

DEC 1976
digital
MADE IN USA

BO 1

[illegible][illegible][illegible]

MTO: ML21-4:DAVID 282-- distribution to ML21-4, slot 134
 MM MM 11 11 333 444
 M M M L 2 11 11 333 444
 M M M L L 11 11 333 444
 M M M L L L 2 11 11 333 444
 M M M L L L L 2 11 11 333 444
 M M L L L L L 2222 111 111 333 444

/NOTES-0-DIVISIONS, 7001-400;28941-JAN21DEPHIC-S-67411 Date 03-Dec-76 09:50:37 Monitor IPC-D 602 [680] #START#

The image displays a 3x3 grid of fractal patterns. The top row features patterns constructed from the characters 'D', 'I', and 'C'. The middle row features patterns constructed from 'Z' and 'H'. The bottom row features patterns constructed from 'Z' and 'H'. Each pattern is a complex, self-similar structure, likely generated using a recursive algorithm. The patterns are arranged in a grid, with each cell containing a single fractal design.

[illegible]

LPTSP Version 6(100344) Running on MTA041
 START User DAVIES,TOM [400,2704] Job DZDHIC Seq. 11 Date 03-Dec-76 09:50:37 Monitor IPC-D 602 [680] *START*
 Request created: 03-Dec-76 09:26:29 /TO:ML21-4:DAVIES -- distribution to ML21-4, slot 134
 QUELW 66KZ06DZDHICP8ENT408287046ICE:05031 180R1E576 18P62100:11821MIF:275.dF0805DN06R76L09:50:41
 File will be RENAMED to <057> protection

The image displays a 3x3 grid of 9 small images, each showing the formation of the number '4' using different characters. The characters used are 'D', 'Z', 'I', and 'C'. The images show the progression from a single character to the complete number shape.

- Image 1 (Top Left):** A single 'D' character.
- Image 2 (Top Middle):** A 'Z' character.
- Image 3 (Top Right):** A single 'I' character.
- Image 4 (Middle Left):** A 'C' character.
- Image 5 (Middle Middle):** A 'D' character.
- Image 6 (Middle Right):** A 'Z' character.
- Image 7 (Bottom Left):** A 'I' character.
- Image 8 (Bottom Middle):** A 'C' character.
- Image 9 (Bottom Right):** A 'D' character.

LPTSP Version 6(100344) Running on MTA041
 START User DAVIES,TOM [400,2704] Job DZDHIC Seq. 11 Date 03-Dec-76 09:50:37 Monitor IPC-D 602 [680] *START*
 Request created: 03-Dec-76 09:26:29 /TO:ML21-4:DAVIES -- distribution to ML21-4, slot 134
 GULWE 96KZ8:0ZDHICPSENT40002004ICE:03011 10671576 18P82100:11821MIP:275:4F080SDM0R76L09:50:44
 File will be RENAMED to <057> protection

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 2
DZDHI.C.P11 29-SEP-76 14:42

```

.REM !

```

PRODUCT CODE: MAINDEC-11-DZDHI-C-D
PRODUCT NAME: DH11 BREAK AND HALF-DUPLEX TEST
DATE: DECEMBER 1976
MAINTAINER: DIAGNOSTIC GROUP

THE INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT CORPORATION. DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR ANY ERRORS THAT MAY APPEAR IN THIS DOCUMENT.

THE SOFTWARE DESCRIBED IN THIS DOCUMENT IS FURNISHED UNDER A
LICENSE AND MAY ONLY BE USED OR COPIED IN ACCORDANCE WITH
THE TERMS OF SUCH LICENSE.

DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS SOFTWARE ON EQUIPMENT THAT IS NOT SUPPLIED BY DIGITAL.

COPYRIGHT (C) 1972, 1976 BY DIGITAL EQUIPMENT CORPORATION,
MAYNARD, MASSACHUSETTS.

F01

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 3
DZDHIC.P11 29-SEP-76 14:42

SEQ 0002

05-1007-0000

1. ABSTRACT

THE DH11 BREAK AND HALF DUPLEX TEST CHECKS THE BREAK CONTROL LOGIC OF THE DH11 AND VERIFIES THAT THE UARTS RECEIVE ONLY ONE BREAK CHARACTER ON A GIVEN LINE NO MATTER HOW LONG BREAK IS ASSERTED. THE TEST ALSO VERIFIES THAT NO CHARACTERS ARE RECEIVED ON A A LINE IF THE HALF DUPLEX FUNCTION FOR THAT LINE IS SELECTED.

2. REQUIREMENTS
- 2.1 EQUIPMENT
- PDP-11 FAMILY STANDARD COMPUTER WITH 4KW OF MEMORY
ASR-33 TELETYPE OR EQUIVALENT
DH11 ASYNCHRONOUS MULTIPLEXER
DM11 MAINTENANCE CARD INSTALLED
- 2.2 STORAGE
- THE PROGRAM LOADS INTO 4KW OF MEMORY
3. LOADING PROCEDURE
- THE STANDART PROCEDURE FOR LOADING ABSOLUTE BINARY TAPES
IS TO BE USED
4. STARTING PROCEDURE
- 4.1 CONTROL SWITCH SETTINGS
- 4.1.1 AFTER PROGRAM LOAD (INITIAL PROGRAM START)
- ALL CONSOLE SWITCHES DOWN
- 4.1.2 TO MODIFY DEVICE VECTOR AND CONTROL REGISTER ADDRESSES
AFTER PROGRAM RESTART
- SW00=1
- 4.1.3 TO START PROGRAM AT SELECTED TEST AFTER PROGRAM RESTART
- SW01=1
- 4.2 STARTING ADDRESS
- THE STARTING ADDRESS FOR ALL TESTS IS 000200
- THE RESTART ADDRESS FOR ALL TESTS I 0002000
- THE STARTING ADDRESS TO ENTER A SELECTED TEST IS 000200
- 4.3 PROGRAM AND/OR OPERATOR ACTION
- 4.3.1 INITIAL PROGRAM START
- 4.3.1.1 LOAD PROGRAM INTO MEMORY
- 4.3.1.2 LOAD ADDRESS 000200
- 4.3.1.3 CLEAR CONSOLE SWITCHES
- 4.3.1.4 PRESS START
- 4.3.1.5 THE PROGRAM WILL TYPE "DH11 BREAK AND HALF-DUPLEX TEST"
AND WILL THEN TYPE "VECTOR ADDRESS-" AND WAIT FOR AN
INPUT FROM THE TELETYPE KEYBOARD.

60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114

4.3 (CONT'D)

4.3.1.6 TYPE IN THE ADDRESS OF THE RECEIVER INTERRUPT VECTOR
FOR THE DH11 TO BE TESTED FOLLOWED BY <CARRIAGE RETURN>

NOTE: WORDS IN ANGLE BRACKETS, I.E. <CARRIAGE RETURN> MEAN THAT
THE TELETYPE KEY WITH THE NAMED FUNCTION SHOULD BE STRUCK

IF AN INCORRECT ADDRESS IS ENTERED, THE PROGRAM
WILL TYPE "?" AND WILL REPEAT THE SECOND MESSAGE OF 4.3.1.5
4.3.1.7 THE PROGRAM WILL TYPE "CONTROL REGISTER ADDRESS-"
AND WAIT FOR AN INPUT FROM THE TELETYPE KEYBOARD

4.3.1.8 TYPE IN THE ADDRESS OF THE SYSTEM CONTROL REGISTER OF THE
DH11 TO BE TESTED FOLLOWED BY <CARRIAGE RETURN>

IF AN INCORRECT ADDRESS IS TYPED, THE PROGRAM WILL TYPE
"?" AND WILL THEN REPEAT THE MESSAGE OF 4.3.1.7
4.3.1.9 THE PROGRAM WILL TYPE "R" TO INDICATE THAT IT IS
ABOUT TO START TESTING, AND THEN TESTING WILL BEGIN

4.3.2 PROGRAM RESTART WITH ALL SWITCHES DOWN

4.3.2.1 PERFORM 4.3.1.2 TO 4.3.1.5
4.3.2.2 THE PROGRAM WILL TYPE "DH11 BREAK AND HALF-DUPLEX TEST"
AND WILL THEN CONTINUE AS DESCRIBED IN 4.3.1.9

4.3.3 PROGRAM RESTART WITH SW00=1

4.3.3.1 LOAD ADDRESS 000200
4.3.3.2 SET SW01=1
4.3.3.3 PRESS START
4.3.3.4 THE PROGRAM WILL PERFORM AS DESCRIBED IN 4.3.1.5 TO 4.3.1.9

4.3.4 PROGRAM RESTART WITH SW01=1

4.3.4.1 LOAD ADDRESS 000200
4.3.4.2 SET SW01=1
4.3.4.3 PRESS START
4.3.4.4 THE PROGRAM WILL TYPE "DH11 BREAK AND HALF-DUPLEX TEST"
AND WILL THEN TYPE "TEST PC-" AND WILL WAIT FOR AN INPUT
FROM THE TELETYPE KEYBOARD
4.3.4.5 TYPE IN THE ADDRESS OF THE TEST AT WHICH THE PROGRAM IS TO
BE STARTED FOLLOWED BY <CARRIAGE RETURN>
4.3.4.6 THE PROGRAM WILL TYPE R TO INDICATE THAT IT HAS STARTED
AND WILL START TESTING AT THE SELECTED TEST.

NOTE: CARE MUST BE TAKEN WHEN THIS FEATURE IS USED, SINCE
THERE IS NO PROTECTION AGAINST SELECTING AN ADDRESS THAT
IS IN THE MIDDLE OF A TEST

NOTE: IF IT IS DESIRED TO LOOP ON THE TEST THAT IS SELECTED
SET SW14=1 BEFORE ENTERING THE TEST ADDRESS

5. OPERATING PROCEDURE

5.1 OPERATIONAL SWITCH SETTINGS

SW15=1, HALT ON ERROR
 SW14=1, LOOP ON CURRENT TEST
 SW13=1, SUPPRESS ERROR TYPEOUT
 SW11=1, INHIBIT ITERATIONS
 SW10=1, ESCAPE TO NEXT TEST ON ERROR
 SW09=1, FREEZE VARIABLE PARAMETER IN CURRENT TEST
 SW01=1, START PROGRAM AT SELECTED TEST
 SW00=1, CHANGE PARAMETERS AT PROGRAM RESTART

5.2 SUBROUTINE ABSTRACTS

5.2.1 TRAPCATCHER (LOCATIONS 000000-000776)

THIS ROUTINE IS USED TO INTERCEPT UNEXPECTED INTERRUPTS AND TRAPS. THE AREA FROM 000000-000776 IS LOADED WITH THE FOLLOWING SEQUENCE

2
 0
 4
 0
 772
 0
 776
 0

IF AN UNEXPECTED INTERRUPT OR TRAP OCCURS, THE PROGRAM WILL HALT WITH THE PC 2 GREATER THAN THE ADDRESS TO WHICH THE PROGRAM TRAPPED. THE PROCESSOR STACK MAY BE EXAMINED TO DETERMINE WHERE THE PROGRAM WAS WHEN THE TRAP OR INTERRUPT OCCURED.

5.2.2 START (PROGRAM INITIALIZATION)

THIS ROUTINE INITIALIZES ALL PROGRAM FLAGS AND COUNTERS, TYPES THE PROGRAM TITLE MESSAGE, AND INPUTS THE VECTOR AND CONTROL REGISTER ADDRESSES OF THE DH11 TO BE TESTED.

5.2.3 BEGIN (PROGRAM START AND RESTART)

THIS ROUTINE IS ENTERED IMMEDIATELY AFTER "START" AND EACH TIME A PROGRAM PASS HAS BEEN COMPLETED. THE ROUTINE SETS UP THE PROCESSOR STACK AND STATUS WORD AND THEN TRANSFERS CONTROL TO THE TEST AT WHICH TESTING WILL BEGIN. IF SW01=0 WHEN THIS ROUTINE IS ENTERED TESTING WILL START AT T1 (TEST 1). IF SW01=1 WHEN THIS ROUTINE IS ENTERED, TESTING WILL START AT THE PC ENTERED FROM THE TELETYPE KEYBOARD.

223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
5.2.4 EOP (END OF PASS)

THIS ROUTINE IS ENTERED ONCE PER PASS AFTER ALL TESTS HAVE BEEN COMPLETED. THIS ROUTINE TYPES THE MAINDEC IDENTIFICATION CODE OF THE PROGRAM, CLEARS ERROR FLAGS AND UPDATES THE PASS COUNT. IF THE PROGRAM WAS LOADED UNDER ACT11 OR DDP, THE ROUTINE CHECKS FOR RETURN TO THE ACT11 OR DDP MONITOR. IF THE PROGRAM IS NOT UNDER MONITOR CONTROL, THE ROUTINE TRANSFERS TO BEGIN.

5.2.5 SCOPER (SCOPE LOOP AND ITERATION HANDLER)

THIS ROUTINE IS ENTERED EACH TIME A TEST IS COMPLETED. THE ROUTINE CHECKS FOR THE FOLLOWING UPON ENTRY
A) IF SW10=1, THE ROUTINE WILL TRANSFER TO THE NEXT TEST IN SEQUENCE, AFTER CLEARING ERROR FLAGS.
B) IF SW11=1, THE ROUTINE WILL TRANSFER TO THE NEXT TEST IN SEQUENCE, AFTER CLEARING ERROR FLAGS.
C) IF SW14=1, THE ROUTINE WILL LOOP ON THE CURRENT TEST REGARDLESS OF THE ITERATION COUNT.

IF NONE OF THE ABOVE IS TRUE, THE ROUTINE WILL ADD 1 TO THE COUNT OF TEST ITERATIONS, AND COMPARE THIS VALUE TO THE NUMBER OF ITERATIONS THAT SHOULD BE PERFORMED. IF THESE NUMBERS ARE EQUAL, THE ROUTINE WILL TRANSFER TO THE NEXT TEST IN SEQUENCE. IF THE NUMBERS ARE NOT EQUAL, THE TEST CURRENTLY IN PROGRESS WILL BE REPEATED.

5.2.6 SCOP1R (FREEZE ON CURRENT DATA)

THE CALL TO THIS ROUTINE FOLLOWS IMMEDIATELY AFTER THE CALL TO THE ERROR HANDLER IN THOSE TESTS THAT HAVE VARIABLE PARAMETERS. THIS ROUTINE IS ALWAYS ENTERED IN THOSE TESTS, WHETHER OR NOT AN ERROR OCCURS. IF SW09=1, THE ROUTINE WILL TRANSFER CONTROL BACK TO THE TEST AT A POINT WHICH WILL ALLOW REPEATING THE FUNCTION UNDER TEST CONTINUOUSLY WITH THE SAME DATA. IF THIS OPTION IS SELECTED, THE ROUTINE "SCOPER" IS NEVER ENTERED AND ITERATION COUNTS WILL NOT BE UPDATED.

5.2.7 ERRORS (ERROR HANDLER)

THIS ROUTINE IS ENTERED UPON ERROR DETECTION ONLY.
WITH ALL CONSOLE SWITCHES DOWN, THE ROUTINE PROCEEDS AS FOLLOWS:

- A) THE PC OF THE INSTRUCTION THAT CALLED THE ERROR HANDLER IS ACCESSED THRU THE STACK, AND THEN THE EMT INSTRUCTION ITSELF IS FETCHED. THE 8 LSB OF THE EMT INSTRUCTION ARE THE ERROR CODE. THIS CODE IS USED TO ACCESS A TABLE OF ERROR MESSAGES AND ERROR DATA STORAGE LOCATIONS.
- B) IF THE TEST THAT FAILED DID NOT FAIL PREVIOUSLY DURING THIS PASS, A COMPLETE ERROR REPORT IS MADE. IF THE TEST THAT FAILED FAILED MOR THAT ONCE DURING THE CURRENT PASS, ONLY THE DATA RELATING TO THE FAILUER IS TYPED. IF SW13=1, NO ERROR TYPEOUT IS MADE.
- C) THE ROUTINE NOW CHECKS FOR HALT ON ERROR. IF SW15=1 THE PROGRAM WILL HALT WITH THE PC OF THE CALL TO THE ERROR ROUTINE IN RO. IF SW15=0, THE PROGRAM WILL NOT HALT, BUT WILL CHECK FOR ESCAPE TO NEXT TEST.
- D) IF SW10=0, THE ROUTINE WILL RETURN TO THE TEST IN PROGRESS. IF SW10=1, THE ROUTINE WILL ABORT THE CURRENT TEST, AND TRANSFER TO THE NEXT TEST IN SEQUENCE, THRU THE ROUTINE "SCOPER".

5.2.8 TRPSRV (TRAP DECODE AND DISPATCH)

THIS ROUTINE DECODES THE 8 LSB OF THE TRAP INSTRUCTION THAT CAUSED TH PROGRAM INTERRUPT, AND TRANSFERS CONTROL TO THE ROUTINE THRU THE TABLE "TRPTAB" USING THE 8 LSB OF THE TRAP INSTRUCTION AS AN OFFSET TO THE POINTER TO THE ROUTINE TO BE ENTERED.

- 296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
- 5.3 PROGRAM AND OR OPERATOR ACTION
 - 5.3.1 PROGRAM START WITH ALL SWITCHES DOWN
 - 5.3.1.1 REFER TO SECTIONS 4.3.1 AND 4.3.2 FOR INITIAL PROGRAM BEHAVIOR.
 - 5.3.1.2 AFTER "R" HAS BEEN TYPED BY THE PROGRAM, TEST EXECUTION WILL BEGIN. EACH TEST WILL BE REPEATED A SELECTED NUMBER OF ITERATIONS (SEE LISTING FOR EXACT NUMBER FOR EACH TEST) AND THEN THE PROGRAM WILL PROCEED TO THE NEXT TEST.
 - 5.3.1.3 WHEN ALL ITERATIONS HAVE BEEN COMPLETED, THE PROGRAM WILL TYPE "DZDHI" AND THEN RESTART TESTING AT TEST 1 (LOCATION T1 IN THE PROGRAM).
 - 5.3.1.4 IF AN ERROR OCCURS, THE PROGRAM WILL TYPE AN APPROPRIATE ERROR MESSAGE, AND THEN CONTINUE THE TEST IN PROGRESS.
 - 5.3.2 PROGRAM START WITH SW00=1
THE PROGRAM WILL PERFORM AS DESCRIBED IN 4.3.1 AND 5.3.1
 - 5.3.3 PROGRAM START WITH SW01=1
 - 5.3.3.1 REFER TO SECTION 4.3.4 FOR INITIAL PROGRAM BEHAVIOR
 - 5.3.3.2 TEST EXECUTION WILL START AT THE ADDRESS SPECIFIED AND WILL CONTINUE AS DESCRIBED IN 5.3.1.2
 - 5.3.3.3 AFTER "DZDHI" HAS BEEN TYPED, THE PROGRAM WILL RESUME TESTING AT TEST 1
 - 5.3.4 PROGRAM OPERATION WITH SW15=1
SAME AS 5.3.1, EXCEPT THAT IN THE CASE OF AN ERROR, THE PROGRAM WILL HALT AFTER THE ERROR TYPEOUT, AND THE PC+2 OF THE CALL TO THE ERROR ROUTINE WILL BE DISPLAYED IN RO.
 - 5.3.5 PROGRAM OPERATION WITH SW13=1
SAME AS 5.3.1 EXCEPT THAT NO ERROR TYPEOUTS WILL OCCUR
 - 5.3.6 PROGRAM OPERATION WITH SW11=1
SAME AS 5.3.1 EXCEPT THAT EACH TEST WILL BE REPEATED ONCE ONLY
 - 5.3.7 PROGRAM OPERATION WITH SW10=1
SAME AS 5.3.1, EXCEPT THAT IN THE CASE OF AN ERROR THE CURRENT TEST WILL BE ABORTED, AND THE PROGRAM WILL PROCEED TO THE NEXT TEST IN SEQUENCE.

5. (CONT'D)

5.3.8 PROGRAM OPERATION WITH SW14=1, OR SW09=1

THESE FUNCTIONS ARE NORMALLY USED FOR TROUBLE SHOOTING.
SEE SECTION 6.3 FOR THEIR USE.

6. ERRORS

6.1 ERROR HALTS

THE ERROR MESSAGE FORMAT FOR ALL ERROR TYPEOUTS
IS AS FOLLOWS

PC+2 MESSAGE
 HEADER (IF APPLICABLE)
 DATA (IF APPLICABLE)

WHERE

PC+2 IS THE ADDRESS OF THE CALL TO THE ERROR HANDLER + 2
MESSAGE IS AN ASCII MESSAGE DESCRIBING (BRIEFLY) THE FAILURE
HEADER IS A DESCRIPTION OF THE DATA TO FOLLOW
DATA IS OCTAL INFORMATION RELATING TO THE CAUSE OF THE FAILURE
IF THE SAME ERROR OCCURS IN A GIVEN TEST ON THE SAME
PASS, AND IF DATA IS ASSOCIATED WITH THAT ERROR, ONLY
DATA IS TYPE ON SUCCEEDING ERROR TYPEOUTS

IF NO DATA IS ASSOCIATED WITH THE ERROR
THE COMPLETE ERROR MESSAGE IS TYPED.

6.1.1 ERROR DESCRIPTIONS

SEE LISTING FOR DETAILS OF ERRORS

6.2 ERROR RECOVERY

6.2.1 SW15=0

IF THE PROGRAM IS RUN WITH SW15=0, NO OPERATOR ACTION IS
REQUIRED TO CONTINUE TESTING

6.2.2 SW15=1

IF THE PROGRAM IS RUN WITH SW15=1, TO CONTINUE TESTING
AFTER THE PROGRAM HAS HALTED, PRESS THE PROCESSOR
CONSOLE CONTINUE SWITCH

6.2.3 ILLEGAL INTERRUPTS

IF AN INTERRUPT OCCURS TO A VECTOR ADDRESS NOT
SELECTED DURING PROGRAM INITIALIZATION, THE PROGRAM WILL
HALT IN THE TRAPCATCHER. THE ADDRESS AT WHICH
THE PROGRAM HALTS IS 2 GREATER THAN THE ADDRESS
TO WHICH THE INTERRUPT OCCURED. THE PROGRAM MUST BE
RESTARTED AT 200 TO RECOVER FROM THIS ERROR.

6.3 SCOPE LOOPING

6.3.1 TO SCOPE ON A SPECIFIC TEST, SET SW14=1 AND SW13=1
THIS WILL CAUSE THE PROGRAM TO CONTINUOUSLY LOOP ON THE
SAME TEST, AND WILL CAUSE ALL ERROR TYPEOUTS TO BE INHIBITED

6.3.2 TO SCOPE ON A SPECIFIC VALUE OF A PARAMETER WITHIN
A TEST, SET SW09=1 TO FREEZE THE DATA
(SEE LISTING FOR THOSE TESTS THAT INCORPORATE THIS FEATURE)

6. (CONT'D)

6.3.3 PROGRAM START TO SCOPE LOOP ON SELECTED TEST

PERFORM SECTION 4.3.4 WITH SW14=1

7. RESTRICTIONS

7.1 STARTING

THE DH11 TEST CARD MUST BE INSTALLED

7.2 RUNNING

NONE

8. MISCELLANEOUS

8.1 EXECUTION TIME

THE TIME FOR ONE PASS OF THE PROGRAM (END OF
TYPEOUT OF DZDHI TO END OF TYPEOUT OF DZDHI)
IS GIVEN FOR VARIOUS PROCESSORS IN THE TABLE BELOW

PROCESSOR	TIME
PDP-11/05,10	
PDP-11/20	
PDP-11/40	
PDP-11/45	

406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451

9. PROGRAM DESCRIPTION

THE FIRST GROUP OF TESTS VERIFIES THAT ONLY ONE BREAK CHARACTER IS RECEIVED ON A GIVEN LINE, EVEN THOUGH BREAK IS ASSRETED FOR THAT LINE FOR 400 (OCTAL) CHARACTER TIMES. THERE IS AN INDIVIDUAL TEST LOOP FOR EACH LINE. THE TEST BEGINS BY FLUSING EACH UART BY TRANSMITTING TO NULL (0) CHARACTERS. THE BREAK BIT IS THEN SET FOR THE LINE TO BE TESTED. TRANSMISSION OF THE BINARY COUNT PATTERN IS STARTED. THE SILO IS THEN CHECKED TO VERIFY THAT ONLY ONE CHARACTER WAS RECEIVED AND THAT IT WAS A BREAK CHARACTER.

THE SECOND GROUP OF TESTS VERIFIES THAT NO CHARACTERS ARE RECEIVED ON A SELECTED LINE IF THE HALF DUPLEX BIT IS SET FOR THE LINE TO BE TESTED. THERE IS AN INDIVIDUAL TEST LOOP FOR EACH LINE TO BE TESTED. A BINARY COUNT PATTERN IS THEN TRANSMITTED ON THE LINE TO BE TESTED. WHEN ALL CHARACTERS HAVE BEEN TRANSMITTED, THE CHARACTER AVAILABLE FLAG IS TESTED TO DETERMINE IF ANY CHARACTERS HAVE BEEN RECEIVED.

10. LISTING

! ;DH11 BREAK AND HALF DUPLEX TEST
;COPYRIGHT 1972, 1976, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754

;STARTING PROCEDURE
;LOAD PROGRAM
;LOAD ADDRESS 000200
;PRESS START
;PROGRAM WILL TYPE DH11 BREAK AND HALF DUPLEX TEST
;PROGRAM WILL TYPE "VECTOR ADDRESS-"
;TYPE IN THE ADDRESS OF THE RECEIVER INTERRUPT VECTOR
;FOR THE DH11 TO BE TESTED, FOLLOWED BY (CARRIAGE RETURN)
;PROGRAM WILL TYPE "CONTROL REGISTER ADDRESS-"
;TYPE IN THE ADDRESS OF THE SYSTEM CONTROL REGISTER
;FOR THE DH11 TO BE TESTED, FOLLOWED BY (CARRIAGE RETURN)
;PROGRAM WILL TYPE "R" TO INDICATE THAT TESTING HAS STARTED
;AT THE END OF A PASS, PROGRAM WILL TYPE " DZDHI "
;AND THEN RESUM TESTING

;SWITCH REGISTER OPTIONS

SW15=100000	=1, HALT ON ERROR
SW14=40000	=1, LOOP ON CURRENT TEST
SW13=20000	=1, INHIBIT ERROR TYPEOUT
SW12=10000	
SW11=4000	=1, INHIBIT ITERATIONS
SW10=2000	=1, ESCAPE TO NEXT TEST ON ERROR
SW09=1000	=1, LOOP WITH CURRENT DATA

100000
040000
020000
010000
004000
002000
001000

C02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 13
DZDHI.C.P11 29-SEP-76 14:42

SEQ 0012

508	000400	SW08=400
509	000100	SW06=100
510	000040	SW05=40
511	000020	SW04=20
512	000010	SW03=10
513	000004	SW02=4
514	000002	SW01=2
515	000001	SW00=1

:RESTART PROGRAM AT SELECTED TEST
:RESELECT VECTOR AND CONTROL REGISTER
:ADDRESS AFTER PROGRAM RESTART

;REGISTER DEFINITIONS

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

;LOCATION EQUIVALENCIES

177570	SWR=177570	: CONSOLE SWITCH REGISTER
177570	LIGHTS=177570	: PDP-11/45 DISPLAY REGISTER
177776	PS=177776	: PROCESSOR STATUS WORD
013540	STACK=ENDCOD+200	: START OF PROCESSOR STACK

;INSTRUCTION DEFINITIONS

005746	PUSH1SP=5746	: DECREMENT PROCESSOR STACK 1 WORD
005726	POP1SP=5726	: INCREMENT PROCESSOR STACK 1 WORD
010046	PUSHR0=10046	: SAVE R0 ON STACK
012600	POP R0=12600	: RESTORE R0 FROM STACK
024646	PUSH2SP=24646	: DECREMENT STACK TWICE
022626	POP2SP=22626	: INCREMENT STACK TWICE
	.EQUIV EMT,HLT	: BASIC DEFINITION OF ERROR CALL

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

E02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 15
 DZDHI.C.P11 29-SEP-76 14:42

SEQ 0014

```

564                                     ;TRAPCATCAER FOR ILLEGAL INTERRUPTS
565                                     .+2
566 000000 000000                      :UNEXPECTED TRAP TO THIS LOCATION
567 000002 000000                      :EXAMINE STACK TO FIND CAUSE
568 000004 000006                      :UNEXPECTED TRAP TO THIS LOCATION
569 000006 000000                      :EXAMINE STACK TO FIND CAUSE
570 000010 000012                      :UNEXPECTED TRAP TO THIS LOCATION
571 000012 000000                      :EXAMINE STACK TO FIND CAUSE
572 000014 000016                      :UNEXPECTED TRAP TO THIS LOCATION
573 000016 000000                      :EXAMINE STACK TO FIND CAUSE
574 000020 000022                      :UNEXPECTED TRAP TO THIS LOCATION
575 000022 000000                      :EXAMINE STACK TO FIND CAUSE
576 000024 000026                      :UNEXPECTED TRAP TO THIS LOCATION
577 000026 000000                      :EXAMINE STACK TO FIND CAUSE
578 000030 000032                      :UNEXPECTED TRAP TO THIS LOCATION
579 000032 000000                      :EXAMINE STACK TO FIND CAUSE
580 000034 000036                      :UNEXPECTED TRAP TO THIS LOCATION
581 000036 000000                      :EXAMINE STACK TO FIND CAUSE
582 000040 000042                      :UNEXPECTED TRAP TO THIS LOCATION
583 000042 000000                      :EXAMINE STACK TO FIND CAUSE
584 000044 000046                      :UNEXPECTED TRAP TO THIS LOCATION
585 000046 000000                      :EXAMINE STACK TO FIND CAUSE
586 000050 000052                      :UNEXPECTED TRAP TO THIS LOCATION
587 000052 000000                      :EXAMINE STACK TO FIND CAUSE
588 000054 000056                      :UNEXPECTED TRAP TO THIS LOCATION
589 000056 000000                      :EXAMINE STACK TO FIND CAUSE
590 000060 000062                      :UNEXPECTED TRAP TO THIS LOCATION
591 000062 000000                      :EXAMINE STACK TO FIND CAUSE
592 000064 000066                      :UNEXPECTED TRAP TO THIS LOCATION
593 000066 000000                      :EXAMINE STACK TO FIND CAUSE
594 000070 000072                      :UNEXPECTED TRAP TO THIS LOCATION
595 000072 000000                      :EXAMINE STACK TO FIND CAUSE
596 000074 000076                      :UNEXPECTED TRAP TO THIS LOCATION
597 000076 000000                      :EXAMINE STACK TO FIND CAUSE
598 000100 000102                      :UNEXPECTED TRAP TO THIS LOCATION
599 000102 000000                      :EXAMINE STACK TO FIND CAUSE
600 000104 000106                      :UNEXPECTED TRAP TO THIS LOCATION
601 000106 000000                      :EXAMINE STACK TO FIND CAUSE
602 000110 000112                      :UNEXPECTED TRAP TO THIS LOCATION
603 000112 000000                      :EXAMINE STACK TO FIND CAUSE
604 000114 000116                      :UNEXPECTED TRAP TO THIS LOCATION
605 000116 000000                      :EXAMINE STACK TO FIND CAUSE
606 000120 000122                      :UNEXPECTED TRAP TO THIS LOCATION
607 000122 000000                      :EXAMINE STACK TO FIND CAUSE
608 000124 000126                      :UNEXPECTED TRAP TO THIS LOCATION
609 000126 000000                      :EXAMINE STACK TO FIND CAUSE
610 000130 000132                      :UNEXPECTED TRAP TO THIS LOCATION
611 000132 000000                      :EXAMINE STACK TO FIND CAUSE
612 000134 000136                      :UNEXPECTED TRAP TO THIS LOCATION
613 000136 000000                      :EXAMINE STACK TO FIND CAUSE
614 000140 000142                      :UNEXPECTED TRAP TO THIS LOCATION
615 000142 000000                      :EXAMINE STACK TO FIND CAUSE
616 000144 000146                      :UNEXPECTED TRAP TO THIS LOCATION
617 000146 000000                      :EXAMINE STACK TO FIND CAUSE
618 000150 000152                      :UNEXPECTED TRAP TO THIS LOCATION
619 000152 000000                      :EXAMINE STACK TO FIND CAUSE

```


F02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 16
 DZDHI.C.P11 29-SEP-76 14:42

SEQ 0015

620	000154	000156	.+2	:UNEXPECTED TRAP TO THIS LOCATION
621	000156	000000	HALT	:EXAMINE STACK TO FIND CAUSE
622	000160	000162	.+2	:UNEXPECTED TRAP TO THIS LOCATION
623	000162	000000	HALT	:EXAMINE STACK TO FIND CAUSE
624	000164	000166	.+2	:UNEXPECTED TRAP TO THIS LOCATION
625	000166	000000	HALT	:EXAMINE STACK TO FIND CAUSE
626	000170	000172	.+2	:UNEXPECTED TRAP TO THIS LOCATION
627	000172	000000	HALT	:EXAMINE STACK TO FIND CAUSE
628	000174	000176	.+2	:UNEXPECTED TRAP TO THIS LOCATION
629	000176	000000	HALT	:EXAMINE STACK TO FIND CAUSE
630	000200	000202	.+2	:UNEXPECTED TRAP TO THIS LOCATION
631	000202	000000	HALT	:EXAMINE STACK TO FIND CAUSE
632	000204	000206	.+2	:UNEXPECTED TRAP TO THIS LOCATION
633	000206	000000	HALT	:EXAMINE STACK TO FIND CAUSE
634	000210	000212	.+2	:UNEXPECTED TRAP TO THIS LOCATION
635	000212	000000	HALT	:EXAMINE STACK TO FIND CAUSE
636	000214	000216	.+2	:UNEXPECTED TRAP TO THIS LOCATION
637	000216	000000	HALT	:EXAMINE STACK TO FIND CAUSE
638	000220	000222	.+2	:UNEXPECTED TRAP TO THIS LOCATION
639	000222	000000	HALT	:EXAMINE STACK TO FIND CAUSE
640	000224	000226	.+2	:UNEXPECTED TRAP TO THIS LOCATION
641	000226	000000	HALT	:EXAMINE STACK TO FIND CAUSE
642	000230	000232	.+2	:UNEXPECTED TRAP TO THIS LOCATION
643	000232	000000	HALT	:EXAMINE STACK TO FIND CAUSE
644	000234	000236	.+2	:UNEXPECTED TRAP TO THIS LOCATION
645	000236	000000	HALT	:EXAMINE STACK TO FIND CAUSE
646	000240	000242	.+2	:UNEXPECTED TRAP TO THIS LOCATION
647	000242	000000	HALT	:EXAMINE STACK TO FIND CAUSE
648	000244	000246	.+2	:UNEXPECTED TRAP TO THIS LOCATION
649	000246	000000	HALT	:EXAMINE STACK TO FIND CAUSE
650	000250	000252	.+2	:UNEXPECTED TRAP TO THIS LOCATION
651	000252	000000	HALT	:EXAMINE STACK TO FIND CAUSE
652	000254	000256	.+2	:UNEXPECTED TRAP TO THIS LOCATION
653	000256	000000	HALT	:EXAMINE STACK TO FIND CAUSE
654	000260	000262	.+2	:UNEXPECTED TRAP TO THIS LOCATION
655	000262	000000	HALT	:EXAMINE STACK TO FIND CAUSE
656	000264	000266	.+2	:UNEXPECTED TRAP TO THIS LOCATION
657	000266	000000	HALT	:EXAMINE STACK TO FIND CAUSE
658	000270	000272	.+2	:UNEXPECTED TRAP TO THIS LOCATION
659	000272	000000	HALT	:EXAMINE STACK TO FIND CAUSE
660	000274	000276	.+2	:UNEXPECTED TRAP TO THIS LOCATION
661	000276	000000	HALT	:EXAMINE STACK TO FIND CAUSE
662	000300	000302	.+2	:UNEXPECTED TRAP TO THIS LOCATION
663	000302	000000	HALT	:EXAMINE STACK TO FIND CAUSE
664	000304	000306	.+2	:UNEXPECTED TRAP TO THIS LOCATION
665	000306	000000	HALT	:EXAMINE STACK TO FIND CAUSE
666	000310	000312	.+2	:UNEXPECTED TRAP TO THIS LOCATION
667	000312	000000	HALT	:EXAMINE STACK TO FIND CAUSE
668	000314	000316	.+2	:UNEXPECTED TRAP TO THIS LOCATION
669	000316	000000	HALT	:EXAMINE STACK TO FIND CAUSE
670	000320	000322	.+2	:UNEXPECTED TRAP TO THIS LOCATION
671	000322	000000	HALT	:EXAMINE STACK TO FIND CAUSE
672	000324	000326	.+2	:UNEXPECTED TRAP TO THIS LOCATION
673	000326	000000	HALT	:EXAMINE STACK TO FIND CAUSE
674	000330	000332	.+2	:UNEXPECTED TRAP TO THIS LOCATION
675	000332	000000	HALT	:EXAMINE STACK TO FIND CAUSE

G02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 17
 DZDHI.C.P11 29-SEP-76 14:42

SEQ 0016

676	000334	000336	.+2	:UNEXPECTED TRAP TO THIS LOCATION
677	000336	000000	HALT	:EXAMINE STACK TO FIND CAUSE
678	000340	000342	.+2	:UNEXPECTED TRAP TO THIS LOCATION
679	000342	000000	HALT	:EXAMINE STACK TO FIND CAUSE
680	000344	000346	.+2	:UNEXPECTED TRAP TO THIS LOCATION
681	000346	000000	HALT	:EXAMINE STACK TO FIND CAUSE
682	000350	000352	.+2	:UNEXPECTED TRAP TO THIS LOCATION
683	000352	000000	HALT	:EXAMINE STACK TO FIND CAUSE
684	000354	000356	.+2	:UNEXPECTED TRAP TO THIS LOCATION
685	000356	000000	HALT	:EXAMINE STACK TO FIND CAUSE
686	000360	000362	.+2	:UNEXPECTED TRAP TO THIS LOCATION
687	000362	000000	HALT	:EXAMINE STACK TO FIND CAUSE
688	000364	000366	.+2	:UNEXPECTED TRAP TO THIS LOCATION
689	000366	000000	HALT	:EXAMINE STACK TO FIND CAUSE
690	000370	000372	.+2	:UNEXPECTED TRAP TO THIS LOCATION
691	000372	000000	HALT	:EXAMINE STACK TO FIND CAUSE
692	000374	000376	.+2	:UNEXPECTED TRAP TO THIS LOCATION
693	000376	000000	HALT	:EXAMINE STACK TO FIND CAUSE
694	000400	000402	.+2	:UNEXPECTED TRAP TO THIS LOCATION
695	000402	000000	HALT	:EXAMINE STACK TO FIND CAUSE
696	000404	000406	.+2	:UNEXPECTED TRAP TO THIS LOCATION
697	000406	000000	HALT	:EXAMINE STACK TO FIND CAUSE
698	000410	000412	.+2	:UNEXPECTED TRAP TO THIS LOCATION
699	000412	000000	HALT	:EXAMINE STACK TO FIND CAUSE
700	000414	000416	.+2	:UNEXPECTED TRAP TO THIS LOCATION
701	000416	000000	HALT	:EXAMINE STACK TO FIND CAUSE
702	000420	000422	.+2	:UNEXPECTED TRAP TO THIS LOCATION
703	000422	000000	HALT	:EXAMINE STACK TO FIND CAUSE
704	000424	000426	.+2	:UNEXPECTED TRAP TO THIS LOCATION
705	000426	000000	HALT	:EXAMINE STACK TO FIND CAUSE
706	000430	000432	.+2	:UNEXPECTED TRAP TO THIS LOCATION
707	000432	000000	HALT	:EXAMINE STACK TO FIND CAUSE
708	000434	000436	.+2	:UNEXPECTED TRAP TO THIS LOCATION
709	000436	000000	HALT	:EXAMINE STACK TO FIND CAUSE
710	000440	000442	.+2	:UNEXPECTED TRAP TO THIS LOCATION
711	000442	000000	HALT	:EXAMINE STACK TO FIND CAUSE
712	000444	000446	.+2	:UNEXPECTED TRAP TO THIS LOCATION
713	000446	000000	HALT	:EXAMINE STACK TO FIND CAUSE
714	000450	000452	.+2	:UNEXPECTED TRAP TO THIS LOCATION
715	000452	000000	HALT	:EXAMINE STACK TO FIND CAUSE
716	000454	000456	.+2	:UNEXPECTED TRAP TO THIS LOCATION
717	000456	000000	HALT	:EXAMINE STACK TO FIND CAUSE
718	000460	000462	.+2	:UNEXPECTED TRAP TO THIS LOCATION
719	000462	000000	HALT	:EXAMINE STACK TO FIND CAUSE
720	000464	000466	.+2	:UNEXPECTED TRAP TO THIS LOCATION
721	000466	000000	HALT	:EXAMINE STACK TO FIND CAUSE
722	000470	000472	.+2	:UNEXPECTED TRAP TO THIS LOCATION
723	000472	000000	HALT	:EXAMINE STACK TO FIND CAUSE
724	000474	000476	.+2	:UNEXPECTED TRAP TO THIS LOCATION
725	000476	000000	HALT	:EXAMINE STACK TO FIND CAUSE
726	000500	000502	.+2	:UNEXPECTED TRAP TO THIS LOCATION
727	000502	000000	HALT	:EXAMINE STACK TO FIND CAUSE
728	000504	000506	.+2	:UNEXPECTED TRAP TO THIS LOCATION
729	000506	000000	HALT	:EXAMINE STACK TO FIND CAUSE
730	000510	000512	.+2	:UNEXPECTED TRAP TO THIS LOCATION
731	000512	000000	HALT	:EXAMINE STACK TO FIND CAUSE

H02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 18
DZDHIC.P11 29-SEP-76 14:42

SEQ 0017

732	000514	000516	.+2	:UNEXPECTED TRAP TO THIS LOCATION
733	000516	000000	HALT	:EXAMINE STACK TO FIND CAUSE
734	000520	000522	.+2	:UNEXPECTED TRAP TO THIS LOCATION
735	000522	000000	HALT	:EXAMINE STACK TO FIND CAUSE
736	000524	000526	.+2	:UNEXPECTED TRAP TO THIS LOCATION
737	000526	000000	HALT	:EXAMINE STACK TO FIND CAUSE
738	000530	000532	.+2	:UNEXPECTED TRAP TO THIS LOCATION
739	000532	000000	HALT	:EXAMINE STACK TO FIND CAUSE
740	000534	000536	.+2	:UNEXPECTED TRAP TO THIS LOCATION
741	000536	000000	HALT	:EXAMINE STACK TO FIND CAUSE
742	000540	000542	.+2	:UNEXPECTED TRAP TO THIS LOCATION
743	000542	000000	HALT	:EXAMINE STACK TO FIND CAUSE
744	000544	000546	.+2	:UNEXPECTED TRAP TO THIS LOCATION
745	000546	000000	HALT	:EXAMINE STACK TO FIND CAUSE
746	000550	000552	.+2	:UNEXPECTED TRAP TO THIS LOCATION
747	000552	000000	HALT	:EXAMINE STACK TO FIND CAUSE
748	000554	000556	.+2	:UNEXPECTED TRAP TO THIS LOCATION
749	000556	000000	HALT	:EXAMINE STACK TO FIND CAUSE
750	000560	000562	.+2	:UNEXPECTED TRAP TO THIS LOCATION
751	000562	000000	HALT	:EXAMINE STACK TO FIND CAUSE
752	000564	000566	.+2	:UNEXPECTED TRAP TO THIS LOCATION
753	000566	000000	HALT	:EXAMINE STACK TO FIND CAUSE
754	000570	000572	.+2	:UNEXPECTED TRAP TO THIS LOCATION
755	000572	000000	HALT	:EXAMINE STACK TO FIND CAUSE
756	000574	000576	.+2	:UNEXPECTED TRAP TO THIS LOCATION
757	000576	000000	HALT	:EXAMINE STACK TO FIND CAUSE
758	000600	000602	.+2	:UNEXPECTED TRAP TO THIS LOCATION
759	000602	000000	HALT	:EXAMINE STACK TO FIND CAUSE
760	000604	000606	.+2	:UNEXPECTED TRAP TO THIS LOCATION
761	000606	000000	HALT	:EXAMINE STACK TO FIND CAUSE
762	000610	000612	.+2	:UNEXPECTED TRAP TO THIS LOCATION
763	000612	000000	HALT	:EXAMINE STACK TO FIND CAUSE
764	000614	000616	.+2	:UNEXPECTED TRAP TO THIS LOCATION
765	000616	000000	HALT	:EXAMINE STACK TO FIND CAUSE
766	000620	000622	.+2	:UNEXPECTED TRAP TO THIS LOCATION
767	000622	000000	HALT	:EXAMINE STACK TO FIND CAUSE
768	000624	000626	.+2	:UNEXPECTED TRAP TO THIS LOCATION
769	000626	000000	HALT	:EXAMINE STACK TO FIND CAUSE
770	000630	000632	.+2	:UNEXPECTED TRAP TO THIS LOCATION
771	000632	000000	HALT	:EXAMINE STACK TO FIND CAUSE
772	000634	000636	.+2	:UNEXPECTED TRAP TO THIS LOCATION
773	000636	000000	HALT	:EXAMINE STACK TO FIND CAUSE
774	000640	000642	.+2	:UNEXPECTED TRAP TO THIS LOCATION
775	000642	000000	HALT	:EXAMINE STACK TO FIND CAUSE
776	000644	000646	.+2	:UNEXPECTED TRAP TO THIS LOCATION
777	000646	000000	HALT	:EXAMINE STACK TO FIND CAUSE
778	000650	000652	.+2	:UNEXPECTED TRAP TO THIS LOCATION
779	000652	000000	HALT	:EXAMINE STACK TO FIND CAUSE
780	000654	000656	.+2	:UNEXPECTED TRAP TO THIS LOCATION
781	000656	000000	HALT	:EXAMINE STACK TO FIND CAUSE
782	000660	000662	.+2	:UNEXPECTED TRAP TO THIS LOCATION
783	000662	000000	HALT	:EXAMINE STACK TO FIND CAUSE
784	000664	000666	.+2	:UNEXPECTED TRAP TO THIS LOCATION
785	000666	000000	HALT	:EXAMINE STACK TO FIND CAUSE
786	000670	000672	.+2	:UNEXPECTED TRAP TO THIS LOCATION
787	000672	000000	HALT	:EXAMINE STACK TO FIND CAUSE

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 19
 DZDHIC.P11 29-SEP-76 14:42

SEQ 0018

788	000674	000676	.+2	; UNEXPECTED TRAP TO THIS LOCATION
789	000676	000000	HALT	; EXAMINE STACK TO FIND CAUSE
790	000700	000702	.+2	; UNEXPECTED TRAP TO THIS LOCATION
791	000702	000000	HALT	; EXAMINE STACK TO FIND CAUSE
792	000704	000706	.+2	; UNEXPECTED TRAP TO THIS LOCATION
793	000706	000000	HALT	; EXAMINE STACK TO FIND CAUSE
794	000710	000712	.+2	; UNEXPECTED TRAP TO THIS LOCATION
795	000712	000000	HALT	; EXAMINE STACK TO FIND CAUSE
796	000714	000716	.+2	; UNEXPECTED TRAP TO THIS LOCATION
797	000716	000000	HALT	; EXAMINE STACK TO FIND CAUSE
798	000720	000722	.+2	; UNEXPECTED TRAP TO THIS LOCATION
799	000722	000000	HALT	; EXAMINE STACK TO FIND CAUSE
800	000724	000726	.+2	; UNEXPECTED TRAP TO THIS LOCATION
801	000726	000000	HALT	; EXAMINE STACK TO FIND CAUSE
802	000730	000732	.+2	; UNEXPECTED TRAP TO THIS LOCATION
803	000732	000000	HALT	; EXAMINE STACK TO FIND CAUSE
804	000734	000736	.+2	; UNEXPECTED TRAP TO THIS LOCATION
805	000736	000000	HALT	; EXAMINE STACK TO FIND CAUSE
806	000740	000742	.+2	; UNEXPECTED TRAP TO THIS LOCATION
807	000742	000000	HALT	; EXAMINE STACK TO FIND CAUSE
808	000744	000746	.+2	; UNEXPECTED TRAP TO THIS LOCATION
809	000746	000000	HALT	; EXAMINE STACK TO FIND CAUSE
810	000750	000752	.+2	; UNEXPECTED TRAP TO THIS LOCATION
811	000752	000000	HALT	; EXAMINE STACK TO FIND CAUSE
812	000754	000756	.+2	; UNEXPECTED TRAP TO THIS LOCATION
813	000756	000000	HALT	; EXAMINE STACK TO FIND CAUSE
814	000760	000762	.+2	; UNEXPECTED TRAP TO THIS LOCATION
815	000762	000000	HALT	; EXAMINE STACK TO FIND CAUSE
816	000764	000766	.+2	; UNEXPECTED TRAP TO THIS LOCATION
817	000766	000000	HALT	; EXAMINE STACK TO FIND CAUSE
818	000770	000772	.+2	; UNEXPECTED TRAP TO THIS LOCATION
819	000772	000000	HALT	; EXAMINE STACK TO FIND CAUSE
820	000774	000776	.+2	; UNEXPECTED TRAP TO THIS LOCATION
821	000776	000000	HALT	; EXAMINE STACK TO FIND CAUSE

J02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 20
 DZDHIC.P11 29-SEP-76 14:42

SEQ 0019

```

822                                     ;STANDARD INTERRUPT VECTORS
823
824
825                                     . =24
826 000024 000024 PFAIL ;POWER FAIL HANDLER
827 000026 000340 340 ;SERVICE AT LEVEL 7
828 000030 010564 ERRORS ;ERROR HANDLER
829 000032 000340 340 ;SERVICE AT LEVEL 7
830 000034 010766 TRPSRV ;GENERAL HANDLER DISPATCH SERVICE
831 000036 000340 340 ;SERVICE AT LEVEL 7
832                                     . =200
833 000200 000167 000574 JMP START ;GO TO START OF PROGRAM
834
835
836
837                                     ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
838                                     ;POINTERS TO SUBROUTINES CAN BE FOUND STARTING
839                                     ;AT LOCATION "TRPTAB"
840
841 104400 SCOPE=TRAP+Y ;SCOPE LOOP AND ITERATION HANDLER
842 104401 TYPE=TRAP+Y ;TELETYPE OUTPUT ROUTINE
843 104402 OCTASC=TRAP+Y ;OCTAL TO ASCII CONVERSION
844 104403 INSTR=TRAP+Y ;INPUT ASCII STRING
845 104404 INSTER=TRAP+Y ;STRING INPUT ERROR
846 104405 PARAM=TRAP+Y ;CONVERT STRING TO OCTAL, CHECK LIMITS
847 104406 SAVOSP=TRAP+Y ;SAVE R0-R5, PC
848 104407 RESO5=TRAP+Y ;RESTORE R0-R5
849 104410 SCOPE1=TRAP+Y ;CHECK FOR FREEZE ON CURRENT DATA
850
851 000046 010432 . =46 LOGICAL
852 000052 000052 . =52
853 000052 040000 40000

```


K02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 21
DZDHIC.P11 29-SEP-76 14:42

SEQ 0020

```

854          001000          . =1000
855
856          ;PROGRAM INITIALIZATION
857          ;LOCK OUT INTERRUPTS
858          ;SET UP PROCESSOR STACK
859          ;SET UP POWER FAIL VECTOR
860          ;CLEAR PROGRAM FLAGS AND COUNTS
861          ;TYPE TITLE MESSAGE
862
863 001000 012767 000340 176770 START: MOV #340,PS          ;LOCK OUT INTERRUPTS
864 001006 012706 013540          MOV #STACK,SP          ;SET UP PROCESSOR STACK
865 001012 012737 012456 000024 MOV #PFAIL,2#24          ;SET UP POWER FAIL TRAP
866 001020 005067 010670          CLR STFLG              ;CLEAR TEST START FLAG
867 001024 005067 010624          CLR PASCNT              ;CLEAR PASS COUNT
868 001030 005067 010622          CLR ERRCNT              ;CLEAR ERROR COUNT
869 001034 005067 010612          CLR ERRFLG              ;CLEAR ERROR FLAG
870 001040 005067 010606          CLR ERRFLG              ;CLEAR LAST ERROR PC
871 001044 104401 012622          TYPE ,MTITLE            ;TYPE TITLE MESSAGE
872 001050 005767 010636          TST INIFLG              ;CHECK INITIALIZATION FLAG
873 001054 001001          BNE VEC1                        ;IF NOT 0, CHECK SWITCHES
874                                     ;FOR REINITIALIZATION
875 001056 000404          BR VEC2
876 001060 032767 000001 176502 VEC1: BIT #SW00,SWR          ;IF SW00=1, GET NEW VECTOR
877 001066 001445          BEQ BEGIN                        ;AND CSR
878 001070 012701 000300          VEC2: MOV #300,R1
879 001074 012702 000302          MOV #302,R2
880 001100 012703 000004          MOV #4,R3
881 001104 010211          1$: MOV R2,(R1)
882 001106 005012          CLR (R2)
883 001110 060301          ADD R3,R1
884 001112 060302          ADD R3,R2
885 001114 020127 001000          CMP R1,#1000
886 001120 001371          BNE 1$
887 001122 104403          INSTR
888 001124 012670          MVECTOR
889 001126 104405          PARAM
890 001130 000300          300
891 001132 000770          770
892 001134 011642          DHRVEC
893 001136 003          .BYTE 3
894 001137 004          .BYTE 4
895 001140 104403          INSTR
896 001142 012712          MREGAD
897 001144 104405          PARAM
898 001146 000000          0
899 001150 177776          177776
900 001152 011620          DHSCR
901 001154 007          .BYTE 7
902 001155 010          .BYTE 10
903 001156 016767 010454 010454 MOV DHSSR,DHSLR
904 001164 005267 010450          INC DHSLR
905 001170 005767 010516          TST INIFLG
906 001174 001002          BNE BEGIN
907 001176 005167 010510          COM INIFLG
908
909          ;PROGRAM START

```

```

;INPUT ADDRESS OF DEVICE VECTOR
;MESSAGE "VECTOR ADDRESS-"
;CONVERT STRING TO OCTAL
;LOW LIMIT
;HIGH LIMIT
;LOCATIONS TO BE FILLED
;NUMBER OF LOCATIONS
;LSB MASK
;INPUT ADDRESS OF DEVICE CSR
;MESSAGE "CONTROL REGISTER ADDRESS-"
;CONVERT STRING TO OCTAL
;LOW LIMIT
;HIGH LIMIT
;LOCATIONS TO BE FILLED
;NUMBER OF LOCATIONS
;LSB MASK
;SET UP ADDRESS OF SILO
;STATUS REGISTER HIGH BYTE
;IF INITIALIZATION FLAG
;IS CLEARED
;SET IT

```

L02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 22
DZDHIC.P11 29-SEP-76 14:42

SEQ 0021

```

910                                     ;CHECK FOR PROGRAM START AT SELECTED ADDRESS
911
912 001202 012767 000340 176566 BEGIN: MOV #340,PS ;LOCK OUT INTERRUPTS
913 001210 012706 013540 ;SET UP PROCESSOR STACK
914 001214 032767 000002 176346 BIT #SW01,SWR ;IF SW01=1
915 001222 001410 BEQ 1$ ;GET PC FOR PROGRAM START
916 001224 104403 INSTR ;GET PC
917 001226 013056 MTSTPC ;MESSAGE "TEST PC"
918 001230 104405 PARAM ;CONVERT STRING TO OCTAL
919 001232 000000 0
920 001234 017500 17500
921 001236 000207 RETURN
922 001240 001 .BYTE 1
923 001241 001 .BYTE 1
924 001242 000410 BR 2$
925 001244 012767 001274 010406 1$: MOV #T1,RETURN ;NORMAL START, TEST 1
926 001252 005767 010436 TST STFLG ;IF LOOPING, BYPASS TIMEOUT
927 001256 001004 BNE 3$
928 001260 005167 010430 COM STFLG
929 001264 104401 013052 2$: TYPE MR ;TYPE "R" TO INDICATE START
930 001270 000177 010364 3$: JMP @RETURN ;START TESTING

```


M02

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 23
DZDHIC.P11 29-SEP-76 14:42

SEQ 0022

931

N02

DZDHI MACY:11 27(1006) 29-SEP-76 14:44 PAGE 24
 DZDHIC.P11 29-SEP-76 14:42

SEQ 0023

```

932
933
934
935
936
937
938
939
940 001274 012767 000340 176474 T1: MOV #340,PS ;DISABLE ALL INTERRUPTS
941 001302 012767 000020 010356 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
942 001310 012767 001524 010344 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
943 001316 012777 004000 010274 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
944 001324 004767 010376 JSR PC,CLRALL ;CLEAR ALL BUS ADDRESS AND
945 ;BUS ADDRESS MEMORY LOCATIONS
946 001330 012777 000000 010262 MOV #0,ADHSCR ;SELECT LINE 0
947 001336 012777 011722 010262 MOV #NULL,ADHBA ;SET UP TO TRANSMIT 0 CHARACTER
948 001344 012777 177776 010256 MOV #-2,ADHBC ;TWO 0S WILL BE TRANSMITTED
949 001352 012777 033503 010244 MOV #33503,ADHLPR ;SET LINE SPEED=9600 BAUD
950 ;CHARACTER LENGTH =8 BITS
951 001360 012777 000001 010244 MOV #1,ADHBA ;SET BAR BIT FOR LINE 0
952 001366 122777 000002 010244 1$: CMPB #2,ADHSLR ;WAIT FOR 2 CHARACTERS TO BE RECEIVED
953 001374 001374 BNE 1$
954 001376 012777 004000 010214 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
955 001404 012777 000000 010206 MOV #0,ADHSCR ;SELECT LINE 0
956 001412 012777 011754 010206 MOV #TBUF,ADHBA ;SET UP TO TRANSMIT 400
957 001420 012777 177400 010202 MOV #-400,ADHBC ;(OCTAL) CHARACTERS
958 001426 012777 033503 010170 MOV #33503,ADHLPR ;LINE SPEED = 9600 BAUD
959 001434 012777 000001 010172 MOV #1,ADHBCR ;SET BREAK BIT FOR LINE 0
960 001442 012777 000001 010162 MOV #1,ADHBA ;SET BAR BIT FOR LINE 0
961 001450 005777 010156 2$: TST ADHBA ;WAIT FOR ALL CHARACTERS
962 001454 001375 BNE 2$ ;TO BE TRANSMITTED
963 001456 122777 000001 010154 CMPB #1,ADHSLR ;CHECK TO SEE THAT ONLY
964 001464 001407 BEQ 3$ ;1 CHARACTER WAS RECEIVED
965 001466 017704 010144 MOV ADHSSR,R4 ;(R4)=ACTUAL RECEIVED DATA
966 001472 042704 000300 BIC #300,R4 ;CLEAR UNWANTED BITS
967 001476 012705 000400 MOV #400,R5 ;(R5)=EXPECTED SILO FILL LEVEL, 1
968 001502 104000 HLT 0 ;MORE THAN ONE CHARACTER RECEIVED, ERROR
969 001504 017704 010112 3$: MOV ADHNRC,R4 ;READ NEXT RECEIVED CHARACTER REGISTER
970 001510 026704 010702 CMP RWRDO,R4 ;IS RECEIVED CHARACTER A BREAK
971 001514 001403 BEQ 4$
972 001516 016705 010674 MOV RWRDO,R5 ;(R5)=EXPECTED RECEIVED CHARACTER
973 001522 104001 HLT 1 ;RECEIVED DATA ERROR
974 001524 104400 4$: SCOPE ;CHECK FOR ITERATIONS, LOOP
975
976 ;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
977 ;ON LINE 1
978 ;SET BREAK BIT FOR LINE 1
979 ;TRANSMIT BINARY COUNT PATTERN ON LINE 1
980 ;VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
981 ;AND THAT IT IS A BREAK
982
983 001526 012767 000340 176242 T2: MOV #340,PS ;DISABLE ALL INTERRUPTS
984 001534 012767 000020 010124 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
985 001542 012767 001756 010112 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
986 001550 012777 004000 010042 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
987 001556 004767 010144 JSR PC,CLRALL ;CLEAR ALL BUS ADDRESS AND

```


1044	002112	012777	033503	007504	MOV	#33503, @DHLPR	: LINE SPEED = 9600 BAUD
1045	002120	012777	000004	007506	MOV	#4, @DHBCR	: SET BREAK BIT FOR LINE 2
1046	002126	012777	000004	007476	MOV	#4, @DHBAR	: SET BAR BIT FOR LINE 2
1047	002134	005777	007472	2\$:	TST	@DHBAR	: WAIT FOR ALL CHARACTERS
1048	002140	001375			BNE	2\$	: TO BE TRANSMITTED
1049	002142	122777	000001	007470	CMPB	#1, @DHSLR	: CHECK TO SEE THAT ONLY
1050	002150	001407			BEQ	3\$	: 1 CHARACTER WAS RECEIVED
1051	002152	017704	007460		MOV	@DHSSR, R4	: (R4)=ACTUAL RECEIVED DATA
1052	002156	042704	000300		BIC	#300, R4	: CLEAR UNWANTED BITS
1053	002162	012705	000400		MOV	#400, R5	: (R5)=EXPECTED SILO FILL LEVEL, 1
1054	002166	104000			HLT	0	: MORE THAN ONE CHARACTER RECEIVED, ERROR
1055	002170	017704	007426	3\$:	MOV	@DHNR, R4	: READ NEXT RECEIVED CHARACTER REGISTER
1056	002174	026704	010222		CMP	RWRD2, R4	: IS RECEIVED CHARACTER A BREAK
1057	002200	001403			BEQ	4\$	
1058	002202	016705	010214		MOV	RWRD2, R5	: (R5)=EXPECTED RECEIVED CHARACTER
1059	002206	104001			HLT	1	: RECEIVED DATA ERROR
1060	002210	104400		4\$:	SCOPE		: CHECK FOR ITERATIONS, LOOP
1061							
1062							
1063							
1064							
1065							
1066							
1067							
1068							
1069	002212	012767	000340	175556	T4:	MOV	#340, PS
1070	002220	012767	000020	007440	MOV	#20, ICOUNT	: DISABLE ALL INTERRUPTS
1071	002226	012767	002442	007426	MOV	#45, ESCAPE	: SET UP FOR 20 ITERATIONS
1072	002234	012777	004000	007356	MOV	#BIT11, @DHSCR	: SET UP TO ESCAPE TO NEXT TEST
1073	002242	004767	007460		JSR	PC, CLALL	: MASTER CLEAR INTERFACE
1074							: CLEAR ALL BUS ADDRESS AND
1075	002246	012777	000003	007344	MOV	#3, @DHSCR	: BUS ADDRESS MEMORY LOCATIONS
1076	002254	012777	011722	007344	MOV	#NULL, @DHBA	: SELECT LINE 3
1077	002262	012777	177776	007340	MOV	#-2, @DHBC	: SET UP TO TRANSMIT 0 CHARACTER
1078	002270	012777	033503	007326	MOV	#33503, @DHLPR	: TWO 0S WILL BE TRANSMITTED
1079							: SET LINE SPEED=9600 BAUD
1080	002276	012777	000010	007326	MOV	#10, @DHBAR	: CHARACTER LENGTH =8 BITS
1081	002304	122777	000002	007326	1\$:	CMPB	#2, @DHSLR
1082	002312	001374			BNE	1\$	: SET BAR BIT FOR LINE 3
1083	002314	012777	004000	007276	MOV	#BIT11, @DHSCR	: WAIT FOR 2 CHARACTERS TO BE RECEIVED
1084	002322	012777	000003	007270	MOV	#3, @DHSCR	: MASTER CLEAR INTERFACE
1085	002330	012777	011754	007270	MOV	#TBUF, @DHBA	: SELECT LINE 3
1086	002336	012777	177400	007264	MOV	#-400, @DHBC	: SET UP TO TRANSMIT 400
1087	002344	012777	033503	007252	MOV	#33503, @DHLPR	: (OCTAL) CHARACTERS
1088	002352	012777	000010	007254	MOV	#10, @DHBCR	: LINE SPEED = 9600 BAUD
1089	002360	012777	000010	007244	MOV	#10, @DHBAR	: SET BREAK BIT FOR LINE 3
1090	002366	005777	007240	2\$:	TST	@DHBAR	: SET BAR BIT FOR LINE 3
1091	002372	001375			BNE	2\$	: WAIT FOR ALL CHARACTERS
1092	002374	122777	000001	007236	CMPB	#1, @DHSLR	: TO BE TRANSMITTED
1093	002402	001407			BEQ	3\$	: CHECK TO SEE THAT ONLY
1094	002404	017704	007226		MOV	@DHSSR, R4	: 1 CHARACTER WAS RECEIVED
1095	002410	042704	000300		BIC	#300, R4	: (R4)=ACTUAL RECEIVED DATA
1096	002414	012705	000400		MOV	#400, R5	: CLEAR UNWANTED BITS
1097	002420	104000			HLT	0	: (R5)=EXPECTED SILO FILL LEVEL, 1
1098	002422	017704	007174	3\$:	MOV	@DHNR, R4	: MORE THAN ONE CHARACTER RECEIVED, ERROR
1099	002426	026704	007772		CMP	RWRD3, R4	: READ NEXT RECEIVED CHARACTER REGISTER
							: IS RECEIVED CHARACTER A BREAK


```

1100 002432 001403 BEQ 4$
1101 002434 016705 007764 MOV RWRD3,R5 ;(R5)=EXPECTED RECEIVED CHARACTER
1102 002440 104001 HLT 1 ;RECEIVED DATA ERROR
1103 002442 104400 4$: SCOPE ;CHECK FOR ITERATIONS, LOOP
1104
1105 ;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
1106 ;ON LINE 4
1107 ;SET BREAK BIT FOR LINE 4
1108 ;TRANSMIT BINARY COUNT PATTERN ON LINE 4
1109 ;VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
1110 ;AND THAT IT IS A BREAK
1111
1112 002444 012767 000340 175324 T5: MOV #340,PS ;DISABLE ALL INTERRUPTS
1113 002452 012767 000020 007206 MOV #20,COUNT ;SET UP FOR 20 ITERATIONS
1114 002460 012767 002674 007174 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1115 002466 012777 004000 007124 MOV #BIT11,JDHSCR ;MASTER CLEAR INTERFACE
1116 002474 004767 007226 JSR PC,CLRALL ;CLEAR ALL BUS ADDRESS AND
1117 ;BUS ADDRESS MEMORY LOCATIONS
1118 002500 012777 000004 007112 MOV #4,JDHSCR ;SELECT LINE 4
1119 002506 012777 011722 007112 MOV #NULL,JDHBA ;SET UP TO TRANSMIT 0 CHARACTER
1120 002514 012777 177776 007106 MOV #-2,JDHBC ;TWO 0S WILL BE TRANSMITTED
1121 002522 012777 033503 007074 MOV #33503,JDHLPR ;SET LINE SPEED=9600 BAUD
1122 ;CHARACTER LENGTH =8 BITS
1123 002530 012777 000020 007074 MOV #20,JDHBA ;SET BAR BIT FOR LINE 4
1124 002536 122777 000002 007074 1$: CMPB #2,JDHSLR ;WAIT FOR 2 CHARACTERS TO BE RECEIVED
1125 002544 001374 BNE 1$
1126 002546 012777 004000 007044 MOV #BIT11,JDHSCR ;MASTER CLEAR INTERFACE
1127 002554 012777 000004 007036 MOV #4,JDHSCR ;SELECT LINE 4
1128 002562 012777 011754 007036 MOV #TBUF,JDHBA ;SET UP TO TRANSMIT 400
1129 002570 012777 177400 007032 MOV #-400,JDHBC ;(OCTAL) CHARACTERS
1130 002576 012777 033503 007020 MOV #33503,JDHLPR ;LINE SPEED = 9600 BAUD
1131 002604 012777 000020 007022 MOV #20,JDHBCR ;SET BREAK BIT FOR LINE 4
1132 002612 012777 000020 007012 MOV #20,JDHBA ;SET BAR BIT FOR LINE 4
1133 002620 005777 007006 2$: TST JDHBA ;WAIT FOR ALL CHARACTERS
1134 002624 001375 BNE 2$ ;TO BE TRANSMITTED
1135 002626 122777 000001 007004 CMPB #1,JDHSLR ;CHECK TO SEE THAT ONLY
1136 002634 001407 BEQ 3$ ;1 CHARACTER WAS RECEIVED
1137 002636 017704 006774 MOV JDHSSR,R4 ;(R4)=ACTUAL RECEIVED DATA
1138 002642 042704 000300 BIC #300,R4 ;CLEAR UNWANTED BITS
1139 002646 012705 000400 MOV #400,R5 ;(R5)=EXPECTED SILO FILL LEVEL, 1
1140 002652 104000 HLT 0 ;MORE THAN ONE CHARACTER RECEIVED, ERROR
1141 002654 017704 006742 3$: MOV JDHNR, R4 ;READ NEXT RECEIVED CHARACTER REGISTER
1142 002660 026704 007542 CMP RWRD4,R4 ;IS RECEIVED CHARACTER A BREAK
1143 002664 001403 BEQ 4$
1144 002666 016705 007534 MOV RWRD4,R5 ;(R5)=EXPECTED RECEIVED CHARACTER
1145 002672 104001 HLT 1 ;RECEIVED DATA ERROR
1146 002674 104400 4$: SCOPE ;CHECK FOR ITERATIONS, LOOP
1147
1148 ;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
1149 ;ON LINE 5
1150 ;SET BREAK BIT FOR LINE 5
1151 ;TRANSMIT BINARY COUNT PATTERN ON LINE 5
1152 ;VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
1153 ;AND THAT IT IS A BREAK
1154
1155 002676 012767 000340 175072 T6: MOV #340,PS ;DISABLE ALL INTERRUPTS

```


1156	002704	012767	000020	006754	MOV	#20,ICOUNT	:SET UP FOR 20 ITERATIONS
1157	002712	012767	003126	006742	MOV	#4\$,ESCAPE	:SET UP TO ESCAPE TO NEXT TEST
1158	002720	012777	004000	006672	MOV	#BIT11,ADHSCR	:MASTER CLEAR INTERFACE
1159	002726	004767	006774		JSR	PC,CLRAL	:CLEAR ALL BUS ADDRESS AND
1160							:BUS ADDRESS MEMORY LOCATIONS
1161	002732	012777	000005	006660	MOV	#5,ADHSCR	:SELECT LINE 5
1162	002740	012777	011722	006660	MOV	#NULL,ADHBA	:SET UPT TO TRANSMIT 0 CHARACTER
1163	002746	012777	177776	006654	MOV	#-2,ADHBC	:TWO OS WILL BE TRANSMITTED
1164	002754	012777	033503	006642	MOV	#33503,ADHLPR	:SET LINE SPEED=9600 BAUD
1165							:CHARACTER LENGTH =8 BITS
1166	002762	012777	000040	006642	MOV	#40,ADHBAR	:SET BAR BIT FOR LINE 5
1167	002770	122777	000002	006642	1\$: CMPB	#2,ADHSLR	:WAIT FOR 2 CHARACTERS TO BE RECEIVED
1168	002776	001374			BNE	1\$	
1169	003000	012777	004000	006612	MOV	#BIT11,ADHSCR	:MASTER CLEAR INTERFACE
1170	003006	012777	000005	006604	MOV	#5,ADHSCR	:SELECT LINE 5
1171	003014	012777	011754	006604	MOV	#TBUF,ADHBA	:SET UP TO TRANSMIT 400
1172	003022	012777	177400	006600	MOV	#-400,ADHBC	: (OCTAL) CHARACTERS
1173	003030	012777	033503	006566	MOV	#33503,ADHLPR	:LINE SPEED = 9600 BAUD
1174	003036	012777	000040	006570	MOV	#40,ADHBCR	:SET BREAK BIT FOR LINE 5
1175	003044	012777	000040	006560	MOV	#40,ADHBAR	:SET BAR BIT FOR LINE 5
1176	003052	005777	006554		2\$: TST	ADHBAR	:WAIT FOR ALL CHARACTERS
1177	003056	001375			BNE	2\$	:TO BE TRANSMITTED
1178	003060	122777	000001	006552	CMPB	#1,ADHSLR	:CHECK TO SEE THAT ONLY
1179	003066	001407			BEQ	3\$	:1 CHARACTER WAS RECEIVED
1180	003070	017704	006542		MOV	ADHSSR,R4	: (R4)=ACTUAL RECEIVED DATA
1181	003074	042704	000300		BIC	#300,R4	:CLEAR UNWANTED BITS
1182	003100	012705	000400		MOV	#400,R5	: (R5)=EXPECTED SILO FILL LEVEL, 1
1183	003104	104000			HLT	0	:MORE THAN ONE CHARACTER RECEIVED, ERROR
1184	003106	017704	006510		3\$: MOV	ADHNRC,R4	:READ NEXT RECEIVED CHARACTER REGISTER
1185	003112	026704	007312		CMP	RWRDS,R4	:IS RECEIVED CHARACTER A BREAK
1186	003116	001403			BEQ	4\$	
1187	003120	016705	007304		MOV	RWRDS,R5	: (R5)=EXPECTED RECEIVED CHARACTER
1188	003124	104001			HLT	1	:RECEIVED DATA ERROR
1189	003126	104400			4\$: SCOPE		:CHECK FOR ITERATIONS, LOOP
1190							
1191							:FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
1192							:ON LINE 6
1193							:SET BREAK BIT FOR LINE 6
1194							:TRANSMIT BINARY COUNT PATTERN ON LINE 6
1195							:VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
1196							:AND THAT IT IS A BREAK
1197							
1198	003130	012767	000340	174640	7\$: MOV	#340,PS	:DISABLE ALL INTERRUPTS
1199	003136	012767	000020	006522	MOV	#20,ICOUNT	:SET UP FOR 20 ITERATIONS
1200	003144	012767	003360	006510	MOV	#4\$,ESCAPE	:SET UP TO ESCAPE TO NEXT TEST
1201	003152	012777	004000	006440	MOV	#BIT11,ADHSCR	:MASTER CLEAR INTERFACE
1202	003160	004767	006542		JSR	PC,CLRAL	:CLEAR ALL BUS ADDRESS AND
1203							:BUS ADDRESS MEMORY LOCATIONS
1204	003164	012777	000006	006426	MOV	#6,ADHSCR	:SELECT LINE 6
1205	003172	012777	011722	006426	MOV	#NULL,ADHBA	:SET UPT TO TRANSMIT 0 CHARACTER
1206	003200	012777	177776	006422	MOV	#-2,ADHBC	:TWO OS WILL BE TRANSMITTED
1207	003206	012777	033503	006410	MOV	#33503,ADHLPR	:SET LINE SPEED=9600 BAUD
1208							:CHARACTER LENGTH =8 BITS
1209	003214	012777	000100	006410	MOV	#100,ADHBAR	:SET BAR BIT FOR LINE 6
1210	003222	122777	000002	006410	1\$: CMPB	#2,ADHSLR	:WAIT FOR 2 CHARACTERS TO BE RECEIVED
1211	003230	001374			BNE	1\$	

1212	003232	012777	004000	006360		MOV	#BIT11,ADHSCR	:MASTER CLEAR INTERFACE
1213	003240	012777	000006	006352		MOV	#6,ADHSCR	:SELECT LINE 6
1214	003246	012777	011754	006352		MOV	#TBUF,ADHBA	:SET UP TO TRANSMIT 400
1215	003254	012777	177400	006346		MOV	#-400,ADHBC	: (OCTAL) CHARACTERS
1216	003262	012777	033503	006334		MOV	#33503,ADHLPR	:LINE SPEED = 9600 BAUD
1217	003270	012777	000100	006336		MOV	#100,ADHBCR	:SET BREAK BIT FOR LINE 6
1218	003276	012777	000100	006326		MOV	#100,ADHBAR	:SET BAR BIT FOR LINE 6
1219	003304	005777	006322		2\$:	TST	ADHBAR	:WAIT FOR ALL CHARACTERS
1220	003310	001375				BNE	2\$	:TO BE TRANSMITTED
1221	003312	122777	000001	006320		CMPB	#1,ADHSLR	:CHECK TO SEE THAT ONLY
1222	003320	001407				BEQ	3\$	:1 CHARACTER WAS RECEIVED
1223	003322	017704	006310			MOV	ADHSSR,R4	: (R4)=ACTUAL RECEIVED DATA
1224	003326	042704	000300			BIC	#300,R4	:CLEAR UNWANTED BITS
1225	003332	012705	000400			MOV	#400,R5	: (R5)=EXPECTED SILO FILL LEVEL, 1
1226	003336	104000				HLT	0	:MORE THAN ONE CHARACTER RECEIVED, ERROR
1227	003340	017704	006256		3\$:	MOV	ADHNR, R4	:READ NEXT RECEIVED CHARACTER REGISTER
1228	003344	026704	007062			CMP	RWRD6, R4	:IS RECEIVED CHARACTER A BREAK
1229	003350	001403				BEQ	4\$	
1230	003352	016705	007054			MOV	RWRD6, R5	: (R5)=EXPECTED RECEIVED CHARACTER
1231	003356	104001				HLT	1	:RECEIVED DATA ERROR
1232	003360	104400			4\$:	SCOPE		:CHECK FOR ITERATIONS, LOOP
1233								
1234								:FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
1235								:ON LINE 7
1236								:SET BREAK BIT FOR LINE 7
1237								:TRANSMIT BINARY COUNT PATTERN ON LINE 7
1238								:VERIFY THAT ONLY 1 CHARACTER IS RECEIVED
1239								:AND THAT IT IS A BREAK
1240								
1241	003362	012767	000340	174406	T10:	MOV	#340,PS	:DISABLE ALL INTERRUPTS
1242	003370	012767	000020	006270		MOV	#20,ICOUNT	:SET UP FOR 20 ITERATIONS
1243	003376	012767	003612	006256		MOV	#4\$,ESCAPE	:SET UP TO ESCAPE TO NEXT TEST
1244	003404	012777	004000	006206		MOV	#BIT11,ADHSCR	:MASTER CLEAR INTERFACE
1245	003412	004767	006310			JSR	PC,CLRALL	:CLEAR ALL BUS ADDRESS AND
1246								:BUS ADDRESS MEMORY LOCATIONS
1247	003416	012777	000007	006174		MOV	#7,ADHSCR	:SELECT LINE 7
1248	003424	012777	011722	006174		MOV	#NULL,ADHBA	:SET UP TO TRANSMIT 0 CHARACTER
1249	003432	012777	177776	006170		MOV	#-2,ADHBC	:TWO 0S WILL BE TRANSMITTED
1250	003440	012777	033503	006156		MOV	#33503,ADHLPR	:SET LINE SPEED=9600 BAUD
1251								:CHARACTER LENGTH =8 BITS
1252	003446	012777	000200	006156		MOV	#200,ADHBAR	:SET BAR BIT FOR LINE 7
1253	003454	122777	000002	006156	1\$:	CMPB	#2,ADHSLR	:WAIT FOR 2 CHARACTERS TO BE RECEIVED
1254	003462	001374				BNE	1\$	
1255	003464	012777	004000	006126		MOV	#BIT11,ADHSCR	:MASTER CLEAR INTERFACE
1256	003472	012777	000007	006120		MOV	#7,ADHSCR	:SELECT LINE 7
1257	003500	012777	011754	006120		MOV	#TBUF,ADHBA	:SET UP TO TRANSMIT 400
1258	003506	012777	177400	006114		MOV	#-400,ADHBC	: (OCTAL) CHARACTERS
1259	003514	012777	033503	006102		MOV	#33503,ADHLPR	:LINE SPEED = 9600 BAUD
1260	003522	012777	000200	006104		MOV	#200,ADHBCR	:SET BREAK BIT FOR LINE 7
1261	003530	012777	000200	006074		MOV	#200,ADHBAR	:SET BAR BIT FOR LINE 7
1262	003536	005777	006070		2\$:	TST	ADHBAR	:WAIT FOR ALL CHARACTERS
1263	003542	001375				BNE	2\$	:TO BE TRANSMITTED
1264	003544	122777	000001	006066		CMPB	#1,ADHSLR	:CHECK TO SEE THAT ONLY
1265	003552	001407				BEQ	3\$	:1 CHARACTER WAS RECEIVED
1266	003554	017704	006056			MOV	ADHSSR,R4	: (R4)=ACTUAL RECEIVED DATA
1267	003560	042704	000300			BIC	#300,R4	:CLEAR UNWANTED BITS

1268	003564	012705	000400		MOV	#400,R5	;(R5)=EXPECTED SILO FILL LEVEL, 1
1269	003570	104000			HLT	0	;MORE THAN ONE CHARACTER RECEIVED, ERROR
1270	003572	017704	006024	3\$:	MOV	@DHNRC,R4	;READ NEXT RECEIVED CHARACTER REGISTER
1271	003576	026704	006632		CMP	RWORD7,R4	;IS RECEIVED CHARACTER A BREAK
1272	003602	001403			BEQ	4\$	
1273	003604	016705	006624		MOV	RWORD7,R5	;(R5)=EXPECTED RECEIVED CHARACTER
1274	003610	104001			HLT	1	;RECEIVED DATA ERROR
1275	003612	104400		4\$:	SCOPE		;CHECK FOR ITERATIONS, LOOP
1276							
1277							
1278							
1279							
1280							
1281							
1282							
1283							
1284	003614	012767	000340	174154	T11:	MOV	#340,PS
1285	003622	012767	000020	006036		MOV	#20,ICOUNT
1286	003630	012767	004044	006024		MOV	#4\$,ESCAPE
1287	003636	012777	004000	005754		MOV	#BIT11,@DHSCR
1288	003644	004767	006056			JSR	PC,CLRALL
1289							
1290	003650	012777	000010	005742		MOV	#10,@DHSCR
1291	003656	012777	011722	005742		MOV	#NULL,@DHBA
1292	003664	012777	177776	005736		MOV	#-2,@DHBC
1293	003672	012777	033503	005724		MOV	#33503,@DHLPR
1294							
1295	003700	012777	000400	005724		MOV	#400,@DHBAR
1296	003706	122777	000002	005724	1\$:	CMPB	#2,@DHSLR
1297	003714	001374				BNE	1\$
1298	003716	012777	004000	005674		MOV	#BIT11,@DHSCR
1299	003724	012777	000010	005666		MOV	#10,@DHSCR
1300	003732	012777	011754	005666		MOV	#TBUF,@DHBA
1301	003740	012777	177400	005662		MOV	#-400,@DHBC
1302	003746	012777	033503	005650		MOV	#33503,@DHLPR
1303	003754	012777	000400	005652		MOV	#400,@DHBCR
1304	003762	012777	000400	005642		MOV	#400,@DHBAR
1305	003770	005777	005636		2\$:	TST	@DHBAR
1306	003774	001375				BNE	2\$
1307	003776	122777	000001	005634		CMPB	#1,@DHSLR
1308	004004	001407				BEQ	3\$
1309	004006	017704	005624			MOV	@DHSSR,R4
1310	004012	042704	000300			BIC	#300,R4
1311	004016	012705	000400			MOV	#400,R5
1312	004022	104000				HLT	0
1313	004024	017704	005572		3\$:	MOV	@DHNRC,R4
1314	004030	026704	006402			CMP	RWORD10,R4
1315	004034	001403				BEQ	4\$
1316	004036	016705	006374			MOV	RWORD10,R5
1317	004042	104001				HLT	1
1318	004044	104400			4\$:	SCOPE	
1319							
1320							
1321							
1322							
1323							

;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
 ;ON LINE 10
 ;SET BREAK BIT FOR LINE 10
 ;TRANSMIT BINARY COUNT PATTERN ON LINE 10
 ;VERIFY THAT ONLY 1 CHARACTER IS RECEIVED
 ;AND THAT IT IS A BREAK

;DISABLE ALL INTERRUPTS
 ;SET UP FOR 20 ITERATIONS
 ;SET UP TO ESCAPE TO NEXT TEST
 ;MASTER CLEAR INTERFACE
 ;CLEAR ALL BUS ADDRESS AND
 ;BUS ADDRESS MEMORY LOCATIONS
 ;SELECT LINE 10
 ;SET UP TO TRANSMIT 0 CHARACTER
 ;TWO 0S WILL BE TRANSMITTED
 ;SET LINE SPEED=9600 BAUD
 ;CHARACTER LENGTH =8 BITS
 ;SET BAR BIT FOR LINE 10
 ;WAIT FOR 2 CHARACTERS TO BE RECEIVED

;MASTER CLEAR INTERFACE
 ;SELECT LINE 10
 ;SET UP TO TRANSMIT 400
 ;(OCTAL) CHARACTERS
 ;LINE SPEED = 9600 BAUD
 ;SET BREAK BIT FOR LINE 10
 ;SET BAR BIT FOR LINE 10
 ;WAIT FOR ALL CHARACTERS
 ;TO BE TRANSMITTED
 ;CHECK TO SEE THAT ONLY
 ;1 CHARACTER WAS RECEIVED
 ;(R4)=ACTUAL RECEIVED DATA
 ;CLEAR UNWANTED BITS
 ;(R5)=EXPECTED SILO FILL LEVEL, 1
 ;MORE THAN ONE CHARACTER RECEIVED, ERROR
 ;READ NEXT RECEIVED CHARACTER REGISTER
 ;IS RECEIVED CHARACTER A BREAK

;(R5)=EXPECTED RECEIVED CHARACTER
 ;RECEIVED DATA ERROR
 ;CHECK FOR ITERATIONS, LOOP

;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
 ;ON LINE 11
 ;SET BREAK BIT FOR LINE 11
 ;TRANSMIT BINARY COUNT PATTERN ON LINE 11

H03

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 31
DZDHIC.P11 29-SEP-76 14:42

SEQ 0030

```

1324                                     ;VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
1325                                     ;AND THAT IT IS A BREAK
1326
1327 004046 012767 000340 173722 T12: MOV #340,PS ;DISABLE ALL INTERRUPTS
1328 004054 012767 000020 005604 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1329 004062 012767 004276 005572 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1330 004070 012777 004000 005522 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1331 004076 004767 005624 JSR PC,CLRALL ;CLEAR ALL BUS ADDRESS AND
1332 ;BUS ADDRESS MEMORY LOCATIONS
1333 004102 012777 000011 005510 MOV #11,ADHSCR ;SELECT LINE 11
1334 004110 012777 011722 005510 MOV #NULL,ADHBA ;SET UPT TO TRANSMIT 0 CHARACTER
1335 004116 012777 177776 005504 MOV #-2,ADHBC ;TWO 0S WILL BE TRANSMITTED
1336 004124 012777 033503 005472 MOV #33503,ADHLPR ;SET LINE SPEED=9600 BAUD
1337 ;CHARACTER LENGTH =8 BITS
1338 004132 012777 001000 005472 MOV #1000,ADHBA ;SET BAR BIT FOR LINE 11
1339 004140 122777 000002 005472 1$: CMPB #2,ADHSLR ;WAIT FOR 2 CHARACTERS TO BE RECEIVED
1340 004146 001374 BNE 1$
1341 004150 012777 004000 005442 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1342 004156 012777 000011 005434 MOV #11,ADHSCR ;SELECT LINE 11
1343 004164 012777 011754 005434 MOV #TBUF,ADHBA ;SET UP TO TRANSMIT 400
1344 004172 012777 177400 005430 MOV #-400,ADHBC ;(OCTAL) CHARACTERS
1345 004200 012777 033503 005416 MOV #33503,ADHLPR ;LINE SPEED = 9600 BAUD
1346 004206 012777 001000 005420 MOV #1000,ADHBCR ;SET BREAK BIT FOR LINE 11
1347 004214 012777 001000 005410 MOV #1000,ADHBA ;SET BAR BIT FOR LINE 11
1348 004222 005777 005404 2$: TST ADHBA ;WAIT FOR ALL CHARACTERS
1349 004226 001375 BNE 2$ ;TO BE TRANSMITTED
1350 004230 122777 000001 005402 CMPB #1,ADHSLR ;CHECK TO SEE THAT ONLY
1351 004236 001407 BEQ 3$ ;1 CHARACTER WAS RECEIVED
1352 004240 017704 005372 MOV ADHSSR,R4 ;(R4)=ACTUAL RECEIVED DATA
1353 004244 042704 000300 BIC #300,R4 ;CLEAR UNWANTED BITS
1354 004250 012705 000400 MOV #400,R5 ;(R5)=EXPECTED SILO FILL LEVEL, 1
1355 004254 104000 HLT 0 ;MORE THAN ONE CHARACTER RECEIVED, ERROR
1356 004256 017704 005340 3$: MOV ADHNR,R4 ;READ NEXT RECEIVED CHARACTER REGISTER
1357 004262 026704 006152 CMP RWRD11,R4 ;IS RECEIVED CHARACTER A BREAK
1358 004266 001403 BEQ 4$
1359 004270 016705 006144 MOV RWRD11,R5 ;(R5)=EXPECTED RECEIVED CHARACTER
1360 004274 104001 HLT 1 ;RECEIVED DATA ERROR
1361 004276 104400 4$: SCOPE ;CHECK FOR ITERATIONS, LOOP
1362
1363 ;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
1364 ;ON LINE 12
1365 ;SET BREAK BIT FOR LINE 12
1366 ;TRANSMIT BINARY COUNT PATTERN ON LINE 12
1367 ;VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
1368 ;AND THAT IT IS A BREAK
1369
1370 004300 012767 000340 173470 T13: MOV #340,PS ;DISABLE ALL INTERRUPTS
1371 004306 012767 000020 005352 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1372 004314 012767 004530 005340 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1373 004322 012777 004000 005270 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1374 004330 004767 005372 JSR PC,CLRALL ;CLEAR ALL BUS ADDRESS AND
1375 ;BUS ADDRESS MEMORY LOCATIONS
1376 004334 012777 000012 005256 MOV #12,ADHSCR ;SELECT LINE 12
1377 004342 012777 011722 005256 MOV #NULL,ADHBA ;SET UPT TO TRANSMIT 0 CHARACTER
1378 004350 012777 177776 005252 MOV #-2,ADHBC ;TWO 0S WILL BE TRANSMITTED
1379 004356 012777 033503 005240 MOV #33503,ADHLPR ;SET LINE SPEED=9600 BAUD

```


K03

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 34
DZDHIC.P11 29-SEP-76 14:42

SEQ 0033

```

1492 ;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
1493 ;ON LINE 15
1494 ;SET BREAK BIT FOR LINE 15
1495 ;TRANSMIT BINARY COUNT PATTERN ON LINE 15
1496 ;VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
1497 ;AND THAT IT IS A BREAK
1498
1499 005216 012767 000340 172552 T16: MOV #340,PS ;DISABLE ALL INTERRUPTS
1500 005224 012767 000020 004434 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1501 005232 012767 005446 004422 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1502 005240 012777 004000 004352 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1503 005246 004767 004454 JSR PC,CLRALL ;CLEAR ALL BUS ADDRESS AND
1504 ;BUS ADDRESS MEMORY LOCATIONS
1505 005252 012777 000015 004340 MOV #15,ADHSCR ;SELECT LINE 15
1506 005260 012777 011722 004340 MOV #NULL,ADHBA ;SET UPT TO TRANSMIT 0 CHARACTER
1507 005266 012777 177776 004334 MOV #-2,ADHBC ;TWO OS WILL BE TRANSMITTED
1508 005274 012777 033503 004322 MOV #33503,ADHLPR ;SET LINE SPEED=9600 BAUD
1509 ;CHARACTER LENGTH =8 BITS
1510 005302 012777 020000 004322 MOV #20000,ADHBAR ;SET BAR BIT FOR LINE 15
1511 005310 122777 000002 004322 1$: CMPB #2,ADHSLR ;WAIT FOR 2 CHARACTERS TO BE RECEIVED
1512 005316 001374 BNE 1$
1513 005320 012777 004000 004272 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1514 005326 012777 000015 004264 MOV #15,ADHSCR ;SELECT LINE 15
1515 005334 012777 011754 004264 MOV #TBUF,ADHBA ;SET UP TO TRANSMIT 400
1516 005342 012777 177400 004260 MOV #-400,ADHBC ;(OCTAL) CHARACTERS
1517 005350 012777 033503 004246 MOV #33503,ADHLPR ;LINE SPEED = 9600 BAUD
1518 005356 012777 020000 004250 MOV #20000,ADHBCR ;SET BREAK BIT FOR LINE 15
1519 005364 012777 020000 004240 MOV #20000,ADHBAR ;SET BAR BIT FOR LINE 15
1520 005372 005777 004234 2$: TST ADHBAR ;WAIT FOR ALL CHARACTERS
1521 005376 001375 BNE 2$ ;TO BE TRANSMITTED
1522 005400 122777 000001 004232 CMPB #1,ADHSLR ;CHECK TO SEE THAT ONLY
1523 005406 001407 BEQ 3$ ;1 CHARACTER WAS RECEIVED
1524 005410 017704 004222 MOV ADHSSR,R4 ;(R4)=ACTUAL RECEIVED DATA
1525 005414 042704 000300 BIC #300,R4 ;CLEAR UNWANTED BITS
1526 005420 012705 000400 MOV #400,R5 ;(R5)=EXPECTED SILO FILL LEVEL, 1
1527 005424 104000 HLT 0 ;MORE THAN ONE CHARACTER RECEIVED, ERROR
1528 005426 017704 004170 3$: MOV ADHNRC,R4 ;READ NEXT RECEIVED CHARACTER REGISTER
1529 005432 026704 005012 CMP RWRD15,R4 ;IS RECEIVED CHARACTER A BREAK
1530 005436 001403 BEQ 4$
1531 005440 016705 005004 MOV RWRD15,R5 ;(R5)=EXPECTED RECEIVED CHARACTER
1532 005444 104001 HLT 1 ;RECEIVED DATA ERROR
1533 005446 104400 4$: SCOPE ;CHECK FOR ITERATIONS, LOOP
1534
1535 ;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
1536 ;ON LINE 16
1537 ;SET BREAK BIT FOR LINE 16
1538 ;TRANSMIT BINARY COUNT PATTERN ON LINE 16
1539 ;VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
1540 ;AND THAT IT IS A BREAK
1541
1542 005450 012767 000340 172320 T17: MOV #340,PS ;DISABLE ALL INTERRUPTS
1543 005456 012767 000020 004202 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1544 005464 012767 005700 004170 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1545 005472 012777 004000 004120 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1546 005500 004767 004222 JSR PC,CLRALL ;CLEAR ALL BUS ADDRESS AND
1547 ;BUS ADDRESS MEMORY LOCATIONS

```


1548	005504	012777	000016	004106	MOV	#16,ADHSCR	;SELECT LINE 16
1549	005512	012777	011722	004106	MOV	#NULL,ADHBA	;SET UPT TO TRANSMIT 0 CHARACTER
1550	005520	012777	177776	004102	MOV	#-2,ADHBC	;TWO OS WILL BE TRANSMITTED
1551	005526	012777	033503	004070	MOV	#33503,ADHLPR	;SET LINE SPEED=9600 BAUD
1552							;CHARACTER LENGTH =8 BITS
1553	005534	012777	040000	004070	MOV	#40000,ADHBAR	;SET BAR BIT FOR LINE 16
1554	005542	122777	000002	004070	1\$: CMPB	#2,ADHSLR	;WAIT FOR 2 CHARACTERS TO BE RECEIVED
1555	005550	001374			BNE	1\$	
1556	005552	012777	004000	004040	MOV	#BIT11,ADHSCR	;MASTER CLEAR INTERFACE
1557	005560	012777	000016	004032	MOV	#16,ADHSCR	;SELECT LINE 16
1558	005566	012777	011754	004032	MOV	#TBUF,ADHBA	;SET UP TO TRANSMIT 400
1559	005574	012777	177400	004026	MOV	#-400,ADHBC	; (OCTAL) CHARACTERS
1560	005602	012777	033503	004014	MOV	#33503,ADHLPR	;LINE SPEED = 9600 BAUD
1561	005610	012777	040000	004016	MOV	#40000,ADHBCR	;SET BREAK BIT FOR LINE 16
1562	005616	012777	040000	004006	MOV	#40000,ADHBAR	;SET BAR BIT FOR LINE 16
1563	005624	005777	004002		2\$: TST	ADHBAR	;WAIT FOR ALL CHARACTERS
1564	005630	001375			BNE	2\$	;TO BE TRANSMITTED
1565	005632	122777	000001	004000	CMPB	#1,ADHSLR	;CHECK TO SEE THAT ONLY
1566	005640	001407			BEQ	3\$	;1 CHARACTER WAS RECEIVED
1567	005642	017704	003770		MOV	ADHSSR,R4	; (R4)=ACTUAL RECEIVED DATA
1568	005646	042704	000300		BIC	#300,R4	;CLEAR UNWANTED BITS
1569	005652	012705	000400		MOV	#400,R5	; (R5)=EXPECTED SILO FILL LEVEL, 1
1570	005656	104000			HLT	0	;MORE THAN ONE CHARACTER RECEIVED, ERROR
1571	005660	017704	003736		3\$: MOV	ADHNRC,R4	;READ NEXT RECEIVED CHARACTER REGISTER
1572	005664	026704	004562		CMP	RWRD16,R4	;IS RECEIVED CHARACTER A BREAK
1573	005670	001403			BEQ	4\$	
1574	005672	016705	004554		MOV	RWRD16,R5	; (R5)=EXPECTED RECEIVED CHARACTER
1575	005676	104001			HLT	1	;RECEIVED DATA ERROR
1576	005700	104400			4\$: SCOPE		;CHECK FOR ITERATIONS, LOOP
1577							
1578							;FLUSH UART BY TRANSMITTING 2 NULL CHARACTERS
1579							;ON LINE 17
1580							;SET BREAK BIT FOR LINE 17
1581							;TRANSMIT BINARY COUNT PATTERN ON LINE 17
1582							;VERIFY HTAT ONLY 1 CHARACTER IS RECEIVED
1583							;AND THAT IT IS A BREAK
1584							
1585	005702	012767	000340	172066	T20: MOV	#340,PS	;DISABLE ALL INTERRUPTS
1586	005710	012767	000020	003750	MOV	#20,COUNT	;SET UP FOR 20 ITERATIONS
1587	005716	012767	006132	003736	MOV	#4\$,ESCAPE	;SET UP TO ESCAPE TO NEXT TEST
1588	005724	012777	004000	003666	MOV	#BIT11,ADHSCR	;MASTER CLEAR INTERFACE
1589	005732	004767	003770		JSR	PC,CLRALL	;CLEAR ALL BUS ADDRESS AND
1590							;BUS ADDRESS MEMORY LOCATIONS
1591	005736	012777	000017	003654	MOV	#17,ADHSCR	;SELECT LINE 17
1592	005744	012777	011722	003654	MOV	#NULL,ADHBA	;SET UPT TO TRANSMIT 0 CHARACTER
1593	005752	012777	177776	003650	MOV	#-2,ADHBC	;TWO OS WILL BE TRANSMITTED
1594	005760	012777	033503	003636	MOV	#33503,ADHLPR	;SET LINE SPEED=9600 BAUD
1595							;CHARACTER LENGTH =8 BITS
1596	005766	012777	100000	003636	MOV	#100000,ADHBAR	;SET BAR BIT FOR LINE 17
1597	005774	122777	000002	003636	1\$: CMPB	#2,ADHSLR	;WAIT FOR 2 CHARACTERS TO BE RECEIVED
1598	006002	001374			BNE	1\$	
1599	006004	012777	004000	003606	MOV	#BIT11,ADHSCR	;MASTER CLEAR INTERFACE
1600	006012	012777	000017	003600	MOV	#17,ADHSCR	;SELECT LINE 17
1601	006020	012777	011754	003600	MOV	#TBUF,ADHBA	;SET UP TO TRANSMIT 400
1602	006026	012777	177400	003574	MOV	#-400,ADHBC	; (OCTAL) CHARACTERS
1603	006034	012777	033503	003562	MOV	#33503,ADHLPR	;LINE SPEED = 9600 BAUD

1604	006042	012777	100000	003564		MOV	#100000,ADHBCR	;SET BREAK BIT FOR LINE 17
1605	006050	012777	100000	003554		MOV	#100000,ADHBAR	;SET BAR BIT FOR LINE 17
1606	006056	005777	003550		2\$:	TST	ADHBAR	;WAIT FOR ALL CHARACTERS
1607	006062	001375				BNE	2\$	;TO BE TRANSMITTED
1608	006064	122777	000001	003546		CMPB	#1,ADHSLR	;CHECK TO SEE THAT ONLY
1609	006072	001407				BEQ	3\$	;1 CHARACTER WAS RECEIVED
1610	006074	017704	003536			MOV	ADHSSR,R4	; (R4)=ACTUAL RECEIVED DATA
1611	006100	042704	000300			BIC	#300,R4	;CLEAR UNWANTED BITS
1612	006104	012705	000400			MOV	#400,R5	; (R5)=EXPECTED SILO FILL LEVEL, 1
1613	006110	104000				HLT	0	;MORE THAN ONE CHARACTER RECEIVED, ERROR
1614	006112	017704	003504		3\$:	MOV	ADHNRG,R4	;READ NEXT RECEIVED CHARACTER REGISTER
1615	006116	026704	004332			CMP	RWRD17,R4	;IS RECEIVED CHARACTER A BREAK
1616	006122	001403				BEQ	4\$	
1617	006124	016705	004324			MOV	RWRD17,R5	; (R5)=EXPECTED RECEIVED CHARACTER
1618	006130	104001				HLT	1	;RECEIVED DATA ERROR
1619	006132	104400			4\$:	SCOPE		;CHECK FOR ITERATIONS, LOOP
1620								
1621								
1622								
1623								
1624								
1625	006134	012767	000340	171634	T21:	MOV	#340,PS	;DISABLE ALL INTERRUPTS
1626	006142	012767	000020	003516		MOV	#20,ICOUNT	;SET UP FOR 20 ITERATIONS
1627	006150	012767	006244	003504		MOV	#2\$,ESCAPE	;SET UP TO ESCAPE TO NEXT TEST
1628	006156	012777	004000	003434		MOV	#BIT11,ADHSCR	;MASTER CLEAR INTERFACE
1629	006164	004767	003536			JSR	PC,CLRALL	;CLEAR ALL BYTE COUNT AND
1630								;AND BUS ADDRESS MEMORY LOCATIONS
1631	006170	012777	000000	003422		MOV	#0,ADHSCR	;SELECT LINE 0
1632	006176	012777	011754	003422		MOV	#TBUF,ADHBA	;SET UP TO TRANSMIT
1633	006204	012777	177400	003416		MOV	#-400,ADHBC	;400 (OCTAL) CHARACTERS
1634	006212	012777	073503	003404		MOV	#73503,ADHLPR	;SET RECEIVER BLIND
1635								;LINE SPEED =9600 BAUD
1636								;CHARACTER LENGTH = 8 BITS
1637	006220	012777	000001	003404		MOV	#1,ADHBAR	;SET BAR BIT FOR LINE 0
1638	006226	005777	003400		1\$:	TST	ADHBAR	;WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1639	006232	001375				BNE	1\$	
1640	006234	105777	003360			TSTB	ADHSCR	;WERE ANY CHARACTERS RECEIVED
1641	006240	100001				BPL	2\$	
1642	006242	104002				HLT	2	;RECEIVER NOT BLINDED, ERROR
1643	006244	104400			2\$:	SCOPE		;CHECK FOR ITERATIONS, LOOP
1644								
1645								
1646								
1647								
1648								
1649	006246	012767	000340	171522	T22:	MOV	#340,PS	;DISABLE ALL INTERRUPTS
1650	006254	012767	000020	003404		MOV	#20,ICOUNT	;SET UP FOR 20 ITERATIONS
1651	006262	012767	006356	003372		MOV	#2\$,ESCAPE	;SET UP TO ESCAPE TO NEXT TEST
1652	006270	012777	004000	003322		MOV	#BIT11,ADHSCR	;MASTER CLEAR INTERFACE
1653	006276	004767	003424			JSR	PC,CLRALL	;CLEAR ALL BYTE COUNT AND
1654								;AND BUS ADDRESS MEMORY LOCATIONS
1655	006302	012777	000001	003310		MOV	#1,ADHSCR	;SELECT LINE 1
1656	006310	012777	011754	003310		MOV	#TBUF,ADHBA	;SET UP TO TRANSMIT
1657	006316	012777	177400	003304		MOV	#-400,ADHBC	;400 (OCTAL) CHARACTERS
1658	006324	012777	073503	003272		MOV	#73503,ADHLPR	;SET RECEIVER BLIND
1659								;LINE SPEED =9600 BAUD


```

1660
1661 006332 012777 000002 003272      1$: MOV      #2,ADHBAR      ;CHARACTER LENGTH = 8 BITS
1662 006340 005777 003266      TST      ADHBAR      ;SET BAR BIT FOR LINE 1
1663 006344 001375      BNE      1$      ;WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1664 006346 105777 003246      TSTB     ADHSCR      ;WERE ANY CHARACTERS RECEIVED
1665 006352 100001      BPL      2$      ;RECEIVER NOT BLINDED, ERROR
1666 006354 104002      HLT      2      ;CHECK FOR ITERATIONS, LOOP
1667 006356 104400      2$: SCOPE
1668
1669      ;SET HALF DUPLEX ON LINE 2
1670      ;TRANSMIT A BINARY COUNT PATTERN
1671      ;VERIFY THAT NO CHARACTERS ARE RECEIVED
1672
1673 006360 012767 000340 171410      T23: MOV      #340,PS      ;DISABLE ALL INTERRUPTS
1674 006366 012767 000020 003272      MOV      #20,ICOUNT    ;SET UP FOR 20 ITERATIONS
1675 006374 012767 006470 003260      MOV      #2$,ESCAPE    ;SET UP TO ESCAPE TO NEXT TEST
1676 006402 012777 004000 003210      MOV      #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1677 006410 004767 003312      JSR      PC,CLRALL    ;CLEAR ALL BYTE COUNT AND
1678                                ;AND BUS ADDRESS MEMORY LOCATIONS
1679 006414 012777 000002 003176      MOV      #2,ADHSCR      ;SELECT LINE 2
1680 006422 012777 011754 003176      MOV      #TBUF,ADHBA    ;SET UP TO TRANSMIT
1681 006430 012777 177400 003172      MOV      #-400,ADHBC    ;400 (OCTAL) CHARACTERS
1682 006436 012777 073503 003160      MOV      #73503,ADHLPR ;SET RECEIVER BLIND
1683                                ;LINE SPEED =9600 BAUD
1684                                ;CHARACTER LENGTH = 8 BITS
1685 006444 012777 000004 003160      1$: MOV      #4,ADHBAR      ;SET BAR BIT FOR LINE 2
1686 006452 005777 003154      TST      ADHBAR      ;WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1687 006456 001375      BNE      1$      ;WERE ANY CHARACTERS RECEIVED
1688 006460 105777 003134      TSTB     ADHSCR      ;RECEIVER NOT BLINDED, ERROR
1689 006464 100001      BPL      2$      ;CHECK FOR ITERATIONS, LOOP
1690 006466 104002      HLT      2
1691 006470 104400      2$: SCOPE
1692
1693      ;SET HALF DUPLEX ON LINE 3
1694      ;TRANSMIT A BINARY COUNT PATTERN
1695      ;VERIFY THAT NO CHARACTERS ARE RECEIVED
1696
1697 006472 012767 000340 171276      T24: MOV      #340,PS      ;DISABLE ALL INTERRUPTS
1698 006500 012767 000020 003160      MOV      #20,ICOUNT    ;SET UP FOR 20 ITERATIONS
1699 006506 012767 006602 003146      MOV      #2$,ESCAPE    ;SET UP TO ESCAPE TO NEXT TEST
1700 006514 012777 004000 003076      MOV      #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1701 006522 004767 003200      JSR      PC,CLRALL    ;CLEAR ALL BYTE COUNT AND
1702                                ;AND BUS ADDRESS MEMORY LOCATIONS
1703 006526 012777 000003 003064      MOV      #3,ADHSCR      ;SELECT LINE 3
1704 006534 012777 011754 003064      MOV      #TBUF,ADHBA    ;SET UP TO TRANSMIT
1705 006542 012777 177400 003060      MOV      #-400,ADHBC    ;400 (OCTAL) CHARACTERS
1706 006550 012777 073503 003046      MOV      #73503,ADHLPR ;SET RECEIVER BLIND
1707                                ;LINE SPEED =9600 BAUD
1708                                ;CHARACTER LENGTH = 8 BITS
1709 006556 012777 000010 003046      1$: MOV      #10,ADHBAR     ;SET BAR BIT FOR LINE 3
1710 006564 005777 003042      TST      ADHBAR      ;WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1711 006570 001375      BNE      1$      ;WERE ANY CHARACTERS RECEIVED
1712 006572 105777 003022      TSTB     ADHSCR      ;RECEIVER NOT BLINDED, ERROR
1713 006576 100001      BPL      2$      ;CHECK FOR ITERATIONS, LOOP
1714 006600 104002      HLT      2
1715 006602 104400      2$: SCOPE

```



```

1716
1717
1718
1719
1720
1721 006604 012767 000340 171164 T25: MOV #340,PS ;DISABLE ALL INTERRUPTS
1722 006612 012767 000020 003046 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1723 006620 012767 006714 003034 MOV #25,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1724 006626 012777 004000 002764 MOV #BIT11,JDHSCR ;MASTER CLEAR INTERFACE
1725 006634 004767 003066 JSR PC,CLRALL ;CLEAR ALL BYTE COUNT AND
1726 ;AND BUS ADDRESS MEMORY LOCATIONS
1727 006640 012777 000004 002752 MOV #4,JDHSCR ;SELECT LINE 4
1728 006646 012777 011754 002752 MOV #TBUF,JDHBA ;SET UP TO TRANSMIT
1729 006654 012777 177400 002746 MOV #-400,JDHBC ;400 (OCTAL) CHARACTERS
1730 006662 012777 073503 002734 MOV #73503,JDHLPR ;SET RECEIVER BLIND
1731 ;LINE SPEED =9600 BAUD
1732 ;CHARACTER LENGTH = 8 BITS
1733 006670 012777 000020 002734 MOV #20,JDHBAR ;SET BAR BIT FOR LINE 4
1734 006676 005777 002730 1S: TST JDHBAR ;WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1735 006702 001375 BNE 1S
1736 006704 105777 002710 TSTB JDHJCR ;WERE ANY CHARACTERS RECEIVED
1737 006710 100001 BPL 2S
1738 006712 104002 HLT 2 ;RECEIVER NOT BLINDED, ERROR
1739 006714 104400 2S: SCOPE ;CHECK FOR ITERATIONS, LOOP
1740
1741
1742
1743
1744
1745 006716 012767 000340 171052 T26: MOV #340,PS ;DISABLE ALL INTERRUPTS
1746 006724 012767 000020 002734 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1747 006732 012767 007026 002722 MOV #25,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1748 006740 012777 004000 002652 MOV #BIT11,JDHSCR ;MASTER CLEAR INTERFACE
1749 006746 004767 002754 JSR PC,CLRALL ;CLEAR ALL BYTE COUNT AND
1750 ;AND BUS ADDRESS MEMORY LOCATIONS
1751 006752 012777 000005 002640 MOV #5,JDHSCR ;SELECT LINE 5
1752 006760 012777 011754 002640 MOV #TBUF,JDHBA ;SET UP TO TRANSMIT
1753 006766 012777 177400 002634 MOV #-400,JDHBC ;400 (OCTAL) CHARACTERS
1754 006774 012777 073503 002622 MOV #73503,JDHLPR ;SET RECEIVER BLIND
1755 ;LINE SPEED =9600 BAUD
1756 ;CHARACTER LENGTH = 8 BITS
1757 007002 012777 000040 002622 MOV #40,JDHBAR ;SET BAR BIT FOR LINE 5
1758 007010 005777 002616 1S: TST JDHBAR ;WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1759 007014 001375 BNE 1S
1760 007016 105777 002576 TSTB JDHSCR ;WERE ANY CHARACTERS RECEIVED
1761 007022 100001 BPL 2S
1762 007024 104002 HLT 2 ;RECEIVER NOT BLINDED, ERROR
1763 007026 104400 2S: SCOPE ;CHECK FOR ITERATIONS, LOOP
1764
1765
1766
1767
1768
1769 007030 012767 000340 170740 T27: MOV #340,PS ;DISABLE ALL INTERRUPTS
1770 007036 012767 000020 002622 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1771 007044 012767 007140 002610 MOV #25,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST

```


Line	Address	Instruction	Comment
1828			: CHARACTER LENGTH = 8 BITS
1829	007340	012777 000400 002264	: SET BAR BIT FOR LINE 10
1830	007346	005777 002260	: WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1831	007352	001375	
1832	007354	105777 002240	: WERE ANY CHARACTERS RECEIVED
1833	007360	100001	
1834	007362	104002	: RECEIVER NOT BLINDED, ERROR
1835	007364	104400	: CHECK FOR ITERATIONS, LOOP
1836			
1837			: SET HALF DUPLEX ON LINE 11
1838			: TRANSMIT A BINARY COUNT PATTERN
1839			: VERIFY THAT NO CHARACTERS ARE RECEIVED
1840			
1841	007366	012767 000340 170402	T32: MOV #340, PS : DISABLE ALL INTERRUPTS
1842	007374	012767 000020 002264	MOV #20, ICOUNT : SET UP FOR 20 ITERATIONS
1843	007402	012767 007476 002252	MOV #25, ESCAPE : SET UP TO ESCAPE TO NEXT TEST
1844	007410	012777 004000 002202	MOV #BIT11, ADHSCR : MASTER CLEAR INTERFACE
1845	007416	004767 002304	JSR PC, CLRALL : CLEAR ALL BYTE COUNT AND
1846			: AND BUS ADDRESS MEMORY LOCATIONS
1847	007422	012777 000011 002170	MOV #11, ADHSCR : SELECT LINE 11
1848	007430	012777 011754 002170	MOV #TBUF, ADHBA : SET UP TO TRANSMIT
1849	007436	012777 177400 002164	MOV #-400, ADHBC : 400 (OCTAL) CHARACTERS
1850	007444	012777 073503 002152	MOV #73503, ADHLPR : SET RECEIVER BLIND
1851			: LINE SPEED = 9600 BAUD
1852			: CHARACTER LENGTH = 8 BITS
1853	007452	012777 001000 002152	: SET BAR BIT FOR LINE 11
1854	007460	005777 002146	: WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1855	007464	001375	
1856	007466	105777 002126	: WERE ANY CHARACTERS RECEIVED
1857	007472	100001	
1858	007474	104002	: RECEIVER NOT BLINDED, ERROR
1859	007476	104400	: CHECK FOR ITERATIONS, LOOP
1860			
1861			: SET HALF DUPLEX ON LINE 12
1862			: TRANSMIT A BINARY COUNT PATTERN
1863			: VERIFY THAT NO CHARACTERS ARE RECEIVED
1864			
1865	007500	012767 000340 170270	T33: MOV #340, PS : DISABLE ALL INTERRUPTS
1866	007506	012767 000020 002152	MOV #20, ICOUNT : SET UP FOR 20 ITERATIONS
1867	007514	012767 007610 002140	MOV #25, ESCAPE : SET UP TO ESCAPE TO NEXT TEST
1868	007522	012777 004000 002070	MOV #BIT11, ADHSCR : MASTER CLEAR INTERFACE
1869	007530	004767 002172	JSR PC, CLRALL : CLEAR ALL BYTE COUNT AND
1870			: AND BUS ADDRESS MEMORY LOCATIONS
1871	007534	012777 000012 002056	MOV #12, ADHSCR : SELECT LINE 12
1872	007542	012777 011754 002056	MOV #TBUF, ADHBA : SET UP TO TRANSMIT
1873	007550	012777 177400 002052	MOV #-400, ADHBC : 400 (OCTAL) CHARACTERS
1874	007556	012777 073503 002040	MOV #73503, ADHLPR : SET RECEIVER BLIND
1875			: LINE SPEED = 9600 BAUD
1876			: CHARACTER LENGTH = 8 BITS
1877	007564	012777 002000 002040	: SET BAR BIT FOR LINE 12
1878	007572	005777 002034	: WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1879	007576	001375	
1880	007600	105777 002014	: WERE ANY CHARACTERS RECEIVED
1881	007604	100001	
1882	007606	104002	: RECEIVER NOT BLINDED, ERROR
1883	007610	104400	: CHECK FOR ITERATIONS, LOOP


```

1884
1885
1886
1887
1888
1889 007612 012767 000340 170156 T34: MOV #340,PS ;DISABLE ALL INTERRUPTS
1890 007620 012767 000020 002040 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1891 007626 012767 007722 002026 MOV #2$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1892 007634 012777 004000 001756 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1893 007642 004767 002060 JSR PC,CLRALL ;CLEAR ALL BYTE COUNT AND
1894 ;AND BUS ADDRESS MEMORY LOCATIONS
1895 007646 012777 000013 001744 MOV #13,ADHSCR ;SELECT LINE 13
1896 007654 012777 011754 001744 MOV #TBUF,ADHBA ;SET UP TO TRANSMIT
1897 007662 012777 177400 001740 MOV #-400,ADHBC ;400 (OCTAL) CHARACTERS
1898 007670 012777 073503 001726 MOV #73503,ADHLPR ;SET RECEIVER BLIND
1899 ;LINE SPEED =9600 BAUD
1900 ;CHARACTER LENGTH = 8 BITS
1901 007676 012777 004000 001726 MOV #4000,ADHBA ;SET BAR BIT FOR LINE 13
1902 007704 005777 001722 1$: TST ADHBA ;WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1903 007710 001375 BNE 1$
1904 007712 105777 001702 TSTB ADHSCR ;WERE ANY CHARACTERS RECEIVED
1905 007716 100001 BPL 2$
1906 007720 104002 HLT 2 ;RECEIVER NOT BLINDED, ERROR
1907 007722 104400 2$: SCOPE ;CHECK FOR ITERATIONS, LOOP
1908
1909 ;SET HALF DUPLEX ON LINE 14
1910 ;TRANSMIT A BINARY COUNT PATTERN
1911 ;VERIFY THAT NO CHARACTERS ARE RECEIVED
1912
1913 007724 012767 000340 170044 T35: MOV #340,PS ;DISABLE ALL INTERRUPTS
1914 007732 012767 000020 001726 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1915 007740 012767 010034 001714 MOV #2$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1916 007746 012777 004000 001644 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1917 007754 004767 001746 JSR PC,CLRALL ;CLEAR ALL BYTE COUNT AND
1918 ;AND BUS ADDRESS MEMORY LOCATIONS
1919 007760 012777 000014 001632 MOV #14,ADHSCR ;SELECT LINE 14
1920 007766 012777 011754 001632 MOV #TBUF,ADHBA ;SET UP TO TRANSMIT
1921 007774 012777 177400 001626 MOV #-400,ADHBC ;400 (OCTAL) CHARACTERS
1922 010002 012777 073503 001614 MOV #73503,ADHLPR ;SET RECEIVER BLIND
1923 ;LINE SPEED =9600 BAUD
1924 ;CHARACTER LENGTH = 8 BITS
1925 010010 012777 010000 001614 MOV #10000,ADHBA ;SET BAR BIT FOR LINE 14
1926 010016 005777 001610 1$: TST ADHBA ;WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1927 010022 001375 BNE 1$
1928 010024 105777 001570 TSTB ADHSCR ;WERE ANY CHARACTERS RECEIVED
1929 010030 100001 BPL 2$
1930 010032 104002 HLT 2 ;RECEIVER NOT BLINDED, ERROR
1931 010034 104400 2$: SCOPE ;CHECK FOR ITERATIONS, LOOP
1932
1933 ;SET HALF DUPLEX ON LINE 15
1934 ;TRANSMIT A BINARY COUNT PATTERN
1935 ;VERIFY THAT NO CHARACTERS ARE RECEIVED
1936
1937 010036 012767 000340 167732 T36: MOV #340,PS ;DISABLE ALL INTERRUPTS
1938 010044 012767 000020 001614 MOV #20,ICOUNT ;SET UP FOR 20 ITERATIONS
1939 010052 012767 010146 001602 MOV #2$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST

```


F04

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 42
DZDHIC.P11 29-SEP-76 14:42

SEQ 0041

1940	010060	012777	004000	001532		MOV	#BIT11,JDHSCR	:MASTER CLEAR INTERFACE
1941	010066	004767	001634			JSR	PC,CLRALL	:CLEAR ALL BYTE COUNT AND
1942								:AND BUS ADDRESS MEMORY LOCATIONS
1943	010072	012777	000015	001520		MOV	#15,JDHSCR	:SELECT LINE 15
1944	010100	012777	011754	001520		MOV	#TBUF,JDHBA	:SET UP TO TRANSMIT
1945	010106	012777	177400	001514		MOV	#-400,JDHBC	:400 (OCTAL) CHARACTERS
1946	010114	012777	073503	001502		MOV	#73503,JDHLPR	:SET RECEIVER BLIND
1947								:LINE SPEED =9600 BAUD
1948								:CHARACTER LENGTH = 8 BITS
1949	010122	012777	020000	001502		MOV	#20000,JDHBA	:SET BAR BIT FOR LINE 15
1950	010130	005777	001476		1\$:	TST	JDHBA	:WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1951	010134	001375				BNE	1\$	
1952	010136	105777	001456			TSTB	JDHSCR	:WERE ANY CHARACTERS RECEIVED
1953	010142	100001				BPL	2\$	
1954	010144	104002				HLT	2	:RECEIVER NOT BLINDED, ERROR
1955	010146	104400			2\$:	SCOPE		:CHECK FOR ITERATIONS, LOOP
1956								
1957								:SET HALF DUPLEX ON LINE 16
1958								:TRANSMIT A BINARY COUNT PATTERN
1959								:VERIFY THAT NO CHARACTERS ARE RECEIVED
1960								
1961	010150	012767	000340	167620	T37:	MOV	#340,PS	:DISABLE ALL INTERRUPTS
1962	010156	012767	000020	001502		MOV	#20,ICOUNT	:SET UP FOR 20 ITERATIONS
1963	010164	012767	010260	001470		MOV	#2\$,ESCAPE	:SET UP TO ESCAPE TO NEXT TEST
1964	010172	012777	004000	001420		MOV	#BIT11,JDHSCR	:MASTER CLEAR INTERFACE
1965	010200	004767	001522			JSR	PC,CLRALL	:CLEAR ALL BYTE COUNT AND
1966								:AND BUS ADDRESS MEMORY LOCATIONS
1967	010204	012777	000016	001406		MOV	#16,JDHSCR	:SELECT LINE 16
1968	010212	012777	011754	001406		MOV	#TBUF,JDHBA	:SET UP TO TRANSMIT
1969	010220	012777	177400	001402		MOV	#-400,JDHBC	:400 (OCTAL) CHARACTERS
1970	010226	012777	073503	001370		MOV	#73503,JDHLPR	:SET RECEIVER BLIND
1971								:LINE SPEED =9600 BAUD
1972								:CHARACTER LENGTH = 8 BITS
1973	010234	012777	040000	001370		MOV	#40000,JDHBA	:SET BAR BIT FOR LINE 16
1974	010242	005777	001364		1\$:	TST	JDHBA	:WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
1975	010246	001375				BNE	1\$	
1976	010250	105777	001344			TSTB	JDHSCR	:WERE ANY CHARACTERS RECEIVED
1977	010254	100001				BPL	2\$	
1978	010256	104002				HLT	2	:RECEIVER NOT BLINDED, ERROR
1979	010260	104400			2\$:	SCOPE		:CHECK FOR ITERATIONS, LOOP
1980								
1981								:SET HALF DUPLEX ON LINE 17
1982								:TRANSMIT A BINARY COUNT PATTERN
1983								:VERIFY THAT NO CHARACTERS ARE RECEIVED
1984								
1985	010262	012767	000340	167506	T40:	MOV	#340,PS	:DISABLE ALL INTERRUPTS
1986	010270	012767	000020	001370		MOV	#20,ICOUNT	:SET UP FOR 20 ITERATIONS
1987	010276	012767	010372	001356		MOV	#2\$,ESCAPE	:SET UP TO ESCAPE TO NEXT TEST
1988	010304	012777	004000	001306		MOV	#BIT11,JDHSCR	:MASTER CLEAR INTERFACE
1989	010312	004767	001410			JSR	PC,CLRALL	:CLEAR ALL BYTE COUNT AND
1990								:AND BUS ADDRESS MEMORY LOCATIONS
1991	010316	012777	000017	001274		MOV	#17,JDHSCR	:SELECT LINE 17
1992	010324	012777	011754	001274		MOV	#TBUF,JDHBA	:SET UP TO TRANSMIT
1993	010332	012777	177400	001270		MOV	#-400,JDHBC	:400 (OCTAL) CHARACTERS
1994	010340	012777	073503	001256		MOV	#73503,JDHLPR	:SET RECEIVER BLIND
1995								:LINE SPEED =9600 BAUD

G04

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 43
DZDHIC.P11 29-SEP-76 14:42

SEQ 0042

1996							
1997	010346	012777	100000	001256		MOV	#100000,ADHBAR
1998	010354	005777	001252		1\$:	TST	ADHBAR
1999	010360	001375				BNE	1\$
2000	010362	105777	001232			TSTB	ADHSCR
2001	010366	100001				BPL	2\$
2002	010370	104002				HLT	2
2003	010372	104400			2\$:	SCOPE	

```

: CHARACTER LENGTH = 8 BITS
: SET BAR BIT FOR LINE 17
: WAIT FOR ALL CHARACTERS TO BE TRANSMITTED
: WERE ANY CHARACTERS RECEIVED
: RECEIVER NOT BLINDED, ERROR
: CHECK FOR ITERATIONS, LOOP

```

H04

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 44
 DZDHI.C.P11 29-SEP-76 14:42

SEQ 0043

```

2004
2005
2006      ;END OF PASS
2007      ;TYPE NAME OF TEST
2008      ;UPDATE PASS COUNT
2009      ;CHECK FOR EXIT TO ACT-11
2010      ;RESTART TEST
2011
2012      010374 104401      EOP:      TYPE      ;TYPE NAME OF TEST
2013      010376 013042      MEPASS
2014      010400 005067 001312      CLR      LAST      ;CLEAR LAST ERROR PC
2015      010404 005067 001242      CLR      ERRFLG      ;CLEAR ERROR FLAG
2016      010410 005267 001240      INC      PASCNT      ;UPDATE PASS COUNT
2017      010414 016767 001234 167146      MOV      PASCNT,LIGHTS      ;DISPLAY PASS COUNT
2018      010422 013701 000042      MOV      2#42,R1      ;CHECK FOR ACT-11 OR DDP
2019      010426 001405      BEQ      RESTRT      ;IF NOT, CONTINUE TESTING
2020      010430 000005      RESET
2021      010432 004711      LOGICAL:      JSR      PC,(R1)
2022      010434 000240      NOP
2023      010436 000240      NOP
2024      010440 000240      NOP
2025      010442 000167 170534      RESTRT:      JMP      BEGIN
2026
2027      ;CHECK FOR LOOP ON CURRENT TEST
2028      ;CHECK FOR ITERATION SUPPRESSION
2029
2030      010446 032767 002000 167114      SCOPER:      BIT      #SW10,SWR
2031      010454 001030      BNE      4$
2032      010456 032767 040000 167104      1$:      BIT      #SW14,SWR
2033      010464 001021      BNE      3$
2034      010466 032767 004000 167074      BIT      #SW11,SWR
2035      010474 001006      BNE      2$
2036      010476 005267 001166      INC      LPCNT
2037      010502 026767 001162 001156      CMP      LPCNT,ICOUNT
2038      010510 001007      BNE      3$
2039      010512 005067 001152      2$:      CLR      LPCNT
2040      010516 005067 001130      CLR      ERRFLG
2041      010522 011667 001132      MOV      (SP),RETURN
2042      010526 000002      RTI
2043      010530 016716 001124      3$:      MOV      RETURN,(SP)
2044      010534 000002      RTI
2045      010536 005767 001110      4$:      TST      ERRFLG
2046      010542 001745      BEQ      1$
2047      010544 000762      BR      2$
2048
2049      ;CHECK FOR FREEZE ON CURRENT DATA
2050
2051      010546 032767 001000 167014      SCOP1R:      BIT      #SW09,SWR
2052      010554 001402      BEQ      1$
2053      010556 016716 001102      MOV      FREEZ1,(SP)
2054      010562 000002      1$:      RTI

```


DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 45
 DZDHIC.P11 29-SEP-76 14:42

SEQ 0044

```

2055
2056                                     ;ERROR HANDLER
2057
2058 010564 032767 020000 166776 ERRORS: BIT      #SW13,SWR
2059 010572 001051          BNE      HALTS
2060 010574 021667 001116          CMP      (SP),LAST
2061 010600 001404          BEQ      1$
2062 010602 011667 001110          MOV      (SP),LAST
2063 010606 005067 001040          CLR      ERRFLG
2064 010612 104406          1$:      SAVOSP
2065 010614 011605          MOV      (SP),R5
2066 010616 162705 000002          SUB      #2,R5
2067 010622 011504          MOV      (R5),R4
2068 010624 006304          ASL      R4
2069 010626 006304          ASL      R4
2070 010630 042704 177001          BIC      #177001,R4
2071 010634 062704 013152          ADD      #ERRTAB,R4
2072 010640 012467 000034          MOV      (R4)+,ERRMSG
2073 010644 011467 000042          MOV      (R4),DATABP
2074 010650 005767 000776          TST      ERRFLG
2075 010654 001403          BEQ      TYPMSG
2076 010656 005767 000030          TST      DATABP
2077 010662 001007          BNE      TYPDAT
2078 010664 104402          TYPMSG: OCTASC
2079 010666 010760          ERTABO
2080 010670 012767 000001 000754          MOV      #1,ERRFLG
2081 010676 104401          TYPE
2082 010700 000000          ERRMSG: 0
2083 010702 005767 000004          TYPDAT: TST      DATABP
2084 010706 001402          BEQ      RESREG
2085 010710 104402          OCTASC
2086 010712 000000          DATABP: 0
2087 010714 104407          RESREG: RESO5
2088 010716 005767 166646          HALTS: TST      SWR
2089 010722 100005          BPL      EXITER
2090 010724 010046          PUSHRO
2091 010726 016600 000002          MOV      2(SP),R0
2092 010732 000000          HALT
2093 010734 012600          POPRO
2094 010736 005267 000714          EXITER: INC      ERRCNT
2095 010742 032767 002000 166620          BIT      #SW10,SWR
2096 010750 001402          BEQ      1$
2097 010752 016716 000704          MOV      ESCAPE,(SP)
2098 010756 000002          1$:      RTI
2099 010760 000001          ERTABO: 1
2100 010762 006          .BYTE      6,2
2101 010764 011710          SAVPC

```

J04

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 46
 DZDHI.C.P11 29-SEP-76 14:42

SEQ 0045

```

2102      ;TRAP DISPATCH SERVICE
2103      ;ARGUMENT OF TRAP IS EXTRACTED
2104      ;AND USED AS OFFSET TO OBTAIN POINTER
2105      ;TO SELECTED SUBROUTINE
2106
2107      010766 011646      TRPSRV: MOV      (SP),-(SP)      ;GET PC OF RETURN
2108      010770 162716 000002      SUB      #2,(SP)      ;=PC OF TRAP
2109      010774 017616 000000      MOV      @2(SP),(SP)    ;GET TRP
2110      011000 006316      TRPOK: ASL      (SP)      ;MULTIPLY TRAP ARG BY 2
2111      011002 042716 177001      BIC      #177001,(SP)   ;CLEAR UNWANTED BITS
2112      011006 062716 013072      ADD      #TRPTAB,(SP)   ;POINTER TO SUBROUTINE ADDRESS
2113      011012 017616 000000      MOV      @2(SP),(SP)   ;SUBROUTINE ADDRESS
2114      011016 000136      JMP      @2(SP)+      ;GO TO SUBROUTINE
2115
2116      ;SAVE PC OF TEST THAT FAILED AND R0-R5
2117
2118      011020 016667 000004 000662 SV05P: MOV      4(SP),SAVPC
2119
2120      ;SAVE R0-R5
2121
2122      011026 010567 000652      SV05:  MOV      R5,SAVR5
2123      011032 010467 000644      MOV      R4,SAVR4
2124      011036 010367 000636      MOV      R3,SAVR3
2125      011042 010267 000630      MOV      R2,SAVR2
2126      011046 010167 000622      MOV      R1,SAVR1
2127      011052 010067 000614      MOV      R0,SAVR0
2128      011056 000002      RTI
2129      ;RESTORE R0-R5
2130
2131      011060 016700 000606      RS05:  MOV      SAVR0,R0
2132      011064 016701 000604      MOV      SAVR1,R1
2133      011070 016702 000602      MOV      SAVR2,R2
2134      011074 016703 000600      MOV      SAVR3,R3
2135      011100 016704 000576      MOV      SAVR4,R4
2136      011104 016705 000574      MOV      SAVR5,R5
2137      011110 000002      RTI

```


K04

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 47
 DZDHI.C.P11 29-SEP-76 14:42

SEQ 0046

```

2138
2139
2140 ;TELETYPE OUTPUT ROUTINE
2141 011112 017605 000000 TYPED: MOV 3(SP),R5
2142 011116 062716 000002 ADD #2,(SP)
2143 011122 105777 000466 1$: TSTB 3TPCSR
2144 011126 100375 BPL 1$
2145 011130 105715 TSTB (R5)
2146 011132 001001 BNE 2$
2147 011134 000002 RTI
2148 011136 112577 000454 2$: MOVB (R5)+,3TPDBR
2149 011142 000767 BR 1$
2150
2151 ;ASCII STRING INPUT ROUTINE
2152
2153 011144 017667 000000 000006 INSTRG: MOV 3(SP),MSG
2154 011152 062716 000002 ADD #2,(SP)
2155 011156 104401 INSTR1: TYPE
2156 011160 000000 MSG: 0
2157 011162 012704 013114 MOV #INBUF,R4
2158 011166 012703 000007 MOV #7,R3
2159 011172 105777 000412 1$: TSTB 3TKCSR
2160 011176 100375 BPL 1$
2161 011200 117714 000406 MOVB 3TKDBR,(R4)
2162 011204 142714 000200 BICB #200,(R4)
2163 011210 122427 000015 CMPB (R4)+,#15
2164 011214 001413 BEQ INSTR2
2165 011216 117777 000370 000372 MOVB 3TKDBR,3TPDBR
2166 011224 105777 000364 2$: TSTB 3TPCSR
2167 011230 100375 BPL 2$
2168 011232 005303 DEC R3
2169 011234 001356 BNE 1$
2170 011236 104401 INSTRE: TYPE
2171 011240 012746 MQM
2172 011242 000745 BR INSTR1
2173 011244 000002 INSTR2: RTI

```

```

2174
2175                                     ;CONVERT ASCII STRING TO OCTAL
2176
2177 011246 011605
2178 011250 012567 000146
2179 011254 012567 000144
2180 011260 012567 000142
2181 011264 112567 000140
2182 011270 112567 000135
2183 011274 010516
2184 011276 005005
2185 011300 012704 013114
2186 011304 122714 000015
2187 011310 001420
2188 011312 121427 000060
2189 011316 002415
2190 011320 121427 000067
2191 011324 003012
2192 011326 142714 000060
2193 011332 152405
2194 011334 122714 000015
2195 011340 001406
2196 011342 006305
2197 011344 006305
2198 011346 006305
2199 011350 000760
2200 011352 104404
2201 011354 000750
2202
2203                                     ;TEST TO SEE IF NUMBER IS WITHIN LIMITS
2204
2205 011356 020567 000042
2206 011362 101373
2207 011364 020567 000032
2208 011370 103770
2209 011372 136705 000032
2210 011376 001365
2211
2212                                     ;STORE NUMBER AT SPECIFIED ADDRESS
2213
2214 011400 016704 000022
2215 011404 010524
2216 011406 062705 000002
2217 011412 105367 000013
2218 011416 001372
2219 011420 000002
2220 011422 000000
2221 011424 000000
2222 011426 000000
2223 011430 000000
2224 011431

```

```

PARAMS: MOV (SP),R5
        MOV (R5)+,LOLIM
        MOV (R5)+,HILIM
        MOV (R5)+,DEVADR
        MOV (R5)+,LOBITS
        MOV (R5)+,ADRCNT
        MOV R5,(SP)
PARAM1: CLR R5
        MOV #INBUF,R4
        CMPB #15,(R4)
1$:     BEQ PARERR
        CMPB (R4),#60
        BLT PARERR
        CMPB (R4),#67
        BGT PARERR
        BICB #60,(R4)
        BISB (R4)+,R5
        CMPB #15,(R4)
        BEQ LIMITS
        ASL R5
        ASL R5
        ASL R5
        BR 1$
PARERR: INSTER
        BR PARAM1

```

```

LIMITS: CMP R5,HILIM
        BHI PARERR
        CMP R5,LOLIM
        BLO PARERR
        BITB LOBITS,R5
        BNE PARERR

```

```

1$:     MOV DEVADR,R4
        MOV R5,(R4)+
        ADD #2,R5
        DECB ADRCNT
        BNE 1$
        RTI
LOLIM:  0
HILIM:  0
DEVADR: 0
LOBITS: 0
ADRCNT=LOBITS+1

```


M04

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 49
 DZDHIC.P11 29-SEP-76 14:42

SEQ 0048

```

2225
2226                                     ;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
2227
2228 OCTASN: TYPE
2229 MCRLF
2230 MOV      2(SP),R1
2231 ADD      #2,(SP)
2232 MOV      (R1)+,WRDCNT
2233 1$:      MOV      (R1)+,CHRCNT
2234         MOV      (R1)+,SPACNT
2235         MOV      2(R1)+,BINWRD
2236 2$:      MOV      BINWRD,R4
2237         MOV      CHRCNT,R5
2238         MOV      #TEMP,R0
2239 3$:      MOV      R4,R3
2240         BIC      #177770,R3
2241         ADD      #260,R3
2242         MOV      R3,(R0)+
2243         ASR      R4
2244         ASR      R4
2245         ASR      R4
2246         DEC      R5
2247         BNE      3$
2248         MOV      #MDATA,R3
2249 4$:      MOV      -(R0),(R3)+
2250         DECB     CHRCNT
2251         BNE      4$
2252         TSTB     SPACNT
2253         BEQ      6$
2254 5$:      MOV      #240,(R3)+
2255         DECB     SPACNT
2256         BNE      5$
2257 6$:      CLRB     (R3)
2258         TYPE
2259         MDATA
2260         DEC      WRDCNT
2261         BNE      1$
2262         RTI
2263 WRDCNT: 0
2264 CHRCNT: 0
2265 SPACNT=CHRCNT+1
2266 BINWRD: 0
2228 011432 104401
2229 011434 012752
2230 011436 017601 000000
2231 011442 062716 000002
2232 011446 012167 000130
2233 011452 112167 000126
2234 011456 112167 000123
2235 011462 013167 000120
2236 011466 016704 000114
2237 011472 116705 000106
2238 011476 012700 013126
2239 011502 010403
2240 011504 042703 177770
2241 011510 062703 000260
2242 011514 110320
2243 011516 006204
2244 011520 006204
2245 011522 006204
2246 011524 005305
2247 011526 001365
2248 011530 012703 013140
2249 011534 114023
2250 011536 105367 000042
2251 011542 001374
2252 011544 105767 000035
2253 011550 001405
2254 011552 112723 000240
2255 011556 105367 000023
2256 011562 001373
2257 011564 105013
2258 011566 104401
2259 011570 013140
2260 011572 005367 000004
2261 011576 001325
2262 011600 000002
2263 011602 000000
2264 011604 000000
2265 011606 011605
2266 011606 000000

```

N04

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 50
 DZDHIC.P11 29-SEP-76 14:42

SEQ 0049

```

2267                                     ;INDIRECT POINTERS
2268
2269 011610 177560 TKCSR: 177560
2270 011612 177562 TKDBR: 177562
2271 011614 177564 TPCSR: 177564
2272 011616 177566 TPDDBR: 177566
2273 011620 000000 DHSCR: 0
2274 011622 000000 DHNRC: 0
2275 011624 000000 DHLPR: 0
2276 011626 000000 DHBA: 0
2277 011630 000000 DHBC: 0
2278 011632 000000 DHBAR: 0
2279 011634 000000 DHBCR: 0
2280 011636 000000 DHSSR: 0
2281 011640 000000 DHSLR: 0
2282 011642 000000 DHRVEC: 0
2283 011644 000000 DHRLVL: 0
2284 011646 000000 DHTVEC: 0
2285 011650 000000 DHTLVL: 0
2286                                     ;PROGRAM VARIABLES
2287
2288 011652 000000 ERRFLG: 0 ;ERROR FLAG
2289 011654 000000 PASCNT: 0 ;PASS COUNT
2290 011656 000000 ERRCNT: 0 ;ERROR COUNT
2291 011660 000000 RETURN: 0 ;SCOPE RETURN ADDRESS FOR TEST LOOPING
2292 011662 000000 ESCAPE: 0 ;ADDRESS FOR ERROR ESCAPE
2293 011664 000000 FREEZ1: 0 ;DATA LOOPING RETURN ADDRESS
2294 011666 000000 ICOUNT: 0 ;ITERATION COUNT FOR TEST IN PROGRESS
2295 011670 000000 LPCNT: 0 ;NUMBER OF ITERATIONS THIS TEST
2296 011672 000000 SAVR0: 0 ;R0 SAVE AREA
2297 011674 000000 SAVR1: 0 ;R1 SAVE AREA
2298 011676 000000 SAVR2: 0 ;R2 SAVE AREA
2299 011700 000000 SAVR3: 0 ;R3 SAVE ARE
2300 011702 000000 SAVR4: 0 ;R4 SAVE AREA
2301 011704 000000 SAVR5: 0 ;R5 SAVE AREA
2302 011706 000000 SAVSP: 0 ;STACK POINTER SAVE AREA
2303 011710 000000 SAVPC: 0 ;CALLING ROUTINE SAVE AREA
2304 011712 000000 INIFLG: 0 ;PROGRAM INITIALIZATION FLAG
2305 011714 000000 STFLG: 0 ;PROGRAM START FLAG
2306 011716 000000 LAST: 0 ;LAST ERROR PC
2307 011720 000000 ENDFLG: 0
2308 011722 000000 NULL: 0
2309 011724 000000 LINACT: 0

```


011726	012700	000020
011732	005077	177670
011736	005077	177666
011742	005277	177652
011746	005300	
011750	001370	
011752	000207	
011754	003	
011755	001	
011756	002	
011757	003	
011760	004	
011761	005	
011762	006	
011763	007	
011764	010	
011765	011	
011766	012	
011767	013	
011770	014	
011771	015	
011772	016	
011773	017	
011774	020	
011775	021	
011776	022	
011777	023	
012000	024	
012001	025	
012002	026	
012003	027	
012004	030	
012005	031	
012006	032	
012007	033	
012010	034	
012011	035	
012012	036	
012013	037	
012014	040	
012015	041	
012016	042	
012017	043	
012020	044	
012021	045	
012022	046	
012023	047	
012024	050	
012025	051	
012026	052	
012027	053	
012030	054	
012031	055	

[illegible]

C05

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 52
DZDHI.C.P11 29-SEP-76 14:42

SEQ 0051

2366	012032	056	.BYTE	TDAT
2367	012033	057	.BYTE	TDAT
2368	012034	060	.BYTE	TDAT
2369	012035	061	.BYTE	TDAT
2370	012036	062	.BYTE	TDAT
2371	012037	063	.BYTE	TDAT
2372	012040	064	.BYTE	TDAT
2373	012041	065	.BYTE	TDAT
2374	012042	066	.BYTE	TDAT
2375	012043	067	.BYTE	TDAT
2376	012044	070	.BYTE	TDAT
2377	012045	071	.BYTE	TDAT
2378	012046	072	.BYTE	TDAT
2379	012047	073	.BYTE	TDAT
2380	012050	074	.BYTE	TDAT
2381	012051	075	.BYTE	TDAT
2382	012052	076	.BYTE	TDAT
2383	012053	077	.BYTE	TDAT
2384	012054	100	.BYTE	TDAT
2385	012055	101	.BYTE	TDAT
2386	012056	102	.BYTE	TDAT
2387	012057	103	.BYTE	TDAT
2388	012060	104	.BYTE	TDAT
2389	012061	105	.BYTE	TDAT
2390	012062	106	.BYTE	TDAT
2391	012063	107	.BYTE	TDAT
2392	012064	110	.BYTE	TDAT
2393	012065	111	.BYTE	TDAT
2394	012066	112	.BYTE	TDAT
2395	012067	113	.BYTE	TDAT
2396	012070	114	.BYTE	TDAT
2397	012071	115	.BYTE	TDAT
2398	012072	116	.BYTE	TDAT
2399	012073	117	.BYTE	TDAT
2400	012074	120	.BYTE	TDAT
2401	012075	121	.BYTE	TDAT
2402	012076	122	.BYTE	TDAT
2403	012077	123	.BYTE	TDAT
2404	012100	124	.BYTE	TDAT
2405	012101	125	.BYTE	TDAT
2406	012102	126	.BYTE	TDAT
2407	012103	127	.BYTE	TDAT
2408	012104	130	.BYTE	TDAT
2409	012105	131	.BYTE	TDAT
2410	012106	132	.BYTE	TDAT
2411	012107	133	.BYTE	TDAT
2412	012110	134	.BYTE	TDAT
2413	012111	135	.BYTE	TDAT
2414	012112	136	.BYTE	TDAT
2415	012113	137	.BYTE	TDAT
2416	012114	140	.BYTE	TDAT
2417	012115	141	.BYTE	TDAT
2418	012116	142	.BYTE	TDAT
2419	012117	143	.BYTE	TDAT
2420	012120	144	.BYTE	TDAT
2421	012121	145	.BYTE	TDAT

[illegible]

E05

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 54
 DZDHI.C.P11 29-SEP-76 14:42

SEQ 0053

012212	..BYTE	TDAT
012213	..BYTE	TDAT
012214	..BYTE	TDAT
012215	..BYTE	TDAT
012216	..BYTE	TDAT
012217	..BYTE	TDAT
012220	..BYTE	TDAT
012221	..BYTE	TDAT
012222	..BYTE	TDAT
012223	..BYTE	TDAT
012224	..BYTE	TDAT
012225	..BYTE	TDAT
012226	..BYTE	TDAT
012227	..BYTE	TDAT
012230	..BYTE	TDAT
012231	..BYTE	TDAT
012232	..BYTE	TDAT
012233	..BYTE	TDAT
012234	..BYTE	TDAT
012235	..BYTE	TDAT
012236	..BYTE	TDAT
012237	..BYTE	TDAT
012240	..BYTE	TDAT
012241	..BYTE	TDAT
012242	..BYTE	TDAT
012243	..BYTE	TDAT
012244	..BYTE	TDAT
012245	..BYTE	TDAT
012246	..BYTE	TDAT
012247	..BYTE	TDAT
012250	..BYTE	TDAT
012251	..BYTE	TDAT
012252	..BYTE	TDAT
012253	..BYTE	TDAT
012254	..BYTE	TDAT
012255	..BYTE	TDAT
012256	..BYTE	TDAT
012257	..BYTE	TDAT
012260	..BYTE	TDAT
012261	..BYTE	TDAT
012262	..BYTE	TDAT
012263	..BYTE	TDAT
012264	..BYTE	TDAT
012265	..BYTE	TDAT
012266	..BYTE	TDAT
012267	..BYTE	TDAT
012270	..BYTE	TDAT
012271	..BYTE	TDAT
012272	..BYTE	TDAT
012273	..BYTE	TDAT
012274	..BYTE	TDAT
012275	..BYTE	TDAT
012276	..BYTE	TDAT
012277	..BYTE	TDAT
012300	..BYTE	TDAT
012301	..BYTE	TDAT

F05

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 55
DZDHI.C.P11 29-SEP-76 14:42

SEQ 0054

2534	012302	326	.BYTE	TDAT
2535	012303	327	.BYTE	TDAT
2536	012304	330	.BYTE	TDAT
2537	012305	331	.BYTE	TDAT
2538	012306	332	.BYTE	TDAT
2539	012307	333	.BYTE	TDAT
2540	012310	334	.BYTE	TDAT
2541	012311	335	.BYTE	TDAT
2542	012312	336	.BYTE	TDAT
2543	012313	337	.BYTE	TDAT
2544	012314	340	.BYTE	TDAT
2545	012315	341	.BYTE	TDAT
2546	012316	342	.BYTE	TDAT
2547	012317	343	.BYTE	TDAT
2548	012320	344	.BYTE	TDAT
2549	012321	345	.BYTE	TDAT
2550	012322	346	.BYTE	TDAT
2551	012323	347	.BYTE	TDAT
2552	012324	350	.BYTE	TDAT
2553	012325	351	.BYTE	TDAT
2554	012326	352	.BYTE	TDAT
2555	012327	353	.BYTE	TDAT
2556	012330	354	.BYTE	TDAT
2557	012331	355	.BYTE	TDAT
2558	012332	356	.BYTE	TDAT
2559	012333	357	.BYTE	TDAT
2560	012334	360	.BYTE	TDAT
2561	012335	361	.BYTE	TDAT
2562	012336	362	.BYTE	TDAT
2563	012337	363	.BYTE	TDAT
2564	012340	364	.BYTE	TDAT
2565	012341	365	.BYTE	TDAT
2566	012342	366	.BYTE	TDAT
2567	012343	367	.BYTE	TDAT
2568	012344	370	.BYTE	TDAT
2569	012345	371	.BYTE	TDAT
2570	012346	372	.BYTE	TDAT
2571	012347	373	.BYTE	TDAT
2572	012350	374	.BYTE	TDAT
2573	012351	375	.BYTE	TDAT
2574	012352	376	.BYTE	TDAT
2575	012353	377	.BYTE	TDAT
2576			.EVEN	
2577	012354	000000	RBUF:	0
2578		012416	.+.40	

G05

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 56
DZDHI0.P11 29-SEP-76 14:42

SEQ 0055

2579	012416	120000	RWRD0:	120000
2580	012420	120400	RWRD1:	120400
2581	012422	121000	RWRD2:	121000
2582	012424	121400	RWRD3:	121400
2583	012426	122000	RWRD4:	122000
2584	012430	122400	RWRD5:	122400
2585	012432	123000	RWRD6:	123000
2586	012434	123400	RWRD7:	123400
2587	012436	124000	RWRD10:	124000
2588	012440	124400	RWRD11:	124400
2589	012442	125000	RWRD12:	125000
2590	012444	125400	RWRD13:	125400
2591	012446	126000	RWRD14:	126000
2592	012450	126400	RWRD15:	126400
2593	012452	127000	RWRD16:	127000
2594	012454	127400	RWRD17:	127400

H05

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 57
 DZDHIC.P11 29-SEP-76 14:42

SEQ 0056

```

2595                                     ;ENTER HERE ON POWER FAILURE
2596
2597
2598 012456 010046          PFAIL: MOV      R0,-(SP)          ;SAVE R0-R5 ON PROCESSOR STACK
2599 012460 010146          MOV      R1,-(SP)
2600 012462 010246          MOV      R2,-(SP)
2601 012464 010346          MOV      R3,-(SP)
2602 012466 010446          MOV      R4,-(SP)
2603 012470 010546          MOV      R5,-(SP)
2604 012472 016746 165326  MOV      24,-(SP)
2605 012476 010667 177204  MOV      SP,SAVSP          ;SAVE STACK POINTER
2606 012502 012767 012514 165314 MOV      #RESTART,24          ;SET UP FOR POWER UP TRAP
2607 012510 000000          HALT
2608 012512 000777          BR
2609
2610                                     ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
2611
2612 012514 016706 177166  RESTAR: MOV      SAVSP,SP          ;RESTORE STACK POINTER
2613 012520 012605          MOV      (SP)+,R5          ;RESTORE R0-R5
2614 012522 012604          MOV      (SP)+,R4
2615 012524 012603          MOV      (SP)+,R3
2616 012526 012602          MOV      (SP)+,R2
2617 012530 012601          MOV      (SP)+,R1
2618 012532 012600          MOV      (SP)+,R0
2619 012534 012767 012456 165262 MOV      #PFAIL,24          ;SET UP FOR POWER FAILURE
2620 012542 012767 000340 165226 MOV      #340,PS
2621 012550 012706 013540          MOV      #STACK,SP
2622 012554 005067 000346          CLR      TEMP
2623 012560 005267 000342          INC      TEMP
2624 012564 001375          BNE      .-4
2625 012566 104402          OCTASC
2626 012570 012612          PFTAB
2627 012572 104401          TYPE
2628 012574 012755          MPFAIL
2629 012576 005067 177050          CLR      ERRFLG
2630 012602 005067 177110          CLR      LAST
2631 012606 000177 177046          JMP      @RETURN
2632 012612 000001          PFTAB: 1
2633 012614 000006 000002          6,2
2634 012620 000207          RETURN

```

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 58
 DZDHI.C.P11 29-SEP-76 14:42

SEQ 0057

2635	012622	005015	042012	030510	MTITLE: .ASCIZ <15><12><12>/DH11 HALF-DUPLEX AND BREAK TEST /<15><12>
2636	012630	020061	040510	043114	
2637	012636	042055	050125	042514	
2638	012644	020130	047101	020104	
2639	012652	051102	040505	020113	
2640	012660	042524	052123	006440	
2641	012666	000012			
2642	012670	005015	042526	052103	MVECT0: .ASCIZ <15><12>/VECTOR ADDRESS-/
2643	012676	051117	040440	042104	
2644	012704	042522	051523	000055	
2645	012712	005015	047503	052116	MREGAD: .ASCIZ <15><12>/CONTROL REGISTER ADDRESS-/
2646	012720	047522	020114	042522	
2647	012726	044507	052123	051105	
2648	012734	040440	042104	042522	
2649	012742	051523	000055		
2650	012746	020040	000077		MGM: .ASCIZ / ?/
2651	012752	005015	000		MCRLF: .ASCIZ <15><12>
2652	012755	040	050040	053517	MPFAIL: .ASCIZ / POWER FAILURE, PROGRAM RESTART AT TEST IN PROGRESS/
2653	012762	051105	043040	044501	
2654	012770	052514	042522	020054	
2655	012776	051120	043517	040522	
2656	013004	020115	042522	052123	
2657	013012	051101	020124	052101	
2658	013020	052040	051505	020124	
2659	013026	047111	050040	047522	
2660	013034	051107	051505	000123	
2661	013042	005015	055104	044104	MEPASS: .ASCIZ <15><12>/DZDHI/
2662	013050	000111			
2663	013052	005015	000122		MR: .ASCIZ <15><12>/R/
2664	013056	005015	042524	052123	MTSTPC: .ASCIZ <15><12>/TEST PC-/
2665	013064	050040	026503	000	
2666		013072			.EVEN
2667					
2668					;TABLE OF POINTERS FOR TRAP DECODING
2669					
2670	013072	010446			TRPTAB: SCOPER
2671	013074	011112			TYPERR
2672	013076	011432			OCTASN
2673	013100	011144			INSTRG
2674	013102	011236			INSTRE
2675	013104	011246			PARAMS
2676	013106	011020			SVOSP
2677	013110	011060			RSOS
2678	013112	010546			SCOP1R
2679					
2680					;BUFFERS FOR INPUT-OUTPUT
2681					
2682	013114	000000			INBUF: 0
2683		013126			.=.+10
2684	013126	000000			TEMP: 0
2685		013140			.=.+10
2686	013140	000000			MDATA: 0
2687		013152			.=.+10
2688					
2689					;TABLE OF POINTERS TO ERROR MESSAGES AND DATA
2690					

J05

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 59
 DZDHIC.P11 29-SEP-76 14:42

SEQ 0058

2691	013152				ERRTAB:			
2692	013152	013166				EM1		
2693	013154	013326				DT1		
2694	013156	013242				EM2		
2695	013160	013326				DT1		
2696	013162	013300				EM3		
2697	013164	000000				0		
2698	013166	047515	042522	052040	EM1:	.ASCIZ	/MORE THAN 1 CHARACTER RECEIVED/<15><12>/EXP	REC/
2699	013174	040510	020116	020061				
2700	013202	044103	051101	041501				
2701	013210	042524	020122	042522				
2702	013216	042503	053111	042105				
2703	013224	005015	054105	020120				
2704	013232	020040	020040	042522				
2705	013240	000103						
2706	013242	051102	040505	020113	EM2:	.ASCIZ	/BREAK DATA ERROR/<15><12>/EXP	REC/
2707	013250	040504	040524	042440				
2708	013256	051122	051117	005015				
2709	013264	054105	020120	020040				
2710	013272	020040	042522	000103				
2711	013300	042522	042503	053111	EM3:	.ASCIZ	/RECEIVER NOT BLINDED/	
2712	013306	051105	047040	052117				
2713	013314	041040	044514	042116				
2714	013322	042105	000					
2715		013326				.EVEN		
2716	013326	000002			DT1:	2		
2717	013330	006	002		.BYTE	6,2		
2718	013332	011704				SAVR5		
2719	013334	006	002		.BYTE	6,2		
2720	013336	011702				SAVR4		
2721	013340	000000			ENDCOD:	0		
2722		000001			.END			

K05

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 61

SEQ 0059

DZDHI.C.P11 29-SEP-76 14:42

CROSS REFERENCE TABLE -- USER SYMBOLS

ADRCNT= 011431	2182*	2217*	2224*											
BEGIN 001202	877	906	912*	2025										
BINWRD 011606	2235*	2236	2266*											
BITX = 000000	932*	975*	1018*	1061*	1104*	1147*	1190*	1233*	1276*	1319*	1362*	1405*	1448*	
	1491*	1534*	1577*	1620*	1644*	1668*	1692*	1716*	1740*	1764*	1788*	1812*	1836*	
	1860*	1884*	1908*	1932*	1956*	1980*	2004*							
BIT00 = 000001	563*													
BIT01 = 000002	562*													
BIT02 = 000004	561*													
BIT03 = 000010	560*													
BIT04 = 000020	559*													
BIT05 = 000040	558*													
BIT06 = 000100	557*													
BIT07 = 000200	556*													
BIT08 = 000400	555*													
BIT09 = 001000	554*													
BIT10 = 002000	553*													
BIT11 = 004000	552*	943	954	986	997	1029	1040	1072	1083	1115	1126	1158	1169	
	1201	1212	1244	1255	1287	1298	1330	1341	1373	1384	1416	1427	1459	
	1470	1502	1513	1545	1556	1588	1599	1628	1652	1676	1700	1724	1748	
	1772	1796	1820	1844	1868	1892	1916	1940	1964	1988				
BIT12 = 010000	551*													
BIT13 = 020000	550*													
BIT14 = 040000	549*													
BIT15 = 100000	548*													
CHRCNT 011604	2233*	2237	2250*	2264*	2265									
CLRALL 011726	944	987	1030	1073	1116	1159	1202	1245	1288	1331	1374	1417	1460	
	1503	1546	1589	1629	1653	1677	1701	1725	1749	1773	1797	1821	1845	
	1869	1893	1917	1941	1965	1989	2313*							
DATA = 127400	2579*													
DATABP 010712	2073*	2076	2083	2086*										
DATA = 127400	2579*	2580*	2581*	2582*	2583*	2584*	2585*	2586*	2587*	2588*	2589*	2590*	2591*	
	2592*	2593*	2594*											
DEVADR 011426	2180*	2214	2222*											
DHBA 011626	947*	956*	990*	999*	1033*	1042*	1076*	1085*	1119*	1128*	1162*	1171*	1205*	
	1214*	1248*	1257*	1291*	1300*	1334*	1343*	1377*	1386*	1420*	1429*	1463*	1472*	
	1506*	1515*	1549*	1558*	1592*	1601*	1632*	1656*	1680*	1704*	1728*	1752*	1776*	
	1800*	1824*	1848*	1872*	1896*	1920*	1944*	1968*	1992*	2276*	2314*			
DHBA 011632	951*	960*	961	994*	1003*	1004	1037*	1046*	1047	1080*	1089*	1090	1123*	
	1132*	1133	1166*	1175*	1176	1209*	1218*	1219	1252*	1261*	1262	1295*	1304*	
	1305	1338*	1347*	1348	1381*	1390*	1391	1424*	1433*	1434	1467*	1476*	1477	
	1510*	1519*	1520	1553*	1562*	1563	1596*	1605*	1606	1637*	1638	1661*	1662	
	1685*	1686	1709*	1710	1733*	1734	1757*	1758	1781*	1782	1805*	1806	1829*	
	1830	1853*	1854	1877*	1878	1901*	1902	1925*	1926	1949*	1950	1973*	1974	
	1997*	1998	2278*											
DHBC 011630	948*	957*	991*	1000*	1034*	1043*	1077*	1086*	1120*	1129*	1163*	1172*	1206*	
	1215*	1249*	1258*	1292*	1301*	1335*	1344*	1378*	1387*	1421*	1430*	1464*	1473*	
	1507*	1516*	1550*	1559*	1593*	1602*	1633*	1657*	1681*	1705*	1729*	1753*	1777*	
	1801*	1825*	1849*	1873*	1897*	1921*	1945*	1969*	1993*	2277*	2315*			
DHBC 011634	959*	1002*	1045*	1088*	1131*	1174*	1217*	1260*	1303*	1346*	1389*	1432*	1475*	
	1518*	1561*	1604*	2279*										
DHLPR 011624	949*	958*	992*	1001*	1035*	1044*	1078*	1087*	1121*	1130*	1164*	1173*	1207*	
	1216*	1250*	1259*	1293*	1302*	1336*	1345*	1379*	1388*	1422*	1431*	1465*	1474*	
	1508*	1517*	1551*	1560*	1594*	1603*	1634*	1658*	1682*	1706*	1730*	1754*	1778*	
	1802*	1826*	1850*	1874*	1898*	1922*	1946*	1970*	1994*	2275*				
DHNR 011622	969	1012	1055	1098	1141	1184	1227	1270	1313	1356	1399	1442	1485	

DHRLVL	011644	1528	1571	1614	2274#												
DHRVEC	011642	2283#															
DHSCR	011620	892	2282#														
		900	943*	946*	954*	955*	986*	989*	997*	998*	1029*	1032*	1040*	1041*			
		1072*	1075*	1083*	1084*	1115*	1118*	1126*	1127*	1158*	1161*	1169*	1170*	1201*			
		1204*	1212*	1213*	1244*	1247*	1255*	1256*	1287*	1290*	1298*	1299*	1330*	1333*			
		1341*	1342*	1373*	1376*	1384*	1385*	1416*	1419*	1427*	1428*	1459*	1462*	1470*			
		1471*	1502*	1505*	1513*	1514*	1545*	1548*	1556*	1557*	1588*	1591*	1599*	1600*			
		1628*	1631*	1640	1652*	1655*	1664	1676*	1679*	1688	1700*	1703*	1712	1724*			
		1727*	1736	1748*	1751*	1760	1772*	1775*	1784	1796*	1799*	1808	1820*	1823*			
		1832	1844*	1847*	1856	1868*	1871*	1880	1892*	1895*	1904	1916*	1919*	1928			
		1940*	1943*	1952	1964*	1967*	1976	1988*	1991*	2000	2273#	2316*					
DHSLR	011640	903*	904*	952	963	995	1006	1038	1049	1081	1092	1124	1135	1167			
		1178	1210	1221	1253	1264	1296	1307	1339	1350	1382	1393	1425	1436			
		1468	1479	1511	1522	1554	1565	1597	1608	2281#							
DHSSR	011636	903	965	1008	1051	1094	1137	1180	1223	1266	1309	1352	1395	1438			
		1481	1524	1567	1610	2280#											
DHTLVL	011650	2285#															
DHTVEC	011646	2284#															
DT1	013326	2693	2695	2716#													
EM1	013166	2692	2698#														
EM2	013242	2694	2706#														
EM3	013300	2696	2711#														
ENDCOD	013340	535	2721#														
ENDFLG	011720	2307#															
EOP	010374	2012#															
ERRCNT	011656	868*	2094*	2290#													
ERRFLG	011652	869*	870*	2015*	2040*	2045	2063*	2074	2080*	2288#	2629*						
ERRMSG	010700	2072*	2082*														
ERRORS	010564	828	2058#														
ERTAB	013152	2071	2691#														
ERTABO	010760	2079	2099#														
ESCAPE	011662	942*	985*	1028*	1071*	1114*	1157*	1200*	1243*	1286*	1329*	1372*	1415*	1458*			
		1501*	1544*	1587*	1627*	1651*	1675*	1699*	1723*	1747*	1771*	1795*	1819*	1843*			
		1867*	1891*	1915*	1939*	1963*	1987*	2097	2292#								
EXITER	010736	2089	2094#														
FREEZ1	011664	2053	2293#														
HALTS	010716	2059	2088#														
HILIM	011424	2179*	2205	2221#													
ICOUNT	011666	941*	984*	1027*	1070*	1113*	1156*	1199*	1242*	1285*	1328*	1371*	1414*	1457*			
		1500*	1543*	1586*	1626*	1650*	1674*	1698*	1722*	1746*	1770*	1794*	1818*	1842*			
		1866*	1890*	1914*	1938*	1962*	1986*	2037	2294#								
INBUF	013114	2157	2185	2682#													
INIFLG	011712	872	905	907*	2304#												
INSTR=	104404	845#	2200														
INSTR =	104403	844#	887	895	916												
INSTRE	011236	2170#	2674														
INSTRG	011144	2153#	2673														
INSTR1	011156	2155#	2172														
INSTR2	011244	2164	2173#														
K =	000020	932#	1620#	2579#													
KX =	000020	932#	975#	1018#	1061#	1104#	1147#	1190#	1233#	1276#	1319#	1362#	1405#	1448#			
		1491#	1534#	1577#	1620#	1644#	1668#	1692#	1716#	1740#	1764#	1788#	1812#	1836#			
		1860#	1884#	1908#	1932#	1956#	1980#	2004#	2579#	2580#	2581#	2582#	2583#	2584#			
		2585#	2586#	2587#	2588#	2589#	2590#	2591#	2592#	2593#	2594#	2595#					
LAST	011716	2014*	2060	2062*	2306#	2630*											

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 63
DZDHI.C.P11 29-SEP-76 14:42 CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 64
DZDHIC.P11 29-SEP-76 14:42 CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

B06

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 65
DZDHI.C.P11 29-SEP-76 14:42

CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0063

TEMP 013126
TKCSR 011610
TKDBR 011612
TPCSR 011614
TPDBR 011616
TRPOK 011000
TRPSRV 010766
TRPTAB 013072
TYPDAT 010702
TYPE = 104401
TYPER 011112
TYPMSG 010664
T1 001274
T10 003362
T11 003614
T12 004046
T13 004300
T14 004532
T15 004764
T16 005216
T17 005450
T2 001526
T20 005702
T21 006134
T22 006246
T23 006360
T24 006472
T25 006604
T26 006716
T27 007030
T3 001760
T30 007142
T31 007254
T32 007366
T33 007500
T34 007612
T35 007724
T36 010036
T37 010150
T4 002212
T40 010262
T5 002444
T6 002676

2411#	2412#	2413#	2414#	2415#	2416#	2417#	2418#	2419#	2420#	2421#	2422#	2423#
2424#	2425#	2426#	2427#	2428#	2429#	2430#	2431#	2432#	2433#	2434#	2435#	2436#
2437#	2438#	2439#	2440#	2441#	2442#	2443#	2444#	2445#	2446#	2447#	2448#	2449#
2450#	2451#	2452#	2453#	2454#	2455#	2456#	2457#	2458#	2459#	2460#	2461#	2462#
2463#	2464#	2465#	2466#	2467#	2468#	2469#	2470#	2471#	2472#	2473#	2474#	2475#
2476#	2477#	2478#	2479#	2480#	2481#	2482#	2483#	2484#	2485#	2486#	2487#	2488#
2489#	2490#	2491#	2492#	2493#	2494#	2495#	2496#	2497#	2498#	2499#	2500#	2501#
2502#	2503#	2504#	2505#	2506#	2507#	2508#	2509#	2510#	2511#	2512#	2513#	2514#
2515#	2516#	2517#	2518#	2519#	2520#	2521#	2522#	2523#	2524#	2525#	2526#	2527#
2528#	2529#	2530#	2531#	2532#	2533#	2534#	2535#	2536#	2537#	2538#	2539#	2540#
2541#	2542#	2543#	2544#	2545#	2546#	2547#	2548#	2549#	2550#	2551#	2552#	2553#
2554#	2555#	2556#	2557#	2558#	2559#	2560#	2561#	2562#	2563#	2564#	2565#	2566#
2567#	2568#	2569#	2570#	2571#	2572#	2573#	2574#	2575#				
2576#	2577#	2578#	2579#	2580#	2581#	2582#	2583#	2584#	2585#	2586#	2587#	2588#
2589#	2590#	2591#	2592#	2593#	2594#	2595#	2596#	2597#	2598#	2599#	2600#	2601#
2602#	2603#	2604#	2605#	2606#	2607#	2608#	2609#	2610#	2611#	2612#	2613#	2614#
2615#	2616#	2617#	2618#	2619#	2620#	2621#	2622#	2623#	2624#	2625#	2626#	2627#
2628#	2629#	2630#	2631#	2632#	2633#	2634#	2635#	2636#	2637#	2638#	2639#	2640#
2641#	2642#	2643#	2644#	2645#	2646#	2647#	2648#	2649#	2650#	2651#	2652#	2653#
2654#	2655#	2656#	2657#	2658#	2659#	2660#	2661#	2662#	2663#	2664#	2665#	2666#
2667#	2668#	2669#	2670#	2671#	2672#	2673#	2674#	2675#	2676#	2677#	2678#	2679#
2680#	2681#	2682#	2683#	2684#	2685#	2686#	2687#	2688#	2689#	2690#	2691#	2692#
2693#	2694#	2695#	2696#	2697#	2698#	2699#	2700#	2701#	2702#	2703#	2704#	2705#
2706#	2707#	2708#	2709#	2710#	2711#	2712#	2713#	2714#	2715#	2716#	2717#	2718#
2719#	2720#	2721#	2722#	2723#	2724#	2725#	2726#	2727#	2728#	2729#	2730#	2731#
2732#	2733#	2734#	2735#	2736#	2737#	2738#	2739#	2740#	2741#	2742#	2743#	2744#
2745#	2746#	2747#	2748#	2749#	2750#	2751#	2752#	2753#	2754#	2755#	2756#	2757#
2758#	2759#	2760#	2761#	2762#	2763#	2764#	2765#	2766#	2767#	2768#	2769#	2770#
2771#	2772#	2773#	2774#	2775#	2776#	2777#	2778#	2779#	2780#	2781#	2782#	2783#
2784#	2785#	2786#	2787#	2788#	2789#	2790#	2791#	2792#	2793#	2794#	2795#	2796#
2797#	2798#	2799#	2800#	2801#	2802#	2803#	2804#	2805#	2806#	2807#	2808#	2809#
2810#	2811#	2812#	2813#	2814#	2815#	2816#	2817#	2818#	2819#	2820#	2821#	2822#
2823#	2824#	2825#	2826#	2827#	2828#	2829#	2830#	2831#	2832#	2833#	2834#	2835#
2836#	2837#	2838#	2839#	2840#	2841#	2842#	2843#	2844#	2845#	2846#	2847#	2848#
2849#	2850#	2851#	2852#	2853#	2854#	2855#	2856#	2857#	2858#	2859#	2860#	2861#
2862#	2863#	2864#	2865#	2866#	2867#	2868#	2869#	2870#	2871#	2872#	2873#	2874#
2875#	2876#	2877#	2878#	2879#	2880#	2881#	2882#	2883#	2884#	2885#	2886#	2887#
2888#	2889#	2890#	2891#	2892#	2893#	2894#	2895#	2896#	2897#	2898#	2899#	2900#
2901#	2902#	2903#	2904#	2905#	2906#	2907#	2908#	2909#	2910#	2911#	2912#	2913#
2914#	2915#	2916#	2917#	2918#	2919#	2920#	2921#	2922#	2923#	2924#	2925#	2926#
2927#	2928#	2929#	2930#	2931#	2932#	2933#	2934#	2935#	2936#	2937#	2938#	2939#
2940#	2941#	2942#	2943#	2944#	2945#	2946#	2947#	2948#	2949#	2950#	2951#	2952#
2953#	2954#	2955#	2956#	2957#	2958#	2959#	2960#	2961#	2962#	2963#	2964#	2965#
2966#	2967#	2968#	2969#	2970#	2971#	2972#	2973#	2974#	2975#	2976#	2977#	2978#
2979#	2980#	2981#	2982#	2983#	2984#	2985#	2986#	2987#	2988#	2989#	2990#	2991#
2992#	2993#	2994#	2995#	2996#	2997#	2998#	2999#	3000#	3001#	3002#	3003#	3004#
3005#	3006#	3007#	3008#	3009#	3010#	3011#	3012#	3013#	3014#	3015#	3016#	3017#
3018#	3019#	3020#	3021#	3022#	3023#	3024#	3025#	3026#	3027#	3028#	3029#	3030#
3031#	3032#	3033#	3034#	3035#	3036#	3037#	3038#	3039#	3040#	3041#	3042#	3043#
3044#	3045#	3046#	3047#	3048#	3049#	3050#	3051#	3052#	3053#	3054#	3055#	3056#
3057#	3058#	3059#	3060#	3061#	3062#	3063#	3064#	3065#	3066#	3067#	3068#	3069#
3070#	3071#	3072#	3073#	3074#	3075#	3076#	3077#	3078#	3079#	3080#	3081#	3082#
3083#	3084#	3085#	3086#	3087#	3088#	3089#	3090#	3091#	3092#	3093#	3094#	3095#
3096#	3097#	3098#	3099#	3100#	3101#	3102#	3103#	3104#	3105#	3106#	3107#	3108#
3109#	3110#	3111#	3112#	3113#	3114#	3115#	3116#	3117#	3118#	3119#	3120#	3121#
3122#	3123#	3124#	3125#	3126#	3127#	3128#	3129#	3130#	3131#	3132#	3133#	3134#
3135#	3136#	3137#	3138#	3139#	3140#	3141#	3142#	3143#	3144#	3145#	3146#	3147#
3148#	3149#	3150#	3151#	3152#	3153#	3154#	3155#	3156#	3157#	3158#	3159#	3160#
3161#	3162#	3163#	3164#	3165#	3166#	3167#	3168#	3169#	3170#	3171#	3172#	3173#
3174#	3175#	3176#	3177#	3178#	3179#	3180#	3181#	3182#	3183#	3184#	3185#	3186#
3187#	3188#	3189#	3190#	3191#	3192#	3193#	3194#	3195#	3196#	3197#	3198#	3199#
3200#	3201#	3202#	3203#	3204#	3205#	3206#	3207#	3208#	3209#	3210#	3211#	3212#
3213#	3214#	3215#	3216#	3217#	3218#	3219#	3220#	3221#	3222#	3223#	3224#	3225#
3226#	3227#	3228#	3229#	3230#	3231#	3232#	3233#	3234#	3235#	3236#	3237#	3238#
3239#	3240#	3241#	3242#	3243#	3244#	3245#	3246#	3247#	3248#	3249#	3250#	3251#
3252#	3253#	3254#	3255#	3256#	3257#	3258#	3259#	3260#	3261#	3262#	3263#	3264#
3265#	3266#	3267#	3268#	3269#	3270#	3271#	3272#	3273#	3274#	3275#	3276#	3277#
3278#	3279#	3280#	3281#	3282#	3283#	3284#	3285#	3286#	3287#	3288#	3289#	3290#
3291#	3292#	3293#	3294#	3295#	3296#	3297#	3298#	3299#	3300#	3301#	3302#	3303#
3304#	3305#	3306#	3307#	3308#	3309#	3310#	3311#	3312#	3313#	3314#	3315#	3316#
3317#	3318#	3319#	3320#	3321#	3322#	3323#	3324#	3325#	3326#	3327#	3328#	3329#
3330#	3331#	3332#	3333#	3334#	3335#	3336#	3337#	3338#	3339#	3340#	3341#	3342#
3343#	3344#	3345#	3346#	3347#	3348#	3349#	3350#	3351#	3352#	3353#	3354#	3355#
3356#	3357#	3358#	3359#	3360#	3361#	3362#	3363#	3364#	3365#	3366#	3367#	3368#
3369#	3370#	3371#	3372#	3373#	3374#	3375#	3376#	3377#	3378#	3379#	3380#	3381#
3382#	3383#	3384#	3385#	3386#	3387#	3388#	3389#	3390#	3391#	3392#	3393#	3394#
3395#	3396#	3397#	3398#	3399#	3400#	3401#	3402#	3403#	3404#	3405#	3406#	3407#
3408#	3409#	3410#	3411#	3412#	3413#	3414#	3415#	3416#	3417#	3418#	3419#	3420#
3421#	3422#	3423#	3424#	3425#	3426#	3427#	3428#	3429#	3430#	3431#	3432#	3433#
3434#	3435#	3436#	3437#	3438#	3439#	3440#	3441#	3442#	3443#	3444#	3445#	3446#
3447#	3448#	3449#	3450#	3451#	3452#	3453#	3454#	3455#	3456#	3457#	3458#	3459#
3460#	3461#	3462#	3463#	3464#	3465#	3466#	3467#	3468#	3469#	3470#	3471#	3472#
3473#	3474#	3475#	3476#	3477#	3478#	3479#	3480#	3481#	3482#	3483#	3484#	3485#
3486#	3487#	3488#	3489#	3490#	3491#	3492#	3493#	3494#	3495#	3496#	3497#	3498#
3499#	3500#	3501#	3502#	3503#	3504#	3505#	3506#	3507#	3508#	3509#	3510#	3511#
3512#	3513#	3514#	3515#	3516#	3517#	3518#	3519#	3520#	3521#	3522#	3523#	3524#
3525#	3526#	3527#										

C06

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 66
DZDHIC.P11 29-SEP-76 14:42

CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0064

T7	003130	1198#																
VEC1	001060	873#	876#															
VEC2	001070	875#	878#															
WRDCNT	011602	2232#	2260#	2263#														
X	= 000000	1#																
XBIT	= 000000	932#	1620#															
XL INE	= 000020	932#	1620#															
XN	= 000041	1#	940#	943#	983#	986#	1026#	1029#	1069#	1072#	1112#	1115#	1155#	1158#				
		1198#	1201#	1241#	1244#	1284#	1287#	1327#	1330#	1370#	1373#	1413#	1416#	1456#				
		1459#	1499#	1502#	1542#	1545#	1585#	1588#	1625#	1628#	1649#	1652#	1673#	1676#				
		1697#	1700#	1721#	1724#	1745#	1748#	1769#	1772#	1793#	1796#	1817#	1820#	1841#				
		1844#	1865#	1868#	1889#	1892#	1913#	1916#	1937#	1940#	1961#	1964#	1985#	1988#				
Y	= 000011	1#	841#	843#	843#	844#	845#	846#	847#	848#	849#	850#						
.	= 013342	565#	566#	568#	570#	572#	574#	576#	578#	580#	582#	584#	586#	588#				
		590#	592#	594#	596#	598#	600#	602#	604#	606#	608#	610#	612#	614#				
		616#	618#	620#	622#	624#	626#	628#	630#	632#	634#	636#	638#	640#				
		642#	644#	646#	648#	650#	652#	654#	656#	658#	660#	662#	664#	666#				
		668#	670#	672#	674#	676#	678#	680#	682#	684#	686#	688#	690#	692#				
		694#	696#	698#	700#	702#	704#	706#	708#	710#	712#	714#	716#	718#				
		720#	722#	724#	726#	728#	730#	732#	734#	736#	738#	740#	742#	744#				
		746#	748#	750#	752#	754#	756#	758#	760#	762#	764#	766#	768#	770#				
		772#	774#	776#	778#	780#	782#	784#	786#	788#	790#	792#	794#	796#				
		798#	800#	802#	804#	806#	808#	810#	812#	814#	816#	818#	820#	825#				
		832#	850#	852#	854#	2578#	2608#	2624#	2666#	2683#	2685#	2687#	2715#					

D06

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 68

SEQ 0065

DZDHIC.P11 29-SEP-76 14:42

CROSS REFERENCE TABLE -- MACRO NAMES

BLIND1	9318	1620	1644	1668	1692	1716	1740	1764	1788	1812	1836	1860	1884	1908	1932
BREAK1	1956	1980													
	9318	9322	975	1018	1061	1104	1147	1190	1233	1276	1319	1362	1405	1448	1491
	1534	1577													
CCLRAL	9328	2310													
CODEM1	8548	903													
HLT	5458	968	973	1011	1016	1054	1059	1097	1102	1140	1145	1183	1188	1226	1231
	1269	1274	1312	1317	1355	1360	1398	1403	1441	1446	1484	1489	1527	1532	1570
	1575	1613	1618	1642	1666	1690	1714	1738	1762	1786	1810	1834	1858	1882	1906
	1930	1954	1978	2002											
SSETAL	9318														
TRPDEF	18	841	842	843	844	845	846	847	848	849					
TS	18	940	983	1026	1069	1112	1155	1198	1241	1284	1327	1370	1413	1456	1499
	1542	1585	1628	1649	1673	1697	1721	1745	1769	1793	1817	1841	1865	1889	1913
	1937	1961	1985												
WORDS	25798	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593
	2594														
.BUFFE	18	2679													
.CATCH	18	564													
.ENDCO	18	2721													
.EOP	18	2005													
.ERROR	18	2055													
.ERRTA	18	2688													
.HEADE	18	479													
.INSTR	18	2150													
.MSG	18	2635													
.OCTAS	18	2223													
.PARAM	18	2174													
.PFAIL	18	2595													
.POINT	18	2267													
.RESRE	18	2129													
.SAVRE	18	2115													
.SCOPE	18	2026													
.SCOPI	18	2048													
.SETVE	18	822													
.START	18	854													
.SYMB0	18	498													
.TRPDE	18	836													
.TRPSR	18	2102													
.TRPTA	18	2667													
.TYPER	18	2138													
.VARIA	18	2286													

. ABS. 013342 000

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

DZDHIC.BIN,DZDHIC.SEG/CRF/SOL/DOC=UTIL2.P11,DZDHIC.P11

RUN-TIME: 14 24 2 SECONDS

RUN-TIME RATIO: 221/41=5.3

CORE USED: 11K (21 PAGES)

DOCUMENT PAGES: 65

E06

DZDHI MACY11 27(1006) 29-SEP-76 14:44 PAGE 69
DZDHIC.P11 29-SEP-76 14:42 CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0066

Spooler runtime 11 Seconds, 49 KCS, 259 disk reads, 4 disk writes, 66 pages

Special Function: 11 Seconds, 19 KES, 895 disk reads, 1 disk writes, 60 pages
 Version: 6-CONVEXION, 001/1001001, 70-210000-6-1711 Date: 03-Dec-76 09:02:09 Monitor IPC-D 602 (600) ENDJOB

[illegible]