016710	113737	001414	001242	MOV	CLK.C,CLKX	GET SHIFTS PER CHAR
3037	016716	113737	001410	001244	MOV	MASK.C,MASKX	GET MASK
3038	016724	013737	001422	001236	MOV	L08.11,STAT	LOAD LINE CARD STATUS INTO STAT
3039	016732	100402			BMI	102\$	BR IF LINE CARD NOT TO BE TESTED
3040	016734	004737	016776		JSR	PC,105\$	DO THE TEST FOR LINE CARD 3
3041	016740	012700	000014		MOV	#12.,RO	LOAD LINE NO.
3042	016744	113737	001415	001242	MOV	CLK.D,CLKX	GET SHIFTS
3043	016752	113737	001411	001244	MOV	MASK.D,MASKX	GET MASK
3044	016760	013737	001424	001236	MOV	L12.15,STAT	LOAD LINE CARD STATUS
3045	016766	100402			BMI	103\$	BR IF LINE CARD NOT TO BE TESTED
3046	016770	004737	016776		JSR	PC,105\$	DO THE TESTS FOR LINE CARD 4
3047	016774	104400			SCOPE		SCOPE THIS TEST.
3048	016776						TEST ENTRANCE.
3049	016776	032737	004000	001236	BIT	#ASYNC,STAT	IS THIS A SYNC LINE CARD?
3050	017004	001401			BEG	.+4	BR IF SYNC LINE CARD.
3051	017006	000207			RTS	PC	EXIT TEST
3052	017010	012703	000004		MOV	#4,R3	SET FOR 4 LINE GROUP.
3053	017014	010037	017030		MOV	RO,65\$	PLACE LINE POINTER
3054	017020	104412			MSTCLR		CLEAR THE DV11
3055	017022	005001			CLR	R1	ZERO MSCANNER POINTER
3056	017024	004537	022470		PERFORM	,SETSCAN	SET SCANNER
3057	017030	000001			.BLKW 1		POSITION MSCAN TO LINE NO.
3058	017032	010077	162334		MOV	RO,ADVSR5	LOAD LINE NUMBER
3059	017036	012777	125000	162324	MOV	#BIT15+BIT13+BIT11+BIT9,ADVLCR	GO WAIT FOR BIT15 TO=0
3060	017044	004737	022406		JSR	PC,CKBIT15	LOAD SYNC CHAR
3061	017050	113737	001236	022622	MOV	STAT,DATA	GIVE AN INITIAL CLOCK
3062	017056	104416			DATA CLK		STROBE CHAR INTO RX.
3063	017060	004537	022326		PERFORM	,RXSHIFT	PICK UP NO. OF CLOCKS.
3064	017064	001242			CLKX		TWO SYNCs REQUIRED??
3065	017066	032737	010000	001236	BIT	#TWO SYN,STAT	BR IF ONLY ONE SYNC..
3066	017074	001006			BNE	4\$	GIVE ANOTHER SYNC TO THE RX
3067	017076	113737	001236	022622	MOV	STAT,DATA	STROBE IT IN
3068	017104	004537	022326		PERFORM	,RXSHIFT	SHIFTS REQUIRED
3069	017110	001242			CLKX		LOAD LINE NUMBER INTO "EXPECTED"
3070	017112	010005			MOV	RO,R5	PLACE IT INTO HIGH BYTE
3071	017114	000305			SWAB	R5	ZERO LOW BYTE
3072	017116	105005			CLRB	R5	SET IF SW09=1; GOTO 5\$
3073	017120	012737	017174	001220	MOV	#5\$,LOCK	TO,ADVSR
3074	017126	012777	050023	162244	MOV	#5.C+BIT4+BIT1+BIT0,ADVSR	CLOCK "DATA ENABLE"
3075	017134	104415			ROMCLK		READ RX BUFFER INTO SILO
3076	017136	004537	022434		PERFORM	,SILO.IN	SET FOR DELAY
3077	017142	005002			CLR	R2	
3078	017144	012777	001400	162226	MOV	#BIT9+BIT8,ADVSR	
3079	017152	032777	000001	162210	BIT	#BIT0,ADVLCR	IS "RX CHAR WAITING" TRUE?
3080	017160	001403			BEG	9\$	BR IF TRUE..

3091	017162	005202		INC	R2		: DELAY.....
3092	017164	001372		BNE	10\$		: BR IF DELAY NOT DONE
3093	017166	104000		HLT	0		: RX CHAR WAITING NOT TRUE!
3094	017170	004537	022456	9\$:	PERFORM	,SILO.OUT	: REMOVE CHAR FROM SILO
3095	017174	010537	022622	5\$:	MOV	R5,DATA	: PLACE CHAR INTO SOFTWARE LOC.
3096	017200	105037	022623		CLRB	DATA+1	: ZERO LINE NUMBER.
3097	017204	004537	022326		PERFORM	,RXSHIFT	: PLACE CHAR INTO RX BUFFER.
3098	017210	001242			CLKX		: CLOCKS.
3099	017212	012777	050023 162160		MOV	#S.C+BIT4+BIT1+BIT0,ADVSR	: SET RX DATA ENABLE
3090	017220	104415			ROMCLK		: READ FROM RX BUFFER INTO SILO
3091	017222	004537	022434		PERFORM	,SILO.IN	: SET DELAY
3092	017226	005002			CLR	R2	
3093	017230	012777	001400 162142		MOV	#BIT9+BIT8,ADVSR	
3094	017236	032777	000001 162124	6\$:	BIT	#BIT0,ADVLCR	: WAIT FOR RX CHAR WAITING
3095	017244	001403			BEQ	7\$	: BR IF TRUE
3096	017246	005202			INC	R2	: UPDATE DELAY
3097	017250	001372			BNE	6\$	: GOBACK
3098	017252	104000			HLT	0	: RX CHAR WAITING NOT TRUE
3099	017254	012702	030306	7\$:	MOV	#XFR+BIT7+BIT6+BIT5+BIT4+BIT3+BIT2+BIT1,R2	
3100	017260	010277	162114		MOV	R2,ADVSR	: DO DATA XFER FROM SILO TO DVRIC
3101	017264	104415			ROMCLK		: CLOCK
3102	017266	017704	162074		MOV	ADVSR,R4	: LOAD DVRIC TO "FOUND" LOC.
3103	017272	032737	040000 001236		BIT	#PARBIT,STAT	: PARITY ON??
3104	017300	001402			BEQ	16\$	: BR IF PARITY NOT ON.
3105	017302	042704	010000		BIC	#BIT12,R4	: CLEAR PARITY ERROR (DON'T WORRY ABOUT PARITY NOW!)
3106	017306			16\$:			
3107	017306	020504			CMP	R5,R4	: RX DATA AND LINE NUMBER OK??
3108	017310	001401			BEQ	+4	: BR IF EXPECTED =FOUND.
3109	017312	104002			HLT	2	: RX DATA ERROR
3110	017314	004537	022456		PERFORM	,SILO.OUT	: REMOVE RX DATA FROM SILO
3111	017320	104401			SCOPI		: SW09=1?
3112	017322	105205			INCB	R5	: UPDATE DATA
3113	017324	001403			BEQ	8\$	: BR IF ALL DATA DONE
3114	017326	133705	001244		BITB	MASKX,R5	: IF <8BITS CHECK END OF DATA.
3115	017332	001720			BEQ	5\$	: BR IF MORE TO GO
3116	017334	005237	017030	8\$:	INC	65\$	: UPDATE TO NEXT LINE.
3117	017340	005303			DEC	R3	: ALL 4 LINES DONE?
3118	017342	001226			BNE	1\$	: BR IF NOT ALL DONE
3119	017344	000207			RTS	PC	: SCOPE THIS TEST

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***** TEST 22 *****
*TEST OF RECEIVER DATA.
*THIS TEST RUNS A SET PATTERN THROUGH
*THE RECEIVER OF EACH LINE
*THROUGH THE USE OF THE TRANSMITTER.
*THIS TEST EXERCISES ALL LINES IN GROUPS OF 4.
*NOTE: SHOULD A DATA COMPARE ERROR OCCUR, THE PROGRAM
*      REPORTS THE ERROR AS A RECEIVER DATA ERROR BASED
*      ON THE TRANSMITTER HAS PREVIOUSLY BEEN CHECKED AND ASSUMED GOOD.
*THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
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; TEST 22

3136 017346 012737 000022 001226 TEST22: MOV #22,TSTNO

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3137	017354	012737	020336	001216	MOV	#TST23,NEXT	
3138	017362	012700	000000		MOV	#0.,RO	:PLACE LINE NUMBER INTO RO
3139	017366	113737	001412	001242	MOVB	CLK.A,CLKX	:PLACE "SHIFTS/PER/CHAR" IN CLKX
3140	017374	113737	001406	001244	MOVB	MASK.A,MASKX	:PLACE "MASK"FOR CHARS INTO MASKX
3141	017402	013737	001416	001236	MOV	L00.03,STAT	:LOAD LINE CARD STATUS INTO STAT
3142	017410	100402			BMI	100\$	:BR IF LINE CARD NOT TO BE TESTED
3143	017412	004737	017544		JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 1
3144	017416	012700	000004		MOV	#4.,RO	:PLACE LINE NUMBER INTO RO
3145	017422	113737	001413	001242	MOVB	CLK.B,CLKX	:PLACE "SHIFTS/PER/CHAR" IN CLKX
3146	017430	113737	001407	001244	MOVB	MASK.B,MASKX	:GET MASK
3147	017436	013737	001420	001236	MOV	L04.07,STAT	:LOAD LINE CARD STATUS INTO STAT
3148	017444	100402			BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
3149	017446	004737	017544		JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
3150	017452	012700	000010		MOV	#8.,RO	:LOAD LINE NUMBER
3151	017456	113737	001414	001242	MOVB	CLK.C,CLKX	:GET SHIFTS PER CHAR
3152	017464	113737	001410	001244	MOVB	MASK.C,MASKX	:GET MASK
3153	017472	013737	001422	001236	MOV	L08.11,STAT	:LOAD LINE CARD STATUS INTO STAT
3154	017500	100402			BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
3155	017502	004737	017544		JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
3156	017506	012700	000014		MOV	#12.,RO	:LOAD LINE NO.
3157	017512	113737	001415	001242	MOVB	CLK.D,CLKX	:GET SHIFTS
3158	017520	113737	001411	001244	MOVB	MASK.D,MASKX	:GET MASK
3159	017526	013737	001424	001236	MOV	L12.15,STAT	:LOAD LINE CARD STATUS
3160	017534	100402			BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
3161	017536	004737	017544		JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
3162	017542	104400			SCOPE		:SCOPE THIS TEST.
3163	017544						:TEST ENTRANCE.
3164	017544	032737	004000	001236	BIT	#ASYNC,STAT	:IS THIS A SYNC LINE CARD?
3165	017552	001401			BEQ	+4	:BR IF SYNC LINE CARD.
3166	017554	000207			RTS	PC	:EXIT TEST
3167	017556	010037	017654		MOV	RO,65\$	:PLACE LINE NO.
3168	017562	005037	001250		CLR	TEMP2	
3169	017566	113704	001244		MOVB	MASKX,R4	
3170	017572	005037	001252		CLR	TEMP3	
3171	017576	110437	001252		MOVB	R4,TEMP3	
3172	017602	000241			CLC		
3173	017604	006104			ROL	R4	
3174	017606	050437	001252		BIS	R4,TEMP3	
3175	017612	000241			CLC		
3176	017614	006104			ROL	R4	
3177	017616	050437	001252		BIS	R4,TEMP3	
3178	017622	013737	001236	022572	MOV	STAT,SYNC	
3179	017630	113737	001236	022573	MOVB	STAT,SYNC+1	
3180	017636	012737	000004	001246	MOV	#4,TEMP1	:SET FOR 4 LINES
3181	017644	104412			MSTCLR		:RESET DV11
3182	017646	005001			CLR	R1	:ZERO MSCANNER POINTER
3183	017650	004537	022470		PERFORM	,SETSCAN	:ADJUST SCANNER FOR PROPER LINE
3184	017654	000001			.BLKW 1		:
3185	017656						
3186							
3187	017656	010077	161510		MOV	RO,ADVSR5	:SET SOURCE SELECT
3188	017662	004537	022560		PERFORM	,CLR.TMARK	:LOAD LINE NUMBER
3189	017666	004537	022266		PERFORM	,LOAD.MODE	:CLEAR TMARK BIT.
3190	017672	024000			BIT13+BIT11		:LOAD
3191	017674	032737	010000	001236	BIT	#TWO5YN,STAT	:MODE AND RX ENABLE
3192	017702	001003			BNE	9\$	

3193	017704	012703	022572		MOV	#SYNC,R3	
3194	017710	000402			BR	10\$	
3195	017712	012703	022573	9\$:	MOV	#SYNC+1,R3	
3196	017716	111337	001250	10\$:	MOVB	(R3),TEMP2	
3197	017722	043737	001252	001250	BIC	TEMP3,TEMP2	
3198	017730	005077	161436		CLR	ADVSR5	;ZERO LINE TO LINE 0
3199	017734	013777	001250	161434	MOV	TEMP2,ADVSR4	;LOAD DATA INTO DVSRA
3200	017742	012777	020000	161430	MOV	#BIT13,ADVSR	;EXECUTE A "ROM READ" INSTR
3201	017750	104415			ROMCLK		CLOCK.
3202	017752	012777	030260	161420	MOV	#XFR+BIT7+BIT5+BIT4,ADVSR	
3203	017760	104415			ROMCLK		;DO A DATA XFER FROM RAM OUTPUT TO TX BUFFER
3204	017762	104416			DATACLK		;ISSUE A MAINT CLK.
3205	017764	012737	017776	001220	MOV	#4\$,LOCK	;SET IF SW09=1 GOTO 4\$
3206	017772	010005			MOV	R0,R5	
3207	017774	000305			SWAB	R5	
3208	017776	113702	001242	4\$:	MOVB	CLKX,R2	;SET REQUIRED SHIFTS
3209	020002	010077	161364		MOV	R0,ADVSR5	;LOAD LINE NUMBER
3210	020006	111337	001250		MOVB	(R3),TEMP2	
3211	020012	043737	001252	001250	BIC	TEMP3,TEMP2	
3212	020020	105005			CLRB	R5	
3213	020022	053705	001250		BIS	TEMP2,R5	
3214	020026	104416		5\$:	DATACLK		;ISSUE MAINT CLK
3215	020030	005302			DEC	R2	;ALL SHIFTS DONE?
3216	020032	022702	000001		CMP	#1,R2	;IS THE BUFFER ALMOST EMPTY?
3217	020036	001033			BNE	8\$	;BR IF NO
3218	020040	005077	161326		CLR	ADVSR5	;ZERO LINE NUMBER
3219	020044	032777	001000	161130	BIT	#BIT9,JSWR	;LOCK ON DATA?
3220	020052	001001			BNE	.+4	;BR IF YES!!
3221	020054	005203			INC	R3	;UPDATE DATA POINTER.
3222	020056	111337	001250		MOVB	(R3),TEMP2	;STORE DATA
3223	020062	013777	001250	161306	MOV	TEMP2,ADVSR4	;LOAD DATA INTO DVSRA
3224	020070	012777	020000	161302	MOV	#BIT13,ADVSR	;DO A ROM READ
3225	020076	104415			ROMCLK		CLK
3226	020100	012777	030260	161272	MOV	#XFR+BIT7+BIT5+BIT4,ADVSR	
3227	020106	104415			ROMCLK		;DO A DATA XFER TO TX BUFF
3228	020110	010077	161256		MOV	R0,ADVSR5	;RESELECT LINE NUMBER
3229	020114	032777	001000	161060	BIT	#BIT9,JSWR	;LOCK ON DATA?
3230	020122	001001			BNE	.+4	;BR IF YES!!
3231	020124	005303			DEC	R3	;READJUST DATA CHAR POINTER.
3232	020126	005702		8\$:	TST	R2	;ALL SHIFTS DONE?
3233	020130	001336			BNE	5\$	;BR IF NO
3234	020132	022703	022572		CMP	#SYNC,R3	
3235	020136	001465			BEQ	50\$	
3236	020140	022703	022573		CMP	#SYNC+1,R3	
3237	020144	001462			BEQ	50\$	
3238	020146	012777	050023	161224	MOV	#S.C+BIT4+BIT1+BIT0,ADVSR	
3239	020154	104415			ROMCLK		;SET RX DATA ENABLE
3240	020156	004537	022434		PERFORM	SILO.IN	;READ FROM RX BUFFER INTO SILO
3241	020162	005002			CLR	R2	;SET DELAY
3242	020164	012777	001400	161206	MOV	#BIT9+BIT8,ADVSR	
3243	020172	032777	000001	161170	BIT	#BIT0,ADVLCR	;WAIT FOR RX CHAR WAITING
3244	020200	001403		26\$:	BEQ	27\$	;BR IF TRUE
3245	020202	005202			INC	R2	;UPDATE DELAY
3246	020204	001372			BNE	26\$	;GOBACK
3247	020206	104000			HLT	0	;RX CHAR WAITING NOT TRUE
3248	020210	012702	030306	27\$:	MOV	#XFR+BIT7+BIT6+BIT2+BIT1,R2	

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3249	020214	010277	161160		MOV	R2,ADVSR	;DO DATA XFER FROM SILO TO DVRIC.
3250	020220	104415			ROMCLK		;CLOCK
3251	020222	017704	161140		MOV	ADVSR,R4	;LOAD DVRIC TO "FOUND" LOC.
3252	020226	032737	040000	001236	BIT	#PARBIT,STAT	;PARITY ON??
3253	020234	001402			BEQ	36\$	;BR IF PARITY NOT ON.
3254	020236	042704	010000		BIC	#BIT12,R4	;CLEAR PARITY ERROR (DON'T WORRY ABOUT PARITY NOW!)
3255	020242	020504		36\$:	CMP	R5,R4	;RX DATA AND LINE NUMBER OK??
3256	020244	001401			BEQ	.+4	;BR IF EXPECTED =FOUND.
3257	020246	104002			HLT	2	;RX DATA ERROR
3259	020250	004537	022456		PERFORM	,SILO.OUT	;REMOVE RX DATA FROM SILO
3259	020254	104401			SCOP1		;LOCK ON DATA?
3260	020256	005203		11\$:	INC	R3	
3261	020260	020327	022620		CMP	R3,#ENDPAT	
3262	020264	001244			BNE	4\$	
3263	020266	004537	022546	6\$:	PERFORM	,SET.TMARK	;SET TMARK BIT.
3264	020272	005237	017654		INC	65\$	;UPDATE LINE NO.
3265	020276	005337	001246		DEC	TEMP1	;ALL LINES(4) DONE?
3266	020302	001402			BEQ	46\$	
3267	020304	000137	017644		JMP	1\$	
3268	020310	000207		46\$:	RTS	PC	;SCOPE THESE 4 LINES!
3269	020312	012777	050023	161060	50\$:	MOV	#S.C+BIT4+BIT1+BIT0,ADVSR
3270	020320	104415			ROMCLK		
3271	020322	012777	050022	161050	MOV	#S.C+BIT4+BIT1,ADVSR	
3272	020330	104415			ROMCLK		
3273	020332	000137	020256		JMP	11\$	

```

***** TEST 23 *****
*TEST OF RECEIVER "RE-SYNC"
*THIS TEST WILL SEND (BY BIT WINDOW) TWO SYNC CHARS AND
*THEN VERIFY THAT RX CHAR FLAG IS TRUE.
*THEN A "RE-SYNC" WILL BE ISSUED AND
*TWO NON-SYNC CHARS WILL BE SENT INTO THE RX
*VERIFYING THAT THERE IS NO RX CHAR FLAG.
*NEXT TWO SYNC CHARS ARE AGAIN MOVED INTO THE RX
*VERIFYING CHAR FLAG AND THE THE RX SOULD INDEED
*RE SYNC!
*THIS TEST WILL BE DONE FOR SYNC LINE CARDS ONLY.
*****

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TEST 23

3291	020336	012737	000023	001226	TEST23:	MOV	#23,TSTNO	
3292	020344	012737	021042	001216		MOV	#TST24,NEXT	
3293	020352	012700	000000			MOV	#0.,RO	;PLACE LINE NUMBER INTO RO
3294	020356	113737	001412	001242		MOVB	CLK.A,CLKX	;PLACE "SHIFTS/PER/CHAR" IN CLKX
3295	020364	013737	001416	001236		MOV	LOO.0,STAT	;LOAD LINE CARD STATUS INTO STAT
3296	020372	100402				BMI	100\$	;BR IF LINE CARD NOT TO BE TESTED
3297	020374	004737	020504			JSR	PC,105\$	;GO DO THE TEST FOR LINE CARD 1
3298	020400	012700	000004		100\$:	MOV	#4.,RO	;PLACE LINE NUMBER INTO RO
3299	020404	113737	001413	001242		MOVB	CLK.B,CLKX	;PLACE "SHIFTS/PER/CHAR" IN CLKX
3300	020412	013737	001420	001236		MOV	LOO.0,STAT	;LOAD LINE CARD STATUS INTO STAT
3301	020420	100402				BMI	101\$	;BR IF LINE CARD NOT TO BE TESTED
3302	020422	004737	020504			JSR	PC,105\$	;GO DO THE TEST FOR LINE CARD 2
3303	020426	012700	000010		101\$:	MOV	#8.,RO	;LOAD LINE NUMBER
3304	020432	113737	001414	001242		MOVB	CLK.C,CLKX	;GET SHIFTS PER CHAR

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3305	020440	013737	001422	001236	MOV	L08.11,STAT	;LOAD LINE CARD STATUS INTO STAT
3306	020446	100402			BMI	102\$	;BR IF LINE CARD NOT TO BE TESTED
3307	020450	004737	020504		JSR	PC,105\$	;DO THE TEST FOR LINE CARD 3
3308	020454	012700	000014		MOV	#12.,R0	;LOAD LINE NO.
3309	020460	113737	001415	001242	MOV	CLK.D,CLKX	;GET SHIFTS
3310	020466	013737	001424	001236	MOV	L12.15,STAT	;LOAD LINE CARD STATUS
3311	020474	100402			BMI	103\$	;BR IF LINE CARD NOT TO BE TESTED
3312	020476	004737	020504		JSR	PC,105\$	;DO THE TESTS FOR LINE CARD 4
3313	020502	104400			SCOPE		;SCOPE THIS TEST.
3314	020504						;TEST ENTRANCE.
3315	020504	032737	004000	001236	BIT	#ASYNC,STAT	;IS THIS A SYNC LINE CARD?
3316	020512	001401			BEQ	+4	;BR IF SYNC LINE CARD.
3317	020514	000207			RTS	PC	;EXIT TEST
3318	020516	012703	000004		MOV	#4,R3	;SET FOR 4 LINE GROUP
3319	020522	010037	020536		MOV	R0,68\$	;SAVE LINE NO
3320	020526	104412			MSTCLR		;RESET
3321	020530	005001			CLR	R1	;ZERO MSCANNER POINTER
3322	020532	004537	022470		PERFORM	,SETSCAN	;SET SCANNER
3323	020536	000001			.BLKW 1		;TO RIGHT LINE
3324	020540	012737	020546	001220	MOV	#3\$,LOCK	;SET IF SW09=1
3325	020546	010077	160620		MOV	R0,ADVSR5	;LOAD LINE
3326	020552	004537	022266		PERFORM	,LOAD.MODE	;LOAD
3327	020556	025000			BIT13+BIT11+BIT9		;MODE
3328	020560	012702	000002		MOV	#2,R2	;SET COUNT
3329	020564	104416			DATA CLK		;INIT DV11 SAT/SAR
3330	020566	013737	001236	022622	MOV	STAT,DATA	;GET SYNC
3331	020574	004537	022326		PERFORM	,RXSHIFT	;SHIFT INTO RX
3332	020600	001242			CLKX		;CLOCKS
3333	020602	005302			DEC	R2	;TWO CHARS YET
3334	020604	001370			BNE	4\$	
3335	020606	012702	002000		MOV	#BIT10,R2	;BRA TEST
3336	020612	010277	160562		MOV	R2,ADVSR5	
3337	020616	017704	160546		MOV	ADVLCR,R4	
3338	020622	010405			MOV	R4,R5	
3339	020624	042705	000001		BIC	#BIT0,R5	
3340	020630	020504			CMP	R5,R4	
3341	020632	001401			BEQ	64\$	;BRANCH TEST POINT BAD
3342	020634	104001			HLT	1	
3343	020636	012777	050106	160534	MOV	#S.C+BIT6+BIT2+BIT1,ADVSR5	
3344	020644	104415			ROMCLK		;S/C "RESYNC PULSE"
3345	020646	010277	160526		MOV	R2,ADVSR5	
3346	020652	017704	160512		MOV	ADVLCR,R4	
3347	020656	010405			MOV	R4,R5	
3348	020660	052705	000001		BIS	#BIT0,R5	
3349	020664	020504			CMP	R5,R4	
3350	020666	001401			BEQ	65\$	
3351	020670	104001			HLT	1	;RESYNC FAILED.
3352	020672	012702	000002		MOV	#2,R2	
3353	020676	013737	001236	022622	MOV	STAT,DATA	;GET SYNC
3354	020704	005437	022622		NEG	DATA	;MAKE IT A NON-SYNC
3355	020710	004537	022326		PERFORM	,RXSHIFT	;SHIFT
3356	020714	001242			CLKX		;INTO RX
3357	020716	005302			DEC	R2	;TWO DONE?
3358	020720	001366			BNE	5\$	
3359	020722	012702	002000		MOV	#BIT10,R2	
3360	020726	010277	160446		MOV	R2,ADVSR5	

3361	020732	017704	160432		MOV	3DVLCR,R4	:
3362	020736	010405			MOV	R4,R5	:
3363	020740	052705	000001		BIS	#BITC,R5	:
3364	020744	020504			CMP	R5,R4	:
3365	020746	001401			BEQ	66\$	:
3366	020750	104001			HLT	1	:
3367	020752	012702	000002	022622	MOV	#2,R2	:
3368	020756	013737	001236	6\$:	MOV	STAT,DATA	:
3369	020764	004537	022326		PERFORM	,RXSHIFT	:
3370	020770	001242			CLKX		:
3371	020772	005302			DEC	R2	:
3372	020774	001370			BNE	6\$	:
3373	020776	012702	002000		MOV	#BIT10,R2	:
3374	021002	010277	160372		MOV	R2,3DVSFR	:
3375	021006	017704	160356		MOV	3DVLCR,R4	:
3376	021012	010405			MOV	R4,R5	:
3377	021014	042705	000001		BIC	#BIT0,R5	:
3378	021020	020504			CMP	R5,R4	:
3379	021022	001401			BEQ	67\$	:
3380	021024	104001			HLT	1	:
3381	021026	104401		67\$:	SCOP1		:
3382	021030	005237	020536		INC	68\$	:
3383	021034	005303			DEC	R3	:
3384	021036	001233			BNE	1\$	:
3385	021040	000207			RTS	PC	:EXIT

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***** TEST 24 *****
*TEST TO VERIFY THAT SETTING RECEIVER ENABLE
*WILL SET RX FLAG AND MATCH DETECT.
*TEST WILL ALSO VERIFY THAT CLEARING RECEIVER
*ENABLE WILL CLEAR RX FLAG AND MATCH DETECT.
*THIS TEST WILL BE DONE FOR ASYNC LINE CARDS ONLY.

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					: TEST 24			
3400	021042	012737	000024	001226	TST24:	MOV	#24,TSTNO	
3401	021050	012737	021432	001216		MOV	#TST25,NEXT	
3402	021056	012700	000000			MOV	#0.,R0	:PLACE LINE NUMBER INTO R0
3403	021062	013737	001416	001236		MOV	L00.03,STAT	:LOAD LINE CARD STATUS INTO STAT
3404	021070	100402				BMI	100\$	:BR IF LINE CARD NOT TO BE TESTED
3405	021072	004737	021160			JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 1
3406	021076	012700	000004		100\$:	MOV	#4.,R0	:PLACE LINE NUMBER INTO R0
3407	021102	013737	001420	001236		MOV	L04.07,STAT	:LOAD LINE CARD STATUS INTO STAT
3408	021110	100402				BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
3409	021112	004737	021160			JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
3410	021116	012700	000010		101\$:	MOV	#8.,R0	:LOAD LINE NUMBER
3411	021122	013737	001422	001236		MOV	L08.11,STAT	:LOAD LINE CARD STATUS INTO STAT
3412	021130	100402				BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
3413	021132	004737	021160			JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
3414	021136	012700	000014		102\$:	MOV	#12.,R0	:LOAD LINE NO.
3415	021142	013737	001424	001236		MOV	L12.15,STAT	:LOAD LINE CARD STATUS
3416	021150	100402				BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
3417	021152	004737	021160			JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4

3417	021156	104400		103\$:	SCOPE	:SCOPE THIS TEST.
3418	021160			105\$:		:TEST ENTRANCE.
3419	021160	032737	004000 001236		BIT #ASYNC,STAT	:IS THIS AN ASYNC LINE CAR?
3420	021166	001001			BNE +4	:BR IF ASYNC.
3421	021170	000207			RTS PC	:EXIT TEST
3422	021172	012703	000004		MOV #4,R3	:SET TO TEST 4 LINES.
3423	021176	104412		1\$:	MSTCLR	:INIT DV11
3424	021200	005001			CLR R1	:INIT SCANNER POINTER.
3425	021202	012777	000010 160152		MOV #BIT3,JDVSCR	:SET SOURCE ENABLE
3426	021210	010037	021220		MOV R0,65\$	:PREPARE MASTER SCANNER.
3427	021214	004537	022470		PERFORM SETSCAN	:SET SCANNER
3428	021220	000001		65\$:	.BLKW 1	:POSITION OF SCANNER.
3429	021222	010077	160144		MOV R0,JDVSRS	:LOAD LINE NO.
3430	021226	004537	022266		PERFORM .LOAD.MODE	:SET RX ENABLE.
3431	021232	020000			BIT13	
3432	021234	012702	076400		MOV #BRB+BIT11+BIT10	:BIT8,R2
3433	021240	010277	160134		MOV R2,JDVSFR	:BRB MATCH DETECT.
3434	021244	017704	160120		MOV JDVLCR,R4	:READ BR POINTS.
3435	021250	010405			MOV R4,R5	
3436	021252	052705	000001		BIS #BIT0,R5	:BR A FALSE.
3437	021256	042705	000002		BIC #BIT1,R5	:BR B TRUE.
3438	021262	020504			CMP R5,R4	:MATCH DETECT TRUE?
3439	021264	001401			BEQ 2\$	:BR IF YES
3440	021266	104001			HLT 1	:RX FLAG NOT TRUE.
3441	021270	012702	002000	2\$:	MOV #BIT10,R2	:BRA RX FLAG.
3442	021274	010277	160100		MOV R2,JDVSFR	:LOAD INSTRUCTION.
3443	021300	017704	160064		MOV JDVLCR,R4	:READ BR POINTS.
3444	021304	010405			MOV R4,R5	
3445	021306	052705	000002		BIS #BIT1,R5	:BR B FALSE
3446	021312	042705	000001		BIC #BIT0,R5	:BR A TRUE.
3447	021316	020504			CMP R5,R4	:RX FLAG TRUE?
3448	021320	001401			BEQ 3\$	:BR IF YES
3449	021322	104001			HLT 1	:RX FLAG NOT TRUE.
3450	021324	004537	022266	3\$:	PERFORM .LOAD.MODE	:CLEAR RX ENABLE.
3451	021330	000000			0	
3452	021332	012702	076400		MOV #BRB+BIT11+BIT10	:BIT8,R2
3453	021336	010277	160036		MOV R2,JDVSFR	:BRB MATCH DETECT.
3454	021342	017704	160022		MOV JDVLCR,R4	:READ BR POINTS.
3455	021346	010405			MOV R4,R5	
3456	021350	052705	000001		BIS #BIT0,R5	:BR A FALSE.
3457	021354	052705	000002		BIS #BIT1,R5	:BR B FALSE.
3458	021360	020504			CMP R5,R4	:MATCH DETECT FALSE?
3459	021362	001401			BEQ 4\$	:BR IF YES
3460	021364	104001			HLT 1	:RX FLAG NOT FALSE.
3461	021366	012702	002000	4\$:	MOV #BIT10,R2	:BRA RX FLAG.
3462	021372	010277	160002		MOV R2,JDVSFR	:LOAD INSTRUCTION.
3463	021376	017704	157766		MOV JDVLCR,R4	:READ BR POINTS.
3464	021402	010405			MOV R4,R5	
3465	021404	052705	000002		BIS #BIT1,R5	:BR B FALSE
3466	021410	052705	000001		BIS #BIT0,R5	:BR A FALSE.
3467	021414	020504			CMP R5,R4	:RX FLAG FALSE?
3468	021416	001401			BEQ 5\$	:BR IF YES
3469	021420	104001			HLT 1	:RX FLAG NOT FALSE.
3470	021422	005200		5\$:	INC R0	:UPDATE LINE NO.
3471	021424	005303			DEC R3	:4 LINES DONE?
3472	021426	001263			BNE 1\$	:BR IF NO.

3473 021430 000207 RIS PC ;EXIT TEST.

```

***** TEST 25 *****
*TEST TO SET RECEIVER ENABLE.
*SET "RX DATA ENABLE".
*CLR "RX DATA ENABLE".
*AND EXPECT BOTH RX FLAG AND MATCH DETECT TO BE FALSE.
*THIS TEST WILL BE DONE FOR ASYNC LINE CARDS ONLY.
*****

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: TEST 25

3474	021432	012737	000025	001226	TST25:	MOV	#25,TSTNO	
3475	021440	012737	021744	001216		MOV	#TST26,NEXT	
3476	021446	012700	000000			MOV	#0,R0	:PLACE LINE NUMBER INTO R0
3477	021452	013737	001416	001236		MOV	L00.03,STAT	:LOAD LINE CARD STATUS INTO STAT
3478	021460	100402				BMI	100\$	:BR IF LINE CARD NOT TO BE TESTED
3479	021462	004737	021550			JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 1
3480	021466	012700	000004		100\$:	MOV	#4,R0	:PLACE LINE NUMBER INTO R0
3481	021472	013737	001420	001236		MOV	L04.07,STAT	:LOAD LINE CARD STATUS INTO STAT
3482	021500	100402				BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
3483	021502	004737	021550			JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
3484	021506	012700	000010		101\$:	MOV	#8,R0	:LOAD LINE NUMBER
3485	021512	013737	001422	001236		MOV	L08.11,STAT	:LOAD LINE CARD STATUS INTO STAT
3486	021520	100402				BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
3487	021522	004737	021550			JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
3488	021526	012700	000014		102\$:	MOV	#12,R0	:LOAD LINE NO.
3489	021532	013737	001424	001236		MOV	L12.15,STAT	:LOAD LINE CARD STATUS
3490	021540	100402				BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
3491	021542	004737	021550			JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
3492	021546	104400			103\$:	SCOPE		:SCOPE THIS TEST.
3493	021550				105\$:			:TEST ENTRANCE.
3494	021550	032737	004000	001236		BIT	#ASYNC,STAT	:IS THIS AN ASYNC LINE CAR?
3495	021556	001001				BNE	.+4	:BR IF ASYNC.
3496	021560	000207				RTS	PC	:EXIT TEST
3497	021562	012703	000004			MOV	#4,R3	:SET TO TEST 4 LINES.
3498	021566	104412			1\$:	MSTCLR		:INIT DV11
3499	021570	005001				CLR	R1	:INIT SCANNER PCINTER.
3500	021572	012777	000010	157562		MOV	#BIT3,JDVSCR	:SET SOURCE ENABLE
3501	021600	010037	021610			MOV	R0,65\$	:PREPARE MASTER SCANNER.
3502	021604	004537	022470			PERFORM	SETSCAN	:SET SCANNER
3503	021610	000001			65\$:	.BLKW	1	:POSITION OF SCANNER.
3504	021612	010077	157554			MOV	R0,JDVSR5	:LOAD LINE NO.
3505	021616	004537	022266			PERFORM	.LOAD.MODE	:SET RX ENABLE.
3506	021622	020000				BIT13		
3507	021624	012777	050023	157546		MOV	#S.C+BIT4+BIT1+BIT0,JDVSFR	
3508	021632	104415				ROMCLK		:SET RX DATA ENABLE.
3509	021634	012777	050022	157536		MOV	#S.C+BIT4+BIT1,JDVSFR	
3510	021642	104415				ROMCLK		:CLEAR RX DATA ENABLE.
3511	021644	012702	076400			MOV	#BRB+BIT11+BIT10+BIT8,R2	
3512	021650	010277	157524			MOV	R2,JDVSFR	:BRB MATCH DETECT.
3513	021654	017704	157510			MOV	JDVLCR,R4	:READ BR POINTS.
3514	021660	010405				MOV	R4,R5	
3515	021662	052705	000001			BIS	#BIT0,R5	:BR A FALSE.
3516	021666	052705	000002			BIS	#BIT1,R5	:BR B FALSE.

3529	021672	020504			CMP	R5,R4	:MATCH DETECT FALSE?
3530	021674	001401			BEQ	4\$	:BR IF YES
3531	021676	104001			HLT	1	:RX FLAG NOT FALSE.
3532	021700	012702	002000	4\$:	MOV	#BIT10,R2	:BRA RX FLAG.
3533	021704	010277	157470		MOV	R2,JDV\$FR	:LOAD INSTRUCTION.
3534	021710	017704	157454		MOV	JDVLCR,R4	:READ BR POINTS.
3535	021714	010405			MOV	R4,R5	
3536	021716	052705	000002		BIS	#BIT1,R5	:BR B FALSE
3537	021722	052705	000001		BIS	#BIT0,R5	:BR A FALSE.
3538	021726	020504			CMP	R5,R4	:RX FLAG FALSE?
3539	021730	001401			BEQ	5\$	:BR IF YES
3540	021732	104001			HLT	1	:RX FLAG NOT FALSE.
3541	021734	005200		5\$:	INC	R0	:UPDATE LINE NO.
3542	021736	005303			DEC	R3	:4 LINES DONE?
3543	021740	001312			BNE	1\$	:BR IF NO.
3544	021742	000207			RTS	PC	:EXIT TEST.

***** TEST 26 *****
 :*TEST TO SET RECEIVER ENABLE.
 :*ISSUE A RESYNC SIGNAL.
 :*AND EXPECT BOTH RX FLAG AND MATCH DETECT TO BE FALSE.
 :*THIS TEST WILL BE DONE FOR ASYNC LINE CARDS ONLY.
 :*****

: TEST 26

3556	021744	012737	000026	001226	1ST26:	MOV	#26,TSTNO	
3557	021752	012737	002436	001216		MOV	#.EOP,NEXT	
3558	021760	012700	000000			MOV	#0.,R0	:PLACE LINE NUMBER INTO R0
3559	021764	013737	001416	001236		MOV	L00.03,STAT	:LOAD LINE CARD STATUS INTO STAT
3560	021772	100402				BMI	100\$	:BR IF LINE CARD NOT TO BE TESTED
3561	021774	004737	022062			JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 1
3562	022000	012700	000004		100\$:	MOV	#4.,R0	:PLACE LINE NUMBER INTO R0
3563	022004	013737	001420	001236		MOV	L04.07,STAT	:LOAD LINE CARD STATUS INTO STAT
3564	022012	100402				BMI	101\$	:BR IF LINE CARD NOT TO BE TESTED
3565	022014	004737	022062			JSR	PC,105\$	:GO DO THE TEST FOR LINE CARD 2
3566	022020	012700	000010		101\$:	MOV	#8.,R0	:LOAD LINE NUMBER
3567	022024	013737	001422	001236		MOV	L08.11,STAT	:LOAD LINE CARD STATUS INTO STAT
3568	022032	100402				BMI	102\$	:BR IF LINE CARD NOT TO BE TESTED
3569	022034	004737	022062			JSR	PC,105\$	:DO THE TEST FOR LINE CARD 3
3570	022040	012700	000014		102\$:	MOV	#12.,R0	:LOAD LINE NO.
3571	022044	013737	001424	001236		MOV	L12.15,STAT	:LOAD LINE CARD STATUS
3572	022052	100402				BMI	103\$	:BR IF LINE CARD NOT TO BE TESTED
3573	022054	004737	022062			JSR	PC,105\$	:DO THE TESTS FOR LINE CARD 4
3574	022060	104400			103\$:	SCOPE		:SCOPE THIS TEST.
3575	022062				105\$:			:TEST ENTRANCE.
3576	022062	032737	004000	001236		BIT	#ASYNC,STAT	:IS THIS AN ASYNC LINE CAR?
3577	022070	001001				BNE	.+4	:BR IF ASYNC.
3578	022072	000207				RTS	PC	:EXIT TEST
3579	022074	012703	000004			MOV	#4,R3	:SET TO TEST 4 LINES.
3580	022100	104412			1\$:	MSTCLR		:INIT DV11
3581	022102	005001				CLR	R1	:INIT SCANNER POINTER.
3582	022104	012777	000010	157250		MOV	#BIT3,JDVSCR	:SET SOURCE ENABLE
3583	022112	010037	022122			MOV	R0,65\$	:PREPARE MASTER SCANNER.
3584	022116	004537	022470			PERFORM	,SETSCAN	:SET SCANNER

3585	022122	000001		65\$:	.BLKW	1		: POSITION OF SCANNER.
3586	022124	010077	157242		MOV	R0,ADVSR5		: LOAD LINE NO.
3587	022130	004537	022266		PERFORM	.LOAD.MODE		: SET RX ENABLE.
3588	022134	020000			BIT13			
3589	022136	012777	050106	157234	MOV	#S.C+BIT6+BIT2+BIT1,ADVSR		
3590	022144	104415			ROMCLK			: ISSUE RESYNC.
3591	022146	012702	076400		MOV	#BRB+BIT11+BIT10+BIT8,R2		
3592	022152	010277	157222		MOV	R2,ADVSR		: BRB MATCH DETECT.
3593	022156	017704	157206		MOV	ADVLCR,R4		: READ BR POINTS.
3594	022162	010405			MOV	R4,R5		
3595	022164	052705	000001		BIS	#BIT0,R5		: BR A FALSE.
3596	022170	052705	000002		BIS	#BIT1,R5		: BR B FALSE.
3597	022174	020504			CMP	R5,R4		: MATCH DETECT FALSE?
3598	022176	001401			BEQ	4\$		: BR IF YES
3599	022200	104001			HLT	1		: RX FLAG NOT FALSE.
3600	022202	012702	002000	4\$:	MOV	#BIT10,R2		: BRA RX FLAG.
3601	022206	010277	157166		MOV	R2,ADVSR		: LOAD INSTRUCTION.
3602	022212	017704	157152		MOV	ADVLCR,R4		: READ BR POINTS.
3603	022216	010405			MOV	R4,R5		
3604	022220	052705	000002		BIS	#BIT1,R5		: BR B FALSE
3605	022224	052705	000001		BIS	#BIT0,R5		: BR A FALSE.
3606	022230	020504			CMP	R5,R4		: RX FLAG FALSE?
3607	022232	001401			BEQ	5\$		: BR IF YES
3608	022234	104001			HLT	1		: RX FLAG NOT FALSE.
3609	022236	005200		5\$:	INC	R0		: UPDATE LINE NO.
3610	022240	005303			DEC	R3		: 4 LINES DONE?
3611	022242	001316			BNE	1\$		: BR IF NO.
3612	022244	000207			RTS	PC		: EXIT TEST.
3613								
3614	022246				TXSHIFT:			
3615	022246	010046			MOV	R0,-(SP)		
3616	022250	017700	157114		MOV	ADVLCR,R0		
3617	022254	106100			ROLB	R0		
3618	022256	106037	022622		RORB	DATA		
3619	022262	012600			MOV	(SP)+,R0		
3620	022264	000205			EXIT			
3621	022266				LOAD.MODE:			
3622	022266	012577	157076		MOV	(R5)+,ADVLCR		
3623	022272	052777	100000	157070	BIS	#BIT15,ADVLCR		
3624	022300	010046			MOV	R0,-(SP)		
3625	022302	005000			CLR	R0		
3626	022304	005777	157060	1\$:	TST	ADVLCR		
3627	022310	100004			BPL	2\$		
3628	022312	104414			DELAY			
3629	022314	005200			INC	R0		
3630	022316	001372			BNE	1\$		
3631	022320	104000			HLT	0		: BIT 15 FAILED TO CLEAR
3632	022322	012600		2\$:	MOV	(SP)+,R0		
3633	022324	000205			EXIT			
3634	022326				RXSHIFT:			
3635	022326	010046			MOV	R0,-(SP)		
3636	022330	010246			MOV	R2,-(SP)		
3637	022332	113502			MOVB	2(R5)+,R2		
3638	022334	042777	040000	157026	1\$:	BIC	#BIT14,ADVLCR	
3639	022342	005000			CLR	R0		
3640	022344	000241			CLC			

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3641	022346	006037	022622	ROR	DATA	
3642	022352	006000		ROR	RO	
3643	022354	006000		ROR	RO	
3644	022356	052700	100000	BIS	#BIT15,RO	
3645	022362	050077	157002	BIS	RO,ADVLCR	
3646	022366	004737	022406	JSR	PC,CKBIT15	
3647	022372	104416		DATA CLK		
3648	022374	105302		DECB	R2	
3649	022376	001356		BNE	1\$	
3650	022400	012602		MOV	(SP)+,R2	
3651	022402	012600		MOV	(SP)+,RO	
3652	022404	000205		EXIT		
3653						
3654	022406			CKBIT15:		
3655	022406	010046		MOV	RO,-(SP)	
3656	022410	005000		CLR	RO	
3657	022412	005777	156752	64\$: TST	ADVLCR	
3658	022416	100004		BPL	65\$	
3659	022420	104414		DELAY		
3660	022422	005200		INC	RO	
3661	022424	001372		BNE	64\$	
3662	022426	104000		HLT	0	;BIT 15 FAILED TO CLEAR
3663	022430	012600		65\$: MOV	(SP)+,RO	
3664	022432	000207		RTS	PC	
3665	022434			SILO.IN:		
3666	022434	012777	050021 156736	MOV	#BIT14+BIT12+BIT4+BIT0,ADVSR	
3667	022442	104415		ROMCLK		
3668	022444	012777	050022 156726	MOV	#BIT14+BIT12+BIT4+BIT1,ADVSR	
3669	022452	104415		ROMCLK		
3670	022454	000205		EXIT		
3671						
3672	022456			SILO.OUT:		
3673	022456	012777	050020 156714	MOV	#BIT14+BIT12+BIT4,ADVSR	
3674	022464	104415		ROMCLK		
3675	022466	000205		EXIT		
3676						
3677						
3678	022470			SETSCAN:		
3679	022470	010346		MOV	R3,-(SP)	
3680	022472	052777	000010 156662	BIS	#BIT3,ADVSCR	
3681	022500	012503		MOV	(R5)+,R3	
3682	022502	001414		BEQ	2\$	
3683	022504	012777	050102 156666	1\$: MOV	#BIT14+BIT12+BIT6+BIT1,ADVSR	
3684	022512	104415		ROMCLK		
3685	022514	005201		INC	R1	
3686	022516	012777	050102 156654	MOV	#BIT14+BIT12+BIT6+BIT1,ADVSR	
3687	022524	104415		ROMCLK		
3688	022526	005201		INC	R1	
3689	022530	005303		DEC	R3	
3690	022532	001364		BNE	1\$	
3691	022534	012603		2\$: MOV	(SP)+,R3	
3692	022536	010100		MOV	R1,RO	
3693	022540	000241		CLC		
3694	022542	006000		ROR	RO	
3695	022544	000205		EXIT		
3696	022546			SET.TMARK:		

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3697 022546 012777 050105 156624      MOV      #BIT14+BIT12+BIT6+BIT2+BIT0,DVSFR
3698 022554 104415                      ROMCLK      ;SET/CLEAR "SET T MARK"
3699 022556 000205                      EXIT
3700 022560                                CLR.TMARK:
3701 022560 012777 050101 156612      MOV      #BIT14+BIT12+BIT6+BIT0,DVSFR
3702 022566 104415                      ROMCLK      ;SET/CLEAR "CLEAR T MARK"
3703 022570 000205                      EXIT
3704
3705 022572 000001                      SYNC:      .BLKW 1
3706 022574 000                      DATPAT:      .BYTE      ↑B<00000000>      ;ALL ZERO'S
3707 022575 377                      .BYTE      ↑B<11111111>      ;ALL ONE'S
3708 022576 125                      .BYTE      ↑B<01010101>      ;ALTERNATE ONE'S
3709 022577 252                      .BYTE      ↑B<10101010>      ;ALTERNATE ZERO'S
3710 022600 001                      .BYTE      ↑B<00000001>      ;F
3711 022601 002                      .BYTE      ↑B<00000010>      ;L
3712 022602 004                      .BYTE      ↑B<00000100>      ;O
3713 022603 010                      .BYTE      ↑B<00001000>      ;A
3714 022604 020                      .BYTE      ↑B<00010000>      ;T
3715 022605 040                      .BYTE      ↑B<00100000>      ;I
3716 022606 100                      .BYTE      ↑B<01000000>      ;N
3717 022607 200                      .BYTE      ↑B<10000000>      ;G
3718 022610 177                      .BYTE      ↑B<01111111>      ;ONE!
3719 022611 277                      .BYTE      ↑B<10111111>      ;F
3720 022612 337                      .BYTE      ↑B<11011111>      ;L
3721 022613 357                      .BYTE      ↑B<11101111>      ;O
3722 022614 367                      .BYTE      ↑B<11110111>      ;A
3723 022615 373                      .BYTE      ↑B<11111011>      ;T
3724 022616 375                      .BYTE      ↑B<11111101>      ;I
3725 022617 376                      .BYTE      ↑B<11111110>      ;N
3726 022620                                ;G
3727 022620 000000                                ZERO!
3728 022622 000000                                ;
3729 022624 046377 047111 020105      EM1:      .ASCIZ      <377>/LINE CARD STATIC TEST/
                                022653 377 042522 042503      EM2:      .ASCIZ      <377>/RECEIVER DATA COMAPRISON ERROR/
                                022713 377 051124 047101      EM3:      .ASCIZ      <377>/TRANSMITTER DATA COMPARISON ERROR/
                                022756 046777 052123 041523      DH1:      .ASCIZ      <377>/MSTSCAN DVSFR EXPECTED FOUND LINE(8)/
                                .EVEN
                                SKIP=000000
3730 023030 000000      DT6:      5
3731 023032 006 003                      .BYTE      6,3
3732 023034 001262                      SAVR1
3733 023036 006 001                      .BYTE      6,1
3734 023040 001264                      SAVR2
3735 023042 006 004                      .BYTE      6,4
3736 023044 001272                      SAVR5
3737 023046 006 001                      .BYTE      6,1
3738 023050 001270                      SAVR4
3739 023052 002 001                      .BYTE      2,1
3740 023054 001260                      SAVR0
3741
3742 023056                                .ERRTAB:
3743 023056 000000                                0
3744 023060 000000                                0
3745 023062 000000                                0
3746 023064 022624                      EM1
3747 023066 022756                      DH1      ;HALT 1

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3748 023070 023030
3749 023072 022653
3750 023074 022756
3751 023076 023030
3752 023100 022713
3753 023102 022756
3754 023104 023030
3755 023106
3756 000001

DT6
EM2
DH1
DT6
EM3
DH1
DT6

:HALT 2

:HALT 3

CORMAX:
.END

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 DZDV8B.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

ADRCNT= 003443	1143*	1179*	1188*										
ALU = 010000	599#												
ASync = 004000	607#	1881	1933	1985	2039	2091	2167	2302	2408	2575	2655	2726	2831
	2931	3049	3164	3315	3419	3506	3576						
AUTO.S 006622	1653#												
BCC = 060000	604#												
BINWRD 003746	1229*	1230	1267*										
BIT0 = 000001	597#	1410	1773	1838	2186	2197	2513	2517	2534	2588	2590	2594	2611
	2674	2746	2756	2767	2776	2851	2861	2872	2881	2955	2957	2960	2982
	2985	3074	3079	3089	3094	3238	3243	3269	3339	3348	3363	3377	3436
	3446	3456	3466	3519	3527	3537	3595	3605	3666	3697	3701		
BIT1 = 000002	596#	1410	1421	1773	1780	1789	1793	1838	2177	2312	2418	2522	2588
	2599	2675	2747	2756	2768	2775	2852	2861	2873	2880	2955	2962	2992
	3074	3089	3099	3238	3248	3269	3271	3343	3437	3445	3457	3465	3519
	3521	3528	3536	3589	3596	3604	3668	3683	3686				
BIT10 = 002000	587#	1410	1774	1839	2424	2671	2742	2751	2763	2772	2842	2847	2856
	2868	2877	3335	3359	3373	3432	3441	3452	3461	3523	3532	3591	3600
BIT11 = 004000	586#	1410	1839	1938	1990	2044	2099	2182	2318	2424	2666	2671	2737
	2742	2763	2842	2847	2868	2941	3059	3190	3327	3432	3452	3523	3591
BIT12 = 010000	585#	599	601	603	605	2998	3105	3254	3666	3668	3673	3693	3696
	3697	3701											
BIT13 = 020000	584#	600	601	604	605	2191	2214	2320	2426	2666	2737	2842	2941
	2967	2991	3059	3190	3200	3224	3327	3431	3518	3588			
BIT14 = 040000	583#	602	603	604	605	1050	2107	2108	2114	2115	3638	3666	3669
	3673	3683	3686	3697	3701								
BIT15 = 100000	582#	1995	2049	2108	2116	2941	3059	3623	3644				
BIT2 = 000004	595#	977	1410	2522	2599	2962	2992	3099	3248	3343	3589	3697	
BIT3 = 000010	594#	1410	3425	3512	3582	3680							
BIT4 = 000020	593#	1891	1892	1944	1945	1998	1999	2052	2053	2193	2216	2322	2428
	2513	2531	2588	2590	2608	2955	2957	2982	3074	3089	3202	3226	3238
BIT5 = 000040	3269	3271	3519	3521	3666	3668	3673						
	592#	1891	1892	1944	1945	1998	1999	2052	2053	2193	2216	2322	2428
	3202	3226											
BIT6 = 000100	591#	1721	1780	1793	2177	2312	2418	2522	2599	2962	2992	3099	3248
	3343	3589	3683	3686	3697	3701							
BIT7 = 000200	590#	1044	1291	1448	1469	1721	1887	1940	1992	2046	2102	2107	2114
	2193	2216	2253	2322	2428	2522	2599	2962	2992	3099	3202	3226	3248
BIT8 = 000400	589#	1410	1427	1839	2516	2533	2593	2610	2671	2742	2763	2847	2968
	2959	2984	3078	3093	3242	3432	3452	3523	3591				
BIT9 = 001000	588#	1410	1721	1726	1786	2044	2099	2184	2196	2210	2219	2516	2533
	2593	2610	2666	2737	2842	2941	2959	2984	3059	3078	3093	3219	3229
	3242	3327											
BRB = 070000	605#	1839	2671	2742	2763	2847	2868	3432	3452	3523	3591		
BRW 003014	983	1072#											
BRX 003016	984	1073#											
CHRCNT 003744	1227*	1231	1247*	1265#	1266								
CKBIT1 022406	1996	2050	2109	2117	2942	3060	3646	3654#					
CLKX 001242	676#	2142*	2148*	2154*	2160*	2201	2224	2226	2246	2277*	2283*	2289*	2295*
	2326	2332	2339	2341	2379*	2386*	2393*	2400*	2432	2438	2445	2447	2534*
	2639*	2644*	2649*	2670	2705*	2710*	2715*	2720*	2741	2762	2806*	2812*	2818*
	2824*	2846	2867	2906*	2912*	2918*	2924*	2945	2973	3024*	3030*	3036*	3042*
	3064	3069	3088	3139*	3145*	3151*	3157*	3208	3294*	3299*	3304*	3309*	3332
	3356	3370											
CLK.A 001412	776#	1571	2142	2277	2379	2634	2705	2906	2906	3024	3139	3294	
CLK.B 001413	777#	1576	2148	2283	2386	2639	2710	2812	2912	3030	3145	3299	
CLK.C 001414	778#	1581	2154	2289	2393	2644	2715	2818	2918	3036	3151	3304	

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DZDVBB.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

CLK.D	001415	779#	1586	2160	2295	2400	2649	2720	2824	2924	3042	3157	3309	
CLR.TM	022560	2183	2316	2422	3188	3700#								
CNVRT =	104411	735#	1002	1004	1006	1008	1328	1330	1386	1443				
CONVRT=	104410	733#	942	1344										
CORMAX	023106	3755#	3756											
CREAM	001306	697#	911*	1518*	1519	1521*	1526	1527*	1528	1531*				
CSRMAP	006624	936	1655#											
CYCLE	005666	986	1022	1023	1508#									
DATA	022622	2202*	2228*	2233	2333*	2343*	2348	2439*	2449*	2454	2667*	2738*	2760*	2843*
		2865*	2943*	2948*	2951*	2972*	2976*	3061*	3067*	3085*	3086*	3330*	3353*	3354*
		3368*	3618*	3641*	3728#									
DATABP	004276	1317*	1320	1342	1345#									
DATACL=	104416	745#	2195	2204	2248	2252	2324	2327	2335	2430	2433	2441	2668	2739
		2844	2944	3062	3204	3214	3329	3647						
DATAHD	004264	1316*	1338	1341#										
DATPAT	022574	3706#												
DELAY =	104414	741#	3628	3659										
DEVADR	003440	1141*	1176	1186#										
DH1	022756	3729#	3747	3750	3753									
DT6	023030	3730#	3748	3751	3754									
DVACTV	001300	691#	958*	959	1508	1513	1687*	1693*	1694*	1698	1717			
DVCRO0	001500	807#												
DVCRO1	001524	818#												
DVCRO2	001550	829#												
DVCRO3	001574	840#												
DVCRO4	001620	851#												
DVCRO5	001644	862#												
DVCRO6	001670	873#												
DVCRO7	001714	884#												
DVLCR	001370	759#	1427*	1428	1547*	1548*	1549	1776	1788	1841	1886	1890	1938*	1939
		1943	1990*	1991	1995*	1997	2044*	2045	2049*	2051	2100	2108*	2110	2115*
		2116*	2118	2186	2197	2253	2517	2534	2594	2611	2672	2744	2752	2765
		2773	2849	2857	2870	2878	2941*	2960	2985	3059*	3079	3094	3243	3337
		3346	3361	3375	3434	3443	3454	3463	3525	3534	3593	3602	3616	3622*
		3623*	3626	3638*	3645*	3657								
DVNSR	001402	764#	1557*	1558*	1559									
DVNUM	001301	692#	907	1012	1659*	1680*	1681	1688	1690					
DVRIC	001366	758#	1545*	1546*	1547	2525	2602	2965	2995	3102	3251			
DVRLVL	001354	753#	1562*	1563*	1564									
DVRVEC	001352	752#	1029	1533*	1562									
DVSCR	001362	756#	1026	1404*										

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 DZDVBB.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

DVTR01	001526	819#								
DVTR02	001552	830#								
DVTR03	001576	841#								
DVTR04	001622	852#								
DVTR05	001646	863#								
DVTR06	001672	874#								
DVTR07	001716	885#								
DVTVEC	001356	754#	1564*	1565*	1566					
DV.END	001740	895#	1519	1528	1657					
DV.MAP	001500	697	806#	911	938	1521	1531	1655	1660	1709
DV00.A	001504	809#								
DV00.B	001510	811#								
DV00.C	001514	813#								
DV00.D	001520	815#								
DV01.A	001530	820#								
DV01.B	001534	822#								
DV01.C	001540	824#								
DV01.D	001544	826#								
DV02.A	001554	831#								
DV02.B	001560	833#								
DV02.C	001564	835#								
DV02.D	001570	837#								
DV03.A	001600	842#								
DV03.B	001604	844#								
DV03.C	001610	846#								
DV03.D	001614	848#								
DV04.A	001624	853#								
DV04.B	001630	855#								
DV04.C	001634	857#								
DV04.D	001640	859#								
DV05.A	001650	864#								
DV05.B	001654	866#								
DV05.C	001660	868#								
DV05.D	001664	870#								
DV06.A	001674	875#								
DV06.B	001700	877#								
DV06.C	001704	879#								
DV06.D	001710	881#								
DV07.A	001720	886#								
DV07.B	001724	888#								
DV07.C	001730	890#								
DV07.D	001734	892#								
EM1	022624	3729#	3746							
EM2	022653	3729#	3749							
EM3	022713	3729#	3752							
ENDPAT	022620	3261	3726#							
ERRCNT	001232	668#	913*	1035	1353*					
ERRFLG	001311	703#	909*	997*	1064*	1305*	1318	1332*	1387*	
ERRMSG	004252	1315*	1333	1336#						
ERTABO	004366	1330	1362#							
EXIT =	000205	607#	3620	3633	3652	3670	3675	3695	3699	3703
EXITER	004322	1348	1353#							
FIX.OO	006516	1572	1577	1582	1587	1621#				
HALTS	004302	1301	1347#							
HILIM	003436	1140*	1167	1185#						
ICOUNT	001222	664#	1062	1067*						

M06

DZDVB MACY11 27(732) 17-SEP-76 11:14 PAGE 80
 DZDVBB.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

INBUF	005520	1110	1146	1493#										
INIFLG	001310	702#	918	933*										
INSTER=	104404	725#	1161											
INSTR =	104403	723#	1594											
INSTR2	003236	1117	1129#											
LIGHT	000174	636#	928											
LIGHTS	001200	647#	928*	999*										
LIMITS	003364	1156	1167#											
LOAD.M	022266	2098	2181	2317	2423	2665	2736	2841	3189	3326	3430	3450	3517	3587
		3621#												
LOBITS	003442	1142*	1171	1187#	1188									
LOCK	001220	663#	1066*	1080	1082	1324	2200*	2325*	2431*	3073*	3205*	3324*		
LOGICA	002560	633	1016#											
LOKFLG	001312	704#												
LOLIM	003434	1139*	1169	1184#										
LPCNT	001224	665#	1061*	1062	1065*									
LSTERR	001234	669#	914*	996*	1048*	1302	1304*	1388*						
LOO.03	001416	781#	1534*	1569	1750	1815	1864	1916	1968	2022	2074	2144	2279	2382
		2486	2558	2635	2706	2808	2908	3026	3141	3295	3402	3489	3559	
LO4.07	001420	782#	1536*	1574	1754	1819	1868	1920	1972	2026	2078	2150	2285	2389
		2490	2562	2640	2711	2814	2914	3032	3147	3300	3406	3493	3563	
LO8.11	001422	783#	1538*	1579	1758	1823	1872	1924	1976	2030	2082	2156	2291	2396
		2494	2566	2645	2716	2820	2920	3038	3153	3305	3410	3497	3567	
L12.15	001424	784#	1540*	1584	1762	1827	1876	1928	1980	2034	2086	2162	2297	2403
		2498	2570	2650	2721	2826	2926	3044	3159	3310	3414	3501	3571	
MASKX	001244	677#	2143*	2149*	2155*	2161*	2234	2278*	2278*	2284*	2290*	2296*	2349	2351
		2380*	2387*	2394*	2401*	2455	2457	247*	2913*	2919*	2925*	2990	3025*	3031*
		3037*	3043*	3114	3140*	3146*	3152*	3153*	3169					
MASK.A	001406	771#	1570	2143	2278	2380	2907	3031	3140					
MASK.B	001407	772#	1575	2149	2284	2387	2913	3031	3146					
MASK.C	001410	773#	1580	2155	2290	2394	2919	3037	3152					
MASK.D	001411	774#	1585	2161	2296	2401	2925	3043	3158					
MASTEK	005400	1326	1484#											
MCRLF	005104	1095	1218	1322	1323	1331	1472	1484#	1593	1611				
MCSRX	005330	1001	1484#											
MDATA	005624	1245	1255	1497#										
MEPASS	005145	1000	1484#											
MERRPC	005454	1329	1484#											
MERRX	005355	1007	1484#											
MERR2	005174	1484#	1510	1700										
MERR3	005243	955	1484#											
MLOCK	005301	979	1484#											
MNEW	005402	950	1484#											
MPASSX	005344	1005	1484#											
MPFAIL	005107	1385	1484#											
MQM	005100	1125	1484#	1616										
MR	005171	987	1484#											
MRESET=	004000	607#	1404	1417										
MSTCLR=	104412	737#	1389	1833	1884	1936	1988	2042	2094	2171	2306	2412	2505	2580
		2660	2731	2836	2936	3054	3181	3320	3423	3510	3580			
MTITLE	001000	645#	932											
MTSTN	005366	1327	1484#	1595										
MTSTPC	005267	1484#												
MVECX	005336	1003	1484#											
NEXT	001216	662#	1068	1358	1748*	1813*	1862*	1914*	1966*	2020*	2072*	2140*	2275*	2377*
		2484*	2556*	2632*	2703*	2804*	2904*	3022*	3137*	3292*	3400*	3487*	3557*	


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RUN          001304
RXSHIF      022326

RC          =%000000

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527												
602#												
3727#	1596											
727#	1162											
1145#	1640	2996	3103	3252								
607#	1150	1152	1161#	1168	1170	1172						
1148	908*	998*	999	1032								
667#	936*	1017*	1047*	1294*	1473*	1572*	1577*	1582*	1587*	1603	1604*	1643*
574#	936*	1017*	1047*	1294*	1473*	1572*	1577*	1582*	1587*	1603	1604*	1643*
1735*	1752*	1756*	1760*	1764*	1801*	1817*	1821*	1825*	1829*	1849*	1866*	1870*
1874*	1878*	1883*	1899*	1918*	1922*	1926*	1930*	1935*	1952*	1970*	1974*	1978*
1982*	1987*	1996*	2006*	2024*	2028*	2032*	2036*	2041*	2050*	2060*	2076*	2080*
2084*	2088*	2093*	2109*	2117*	2127*	2146*	2152*	2158*	2164*	2169*	2262*	2281*
2287*	2293*	2299*	2304*	2364*	2384*	2391*	2398*	2405*	2410*	2470*	2488*	2492*
2496*	2500*	2542*	2560*	2564*	2568*	2572*	2577*	2619*	2637*	2642*	2647*	2652*
2657*	2682*	2708*	2713*	2718*	2723*	2728*	2783*	2810*	2816*	2822*	2828*	2833*
2888*	2910*	2916*	2922*	2928*	2933*	2942*	3006*	3028*	3034*	3040*	3046*	3051*
3060*	3119*	3143*	3149*	3155*	3161*	3166*	3268*	3297*	3302*	3307*	3312*	3317*
3385*	3404*	3408*	3412*	3416*	3421*	3473*	3491*	3495*	3499*	3503*	3508*	3544*
3561*	3565*	3569*	3573*	3578*	3612*	3646*	3664*					
607#	1770	1835	1845	2098	2173	2181	2183	2205	2243	2258	2308	2316
2317	2336	2359	2360	2414	2422	2423	2442	2465	2466	2507	2582	2662
2665	2669	2733	2736	2740	2761	2838	2841	2845	2866	2938	2946	2949
2953	2971	2980	3002	3056	3063	3068	3076	3084	3087	3091	3110	3183
3188	3189	3240	3258	3263	3322	3326	3331	3355	3369	3427	3430	3450
3514	3517	3584	3587									
1386	1392#											
581#	1352											
581#												
581#	1070											
579#	904*	973*	1720*									
581#	1349											
581#												
581#												
705#	910*	1011*	1059									
600#												
739#	1390	1767										
1343	1346#											
1373	1379#											
1010	1014	1022#										
765#	1559*	1560*										
731#	1346											
661#	916*	986*	988	1022*	1068*	1071	1358*	1360	1391	1610*	1618*	1619
743#	1781	1794	2178	2192	2194	2215	2217	2313	2321	2323	2419	2427
2429	2514	2524	2532	2589	2591	2601	2609	2956	2958	2964	2983	2994
3075	3090	3101	3201	3203	3225	3227	3239	3250	3270	3272	3344	3520
3522	3590	3667	3669	3674	3684	3687	3698	3702				
695#	912*	1513	1516*	1517*	1524*	1525*						
2669	2740	2761	2845	2866	2946	2949	2953	2980	3063	3068	3087	3331
3355	3369	3634#										
567#	951*	959*	960*	962*	964*	966	967	1049	1055*	1069*	1202	1207*
1219	1232*	1236*	1246	1262*	1350*	1395	1396*	1397*	1399*	1425	1426*	1431*
1434*	1526*	1532	1533	1534	1535	1536	1537	1538	1539	1540	1541	1542*
1548	1550	1556	1558	1560	1563	1565	1567	1569*	1574*	1579*	1584*	1602*
1603	1606	1608	1610	1613	1614	1621	1640	1701*	1710*	1712*	1714	1722*
1723*	1749*	1753*	1757*	1761*	1768	1783*	1785*	1796*	1798*	1814*	1818*	1822*

		1526*	1832	1863*	1867*	1871*	1875*	1889	1896*	1915*	1919*	1923*	1927*	1942
		1949*	1967*	1971*	1975*	1979*	1994	2003*	2021*	2025*	2029*	2033*	2048	2057*
		2073*	2077*	2091*	2085*	2097	2124*	2141*	2147*	2153*	2159*	2170	2180	2203
		2218	2247	2276*	2282*	2288*	2294*	2305	2315	2334	2378*	2385*	2392*	2393*
		2341*	2421	2440	2485*	2489*	2493*	2497*	2503	2509	2557*	2561*	2565*	2569*
		2578	2584	2633*	2638*	2643*	2648*	2659	2664	2704*	2709*	2714*	2719*	2730
		2735	2805*	2811*	2817*	2823*	2835	2840	2905*	2911*	2917*	2923*	2935	2940
		2987	3023*	3029*	3035*	3041*	3053	3058	3070	3138*	3144*	3150*	3156*	3167
		3187	3206	3209	3228	3293*	3298*	3303*	3308*	3319	3325	3401*	3405*	3409*
		3413*	3426	3429	3470*	3488*	3492*	3496*	3500*	3513	3516	3541*	3558*	3562*
		3566*	3570*	3583	3586	3609*	3615	3616*	3617*	3619*	3624	3625*	3629*	3632*
R1	=X000001	3635	3639*	3642*	3643*	3644*	3645	3651*	3655	3656*	3660*	3663*	3692*	3694*
		568*	963*	964	965*	966	1013*	1017	1201	1208*	1220	1224*	1226	1227
		1228	1229	1261*	1405	1407*	1410*	1413*	1570*	1575*	1580*	1585*	1625*	1630*
		1635*	1638*	1661*	1663	1665	1667	1670	1683*	1684	1690*	1691	1695*	1711*
		1712	1713*	1714	1715	1769*	1782*	1783	1795*	1796	1834*	2172*	2179*	2307*
		2314*	2413*	2420*	2506*	2581*	2661*	2732*	2837*	2937*	3055*	3182*	3321*	3424*
R2	=X000002	3511*	3581*	3685*	3688*	3692								
		569*	1200	1209*	1571*	1576*	1581*	1586*	1626*	1631*	1636*	1639*	1642*	1655*
		1656*	1657	1660*	1670*	1671	1672*	1673*	1674*	1675*	1676*	1677*	1678*	1679*
		1686*	1709*	1721*	1725*	1726*	1727*	1728*	1730*	1731*	1774*	1775	1786*	1787
		1839*	1840	1885*	1937*	1989*	2043*	2095*	2201*	2206*	2207	2222	2246*	2249*
		2251*	2256*	2326*	2328*	2332*	2337*	2432*	2434*	2438*	2443*	2515*	2519*	2523*
		2530*	2536*	2592*	2596*	2600*	2607*	2613*	2962*	2963	2992*	2993	3077*	3081*
		3092*	3096*	3099*	3100	3208*	3215*	3216	3232	3241*	3245*	3248*	3249	3329*
		3333*	3335*	3336	3345	3352*	3357*	3359*	3360	3367*	3371*	3373*	3374	3432*
		3433	3441*	3442	3452*	3453	3461*	3462	3523*	3524	3532*	3533	3591*	3592
R3	=X000003	3600*	3601	3636	3637*	3648*	3650*							
		570*	1104	1111*	1121*	1124*	1126	1130*	1199	1210*	1221	1233*	1234*	1235*
		1236	1245*	1246*	1251*	1254*	1260*	1621*	1622*	1623	1628	1633	1772*	1799*
		1837*	1847*	1888*	1897*	1941*	1950*	1993*	2004*	2047*	2058*	2096*	2125*	2175*
		2260*	2310*	2362*	2416*	2468*	2504*	2540*	2579*	2617*	2658*	2680*	2729*	2781*
		2834*	2886*	2934*	3004*	3052*	3117*	3193*	3195*	3196	3210	3221*	3222	3231*
		3234	3236	3260*	3261	3318*	3383*	3422*	3471*	3509*	3542*	3579*	3610*	3679
R4	=X000004	3681*	3689*	3691*										
		571*	1105	1110*	1114*	1115*	1116	1123*	1127	1129*	1137	1146*	1147	1149
		1151	1153*	1154	1155	1176*	1177*	1181*	1198	1211*	1222	1230*	1233	1238*
		1240*	1242*	1259*	1309*	1310*	1311*	1312*	1313*	1314*	1315	1316	1317	1406
		1408*	1409*	1412*	1776*	1777	1788*	1790	1841*	1842	1890*	1892*	1893	1943*
		1945*	1946	1997*	1999*	2000	2051*	2053*	2054	2101*	2103	2110*	2111	2119*
		2119	2233*	2234*	2235	2348*	2349*	2352*	2353	2454*	2455*	2458*	2459	2525*
		2526	2602*	2603	2672*	2673	2676	2744*	2745	2748	2752*	2753	2757	2765*
		2766	2769	2773*	2774	2777	2849*	2850	2853	2857*	2858	2862	2870*	2871
		2874	2878*	2879	2882	2965*	2966	2968	2973*	2974*	2977*	2995*	2998*	2999
		3102*	3105*	3107	3169*	3171	3173*	3174	3176*	3177	3251*	3254*	3255	3337*
		3338	3340	3346*	3347	3349	3361*	3362	3364	3375*	3376	3378	3434*	3435
		3438	3443*	3444	3447	3454*	3455	3458	3463*	3464	3467	3525*	3526	3529
		3534*	3535	3538	3593*	3594	3597	3602*	3603	3606				
R5	=X000005	572*	1088	1089*	1093	1098	1100*	1136	1138*	1139	1140	1141	1142	1143
		1144	1145*	1154*	1157*	1158*	1159*	1167	1169	1171	1177	1178*	1182*	1197
		1212*	1223	1231*	1243*	1258*	1307*	1308*	1309	1311	1773*	1777	1789*	1790
		1838*	1842	1886*	1887*	1891*	1893	1939*	1940*	1944*	1946	1991*	1992*	1998*
		2000	2045*	2046*	2052*	2054	2100*	2101	2102*	2103	2107*	2111	2114*	2119
		2176*	2185*	2190	2212*	2213	2221*	2235	2239*	2241	2311*	2330*	2350*	2351*
		2353	2417*	2436*	2456*	2457*	2459	2509*	2510*	2511*	2526	2529*	2584*	2585*
		2586*	2603	2606*	2673*	2674*	2675*	2676	2745*	2746*	2747*	2748	2753*	2756*

SW00 = 000001

2757*	2766*	2767*	2768*	2769	2774*	2775*	2776*	2777	2850*	2851*	2852*	2853
2658*	2861*	2862	2871*	2872*	2873*	2874	2879*	2880*	2881*	2882	2882*	2882*
2968	2987*	2988*	2989*	2990*	2991*	2999	3070*	3071*	3072*	3085	3107	2967*
3114	3206*	3207*	3212*	3213*	3255	3338*	3339*	3340	3347*	3348*	3349	3112*
3363*	3364	3376*	3377*	3378	3435*	3436*	3437*	3438	3444*	3445*	3446*	3362*
3455*	3456*	3457*	3458	3464*	3465*	3466*	3467	3526*	3527*	3528*	3529	3447
3536*	3537*	3538	3594*	3595*	3596*	3597	3603*	3604*	3605*	3606	3622	3535*
3681												3637
693*	953	1698*										
694*	907*	1009*	1012*	1691*								
690*	1193*	1364										
693*	1202*	1207	3740									
684*	1201*	1208	3732									
685*	1200*	1209	3734									
686*	1199*	1210										
687*	1198*	1211	3738									
688*	1197*	1212	3736									
689*												
729*	1306											
717*	1765	1830	1879	1931	1983	2037	2089	2165	2300	2406	2501	2573
2653	2724	2829	2929	3047	3162	3313	3417	3504	3574			
719*	2238	2358	2464	3111	3259	3381						
1047	1294	1438*	1439									
1770	1835	1845	2173	2258	2308	2360	2414	2466	2507	2582	2662	2733
2839	2938	3056	3183	3322	3427	3514	3584	3679*				
2243	2359	2465	3263	3696*								
3076	3091	3240	3665*									
2971	3002	3084	3110	3258	3672*							
3729*												
573*	905*	920*	921*	927	930	931	974*	1043*	1044*	1045	1049*	1069
1082*	1088*	1089	1090*	1100	1104*	1105*	1106	1107*	1123	1124	1126*	1127*
1129	1130	1136*	1137*	1138	1144*	1181	1182	1193	1219*	1220*	1221*	1222*
1223*	1224	1225*	1258	1259	1260	1261	1262	1275*	1276*	1277*	1278*	1279*
1280*	1281*	1282	1290*	1291*	1292	1302	1304	1307	1350	1359*	1381*	1395*
1399	1405*	1406*	1412	1413	1425*	1434	1447*	1448*	1449	1454	1460	1462
1464*	1465	1468*	1469*	1470	1704*	1730	1732	1733*	3615*	3619	3624*	3632
3635*	3636*	3650	3651	3655*	3663	3679*	3691					
1228*	1249	1252*	1266*									
638*	929											
580*	905	974	1359	1381								
674*	1750*	1754*	1759*	1762*	1815*	1819*	1823*	1827*	1864*	1868*	1872*	1876*
1881	1916*	1920*	1924*	1928*	1933	1968*	1972*	1976*	1980*	1985	2022*	2026*
2030*	2034*	2039	2074*	2078*	2082*	2086*	2091	2144*</				

[illegible]

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DZDVBB.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

TEMP1	001246	678#	938*	939	944*	1486	1717*	1718*	2226*	2229*	2230	2341*	2344*	2345
TEMP2	001250	2447*	2450*	2451	3180*	3265*								
		679#	939*	940	1488	2106*	2122*	2331*	2356*	2437*	2462*	3168*	3196*	3197*
		3199	3210*	3211*	3213	3222*	3223							
TEMP3	001252	680#	3170*	3171*	3174*	3177*	3197	3211						
TEMP4	001254	681#												
TEMP5	001256	682#												
TKCSR	001204	653#	1053	1112	1438	1445	1466							
TKDBR	001206	654#	1043	1055	1114	1120	1290	1447	1468					
TLAST =	021744	1614	3729#											
TPCSR	001210	655#	1096	1118	1297	1452								
TPCDBR	001212	656#	1098*	1120*	1299*	1454*								
TRPOK	003762	1278#												
TSTNO	001226	666#	915*	1367	1394	1599	1606	1608	1747*	1812*	1861*	1913*	1965*	2019*
		2071*	2139*	2274*	2376*	2483*	2555*	2631*	2702*	2803*	2903*	3021*	3136*	3231*
		3399*	3486*	3556*										
		1602	1618	1747#										
TST1	007256	2072	2139#											
TST10	011344	2140	2274#											
TST11	012224	2275	2376#											
TST12	012740	2377	2483#											
TST13	013504	2484	2555#											
TST14	014012	2556	2631#											
TST15	014344	2632	2702#											
TST16	014642	2703	2803#											
TST17	015276	1748	1812#											
TST2	007540	2804	2903#											
TST20	015762	2904	3021#											
TST21	016600	3022	3136#											
TST22	017346	3137	3291#											
TST23	020336	3292	3399#											
TST24	021042	3400	3486#											
TST25	021432	3487	3556#	3729										
TST26	021744	3557												
TST27 =	***** U	1813	1861#											
TST3	007742	1862	1913#											
TST4	010150	1914	1965#											
TST5	010364	1966	2019#											
TST6	010612	2020	2071#											
TST7	011040	980*	981*	983*	984*	1051#								
TTST	002702	607#	2754	2859	3065	3191								
TWOSYN=	010000	2205	2336	2442	3614#									
TXSHIF	022246	1321	1339	1342#										
TYPDAT	004266	721#	932	937										

.BEGIN	002332
.CNVRT	003542
.CONVR	003536
.DATAC	004576
.DELAY	004476
.EOP	002436
.ERRTA	023056
.HLT	004002
.INSTE	003224
.INSTR	003120
.INST1	003140
.MSG	003142
.MSTCL	004556
.PARAM	003244
.PFAIL	004402
.RAMCL	004516
.RES05	003504
.ROMCL	004566
.SAV05	003444
.SCOPE	002634
.SCOP1	003020
.START	001742
.TAPSR	003750

943	1484#											
1328	1365#											
1004	1027#											
1#	1738#	1743#	1804#	1808#	1852#	1856#	1902#	1908#	1955#	1960#	2009#	2014#
2063#	2067#	2130#	2135#	2265#	2270#	2367#	2372#	2473#	2479#	2545#	2551#	2622#
2627#	2685#	2698#	2786#	2799#	2891#	2899#	3010#	3017#	3122#	3132#	3276#	3297#
3398#	3395#	3476#	3482#	3547#	3552#							
1#	1748	1749#	1813	1814#	1862	1863#	1914	1915#	1966	1967#	2020	2021#
2072	2073#	2140	2141#	2275	2276#	2377	2378#	2484	2485#	2556	2557#	2632
2633#	2703	2704#	2804	2805#	2904	2905#	3022	3023#	3137	3138#	3292	3293#
3400	3401#	3487	3488#	3557	3558#							
1#	1738	1745	1749#	1804	1810	1814#	1852	1859	1863#	1902	1911	1915#
1955	1963	1967#	2009	2017	2021#	2063	2069	2073#	2130	2137	2141#	2265
2272	2276#	2367	2374	2378#	2473	2481	2485#	2545	2553	2557#	2622	2629
2633#	2685	2700	2704#	2786	2801	2805#	2891	2901	2905#	3010	3019	3023#
3122	3134	3138#	3276	3289	3293#	3388	3397	3401#	3476	3484	3488#	3547
3554	3558#	3729#										
1#	708#	717	719#	721#	723#	725#	727#	729#	731#	733#	735#	737#
739#	741#	743#	745#	747#								
618#	619	622#	629#	630#	631#	632#	635#	637#	640#	644#	646#	691#
692#	693#	694#	695#	696#	805#	807#	808#	809#	810#	811#	812#	813#
814#	815#	816#	818#	819#	820#	821#	822#	823#	824#	825#	826#	827#
829#	830#	831#	832#	833#	834#	835#	836#	837#	838#	840#	841#	842#
843#	844#	845#	846#	847#	848#	849#	851#	852#	853#	854#	855#	856#
857#	858#	859#	860#	862#	863#	864#	865#	866#	867#	868#	869#	870#
871#	873#	874#	875#	876#	877#	878#	879#	880#	881#	882#	884#	885#
886#	887#	888#	889#	890#	891#	892#	893#	957	1046	1293	1375	1384
1398	1436#	1446	1453	1467	1494#	1496#	1498#	1512	1703	1724	1771#	1836#
1882	1934	1986	2040	2092	2104	2169	2174#	2187	2198	2211	2220	2236
2303	2309#	2329	2354	2409	2415#	2435	2460	2508#	2527	2576	2583#	2604
2656	2663#	2727	2734#	2749	2758	2770	2779	2832	2839#	2854	2863	2875
2883	2932	2939#	2969	3000	3007#	3050	3057#	3108	3165	3184#	3220	3230
3256	3316	3323#	3420	3428#	3507	3515#	3577	3585#	3705#			
973#												
736	1219#											
734	1218#											
746	1424#											
742	1395#					</						

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DZDVBS.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

.TRPTA	001314	716#	1280
.TYPE	003044	722	1088#

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 DZDVB.P11 CROSS REFERENCE TABLE -- MACRO NAMES

DVEND	1#	999													
DVFRNT	1#	527													
HLT	581#	1433	1779	1792	1844	1895	1948	2002	2056	2105	2113	2121	2188	2199	2237
	2255	2355	2461	2521	2528	2538	2598	2605	2615	2678	2750	2759	2771	2779	2855
	2864	2876	2894	2970	3001	3093	3098	3109	3247	3257	3342	3351	3366	3380	3440
	3449	3460	3469	3531	3540	3599	3608	3631	3662						
\$BUFFE	1#	1490													
\$CK15	1#	3646													
\$CK150	1#	3654													
\$CLR.T	1#	3700													
\$CYCLE	1#	1499													
\$EOP	1#	999													
\$FINI	1#	3729													
\$GETFL	1#														
\$GETPA	1#	1594													
\$HEADE	1#	527													
\$LC01	527#	1737													
\$LC02	527#	1851	1901	1954	2008										
\$LC02A	527#	2062													
\$LC03	527#	2129													
\$LC03A	527#														
\$LC04	527#	2264	2366												
\$LC05	527#	2472	2544												
\$LC06	527#	2621													
\$LC06A	527#	2684	2785												
\$LC06B	527#	2890													
\$LC07	527#	3009													
\$LC07A	527#	3121													
\$LC10	527#	3275													
\$LC11	527#	3397													
\$LC12	527#	3475													
\$LC13	527#	3546													
\$MSG	1#	1484													
\$PFAIL	1#	1368													
\$RAMCL	1#	1395													
\$RXSHI	1#	3534													
\$SCOPE	1#	1036													
\$SETLI	1#	1745	1810	1859	1911	1963	2017	2069	2137	2272	2374	2481	2553	2629	2700
	2801	2901	3019	3134	3289	3397	3484	3554							
\$SETSC	1#	3677													
\$SETSY	1#														
\$SET.T	1#	3696													
\$SILOI	1#	3665													
\$SIMBC	1#														
\$TRPDE	1#	717	719	721	723	725	727	729	731	733	735	737	739	741	743
	745														
\$TSTN	1#	1745	1810	1859	1911	1963	2017	2069	2137	2272	2374	2481	2553	2629	2700
	2801	2901	3019	3134	3289	3397	3484	3554							
\$TXSHI	1#	3614													
\$VARIA	1#	643													
\$XZ	1#	1738	1743	1804	1808	1852	1856	1902	1908	1955	1960	2009	2014	2063	2067
	2130	2135	2265	2270	2367	2372	2473	2479	2545	2551	2622	2627	2685	2698	2786
	2799	2891	2899	3010	3017	3122	3132	3276	3287	3389	3395	3476	3492	3547	3552

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 DZDVB.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

ADCB	1517	1525													
ADD	944	1090	1107	1178	1225	1235	1280	1311	1314	1410	1518	1527	1548	1550	1556
	1558	1560	1563	1565	1567	1683	1728	2529	2606						
ASL	1157	1158	1159	1278	1310	1312									
BCC	1430	1719													
BOS	1459														
BEQ	941	949	978	1014	1042	1051	1060	1079	1081	1117	1148	1156	1250	1289	1296
	1303	1319	1325	1334	1339	1343	1357	1450	1589	1641	1682	1689	1778	1791	1843
	1882	1894	1934	1947	1986	2001	2040	2055	2092	2104	2112	2120	2168	2187	2225
	2236	2240	2242	2303	2340	2354	2409	2446	2460	2518	2527	2576	2595	2604	2656
	2677	2727	2749	2758	2770	2778	2832	2854	2863	2875	2883	2932	2969	2997	3000
	3050	3080	3095	3104	3108	3113	3115	3165	3235	3237	3244	3253	3256	3266	3316
	3341	3350	3365	3379	3439	3448	3459	3468	3530	3539	3598	3607	3682		
BGT	1152	1463													
BHI	1168														
BIC	960	1044	1234	1279	1291	1313	1448	1464	1469	1622	1726	1731	1887	1891	1892
	1940	1944	1945	1998	1999	2046	2052	2053	2102	2114	2115	2350	2352	2456	2458
	2675	2747	2768	2776	2852	2873	2881	2967	2998	3105	3197	3211	3254	3339	3377
	3437	3446	3638												
BICB	1115	1153	2234	2349	2351	2455	2457	2990							
BIS	1421	1427	1465	1672	1673	1674	1675	1676	1677	1678	1679	1725	1730	1992	1995
	2049	2107	2108	2116	2586	2674	2746	2756	2767	2775	2851	2861	2872	2880	2991
	3174	3177	3213	3348	3363	3436	3445	3456	3457	3465	3466	3527	3528	3536	3537
	3595	3596	3604	3605	3623	3644	3645	3680							
BISB	1154	2989													
BIT	948	977	1050	1057	1078	1091	1295	1300	1354	1356	1438	1588	1640	1881	1933
	1985	2039	2091	2167	2186	2197	2210	2219	2253	2302	2408	2517	2534	2575	2594
	2611	2655	2726	2754	2831	2859	2931	2960	2985	2996	3049	3065	3079	3094	3103
	3164	3191	3219	3229	3243	3252	3315	3419	3506	3576					
BITB	1171	1513	2241	3114											
BLO	1170														
BLOS	954	1716													
BLT	1150	1461													
BMI	935	1751	1755	1759	1763	1816	1820	1824	1828	1865	1869	1873	1877	1917	1921
	1925	1929	1969	1973	1977	1981	2023	2027	2031	2035	2075	2079	2083	2087	2145
	2151	2157	2163	2280	2286	2292	2298	2383	2390	2397	2404	2487	2491	2495	2499
	2559	2563	2567	2571	2636	2641	2646	2651	2707	2712	2717	2722	2809	2815	2821
	2827	2909	2915	2921	2927	3027	3033	3039	3045	3142	3148	3154	3160	3296	3301
	3306	3311	3403	3407	3411	3415	3490	3494	3498	3502	3560	3564	3568	3572	
BNE	919	947	968	976	1010	1046	1058	1063	1092	1099	1122	1172	1180	1244	1248
	1253	1257	1293	1301	1321	1355	1384	1398	1411	1432	1439	1471	1509	1514	1520
	1530	1592	1605	1607	1609	1615	1624	1629	1634	1658	1664	1666	1668	1685	1696
	1724	1800	1848	1898	1951	2005	2059	2123	2126	2198	2208	2211	2220	2223	2231
	2250	2254	2257	2261	2329	2338	2346	2357	2363	2435	2444	2452	2463	2469	2520
	2535	2537	2541	2597	2612	2614	2618	2681	2755	2782	2860	2887	2961	2978	2986
	3005	3066	3082	3097	3118	3192	3217	3220	3230	3233	3246	3262	3334	3358	3372
	3384	3420	3472	3507	3543	3577	3611	3630	3649	3661	3690				
BPL	1054	1094	1097	1113	1119	1298	1348	1446	1453	1467	3627	3658			
BR	926	945	957	982	1052	1056	1128	1160	1162	1375	1512	1522	1612	1617	1627
	1632	1637	1703	1729	3194										
CLC	1237	1239	1241	1455	1515	1523	1692	1784	1797	2227	2342	2448	2975	3172	3175
	3640	3693													
CLR	908	913	914	922	951	965	996	1048	1065	1066	1145	1382	1398	1409	1426
	1451	1656	1701	1720	1722	1727	1769	1834	1885	1937	1989	2043	2095	2172	2176
	2185	2189	2202	2209	2307	2311	2319	2333	2413	2417	2425	2439	2506	2515	2530
	2581	2592	2607	2661	2732	2837	2937	3055	3077	3092	3168	3170	3182	3198	3218

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 DZDVBB.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

CLRB	3241	3321	3424	3511	3581	3625	3639	3656							
CMP	909	910	997	1064	1254	1305	1387	1625	1659	1687	2511	3072	3086	3212	
	927	940	966	967	1041	1062	1167	1169	1288	1302	1460	1462	1519	1528	1603
	1606	1608	1614	1628	1633	1657	1665	1684	1714	1715	1732	1777	1790	1842	1893
	1946	2000	2054	2103	2111	2119	2207	2224	2230	2235	2339	2345	2353	2445	2451
	2459	2526	2603	2676	2748	2757	2769	2777	2853	2862	2874	2892	2968	2999	3107
	3216	3234	3236	3255	3261	3340	3349	3364	3378	3438	3447	3458	3467	3529	3538
	3597	3606													
CMPB	953	1045	1116	1147	1149	1151	1155	1292	1449	1470	1681				
COMB	933														
DEC	1121	1243	1256	1397	1695	1799	1847	1897	1950	2004	2058	2122	2125	2206	2221
	2249	2256	2260	2328	2337	2356	2362	2434	2443	2462	2468	2540	2617	2680	2781
	2886	2974	3004	3117	3215	3231	3265	3333	3357	3371	3383	3471	3542	3610	3689
DECB	1009	1179	1247	1252	2977	3648									
EMT	581														
HALT	619	952	956	961	1351	1374	1511	1702							
INC	998	1061	1353	1383	1431	1544	1546	1552	1554	1723	1782	1795	1896	1949	2003
	2057	2124	2179	2212	2229	2314	2344	2420	2450	2519	2536	2539	2596	2613	2616
	2679	2780	2885	3003	3081	3096	3116	3221	3245	3260	3264	3382	3470	3541	3609
	3629	3660	3685	3688											
INCB	1642	1680	1694	2239	3112										
JMP	641	988	1023	1071	1282	1360	1391	1619	1699	3267	3273				
JSR	936	1017	1047	1294	1572	1577	1582	1587	1752	1756	1760	1764	1817	1821	1825
	1829	1866	1870	1874	1878	1918	1922	1926	1930	1970	1974	1978	1982	1996	2024
	2028	2032	2036	2050	2076	2080	2084	2088	2109	2117	2146	2152	2158	2164	2281
	2287	2293	2299	2384	2391	2398	2405	2488	2492	2496	2500	2560	2564	2568	2572
	2637	2642	2647	2652	2708	2713	2718	2723	2810	2816	2822	2828	2910	2916	2922
	2928	2942	3028	3034	3040	3046	3060	3143	3149	3155	3161	3297	3302	3307	3312
	3404	3408	3412	3416	3491	3495	3499	3503	3561	3565	3569	3573	3646		
MOV	904	905	906	911	915	916	920	921	923	928	929	930	931	938	939
	962	963	964	973	974	980	981	983	984	986	999	1013	1022	1043	1049
	1055	1067	1068	1069	1082	1088	1089	1100	1104	1105	1106	1110	1111	1120	1123
	1124	1126	1127	1129	1130	1136	1137	1138	1139	1140	1141	1144	1146	1176	1177
	1181	1182	1193	1197	1198	1199	1200	1201	1202	1207	1208	1209	1210	1211	1212
	1219	1220	1221	1222	1223	1224	1226	1229	1230	1232	1233	1245	1258	1259	1260
	1261	1262	1275	1277	1281	1290	1304	1307	1309	1315	1316	1317	1350	1358	1359
	1373	1380	1381	1395	1396	1399	1404	1405	1406	1407	1408	1412	1413	1417	1425
	1428	1434	1440	1441	1447	1454	1468	1521	1526	1531	1532	1533	1534	1535	1536
	1537	1538	1539	1540	1541	1542	1543	1545	1547	1549	1551	1553	1555	1557	1559
	1562	1564	1566	1569	1570	1571	1574	1575	1576	1579	1580	1581	1584	1585	1586
	1602	1604	1610	1618	1621	1655	1660	1661	1662	1670	1686	1697	1704	1707	1708
	1709	1710	1711	1712	1713	1721	1733	1747	1748	1749	1750	1753	1754	1757	1758
	1761	1762	1768	1772	1773	1774	1775	1776	1780	1783	1786	1787	1788	1789	1793
	1796	1812	1813	1814	1815	1818	1819	1822	1823	1826	1827	1832	1837	1838	1839
	1840	1841	1861	1862	1863	1864	1867	1868	1871	1872	1875	1876	1886	1888	1889
	1890	1913	1914	1915	1916	1919	1920	1923	1924	1927	1928	1938	1939	1941	1942
	1943	1965	1966	1967	1968	1971	1972	1975	1976	1979	1980	1990	1991	1993	1994
	1997	2019	2020	2021	2022	2025	2026	2029	2030	2033	2034	2044	2045	2047	2048
	2051	2071	2072	2073	2074	2077	2078	2081	2082	2085	2086	2096	2097	2100	2101
	2106	2110	2118	2139	2140	2141	2144	2147	2150	2153	2156	2159	2162	2170	2175
	2177	2180	2184	2190	2191	2193	2196	2200	2203	2213	2214	2216	2218	2226	2233
	2247	2251	2274	2275	2276	2279	2282	2285	2288	2291	2294	2297	2305	2310	2312
	2315	2320	2322	2325	2331	2334	2341	2348	2376	2377	2378	2381	2382	2385	2388
	2389	2392	2395	2396	2399	2402	2403	2411	2416	2418	2421	2426	2428	2431	2437
	2440	2447	2454	2483	2484	2485	2486	2489	2490	2493	2494	2497	2498	2503	2504
	2509	2513	2516	2522	2523	2525	2531	2533	2555	2556	2557	2558	2561	2562	2565

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 DZDVB.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

	2566	2569	2570	2578	2579	2584	2588	2590	2593	2599	2600	2602	2608	2610	2631
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	2702	2703	2704	2706	2709	2711	2714	2716	2719	2721	2729	2730	2735	2742	2744
	2745	2751	2752	2753	2763	2765	2766	2772	2773	2774	2803	2804	2805	2807	2808
	2811	2813	2814	2817	2819	2820	2823	2825	2826	2834	2835	2840	2843	2847	2849
	2850	2856	2857	2858	2865	2868	2870	2871	2877	2878	2879	2903	2904	2905	2908
	2911	2914	2917	2920	2923	2926	2934	2935	2940	2941	2955	2957	2959	2962	2963
	2965	2966	2979	2982	2984	2987	2992	2993	2995	3021	3022	3023	3026	3029	3032
	3035	3038	3041	3044	3052	3053	3058	3059	3070	3073	3074	3078	3085	3089	3093
	3099	3100	3102	3136	3137	3138	3141	3144	3147	3150	3153	3156	3159	3167	3178
	3180	3187	3193	3195	3199	3200	3202	3205	3206	3209	3223	3224	3226	3228	3238
	3242	3248	3249	3251	3269	3271	3291	3292	3293	3295	3298	3300	3303	3305	3308
	3310	3318	3319	3324	3325	3328	3330	3335	3336	3337	3338	3343	3345	3346	3347
	3352	3353	3359	3360	3361	3362	3367	3368	3373	3374	3375	3376	3399	3400	3401
	3402	3405	3406	3409	3410	3413	3414	3422	3425	3426	3429	3432	3433	3434	3435
	3441	3442	3443	3444	3452	3453	3454	3455	3461	3462	3463	3464	3486	3487	3488
	3489	3492	3493	3496	3497	3500	3501	3509	3512	3513	3516	3519	3521	3523	3524
	3525	3526	3532	3533	3534	3535	3556	3557	3558	3559	3562	3563	3566	3567	3570
	3571	3579	3582	3583	3586	3589	3591	3592	3593	3594	3600	3601	3602	3603	3615
	3616	3619	3622	3624	3632	3635	3636	3650	3651	3655	3663	3666	3668	3673	3679
	3681	3683	3686	3691	3692	3697	3701								
MOV	907	912	958	959	1011	1012	1098	1114	1142	1143	1227	1228	1231	1236	1246
	1251	1299	1332	1626	1630	1631	1635	1636	1638	1639	1690	1691	1698	1717	2142
	2143	2148	2149	2154	2155	2160	2161	2201	2246	2277	2278	2283	2284	2289	2290
	2295	2296	2326	2330	2332	2379	2380	2386	2387	2393	2394	2400	2401	2432	2436
	2438	2634	2639	2644	2649	2667	2705	2710	2715	2720	2738	2760	2806	2812	2818
	2824	2906	2907	2912	2913	2918	2919	2924	2925	2943	2945	2948	2951	2972	2973
	3024	3025	3030	3031	3036	3037	3042	3043	3061	3067	3139	3140	3145	3146	3151
	3152	3157	3158	3169	3171	3179	3196	3208	3210	3222	3294	3299	3304	3309	3637
NEG	3354														
NOP	925	980	981	1018	1019	1020	1021								
RESET	995	1015	1654												
ROL	1456	1457	1458	3173	3176										
ROLB	1516	1524	1693	3617											
ROR	1238	1240	1242	1718	1785	1798	2228	2343	2449	3641	3642	3643	3694		
RORB	1429	2976	3618												
RTI	1083	1101	1131	1183	1203	1213	1263	1361	1400	1414	1418	1422	1435	1705	1734
RTS	1473	1643	1735	1801	1849	1883	1899	1935	1952	1987	2006	2041	2060	2093	2127
	2169	2262	2304	2364	2410	2470	2542	2577	2619	2657	2682	2728	2783	2833	2888
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SUB	1276	1308	2952												
SWAB	2510	2585	2988	3071	3207										
TRAP	717	719	721	723	725	727	729	731	733	735	737	739	741	743	745
TST	924	946	975	1080	1320	1324	1333	1338	1342	1347	1591	1613	1623	1663	1667
	1671	2222	3232	3626	3657										
TSTB	918	934	1053	1059	1093	1096	1112	1118	1249	1297	1318	1445	1452	1466	1508
	1688														
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	820	821	822	823	824	825	826	827	829	830	831	832	833	834	835
	836	837	838	840	841	842	843	844	845	846	847	848	849	851	852
	853	854	855	856	857	858	859	860	862	863	864	865	866	867	868
	869	870	871	873	874	875	876	877	878	879	880	881	882	884	885
	886	887	888	889	890	891	892	893	1436	1771	1836	2174	2309	2415	2508
	2583	2663	2734	2839	2939	3007	3057	3184	3323	3428	3515	3585	3705		

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 DZDVBB.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

.BYTE	702 1034 3712 3733	703 1363 3713 3735	704 1366 3714 3737	705 1393 3715 3739	771 1479 3716	772 1485 3717	773 1487 3718	774 1600 3719	776 1601 3720	777 3706 3721	778 3707 3722	779 3708 3723	1025 3709 3724	1028 3710 3725	1031 3711 3731
.ENABL	541 3756														
.END	1737 1956 2271 2578 3018 3553	1739 1959 2276 2590 3023 3558	1744 1961 2368 2623 3123 3756	1749 1967 2373 2628 3133	1805 2010 2378 2633 3138	1809 2013 2474 2686 3277	1814 2015 2479 2699 3288	1853 2021 2480 2704 3293	1855 2064 2485 2787 3389	1857 2068 2503 2800 3396	1863 2073 2513 2805 3401	1903 2131 2546 2892 3477	1907 2136 2551 2900 3483	1909 2141 2552 2905 3488	1915 2266 2557 3011 3548
.EQUIV	581 696	707 1738	1477 1743	1483 1748	1484 1804	1489 1808	3729 1813								
.EVEN	527 1908 2135 2546 2899 3482	1738 1914 2140 2551 2899 3487	1743 1955 2265 2556 3010 3547	1748 1956 2270 2575 3017 3552	1804 1959 2275 2588 3022 3557	1808 1960 2367 2622 3122 3756	1813 1966 2372 2627 3132	1852 2009 2377 2632 3137	1853 2010 2473 2685 3276	1855 2014 2474 2698 3287	1856 2020 2479 2703 3292	1862 2063 2484 2786 3388	1902 2067 2503 2799 3395	1903 2072 2513 2804 3400	1907 2130 2545 2891 3476
.IFF	1739 1915 2140 2551 2892 3293	1743 1956 2141 2556 2899 3389	1748 1960 2266 2557 2904 3395	1749 1966 2270 2623 2905 3400	1805 1967 2275 2627 3011 3401	1808 2010 2276 2632 3017 3477	1813 2014 2368 2633 3022 3482	1814 2020 2372 2686 3023 3487	1853 2021 2377 2698 3123 3488	1856 2064 2378 2703 3132 3548	1862 2067 2474 2787 3137 3552	1863 2072 2479 2787 3138 3557	1903 2073 2484 2799 3277	1908 2131 2485 2804 3287	1914 2135 2546 2805 3292
.IFT	527 2067 2685 3482	1737 2130 2698 3547	1738 2135 2786 3552	1743 2265 2799	1804 2270 2891	1808 2367 2899	1852 2372 3010	1856 2473 3017	1902 2474 3122	1908 2479 3132	1955 2545 3276	1960 2546 3287	2009 2551 3388	2014 2622 3395	2063 2627 3476
.IFTF	527 1748														
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.IRP	717 807 1966 2377 2804 3400	719 1738 2009 2473 2891 3476	721 1745 2017 2481 2901 3484	723 1748 2020 2484 2904 3487	725 1804 2063 2545 3010 3547	727 1810 2069 2553 3019 3554	729 1813 2072 2556 3022 3557	731 1852 2130 2622 3122 3729	733 1859 2137 2629 3134	735 1862 2140 2632 3137	737 1902 2265 2685 3276	739 1911 2272 2700 3289	741 1914 2275 2703 3292	743 1955 2367 2786 3388	745 1963 2374 2801 3397
.LIST	1 729	527 731	541 733	562 735	581 737	607 739	609 741	619 743	643 745	645 747	719 902	721 896	723 989	725 1037	727 1484

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 DZDVBB.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

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	2805	2891	2899	2905	3010	3017	3023	3122	3132	3138	3276	3287	3293	3388	3395
	3401	3476	3482	3488	3547	3552	3558	3729							
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	729	731	733	735	737	739	741	743	745	747	802	896	989	1037	1484
	1737	1738	1743	1749	1804	1808	1814	1852	1856	1863	1902	1908	1915	1955	1960
	1967	2009	2014	2021	2063	2067	2073	2130	2135	2141	2265	2270	2276	2367	2372
	2378	2473	2479	2485	2545	2551	2557	2622	2627	2633	2685	2698	2704	2786	2799
	2805	2891	2899	2905	3010	3017	3023	3122	3132	3138	3276	3287	3293	3388	3395
	3401	3476	3482	3488	3547	3552	3558	3729							
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.SBTTL	527	562	609	643	896	989	1037	1737							
.TITLE	541														
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ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

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 RUN-TIME: 31 45 7 SECONDS
 RUN-TIME RATIO: 820/84=9.7
 CORE USED: 27K (53 PAGES)

Spooler runtime 16 Seconds, 69 KCS, 428 disk reads, 3 disk writes, 90 pages

Shooter runtime 18 seconds, 159 KES, 128 disk reads, 3 disk writes, 30 pages
 Date 12-Oct-76 15:19:45 Monitor IPC-0 0070 (1A3) unknown

[illegible]