

RF11

STATIC TESTS
MD-11-DZRFA-B

EP-DZRFA-B-DL
COPYRIGHT 1973
FICHE 1 OF 1

JUN 1978
digital
MADE IN USA

Frame 1	Frame 2	Frame 3	Frame 4	Frame 5	Frame 6
Frame 7	Frame 8	Frame 9	Frame 10	Frame 11	Frame 12
Frame 13	Frame 14	Frame 15	Frame 16	Frame 17	Frame 18
Frame 19	Frame 20	Frame 21	Frame 22	Frame 23	Frame 24
Frame 25	Frame 26	Frame 27	Frame 28	Frame 29	Frame 30
Frame 31	Frame 32	Frame 33	Frame 34	Frame 35	Frame 36
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IDENTIFICATION

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PRODUCT CODE:	MAINDEC-11-DZRFA-R-D
REPLACES:	MAINDEC-11-D50A
	SUPERSEDES D50A
PRODUCT NAME:	RF11 STATIC TESTS
DATE CREATED:	31 MARCH 1973
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	EARL HAIGHT/C CASSELL

REVISION (S) 1973
DECISION EQUIPMENT CORPORATION

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1. ABSTRACT

THE PDP-11 STATIC TEST IS A SERIES OF STATIC AND ADDRESS AND DATA RELIABILITY ROUTINES WHICH VERIFY TO THE USER THE DISK CONTROL (RS11) AND DISK (DS11) ARE OPERATING CORRECTLY. THIS TEST USED IN CONJUNCTION WITH THE PDP-11 DISK DATA AND PDP-11 MULTI DISK ASSURES THE USER OF AN ERROR FREE SYSTEM, WHICH IS USED IN ITS ENTIRETY.

2. REQUIREMENTS

2.1 EQUIPMENT

PDP-11
PDP-11 AND DS11

2.2 STORAGE

STATIC TEST
PROGRAM OCCUPIES FROM 0 TO 11546

3. LOADING PROCEDURE

3.1 METHOD OF LOADING BOTH STATIC AND DATA TEST TAPES

PROGRAM FORMAT ABSOLUTE

A. VERIFY THE BOOT LOADER IS IN MEMORY.

B. SET SWITCH REGISTER EQUAL TO 0500

MEMORY SIZE *

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

C. DEPRESS LOAD ADDRESS.

D. DEPRESS START.

4. STARTING PROCEDURE

4.1 WORST CASE DISK TEST UNIT ZERO

- A) SET SWITCH REGISTER EQUAL TO 200
- B) DEPRESS LOAD ADDRESS
- C) SET SWITCH REGISTER EQUAL TO ZERO
- D) DEPRESS START

4.2 UNDER MONITOR CONTROL THE TESTS START AUTOMATICALLY

4.3 ADDRESS ENTRY POINTS FOR TEST ROUTINES

300	JMP	STAI1	TEST RESET TO CONTROL REGISTER
304	JMP	STAI2	TEST RESET TO CURRENT ADDRESS REGISTER
310	JMP	STAI3	TEST RESET TO WORD COUNT REGISTER
314	JMP	STAI4	TEST RESET TO DISK ADDRESS REGISTER
320	JMP	STAI5	TEST RESET TO DISK EXT. ADDRESS REGISTER
324	JMP	STAI6	TEST RESET TO DAT BUFFER REGISTER
330	JMP	STAI7	TEST RESET TO MAINTENANCE REGISTER
334	JMP	STAI10	CAN WE SET W/R BITS IN DCS REGISTER
340	JMP	STAI11	CAN WE CLEAR THE DCS REGISTER USING DISK CLEAR.
344	JMP	STAI12	CAN WE SET ALL CMA BITS
350	JMP	STAI13	CAN WE CLEAR ALL CMA BITS USING DISK CLEAR
354	JMP	STAI14	CAN WE SET ALL WC BITS
360	JMP	STAI15	CAN WE CLEAR ALL WC BITS USING DISK CLEAR
364	JMP	STAI16	CAN WE SET ALL THE DAR BITS
370	JMP	STAI17	CAN WE CLEAR ALL THE DAR BITS USING DISK CLEAR
374	JMP	STAI20	CAN WE SET ALL THE DAE BITS
400	JMP	STAI21	CAN WE CLEAR ALL THE DAE BITS, USING DISK CLEAR
404	JMP	STAI22	EXECUTE A ONE WORD WRITE FOLLOWED BY A ONE WORD WRITE CONTINUE
410	JMP	STAI40	EXECUTE A ONE WORD WRITE CHECK FOLLOWED BY A ONE WORD WRITE CHECK CONTINUE
420	JMP	STAI74	TEST TRACK INCREMENT
424	JMP	STAI77	TEST DISK INCREMENT
430	JMP	STAI03	TEST THAT NED RAISES ERROR FLAG
434	JMP	ST105X	CHECK CMA INHIBIT
440	JMP	NX4TSM	TEST NON-EXISTENT MEMORY ERROR
444	JMP	STAI06	TEST THAT THE DISK WILL NOT TRAP AT PRIORITY 7
450	JMP	STAI10	TEST THAT THE DISK WILL NOT TRAP AT PRIORITY 6
454	JMP	STAI12	TEST THAT THE DISK WILL NOT TRAP AT PRIORITY 5
460	JMP	STAI14	TEST THAT THE DISK WILL TRAP AT PRIORITY 4
464	JMP	ADT1	ADDRESS TEST 1 CHECK TIMING BY EXECUTING A ONE WORD WRITE
470	JMP	ADT2X	ADDRESS TEST 2 CHECK TIMING BY EXECUTING A ONE WORD READ

(4.) CONT'D)

MAINTENANCE ROUTINES
ROUTINES IN STATIC AND DATA TEST BOTH

650	JMP	SELAC	LOAD ADDR COUNT REG. WITH SWITCH REGISTER
654	JMP	SELCHA	LOAD CURRENT MEMORY ADDR REG. WITH SWITCH REGISTER
660	JMP	SELDAR	LOAD DISK ADDR. REGISTER WITH SWITCH REGISTER
664	JMP	SELDAE	LOAD DISK ADDR. EXT. WITH SWITCH REGISTER
670	JMP	SELDBR	LOAD DATA BUFFER REGISTER WITH SWITCH REGISTER
674	JMP	MOVLK	MOVE CONTENTS OF LOOK AHEAD REGISTER INTO DATA LIGHTS
700	JMP	SELDCS	LOAD DISK CONTROL REGISTER WITH SWITCH REGISTER
704	JMP	STAMP	ENABLE READ AMPLIFIERS TO TRACK SELECTED

5. OPERATING PROCEDURE

5.1 CONTROL SWITCH SETTINGS

DELETE TYPEOUT

SP14	SET	DELETE TYPEOUTS
	RESET	REPORT MESSAGE

LOOP ON TEST

SP11	SET	LOOP ON TEST
	RESET	CONTINUE TO NEXT TEST

HALT ON ERROR

SR10	SET	HALT AFTER ERROR REPORT
	RESET	CONTINUE AFTER ERROR REPORT

SELECT TRACK FROM SR (DURING DYNAMIC TESTING)

SR7	SET	SELECT TRACK FROM SR
	RESET	SELECT TRACK UNDER PROGRAM CONTROL

TRACK SELECTION

6 5 4 3 2 1 0

SELECT ONE OF 177(8) TRACKS

NOTE:

- SWITCH SETTING APPLICABLE ONLY IN DATA TEST

5.2 SUBROUTINE ABSTRACTS

STATIC TEST

ABSTRACTS FOR THE LOGIC TESTS IN THE STATIC TEST ARE NOT INCLUDED IN THIS WRITE-UP. EACH SMALL TEST HAS A DESCRIPTION WITH IT IN THE ASSEMBLY.

ADDRESS TESTS

ADT1 - TEST WORD ACCESS DURING A WRITE

IN THIS TEST A ONE WORD WRITE IS ATTEMPTED ON EACH ADDRESS OF TRACK ZERO. IF NO ACCESS IS ACCOMPLISHED WITHIN 100 MILLI-SECONDS THE ERROR CONDITION MISSED TRANSFER (MXF) SHOULD SET. IF THIS FLAG SHOULD FAIL TO SET, A PROGRAM TIME OUT WILL BE REPORTED. IF NO CONTROL ERROR OCCURS AND ADDRESS CONFIRMED TAKES PLACE, THE ROUTINE THEN CHECKS THE ADDRESS POINTER FOR THE CORRECT TERMINATING ADDRESS.

ADT2X - TEST WORD ACCESS DURING A READ

IN THIS TEST A ONE WORD READ IS ATTEMPTED ON EACH ADDRESS OF TRACK ZERO. IF NO ACCESS IS ACCOMPLISHED WITHIN 100 MILLI-SECONDS THE ERROR CONDITION MISSED TRANSFER (MXF) SHOULD SET. IF THIS FLAG SHOULD FAIL TO SET A PROGRAM TIME OUT WILL BE REPORTED. IF NO CONTROL ERROR OCCURS AND ADDRESS CONFIRMED TAKES PLACE, THE ROUTINE THEN CHECKS THE ADDRESS POINTER REGISTER FOR THE CORRECT TERMINATING ADDRESS.

ADDRESS TEST IN DATA TEST ONLY

ADT2 - TEST FOR ALTERATION OF WORD ADDRESS

IN THIS ADDRESS TEST, TRACK ZERO IS LOADED WITH ALL ONES IN BLOCK OF 2K. THEN THE TEST STARTING WITH ADDRESS 0 AND PROGRESSING UP THROUGH AND INCLUDING ADDRESS 3777(8), THE OCTAL VALUE OF THE ADDRESS, IS WRITTEN ON ITSELF AND ALL OTHER ADDRESSES ARE CHECKED FOR MODIFICATION. THEY SHOULD EQUAL ALL ONES. AFTER CHECK IS COMPLETED AND ALL ERRORS ARE REPORTED IF ANY, THE ROUTINE THEN RE-Writes THE ADDRESS WITH ALL ONES AND THEN CONTINUES ON WITH THE NEXT ADDRESS.

ADT3 : VERIFY THAT ALL ADDRESSES EXIST ON DISK SURFACE TRACK

IN THIS ROUTINE THE OCTAL VALUE OF EACH ADDRESS IS WRITTEN ON ITSELF IN 2K WORD BLOCKS. THE ROUTINE THEN READS THE DISK AND VERIFIES THAT ALL ADDRESSES CAN BE ACCESSED. ERRORS MAY BE REPORTED

IN THIS TEST WHICH ARE NOT ADDRESS ERRORS BUT DATA ERRORS, THE OPERATOR IS CAUTIONED TO CAREFULLY EXAMINE THE ERRORS TO DISTINGUISH BETWEEN THE ADDRESS AND DATA ERRORS.

ADT4 - TEST TRACK "X" AND "Y" MATRIX

THIS ROUTINE WAS DESIGNED TO ENABLE THE OPERATOR AN EASY AND SURE METHOD OF DETECTING DEFECTIVE MATRIX SWITCHES. IN THIS ROUTINE THE FIRST AND LAST LOCATION OF EACH TRACK (0 AND 3777(R)) ARE WRITTEN WITH ALL ONES. AFTER THE INITIAL WRITE HAS TAKEN PLACE, THE ROUTINE THEN STARTS WITH THE FIRST WORD OF THE ABOVE INDICATED LOCATION AND WRITES THE ADDRESS ON ITSELF. THE NEXT STEP OF THE ROUTINE IS TO CHECK ALL OTHER ADDRESSES TO SEE IF THEY HAVE BEEN ALTERED. AFTER ALL ERRORS HAVE BEEN REPORTED, IF ANY, THE ROUTINE RE-WRITES THE ADDRESS WITH ALL ONES AND CONTINUES ON WITH THE NEXT ADDRESS.

ADT5 - TEST LOOK AHEAD FEATURE

THE DISK LOOK AHEAD FEATURE WAS DESIGNED FOR THE USER WHO WANTED OPTIMUM USE OF THE DISK, BY KNOWING AT WHAT ADDRESS THE DISK READ HEADS ARE LOCATED AT ALL TIMES. THE ADDRESS LOADED INTO THE ADS REGISTER IS THE PHYSICAL ADDRESS OF THE DISK. THE PROGRAM LOCATES THE PHYSICAL ADDRESS BY WRITE A WORD AND UPON RECEIVING THE COMPLETION FLAG THE PROGRAM READS THE ADS REGISTER. THE ADDRESS MAY BE UP TO 2 ADDRESSES OFF.

SPIRAL - TEST DISK TRACK SPIRAL

IN THIS ROUTINE THE ABILITY OF THE CONTROL (RF09/15) TO SPIRAL FROM ONE TRACK TO ANOTHER DURING A READ AND A WRITE. IN ORDER TO CHECK THE READ SPIRAL, THE LAST ADDRESS (3777(0)) OF TRACK ZERO IS WRITTEN WITH PRE-DETERMINED DATA AND THE FIRST ADDRESS (0) OF TRACK ONE, IS ALSO WRITTEN WITH PRE-DETERMINED DATA. THEN A TWO WORD READ STARTING AT LOCATION 3777(0) OF TRACK ZERO IS ACCOMPLISHED. THE TWO WORDS THEN ARE COMPARED TO THE DATA WRITTEN AND ANY ERRORS ARE REPORTED.

TO CHECK WRITE SPIRAL, THE ROUTINE WRITES TWO WORDS STARTING AT ADDRESS 3777(0) OF TRACK ZERO AND TERMINATES AT LOCATION 0 OF TRACK ONE. THE ROUTINE THEN READS THE TWO LOCATIONS WITH ONE WORD TRANSFERS, AND VERIFIES THE CORRECT DATA WAS STORED IN EACH LOCATION.

SUBROUTINE ABSTRACTS

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ADT3 - VERIFY THAT ALL ADDRESSES EXIST ON DISK SURFACE TRACK

IN THIS ROUTINE THE OCTAL VALUE OF EACH ADDRESS IS WRITTEN ON ITSELF IN 2K WORD BLOCKS. THE ROUTINE THEN READS THE DISK AND VERIFIES THAT ALL ADDRESSES CAN BE ACCESSED. ERRORS MAY BE REPORTED IN THIS TEST WHICH ARE NOT ADDRESS ERRORS BUT DATA ERRORS. THE OPERATOR IS CAUTIONED TO CAREFULLY EXAMINE THE

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WRITTEN AND ANY ERRORS ARE REPORTED.

TO CHECK WRITE SPIRAL, THE ROUTINE WRITES TWO WORDS STARTING AT ADDRESS 3777(N) OF TRACK ZERO AND TERMINATES AT LOCATION 0 OF TRACK ONE. THE ROUTINE THEN READS THE TWO LOCATIONS WITH ONE WORD TRANSFERS, AND VERIFIES THE CORRECT DATA WAS STORED IN EACH LOCATION.

DATA TESTS

RANEX - RANDOM DATA, RANDOM ADDRESS RANDOM WORD COUNT TEST

THIS ROUTINE TESTS THE ABILITY OF THE SYSTEM TO ACCESS RANDOM ADDRESS WITH RANDOM DATA AND AN INCREMENTAL WORD COUNT. THE DATA IS FIRST WRITTEN ON THE DISK AND THEN DATA IS WRITE-CHECKED. ALL ERRORS ARE REPORTED. THE WORD COUNT RUNS FROM 1 TO 1000(N) WORDS.

DATA RELIABILITY - DATA PATTERN TEST

IN THIS PORTION OF THE TEST, THE ABILITY OF THE COMPLETE DISK SURFACE TO WRITE, WRITE-CHECK, AND READ DATA IS TESTED. THE ROUTINE FIRST WRITES THE COMPLETE SURFACE WITH A SFT DATA PATTERN, THEN A WRITE CHECK OF THE COMPLETE SURFACE IS ACCOMPLISHED, THUS REPORTING ALL ERRORS BETWEEN THE DATA WRITTEN AND THE DATA IN MEMORY. THREE READS ARE ACCOMPLISHED FOR EACH BUFFER AREA ON THE DISK. THE OPERATOR AT THIS POINT HAS SEVERAL OPTIONS AS TO WHAT COURSE OF ACTION THE PROGRAM WILL TAKE NEXT. (PFF. SEC. 5.1)

IN THE DATA RELIABILITY, ALL PROGRAM PARAMETERS CAN BE CHANGED.
REF. SEC. 5.2

MAINTENANCE TOOL

STAMP - STATIC TRACK SELECTION

THIS ROUTINE WAS DESIGNED TO ENABLE THE OPERATOR TO HAVE A QUICK
METHOD OF SELECTING TRACKS FOR AMPLITUDE ADJUSTMENTS.

STAMP - OPERATING PROCEDURE

STEP A. SFT SWITCH REGISTER EQUAL TO 704

STEP B. DEPRESS LOAD ADDRESS

STEP C. SET SWITCH REGISTER 9 THRU 7 EQUAL TO DISK 00 THRU 7

STEP D. DEPRESS START

STEP E. SFT SWITCH REGISTER 6 THRU 0 EQUAL TO TRACK 6

STEP F. DEPRESS CONTINUE

6 5 4 3 2 1 0

TRACK NUMBER
(0 THRU 177(8))

STEP G. TRACK NUMBER CAN BE CHANGED ARBITRARILY.

6. ERROR REPORTS

6.1 STATIC AND ADDRESS REPORT.

XX ERR CNT XXXXXWRD1XXXXWRD2

ERRCNT # IS THE TAG FOR THE LISTING

WRD1 # WHAT WAS EXPECTED

WRD2 # WHAT WAS RECEIVED

WHEN A REPORT ONLY CONTAINS ONE WORD THE PROGRAM WAS EXPECTING
ZEROS BUT RECEIVED WHAT WAS REPORTED.

6.2 ERROR REPORTS

STATUS ERROR

STATUS ERROR XXDAE XXXXXXDAR XXXXXXDCS

A B C

A=THE DISK NUMBER AND EXTENDED DISK ADDRESS BITS,
B=THE DISK ADDRESS REGISTER
C=THE DISK CONTROL REGISTER

LAYOUT OF DISK ADDRESS BITS

DAE DAR
XXX XXX XXX XXX XXX XXX XXX

DISK NO. TRACK ADDRESS WORD ADDRESS

BIT LAYOUT OF DCS REGISTER

- BIT15= ERROR
- BIT14= DISK FREEZE
- BIT13= WRITE CHECK ERROR
- BIT12= DATA PARITY ERROR
- BIT11= NON-EXISTENT DISK
- BIT10= WRITE LOCKOUT
- BIT9= MISSED TRANSFER
- BIT8= DISK CLEAR
- BIT7= READY
- BIT6= INTERRUPT ENABLE
- BIT5= EXTENDED MEMORY 1 (XM1)
- BIT4= EXTENDED MEMORY 0 (XM0)
- BIT3= MAINTENANCE
- BIT2-1= FUNCTION REGISTER

BIT 2	BIT 1	OPERATION
0	0	NOP
1	0	READ
0	1	WRITE
1	1	WRITE CHECK

IF THE ERROR OCCURRED WHEN PEADING THE PROGRAM WILL REPORT WHICH READ.

(6.2 CONT'D)

NOTE: WHEN A FREEZE ERROR OCCURS AN ADDITIONAL ERROR MESSAGE WILL BE REPORTED, AS FOLLOWS:

XXX WRD ERR

LAYOUT OF BITS 0 - 7

BIT0= CMA INH. (NOT AN ERROR CONDITION)
BIT1= UNUSED
BIT2= NON-EXISTENT MEMORY ERROR
BIT3= UNUSED
BIT4= TRACK C TIMING ERROR
BIT5= TRACK B TIMING ERROR
BIT6= TRACK A TIMING ERROR
BIT7= ADDRESS PARITY ERROR

6.3 MEMORY PARITY ERRORS

THIS MESSAGE IS REPORTED IF THE PROGRAM DETECTS A PARITY ERROR

DURING PROGRAM EXECUTION.

6.4 POWER HAS FAILED

THIS MESSAGE IS REPORTED TO INDICATE A POWER FAILURE AND A PROGRAM RESTARTS.

6.5 END

END

THIS MESSAGE IS REPORTED AT THE END OF ONE COMPLETE PASS OF THE DISK SYSTEM.

7. MISCELLANEOUS

IN SOME ADDRESS TESTS THE PROGRAM DEPENDS ON WRITTING AND
READING DATA CORRECTLY FROM THE DISK, AND IF IT DOES NOT IT MAY
REPORT AN ADDRESS FAILURE, WHEN IN FACT IT HAS A DATA FAILURE.

8. RUNTIME

TYPEOUT WILL OCCUR WITHIN 5 MIN.

```

1      .TITLE  MAI:DEC-11-DZPFA-B HF-11 STATIC TEST REPLACES D50A
2      .COPYRIGHT 1973, DIGITAL EQUIPMENT CORP., MAYNARD, MASS.
3      .PROGRAM BY F. HAIGHT/C.CASSWELL
4      .ENABL  ABS
5      .MAC
6      .BIT0=1
7      .BIT1=2
8      .BIT2=4
9      .BIT3=10
10     .BIT4=20
11     .BIT5=40
12     .BIT6=100
13     .BIT7=200
14     .BIT8=400
15     .BIT9=1000
16     .BIT10=2000
17     .BIT11=4000
18     .BIT12=10000
19     .BIT13=20000
20     .BIT14=40000
21     .BIT15=100000
22     .SCOPE=ICT
23     |
24     |
25     |
26     .WRITE=TPAP+3
27     .WRCHECK=TRAP+7
28     .READ=TPAP+5
29     .=0
30     .TRAP CATCHER 0 -> 776
31     .MACRO FOR SETTING UP ERROR COUNT
32     .=200
33     .JMP  START
34     .000200 000167 000672
35     .
36     .STATIC ROUTINES
37     .=300
38     .JMP  STAI1  .ITEST RESET TO CONTROL REGISTER
39     .JMP  STAI2  .ITEST RESET TO CURRENT ADDRESS REGISTER
40     .JMP  STAI3  .ITEST RESET TO WORD COUNT REGISTER
41     .JMP  STAI4  .ITEST RESET TO DISK ADDRESS REGISTER
42     .JMP  STAI5  .ITEST RESET TO DISK EXT. ADDRESS REGISTER
43     .JMP  STAI6  .ITEST RESET TO DATE BUFFER REGISTER
44     .JMP  STAI7  .ITEST RESET TO MAINTENANCE REGISTER
45     .JMP  STAI10 .ICAN WE SET W/R BITS IN DCS REGISTER
46     .JMP  STAI11 .ICAN WE CLEAR THE DCS REGISTER
47     .
48     .JMP  STAI12 .USING DISK CLEAR.
49     .JMP  STAI13 .ICAN WE SET ALL CMA BITS
50     .
51     .JMP  STAI14 .ICAN WE CLEAR ALL CMA BITS
52     .JMP  STAI15 .USING DISK CLEAR
53     .
54     .JMP  STAI16 .ICAN WE SET ALL WC BITS
55     .
56     .JMP  STAI17 .ICAN WE CLEAR ALL WC BITS
57     .USING DISK CLEAR
58     .
59     .JMP  STAI18 .ICAN WE SET ALL DAR BITS
60     .
61     .JMP  STAI19 .ICAN WE CLEAR ALL DAR BITS
62     .USING DISK CLEAR

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MAINDEC-11-DZRFA-B PF-11 STATIC TEST REPLACES D50A
DZRFA.BIC

MACY11.624 12-SEP-73 12:58 PAGE 2

55 000370 000167 001640
56

JVP ST117

ICAN AF CLEAR ALL THE DAP BITS
USING DISK CLEAR

87						
88	000374	000167	001702	JMP	STAI20	ICAN BE SET ALL THE DAF BITS
89	000400	000167	001746	JMP	STAI21	ICAN BE CLEAR ALL THE DAF BITS, USING DISK CLEAR
90	000404	000167	002004	JMP	STAI22	EXECUTE A ONE WORD WRITE
91						FOLLOWED BY A ONE WORD WRITE CONTINUE
92	000410	000167	002724	JMP	STAI40	EXECUTE A ONE WORD WRITE CHECK
93						FOLLOWED BY A ONE WORD WRITE CHECK CONTINUE
94	000414	000167	003674	JMP	STAI56	EXECUTE A ONE WORD READ
95						FOLLOWED BY A ONE WORD READ CONTINUE
96	000420	000167	004620	JMP	STAI74	TEST TRACK INCREMENT
97	000424	000167	005022	JMP	STAI77	TEST DISK INCREMENT
98	000430	000167	005270	JMP	STAI03	TEST THAT RED RAISES ERROR FLAG
99	000434	000167	005460	JMP	ST105X	CHECK CMA INHIBIT
100	000440	000167	005656	JMP	NXMTSM	TEST NON-EXISTENT MEMORY ERROR
101	000444	000167	006224	JMP	STAI06	TEST THAT THE DISK WILL NOT TRAP
102						AT PRIORITY 7
103	000450	000167	006354	JMP	STAI10	TEST THAT THE DISK WILL NOT TRAP
104						AT PRIORITY 6
105	000454	000167	006504	JMP	STAI12	TEST THAT THE DISK WILL NOT TRAP
106						AT PRIORITY 5
107	000460	000167	006634	JMP	STAI14	TEST THAT THE DISK WILL TRAP
108						AT PRIORITY 4
109	000464	000167	006742	JMP	ADT1	ADDRESS TEST 1
110						CHECK TIMING BY EXECUTING
111						A ONE WORD WRITE
112	000470	000167	007136	JMP	ADT2X	ADDRESS TEST 2
113						CHECK TIMING BY EXECUTING
114						A ONE WORD READ
115		000650				
116						
117						
118						
119	000650	000167	007326	JMP	SELWC	LOAD WORD COUNT REG WITH SWR
120	000654	000167	007332	JMP	SELCMA	LOAD CURRENT ADDRESS REG WITH SWR
121	000660	000167	007336	JMP	SELDAR	LOAD DISK ADDRESS REG WITH SWR
122	000664	000167	007342	JMP	SELDAE	LOAD DISK EXT. ADDRESS REG WITH SWR
123	000670	000167	007346	JMP	SELDAP	LOAD DATA BUFFER REG WITH SWR
124	000674	000167	007352	JMP	MOVLC	MOVE LOOK AHEAD INTO LIGHTS
125	000700	000167	007360	JMP	SELDCS	LOAD FUNCTION REG WITH SWR
126						
127						
128	000704	000167	007424	JMP	STAMP	SELECT TRACKS STATICLY
129						
130						
131						
132						
133						
134						
135						
136						
137						
138						
139						
140						
141						
142						
143						
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145						
146						
147						
148						
149						
150						

111
112

001000

.#1000

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113
114           .EVEN
115           |
116           |I/O ADDRESS POINTERS
117 001000 177570 SWPI 177570 |SWITCH REGISTER
118 001002 177776 PSI 177776 |PROCESSOR STATUS REGISTER
119 001004 177566 TPI 177566 |TYPE REGISTERS
120 001006 177562 TKPI 177562
121 001010 177564 TPSI 177564
122 001012 177560 TKS 177560
123           |
124           |DISK I/O REGISTERS
125           |
126 001014 177460 DCS 177460 |DISK CONTROL REGISTER
127 001016 177462 WCI 177462 |WORD COUNT REGISTER
128 001020 177464 CMA 177464 |CURRENT MEMORY ADDRESS REGISTER
129 001022 177466 DARI 177466 |LOWER 16 BITS OF DISK ADDRESS
130 001024 177470 DAF 177470 |EXTENSION ADDRESS REGISTER
131 001026 177472 DBRI 177472 |DATA BUFFER REGISTER
132 001030 177474 MA 177474 |MAINTENANCE REGISTER
133 001032 177476 ADS 177476 |LOOK AHEAD REGISTER
134           |
135           |
136           |
137           |
138           |
139           |
140           |RF11 DEDICATE REGISTERS (MEMORY)
141           |
142 001034 000000 FLAG 0 |INTERNAL PROGRAM FLAG
143 001036 146723 RANNU 146723 |RANDOM NUMBER PRIME
144 001040 000000 WPDCT 0 |WORKING WORD COUNT
145 001042 000000 TRACK 0 |WORKING DAF
146 001044 000000 DMA 0 |WORKING DAP
147 001046 000000 PATNU 0 |DATA PATTERN INDEX
148 001050 000000 BUF 0 |WORKING DATA BUFFER (OLT-IN)
149 001052 000000 TWRDCT 0 |TEMP WORD COUNT
150 001054 000000 TDMA 0 |TEMP DAP
151 001056 000000 SWPDCT 0 |STANDARD WORD COUNT
152 001060 000000 ERCOUNT 0 |ERROR COUNT FOR MESSAGES.
153 001062 000000 SAVE 0
154 001064 000000 SAVI 0
155 001066 000000 PASS 0
156           |
157           |RF11 WORK REGISTERS
158           |(CAN BE CHANGED IN ANY ROUTINE)
159 001070 000000 WORK 0
160 001072 000000 WORK1 0
161 001074 000000 WORK2 0
  
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162									
163	001076	000005			START: RESET				ICLEAR THE ADHEP
164	001100	012776	001000		MOV	#1000,80			ISET UP STACK
165	001104	012767	000006	176672	MOV	#6,4			
166	001112	005067	176670		CLP	A			
167	001116	012767	000340	177062	MOV	#340,206			LOCK UP INTERRUPTS
168	001124	012767	010662	176676	MOV	#FVTHP,30			SET UP TTY POINTER
169	001132	012767	000340	176672	MOV	#340,32			LOCK UP INTERRUPTS
170	001140	012767	010130	176666	MOV	#DISK,34			SET UP DISK HANDLER POINTER
171	001146	012767	000340	176662	MOV	#340,3A			LOCK UP INTERRUPTS
172	001154	012777	000340	177620	MOV	#340,PPS			LOCK UP INTERRUPT LEVELS
173	001162	012767	010060	176630	MOV	#LOOP,20			SET UP FOR SCOPE LOOP
174	001170	012767	000340	176624	MOV	#340,27			LOCK UP PRIORITY
175	001176	012767	011214	176620	MOV	#DOAN,24			SET UP PWRFAIL
176	001204	012767	000340	176614	MOV	#340,26			LOCK UP PRIORITYS
177	001212	005067	177624		CLP	TRACK			CLEAR TRACK REGISTERS
178	001216	005067	177622		CLP	DMA			CLEAR DAP REGISTERS

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193 001222 000005
194 001224 004767 010042
195 001230 017767 177560 177632
196 001236 032767 177577 177624
197 001244 001405
198 001246 012767 000000 177604
199 001254 004567 007242
200 001260 105767 177604
201 001264 001005
202 001266 012767 000001 177564
203 001274 004567 007272
204 001300 000004
205 001302 001222
206
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208 001304 000005
209 001306 017767 177506 177554
210 001314 001405
211 001316 012767 000002 177534
212 001324 004567 007172
213 001330 000004
214 001332 001304
215
216
217
218 001334 000005
219 001336 017767 177454 177524
220 001344 001405
221 001346 012767 000003 177504
222 001354 004567 007142
223 001360 000004
224 001362 001334

;IF ARE YOU ENTERING THE STATIC TEST
;IF THE OPERATOR WOULD LIKE TO CHECK
;THE DISK REGISTERS PRIOR TO ENTERING THIS
;TEST WE HAVE SOME HANDY ROUTINES
;WHICH WOULD ALLOW YOU TO LOAD THESE
;REGISTERS UNDER SWITCH REGISTER CONTROL
;PLEASE REFERENCE THE STARTING ADDRESS
;TO SEE WHICH ROUTINE BEST SUITS YOUR
;PURPLEN.
;
;THIS TEST IS DESIGNED TO TEST THE ABILITY OF RESET
;TO CLEAR ALL THE DISK REGISTERS
;TEST CONTROL REGISTER
STAI1: RESET
;CLEAR THE WORLD
JSP 07,WAMP ;SET PARITY SWITCHES
MOV 0DCS,WORK ;FETCH CONTROL REGISTER
BIT 0177577,WORK ;IS IT CLEARED
BEQ XSTAI1 ;REGISTER OK (TEST READY)
MOV 00,ERCOUNT ;SET UP ERROR COUNT 0
JSP 05,STAER ;REPORT STATIC ERROR
XSTAI1: TSTB WORK ;TEST FOR READY
BNF LPST1 ;BRANCH IF READY
MOV 01,ERCOUNT ;SET UP ERROR COUNT 1
JSP 05,STAER ;REPORT READY NOT SET
LPST1: SCOPE
STAI1
;ENTER SCOPE LOOP
;TEST CURRENT ADDRESS REGISTER
;
STAI2: RESET
;CLEAR THE WORLD
MOV 0CMA,WORK ;FETCH CMA REGISTER
BEQ LPST2 ;REGISTER OK
MOV 02,ERCOUNT ;SET UP ERROR COUNT 2
JSP 05,STAER ;REPORT ERROR
LPST2: SCOPE
STAI2
;ENTER SCOPE LOOP
;
;TEST WORD COUNT REGISTER
;
STAI3: RESET
;CLEAR THE WORLD
MOV 0AC,WORK ;FETCH WC REG.
BEQ LPST3 ;REGISTER OK
MOV 03,ERCOUNT ;SET UP ERROR COUNT 3
JSP 05,STAER ;REPORT ERROR
LPST3: SCOPE
STAI3
;ENTER SCOPE LOOP

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225
226
227      I
228      ITEST DISK ADDRESS REGISTER
229      I
230 001364 000005          STAI4: RESET          ICLEAR THE WORLD
231 001366 017767 177430 177474      MOV      @DAR,*ORR    IFETCH DAR REGISTER
232 001374 001405          REQ      LPST4          IREGISTER CLEARED
233 001376 012767 000004 177454 EPR4:  MOV      @4,ERRCOUNT ISET UP ERROR COUNT 4
234 001404 004567 007112          JSR      @5,STAFR    IREPORT ERROR
235 001410 000004          LPST4: SCOPE          IENTER SCOPE LOOP
236 001412 001364          STAI4
237
238      I
239      ITEST DISK EXT. ADDRESS REGISTER
240      I
241 001414 000005          STAI5: RESET          ICLEAR THE WORLD
242 001416 017767 177402 177444      MOV      @DAE,*ORR    IFETCH DAE REGISTERS
243 001424 001405          REQ      LPST5          IDAE CLEARED
244 001426 012767 000005 177424 EPR5:  MOV      @5,ERRCOUNT ISET UP ERROR COUNT 5
245 001434 004567 007062          JSR      @5,STAFR    IREPORT ERROR
246 001440 000004          LPST5: SCOPE          IENTER SCOPE LOOP
247 001442 001414          STAI5
248
249      I
250      ITEST DATA BUFFER REGISTER
251      I
252 001444 000005          STAI6: RESET          ICLEAR THE WORLD
253 001446 017767 177354 177414      MOV      @DBR,*ORR    IFETCH DBR REGISTER
254 001454 001405          REQ      LPST6          IDBR CLEARED
255 001456 012767 000006 177374 EPR6:  MOV      @6,ERRCOUNT ISET UP ERROR COUNT 6
256 001464 004567 007032          JSR      @5,STAFR    IREPORT ERROR
257 001470 000004          LPST6: SCOPE          IENTER SCOPE LOOP
258 001472 001444          STAI6
259
260      I
261      ITEST MAINTENANCE REGISTER
262      I
263 001474 000005          STAI7: RESET          ICLEAR THE WORLD
264 001476 017767 177326 177364      MOV      @MA,*ORR    IFETCH MAINTENANCE REG
265 001504 001405          REQ      LPST7          IMA CLEARED
266 001506 012767 000007 177344 ERR7:  MOV      @7,ERRCOUNT ISET UP ERROR COUNT 7
267 001514 004567 007002          JSR      @5,STAFR    IREPORT ERROR
268 001520 000004          LPST7: SCOPE          IENTER SCOPE LOOP
269 001522 001474          STAI7
270
271      I
272      ICAN WE SET THE FUNCTION BITS IN THE DCS REG.
273      IBITS 7,6,5,4,3,2,1
274      I
275 001524 012777 000176 177262 STAI10: MOV      @176,@DCS ISET DISK FUNCTION BITS
276 001532 017767 177256 177330      MOV      @DCS,*ORR   IFETCH FUNCTION BITS
277 001540 022767 000376 177322      CMP      @376,*ORR   IARE THE FUNCTION BITS SET
278 001546 001410          REQ      LPST10        IFUNCTION BITS SET
279 001550 012767 000376 177314      MOV      @376,*ORR1  ISET UP FOR ERROR REPORT
280 001556 012767 000010 177274 FPR10: MOV      @10,ERRCOUNT ISET UP ERROR COUNT 10
281 001564 004567 007004          JSR      @5,STAFR1   IREPORT ERROR (ERROR IN FUNCTION BITS)
282 001570 000004          LPST10: SCOPE        IENTER SCOPE LOOP
283 001572 001524          STAI10

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333	002046	000004				SCOPE		
334	002050	001762				ERR500		
335								
336								
337								
338	002052	012767	177777	177012	STAI14:	MOV	0177777,WORK1	!SET UP MAX. WORD COUNT
339	002060	016777	177006	176730		MOV	WORK1,BAC	!LOAD WC REGISTER
340	002066	026777	177000	176722		CMP	WORK1,BAC	!ARE ALL BITS SET
341	002074	001410				REQ	LFST14	!YES! EXIT
342	002076	017767	176714	176764		MOV	BAC,WORK	!NO! FETCH WC REG.
343	002104	012767	000014	176746	FRR14:	MOV	014,ERRCOUNT	!SET UP FRROR COUNT 14
344	002112	004567	006456			JSR	05,STAFR1	!REPORT FRROR
345	002116	000004			LFST14:	SCOPE		!ENTER SCOPE LOOP
346	002120	002052				STAI14		


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347
348
349          I
350          I, TLL DISK CLEAR-CLEAR THE WORD COUNT REGISTER
351          I
352 002122 012777 177777 176666 STAI15: MOV      @177777,@AC      ISET AC REGISTER EQUAL TO ALL ONES
353 002130 052777 000400 176656          RIS      @BIT0,@DCS      IEXECUTE DISK CLEAR
354 002136 017767 176654 176724          MOV      @AC,@ORK      IFETCH WORD COUNT REGISTER
355 002144 001405          BEQ      LPST15          IYFS: EXIT
356 002146 012767 000015 176704 ERR15:  MOV      @15,ERCOUNT  ISET UP ERROR COUNT 15
357 002154 004567 006342          JSR      @5,@STAFR      IREPORT ERROR
358 002160 000004          LPST15: SCOPE
359 002162 002122          STAI15
360          I
361          I CAN WE SET ALL THE BITS IN THE DAP REGISTER.
362          I
363 002164 012767 177777 176700 STAI16: MOV      @177777,WORK1
364 002172 016777 176674 176622          MOV      WORK1,@DAP      ISET DAP TO ALL ONES
365 002200 017767 176616 176662          MOV      @DAP,@ORK      IFETCH DAP REGISTER
366 002206 026767 176660 176654          CMP      @ORK1,WORK      IARE ALL BITS SET
367 002214 001405          BEQ      LPST16          IYES: EXIT
368 002216 012767 000016 176634 ERR16:  MOV      @16,ERCOUNT  ISET UP ERROR COUNT 16
369 002224 004567 006344          JSR      @5,@STAFR1     INOT ALL BITS SET REPORT ERROR
370 002230 000004          LPST16: SCOPE
371 002232 002164          STAI16
372          I
373          I CAN WE CLEAR THE DAP REG. WITH DISK CLEAR.
374          I
375 002234 012777 177777 176560 STAI17: MOV      @177777,@DAP  ISET DAP TO ALL ONES
376 002242 052777 000400 176544          RIS      @BIT0,@DCS      IEXECUTE DISK CLEAR
377 002250 005777 176546          TST      @DAP          ITEST FOR ZERO DAP
378 002254 001410          BEQ      LPST17          IYFS: EXIT
379 002256 017767 176540 176604          MOV      @DAP,@ORK      INO BITS SET IN DAP
380 002264 012767 000017 176566 ERR17:  MOV      @17,ERCOUNT  ISET UP ERROR COUNT 17
381 002272 004567 006224          JSR      @5,@STAFR      IREPORT ERROR
382 002276 000004          LPST17: SCOPE
383 002300 002234          STAI17
384          I
385          I CAN WE SET THE EXT. ADDRESS BITS IN THE DAE REGISTER
386          I
387 002302 012767 000037 176562 STAI20: MOV      @37,WORK1
388 002310 016777 176556 176506          MOV      WORK1,@DAE      ISET EXT. ADDRESS BITS
389 002316 017767 176502 176544          MOV      @DAE,@ORK      IFETCH CONTENTS OF DAE REG.
390 002324 026767 176542 176536          CMP      WORK1,WORK      IARE ALL EXT. ADDRESS BITS SET
391 002332 001405          BEQ      LPST20          IYES: EXIT
392 002334 012767 000020 176516 ERR20:  MOV      @20,ERCOUNT  ISET UP ERROR COUNT 20
393 002342 004567 006226          JSR      @5,@STAFR1     IREPORT ERROR
394 002346 000004          LPST20: SCOPE
395 002350 002302          STAI20

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395
396
397          I
398          I CAN BE CLEAR THE EXT ADDRESS BITS IF THE DAE REG.
399          I USING DISK CLEAR
400 002352 012777 000037 176444 STAI21: MOV      037,0DAE      ISET EXT. ADDRESS BITS
401 002360 052777 000400 176426          BIS      0BIT0,0DCB      IEXECUTE DISK CLEAR
402 002366 017767 176432 176474          MOV      0DAE,0PRK      IFEICH CONTENTS OF DAE REG
403 002374 001405          BEQ      LPST21          IYES! EXIT
404 002376 012767 000021 176454 FRP21:  MOV      021,EPCCOUNT      ISET UP FRPOP COUNT 21
405
406 002404 004567 006112          JSR      05,STAFR      IREPORT FRPOP
407 002410 000004          LPST21: SCOPF          IENTER SCOPF LOOP
408 002412 002352          STAI21
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409
410
411      I
412      I DO ONE WORD WRITE FOLLOWED BY ONE WORD WRITE CONTINUE
413      I ERROR1=BUSY FAILED TO SET
414      I ERROR2=BUSY FAILED TO CLFAR
415      I ERROR3=CONTROL ERROR WHEN X-FERING DATA
416      I ERROR4=DAE INCREMENTED WHEN X-FERING DATA
417      I ERROR5=DAP FAILED TO INCREMENT WHEN X-FERING DATA
418      I ERROR6=WORD COUNT FAILED TO OVERFLOW
419      I ERROR7=CMA FAILED TO INCREMENT
420      I
421      I
422      I * * * EXECUTE THE ONE WORD WRITE * * *
422 002414 052777 000400 176372 STAI22: RIS      @BIT0,@DCS      ICLEAR THE DISK WORLD
423 002422 012747 177777 007170      MOV      @177777,@OUTBUF  I DATA TO BE X-FERED
424 002430 012777 011620 176362      MOV      @OUTBUF,@CMA    I SET UP CURRENT ADDRESS
425 002436 012777 177777 176352      MOV      @-1,@WC        I SET WORD COUNT TO -1
426 002444 052777 000003 176342      RIS      @3,@DCS        I GO WRITE
427 002452 105777 176336      TSTB     @DCS           I TEST FOR PDY=0
428 002456 100011      BPL      STAI23         I PDY=0
429 002460 017767 176330 176402      MOV      @DCS,@OPK      I BUSY NOT SET; FETCH DCS
430 002466
431 002466 012767 000022 176364      ERROR1: MOV      @22,@RCOUNT  I SET UP ERROR COUNT 22
432 002474 004567 006022      ERR22: JSR      @5,@STAF  I REPORT ERROR
433 002500 000745      BR       STAI22        I RESTART TEST
434 002502 005067 176362      STAI23: CLR      @OPK
435 002506 005267 176356      INCHAT: INC      @OPK   I WAIT FOR BUSY=0
436 002512 105777 176276      TSTB     @DCS           I IS BUSY CLEARED
437 002516 100417      BMT      STAI24        I FLAG CLEARED
438 002520 005767 176344      TST      @OPK          I HAVE WE WAITED LONG ENOUGH
439 002524 001370      BNE      INCHAT        I PDY FAILED TO SET
440 002526 017767 176262 176334      MOV      @DCS,@OPK     I FETCH CONTENTS OF DCS REG
441 002534 052767 000002 176330      RIS      @2,@OPK1     I WANT DCS SHOULD CONTAIN
442 002542
443 002542 012767 000023 176310      ERROR2: MOV      @23,@RCOUNT  I SET UP ERROR COUNT 23
444 002550 004567 006020      ERR23: JSR      @5,@STAF  I REPORT ERROR
445 002554 000717      BR       STAI22        I RESTART TEST
446 002556 017767 176232 176304      STAI24: MOV      @DCS,@OPK   I FETCH CONTENTS OF DCS REG
447 002564 005767 176300      TST      @OPK          I IS ERROR FLAG SET
448 002570 100012      BPL      STAI25        I NO; X-FER OK
449 002572 012767 000202 176272      MOV      @202,@OPK1   I WHAT DCS SHOULD CONTAIN
450 002600
451 002600 012767 000024 176252      ERROR3: MOV      @24,@RCOUNT  I SET UP ERROR COUNT 24
452 002606 004567 005762      ERR24: JSR      @5,@STAF  I REPORT ERROR
453 002612 000167 177576      JMP      STAI22        I RESTART TEST
454 002616 017767 176202 176244      STAI25: MOV      @DAE,@OPK   I IS EXT. ADDRESS CLEAR
455 002624 001407      BEQ      STAI26        I DAE OK
456 002626
457 002626 012767 000025 176224      ERROR4: MOV      @25,@RCOUNT  I SET UP ERROR COUNT 25
458 002634 004567 005662      ERR25: JSR      @5,@STAF  I REPORT ERROR
459 002640 000167 177550      JMP      STAI22        I RESTART TEST
460 002644 017767 176152 176216      STAI26: MOV      @DAR,@OPK   I WAS DAP INCREMENTED BY 1
461 002652 022767 000001 176210      CMP      @BIT0,@OPK    I IS DAR CORRECT
462 002660 001412      BEQ      STAI27
  
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463	002662	012767	000001	176202		MOV	0RTT0,07R1	1A4AT DAB SHCUID COM1AT
464	002670				FR0R51			
465	002670	012767	000026	176162	FR0R241	MOV	026,FR001AT	1SET UP FR0R2 COM1T 26
466	002676	004547	005672			YSP	05,STAF01	1RPPORT FR00
467	002702	000167	177506			JMP	ST0122	1RSTANT TEST

468									
469	002706	017767	176104	176154	STAI27:	MOV	B+C,WORK		IFETCH WORD COUNT
470	002714	001407				BEQ	STAI30		IFWORD COUNT DID OVERFLD
471	002716				FR006:				
472	002716	012767	000027	176134	FRR27:	MOV	027,ERRCOUNT		IFSET UP ERROR COUNT 27
473	002724	004567	005572			JSR	05,STAFF		IFWORD COUNT FAILED TO OVERFLD
474	002730	000167	177460			JMP	STAI22		IFRESTART TEST
475	002734	017767	176060	176126	STAI30:	MOV	0CMA,WORK		IFETCH CURRENT ADDRESS
476	002742	012767	011622	176122		MOV	0OUTBUF+2,WORK1		IFWHAT CMA SHOULD EQUAL
477	002750	026767	176116	176112		CMP	WORK1,WORK		IFIS CMA CORRECT
478	002756	001407				REQ	STAI31		IFYES EXECUTE CONTINUE
479	002760				ERR07:				
480	002760	012767	000030	176072	FRR30:	MOV	030,ERRCOUNT		IFSET UP ERROR COUNT 30
481	002766	004567	005602			JSR	05,STAFF1		IFREPORT ERROR IN CMA
482	002772	000167	177416			JMP	STAI22		IFERROR RESTART TEST

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497 002776 012777 177777 176012
498 003004 052777 000001 176002
499 003012 105777 175776
500 003016 100012
501 003020 017767 175770 176042
502 003026
503 003026 012767 000031 176024
504 003034 004567 005462
505 003040 000167 177350
506 003044 005067 176020
507 003050 105777 175740
508 003054 100415
509 003056 005267 176006
510 003062 001372
511 003064 017767 175724 175776
512 003072
513 003072 012767 000032 175760
514 003100 004567 005416
515 003104 000167 177304
516 003110 005777 175700
517 003114 100015
518 003116 017767 175672 175744
519 003124 017767 175674 175740
520 003132
521 003132 012767 000033 175720
522 003140 004567 005430
523 003144 000167 177244
524 003150 005777 175650
525 003154 001412
526 003156 017767 175642 175704
527 003164
528 003164 012767 000034 175666
529 003172 004567 005324
530 003176 000167 177212
531 003202 017767 175614 175660
532 003210 012767 000002 175654
533 003216 026767 175650 175644
534 003224 001407
535 003226
536 003226 012767 000035 175624

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; TEST WRITE
;A WRITE CONTINUE WILL BE EXECUTED 20x
;WORD COUNT WILL BE SET TO -1 AGAIN
;
;ERROR10=BUSY NOT SFT BY GO
;ERROR11=BUSY NOT CLEARED BY OVERFLOW
;ERROR12=DISK ERROR OCCURED WHILE X-FERING
;ERROR13=DAE INCREMENTED WHEN CONTINUE WAS EXECUTED
;ERROR14=DAR DID NOT EQUAL 2 AFTER SECOND X-FER
;ERROR15=WC DID NOT OVERFLOW AT THE END OF X-FER
;ERROR16=CMA DID NOT EQUAL OUTPUT*2 AT END OF X-FER
;
;
STAI31: MOV      #177777,0WC      ;SET WC TO -1
        BIS      @BIT0,@DCS      ;SFT GO TO CONTINUE
        TSTR     @DCS            ;TST FOR RDY SET
        RPL     STAI32          ;BUSY WAS SET BY GO
        MOV      @DCS,@ORK      ;FETCH CONTENTS OF DCS
;
ERR31:  MOV      #31,ERRCOUNT   ;SET UP ERROR COUNT 31
        JSR     @5,STAER        ;REPORT BUSY NOT SET
        JMP     STAI22
;
STAI32: CLP      WORK           ;TST FOR RDY SET BY OVERFLOW
INCBUSY: TSTB   @DCS           ;READY SFT CONTINUE
        RMI     STAI33          ;WAIT FOR RDY=1
        INC     WORK           ;GO WAIT FOR RDY
        RNF     INCBUSY        ;FETCH CONTENTS OF DCS
        MOV     @DCS,@ORK
;
ERR32:  MOV      #32,ERRCOUNT   ;SET UP ERROR COUNT 32
        JSR     @5,STAER        ;REPORT BUSY NOT CLEARED
        JMP     STAI22          ;RESTART ROUTINE
;
STAI33: TST      @DCS           ;DID AN ERROR OCCUR WHILE X-FERING
        RPL     STAI34          ;NO CONTINUE
        MOV     @DCS,@ORK      ;YES! CONTENTS OF DCS
        MOV     @DAE,@ORK1     ;EXT ERROR BITS
;
ERR33:  MOV      #33,ERRCOUNT   ;SET UP ERROR COUNT 33
        JSR     @5,STAER        ;REPORT ERROR OCCURRED
        JMP     STAI22          ;RESTART ROUTINE
;
STAI34: TST      @DAE           ;DID DAE INC, BY DATA WAS X-FERRED
        BEQ     STAI35          ;OK IT DID NOT INC
        MOV     @DAE,@ORK      ;ERROR IT INCREMENTED
;
ERR34:  MOV      #34,ERRCOUNT   ;SET UP ERROR COUNT 34
        JSR     @5,STAER        ;REPORT DAE INCREMENTED
        JMP     STAI22
;
STAI35: MOV      @DAR,@ORK      ;DID DAR INCREMENT ON CONTINUE
        MOV     #2,@ORK1        ;WHAT DAR SHOULD CONTAIN
        CMP     WORK1,WORK      ;IS DAR CORRECT
        BEQ     STAI36          ;DAR OK
;
ERR35:  MOV      #35,ERRCOUNT   ;SET UP ERROR COUNT 35

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537	003234	004567	005334			JSR	85,STAF1	IRPRT DAB INCORRECT
538	003240	000167	177150			JMP	STAI22	IRE-START ROUTINE
539	003244	017767	175546	175616	STAI36:	MOV	RAC,ALPH	IFETCH WORD COUNT
540	003242	001407				REQ	STAI37	WORD COUNT OVERFLOWED
541	003244				FRP15:			
542	003254	012767	000036	175576	FRP36:	MOV	836,ERCOUNT	ISFT UP ERROR COUNT 36
543	003262	004567	005234			JSR	85,STAF1	IRPRT WORD COUNT FAILED TO CLEAR
544	003266	000167	177122			JMP	STAI22	IRESTART ROUTINE
545	003272	017767	175522	175570	STAI37:	MOV	ICMA,WORK	IFETCH CMA
546	003300	012767	011624	175564		MOV	801TRUP+4,WORK1	WHAT CMA SHOULD EQUAL
547	003306	026767	175560	175554		CMP	WORK1,WORK	IS CMA CORRECT
548	003314	001407				REQ	LPST22	ICMA WAS CORRECT
549	003316				FRP16:			
550	003316	012767	000037	175534	FRP37:	MOV	837,ERCOUNT	ISFT UP ERROR COUNT 37
551	003324	004567	005244			JSR	85,STAF1	IRPRT CMA INCORRECT
552	003330	000167	177060			JMP	STAI22	IRESTART ROUTINE
553	003334	000004			LPST22:	SCOPF		ENTER SCOPE LOOP
554	003336	002414				STAI22		

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570 003340 052777 000400 175446
571 003346 012767 177777 006244
572 003354 012777 011620 175436
573 003362 012777 177777 175426
574 003370 052777 000007 175416
575 003376 105777 175412
576 003402 100011
577 003404 017767 175404 175456
578 003412
579 003412 012767 000040 175440
580 003420 004567 005076
581 003424 000745
582 003426 005067 175436
583 003432 005267 175432
584 003436 105777 175352
585 003442 100417
586 003444 005767 175420
587 003450 001370
588 003452 017767 175336 175410
589 003460 052767 000006 175404
590 003466
591 003466 012767 000041 175364
592 003474 004567 005074
593 003500 000717
594 003502 017767 175306 175360
595 003510 100021
596 003512 026727 175352 120006
597 003520 001006
598 003522 012767 120000 175342
599 003530 052767 000006 175334
600 003536
601 003536 012767 000042 175314
602 003544 004567 005024
603 003550 000167 177564
604 003554 017767 175244 175306
605 003562 001407
606 003564
607 003564 012767 000043 175266
608 003572 004567 004724

```

```

;
; TEST WRITE CHECK
; DO A ONE WORD WRITE CHECK FOLLOWED BY
; A ONE WORD WRITE CHECK CONTINUE
;
; ERROR17=BUSY FAILED TO SET
; ERROR20=BUSY FAILED TO CLEAR
; ERROR21=DISK ERROR WHEN X-FERING DATA
; ERROR22=DAE INCREMENTED WHEN X-FERING DATA
; ERROR23=DAE FAILED TO INCREMENT WHEN X-FERING DATA
; ERROR24=WORD COUNT FAILED TO OVERFLOW
; ERROR25=CMA FAILED TO INCREMENT
;
;
; * * * EXECUTE THE ONE WORD WRITE CHECK * * *
STAI40: BIS      @BITB,@DCS      ;CLEAR THE DISK WORLD
        MOV      @177777,@OUTBUF ;DATA TO BE X-FERED
        MOV      @OUTBUF,@CMA    ;SET UP CURRENT ADDRESS
        MOV      @-1,@C         ;SET WORD COUNT TO -1
        BIS      @7,@DCS        ;GO WRITE CHECK
        TSTB     @DCS           ;TEST FOR READY
        RPL      STAI41         ;NOT READY
        MOV      @DCS,@ORK      ;SET! FETCH DCS
;
; ERROR17:
ERR40:  MOV      @40,ERCOUNT     ;SET UP ERROR COUNT 40
        JSR      @5,STAER       ;REPORT ERROR
        RR       STAI40         ;RESTART TEST
;
; STAI41: CLR      WORK
; WCWAT:  TNC      WORK         ;WAIT FOR READY
        TSTB     @DCS
        BMT      STAI42         ;FLAG SET
        TST      @ORK          ;HAVE WE WAITED LONG ENOUGH
        RNE     WCWAT          ;READY FAILED TO SET
        MOV      @DCS,@ORK      ;FETCH CONTENTS OF DCS REG
        BIS      @6,@ORK1      ;WHAT DCS SHOULD CONTAIN
;
; ERROR20:
ERR41:  MOV      @41,ERCOUNT     ;SET UP ERROR COUNT 41
        JSR      @5,STAER       ;REPORT ERROR
        RR       STAI40         ;RESTART TEST
;
; STAI42: MOV      @DCS,@ORK      ;FETCH CONTENTS OF DCS REG
        RPL      STAI43         ;NO! X-FER OK
        CMP      WORK,@120006   ;DID WCE OCCUR
        RNE     ERROR21        ;
        MOV      @120000,WORK1  ;YES WCE OCCURRED
        BIS      @6,WORK1      ;WHAT DCS SHOULD CONTAIN
;
; ERROR21:
ERR42:  MOV      @42,ERCOUNT     ;SET UP ERROR COUNT 42
        JSR      @5,STAER       ;REPORT ERROR
        JMP      STAI40         ;RESTART TEST
;
; STAI43: MOV      @DAF,@ORK      ;IS EXT. ADDRESS CLEAR
        RER      STAI44         ;DAE OK
;
; ERROR22:
ERR43:  MOV      @43,ERCOUNT     ;SET UP ERROR COUNT 43
        JSR      @5,STAER       ;REPORT ERROR

```


609	003576	000167	177536			JMP	STAI40	IFSTART TEST
610	003602	017767	175214	175250	STAI44:	MOV	BDAL,WORK	IFAS DAP INCREMENTED BY 1
611	003610	022767	000001	175252		CMP	BRIT0,WORK	IFIS DAP CORRECT
612	003616	001412				REQ	STAI45	IFDAR OK
613	003620	012767	000001	175244		MOV	BRIT0,WORK1	IFWHAT DAP SHOULD CONTAIN
614	003626				FROR23:			
615	003626	012767	000044	175224	FRR44:	MOV	044,ERCOUNT	IFSET UP ERROR COUNT 44
616	003634	004567	004734			JSR	05,STAFR1	IFREPORT ERROR
617	003640	000167	177474			JMP	STAI40	IFRESTART TEST
618	003644	017767	175146	175216	STAI45:	MOV	04C,WORK	IFFETCH WORD COUNT
619	003652	001407				REQ	STAI46	IFWORD COUNT DID OVERFLOW
620	003654				EROR24:			
621	003654	012767	000045	175176	FRR45:	MOV	045,ERCOUNT	IFSET UP ERROR COUNT 45
622	003662	004567	004634			JSR	05,STAFR	IFWORD COUNT FAILED TO OVERFLOW
623	003666	000167	177466			JMP	STAI40	IFRESTART TEST
624	003672	017767	175122	175170	STAI46:	MOV	0CMA,WORK	IFETCH CURRENT ADDRESS
625	003700	012767	011622	175164		MOV	0OUTBUF+2,WORK1	IFWHAT CMA SHOULD EQUAL
626	003706	026767	175160	175154		CMP	WORK1,WORK	IFIS CMA CORRECT
627	003714	001407				REQ	STAI47	IFYES EXECUTE CONTINUE
628	003716				EROR25:			
629	003716	012767	000046	175134	ERR46:	MOV	046,ERCOUNT	IFSET UP ERROR COUNT 46
630	003724	004567	004644			JSR	05,STAFR1	IFREPORT ERROR IN CMA
631	003730	000167	177404			JMP	STAI40	IFERROR RESTART TEST

632								
633								
634							!A WHITE CHECK CONTINUE CONTINUE WILL BE EXECUTED NOW	
635							!ACFD COUNT WILL BE SET TO -1 AGAIN	
636							!	
637							!ERROR26=BUSY WAS NOT SET BY GO	
638							!ERROR27=BUSY NOT CLEARED BY OVERFLOW	
639							!ERROR30=DISK ERROR OCCURRED WHILE X-FERING	
640							!ERROR31=DAR INCREMENTED WHEN CONTINUE WAS EXECUTED	
641							!ERROR32=DAR DID NOT EQUAL 2 AFTER SECOND X-FER	
642							!ERROR33=WC DID NOT=0 AFTER X-FER	
643							!ERROR34=CMA DID NOT=OUTRUF+2 AT END OF X-FER	
644							!	
645							!	
646	003734	012777	177777	175054	STAI47:	MOV	0177777,0AC	!SET AC TO -1
647	003742	052777	000001	175044		RIS	0BIT0,0DCS	!SET GO TO CONTINUE
648	003750	105777	175040			TSTB	0DCS	!TEST FOR READY
649	003754	100012				RPL	STAI50	!
650	003756	017767	175032	175104		MOV	0DCS,0CRK	!FETCH CONTENTS OF DCS
651	003764				ERROR26:			
652	003764	012767	000047	175066	ERR47:	MOV	047,ERRCOUNT	!SET UP ERROR COUNT 47
653	003772	004567	004524			JSR	05,STAFF	!REPORT BUSY NOT SET
654	003776	000167	177336			JMP	STAI40	
655	004002	005067	175062		STAI50:	CLR	WORK	
656	004006	105777	175002		WCRUSI:	TSTB	0DCS	!TST FOR RDY SET BY OVERFLOW
657	004012	100415				RMI	STAI51	!BRANCH IF READY SET
658	004014	005267	175050			TNC	WORK	!WAIT FOR BUSY=0
659	004020	001372				RNF	0CBUSI	!GO WAIT FOR RDY
660	004022	017767	174766	175040		MOV	0DCS,0CRK	!FETCH CONTENTS OF DCS
661	004030				ERROR27:			
662	004030	012767	000050	175022	ERR50:	MOV	050,ERRCOUNT	!SET UP ERROR COUNT 50
663	004036	004567	004460			JSR	05,STAFF	!REPORT RDY NOT SET
664	004042	000167	177272			JMP	STAI40	!RESTART ROUTINE
665	004046	005777	174742		STAI51:	TST	0DCS	!DID AN ERROR OCCUR WHILE X-FERING
666	004052	100024				RPL	STAI52	!NO CONTINUE
667	004054	017767	174734	175006		MOV	0DCS,0CRK	!YES! CONTENTS OF DCS
668	004062	026727	175002	120006		CMR	WORK,0120006	
669	004070	001006				RNF	ERR51	
670	004072	012767	120000	174772		MOV	0120000,WORK1	
671	004100	052767	000006	174764		RIS	06,0CRK1	!EXT ERROR BITS
672	004106				ERROR30:			
673	004106	012767	000051	174744	ERR51:	MOV	051,ERRCOUNT	!SET UP ERROR COUNT 51
674	004114	004567	004454			JSR	05,STAFF1	!REPORT ERROR OCCURRED
675	004120	000167	177214			JMP	STAI40	!RESTART ROUTINE
676	004124	005777	174674		STAI52:	TST	0DAE	!DID DAE INC, BY DATA WAS X-FERED
677	004130	001412				BEO	STAI53	!OK IT DID NOT INC
678	004132	017767	174666	174730		MOV	0CAE,0CRK	!ERROR IT INCREMENTED
679	004140				ERROR31:			
680	004140	012767	000052	174712	ERR52:	MOV	052,ERRCOUNT	!SET UP ERROR COUNT 52
681	004146	004567	004350			JSR	05,STAFF	!REPORT DAE INCREMENTED
682	004152	000167	177162			JMP	STAI40	
683	004156	017767	174640	174704	STAI53:	MOV	0DAR,0CRK	!DID DAR INCREMENT ON CONTINUE
684	004164	012767	000002	174700		MOV	02,0CRK1	!WHAT DAR SHOULD CONTAIN
685	004172	026767	174674	174670		CMR	WORK1,0CRK	!IS DAR CORRECT

686	004200	001407			REQ	STAI94		1DAP ON
687	004202				EROF32:			
688	004202	012767	000053	174650	FRR53:	MOV	853,FRCOUNT	1SET UP ERROR COUNT 53
689	004210	004567	004360			JSP	85,STAFR1	1REPORT DAP INCORRECT
690	004214	000167	177120			JMP	STAI40	1RE-START ROUTINE
691	004220	017767	174572	174642	STAI54:	MOV	84C,WORK	1FFTCM WORD COUNT
692	004226	001407			REQ	STAI55		1WORD COUNT OVERFLOWED
693	004230				EROF33:			
694	004230	012767	000054	174622	FRR54:	MOV	854,FRCOUNT	1SET UP ERROR COUNT 54
695	004236	004567	004260			JSP	85,STAFR	1REPORT WORD COUNT FAILED TO CLEAR
696	004242	000167	177072			JMP	STAI40	1RESTART ROUTINE
697	004246	017767	174546	174614	STAI55:	MOV	8CMA,WORK	1FFTCM CMA
698	004254	012767	011624	174610		MOV	8DITRUF+4,WORK1	1WHAT CMA SHOULD EQUAL
699	004262	026767	174604	174600		CMP	WORK1,WORK	1IS CMA CORRECT
700	004270	001407			REQ	LPST40		1CMA WAS CORRECT
701	004272				EROF34:			
702	004272	012767	000055	174560	FRR55:	MOV	855,FRCOUNT	1SET UP ERROR COUNT 55
703	004300	004567	004270			JSP	85,STAFR1	1REPORT CMA INCORRECT
704	004304	000167	177030			JMP	STAI40	1RESTART ROUTINE
705	004310	000004			LPST40:	SCOPE		1ENTER SCOPE LOOP
706	004312	003360				STAI40		

761	004550	017767	174246	174312	STAI62:	MOV	DAP,WORK	IS DAP INCREMENTED BY 1
762	004556	022767	000001	174304		CMP	BIT0,WORK	IS DAP CORRECT
763	004564	001412				REQ	STAI63	DAP OK
764	004566	012767	000001	174276		MOV	BIT0,WORK	WHAT DAP SHOULD CONTAIN
765	004574				ERR61:			
766	004574	012767	000062	174256	ERR62:	MOV	62,ERRCOUNT	SET UP ERROR COUNT 62
767	004602	004567	003766			JSR	65,STAFF1	REPORT ERROR
768	004606	000167	177502			JMP	STAI56	RESTART TEST
769	004612	017767	174200	174250	STAI63:	MOV	63,ERRCOUNT	SET UP ERROR COUNT 63
770	004620	001407				REQ	65,STAFF1	WORD COUNT FAILED TO OVERFLOW
771	004622				ERR63:			
772	004622	012767	000063	174230	ERR64:	MOV	64,ERRCOUNT	SET UP ERROR COUNT 64
773	004630	004567	003666			JSR	65,STAFF1	REPORT ERROR IN CMA
774	004634	000167	177454			JMP	STAI56	ERROR RESTART TEST
775	004640	017767	174154	174222	STAI64:	MOV	CMA,WORK	FETCH CURRENT ADDRESS
776	004646	017767	011622	174216		MOV	OUTRUP+2,WORK1	WHAT CMA SHOULD EQUAL
777	004654	026767	174212	174206		CMP	WORK1,WORK	IS CMA CORRECT
778	004662	001407				REQ	STAI65	YES EXECUTE CONTINUE
779	004664				ERR65:			
780	004664	012767	000064	174166	ERR66:	MOV	66,ERRCOUNT	SET UP ERROR COUNT 66
781	004672	004567	003676			JSR	65,STAFF1	REPORT ERROR IN CMA
782	004676	000167	177412			JMP	STAI56	ERROR RESTART TEST

783									
784									IA READ CONTINUE WILL BE EXECUTED NOW
785									WORD COUNT WILL BE SET TO -1 AGAIN
786									
787									ERROR44=BUSY NOT SET BY GC
788									ERROR45=BUSY NOT CLEARED BY OVERFLOW
789									ERROR46=DISK ERROR OCCURRED WHILE X-FERING
790									ERROR47=DAE INCREMENTED WHEN CONTINUE WAS EXECUTED
791									ERROR50=DAR DID NOT EQUAL 2 AFTER SECOND X-FER
792									ERROR51=MC FAILED TO OVERFLOW ON READ CONTINUE
793									ERROR52=CMA DID NOT EQUAL OUTBUF+2 AFTER READ CONTINUE
794									
795									
796	004702	012777	177777	174106	STAI65:	MOV	0177777,04C		SET MC TO -1
797	004710	052777	000001	174076		BIS	0BIT0,0DCS		SET GO TO CONTINUE
798	004716	105777	174072			TSTB	0DCS		TEST FOR RDY=0
799	004722	100012				BPL	STAI66		RDY SET
800	004724	017767	174064	174136		MOV	0DCS,0CRK		FETCH CONTENTS OF DCS
801	004732				FRCP44:				
802	004732	012767	000065	174120	FRP65:	MOV	065,FRCOUNT		SET UP ERROR COUNT 65
803	004740	004567	003556			JSR	05,STAFP		REPORT BUSY NOT SET
804	004744	000167	177344			JMP	STAI56		
805	004750	005067	174114		STAI66:	CLP	WORK		
806	004754	105777	174034		INCRD:	TJTB	0DCS		TEST FOR RDY SET BY OVERFLOW
807	004760	100415				BMI	STAI67		RDY SET CONTINUE
808	004762	005267	174102			INC	WORK		WAIT FOR BUSY=0
809	004766	001372				RNE	INCPD		GO WAIT FOR BUSY
810	004770	017767	174020	174072		MOV	0DCS,0CRK		FETCH CONTENTS OF DCS
811	004776				ERROR45:				
812	004776	012767	000066	174054	EPR66:	MOV	066,FRCOUNT		SET UP ERROR COUNT 66
813	005004	004567	003512			JSR	05,STAFP		REPORT BUSY NOT CLEARED
814	005010	000167	177300			JMP	STAI56		RESTART ROUTINE
815	005014	005777	173774		STAI67:	TST	0DCS		DID AN ERROR OCCUR WHILE X-FERING
816	005020	100015				BPL	STAI70		NO CONTINUE
817	005022	017767	173766	174040		MOV	0DCS,0CRK		YES! CONTENTS OF DCS
818	005030	017767	173770	174034		MOV	0DAE,0CRK1		EXT ERROR BITS
819	005036				ERROR46:				
820	005036	012767	000067	174014	FRP67:	MOV	067,FRCOUNT		SET UP ERROR COUNT 67
821	005044	004567	003524			JSR	05,STAFP		REPORT ERROR OCCURRED
822	005050	000167	175340			JMP	STAI22		RESTART ROUTINE
823	005054	005777	173744		STAI70:	TST	0DAE		DID DAE INC. BY DATA WAS X-FERED
824	005060	001412				REQ	STAI71		OK IT DID NOT INC
825	005062	017767	173736	174000		MOV	0DAE,0CRK		ERROR IT INCREMENTED
826	005070				ERROR47:				
827	005070	012767	000070	173762	ERR70:	MOV	070,FRCOUNT		SET UP ERROR COUNT 70
828	005076	004567	003420			JSR	05,STAFP		REPORT DAE INCREMENTED
829	005102	000167	177206			JMP	STAI56		
830	005106	017767	173710	173754	STAI71:	MOV	0DAR,0CRK		DID DAR INCREMENT ON CONTINUE
831	005114	012767	000002	173750		MOV	02,WORK1		WHAT DAR SHOULD CONTAIN
832	005122	026767	173744	173740		CMP	WORK1,WORK		IS DAR CORRECT
833	005130	001407				REQ	STAI72		DAR OK
834	005132				ERROR50:				
835	005132	012767	000071	173720	ERR71:	MOV	071,FRCOUNT		SET UP ERROR COUNT 71
836	005140	004567	003430			JSR	05,STAFP		REPORT DAR INCORRECT

837	005144	000167	177144			JMP	STAI56	RESTART ROUTINE
838	005150	017767	173642	173712	STAI72:	MOV	MAC,WORK	FETCH WORD COUNT
839	005156	001407				REQ	STAI73	WORD COUNT OVERFLOWED
840	005160				ERROR51:			
841	005160	012767	000072	173672	FRR72:	MOV	72,ERCOUNT	SET UP ERROR COUNT 72
842	005166	004567	003330			JSR	85,STAFF	REPORT WORD COUNT FAILED TO CLEAR
843	005172	000167	177116			JMP	STAI56	RESTART ROUTINE
844	005176	017767	173616	173664	STAI73:	MOV	CMAC,WORK	FETCH CMA
845	005204	012767	011624	173660		MOV	OUTRUF+4,WORK1	WHAT CMA SHOULD EQUAL
846	005212	026767	173654	173650		CMR	WORK1,WORK	IS CMA CORRECT
847	005220	001407				REQ	LPST56	CMA WAS CORRECT
848	005222				ERROR52:			
849	005222	012767	000073	173630	FRR73:	MOV	73,ERCOUNT	SET UP ERROR COUNT 73
850	005230	004567	003340			JSR	85,STAFF1	REPORT CMA INCORRECT
851	005234	000167	177054			JMP	STAI56	RESTART ROUTINE
852	005240	000004			LPST56:	SCOPE		ENTER SCOPE LOOP
853	005242	004314				STAI56		

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869	005244	052777	000400	173542	STAI74:	BIB	@BITR,@DCS	ICLEAR THE DISK
870	005252	012777	177777	173536		MOV	@177777,@WC	ISSET WORD COUNT TO -1
871	005260	012777	011620	173532		MOV	@OUTBUF,@CMA	ISSET UP CURRENT ADDRESS
872	005266	005077	173532			CLR	@DAE	ICLEAR EXT. ADDR BITS
873	005272	012777	177777	173522		MOV	@177777,@DAR	ISSET DAR TO ALL ONES
874	005300	012777	000003	173506		MOV	@J,@DCS	IGO WRITE ONE WORD
875	005306	005067	173556			CLP	WORK	ILET'S WAIT FOR COMPLETION
876	005312	105777	173476		LTSWT:	TSTB	@DCS	ITEST FOR NOT BUSY
877	005316	100414				RMI	STAI75	IX-FER COMPLETE
878	005320	005267	173544			INC	WORK	I+1 WAIT REG.
879	005324	001372				RNF	LTSWT	IGO WAIT FOR NOT BUSY
880	005326	017767	173462	173534		MOV	@DCS,@ORK	IFETCH CONTENTS OF DCS
881	005334	012767	000074	173516	ERR74:	MOV	@74,ERCOUNT	ISSET UP ERROR COUNT 74
882	005342	004567	003154			JSR	@5,STAFR	IREPORT ERROR X-FER NEVER COMPLETED
883	005346	000736				BR	STAI74	IRESTART ROUTINE
884	005350	005777	173446		STAI75:	TST	@DAR	IDOES DAR=0
885	005354	001412				REQ	STAI76	IDAR OK
886	005356	017767	173440	173504		MOV	@DAR,@ORK	IFETCH DAR
887	005364	012767	000075	173466	ERR75:	MOV	@75,ERCOUNT	ISSET UP ERROR COUNT 75
888	005372	004567	003124			JSR	@5,STAFR	IREPORT DAR DID NOT INC TO 0
889	005376	000167	177642			JMP	STAI74	IREPORT RE-START ROUTINE
890	005402	017767	173416	173460	STAI76:	MOV	@DAE,@ORK	IFETCH DAE
891	005410	042767	177774	173452		BIC	@177774,WORK	ICLEAR DISK AND ERROR BITS
892	005416	022767	000001	173444		CMP	@1,@ORK	IDID DAE INC
893	005424	001410				REQ	LPST74	IDAF SHOULD EQUAL 1
894	005426	012767	000001	173436		MOV	@1,@ORK1	WHAT DAE SHOULD CONTAIN
895	005434	012767	000076	173416	ERR76:	MOV	@76,ERCOUNT	ISSET UP ERROR COUNT 76
896	005442	004567	003126			JSR	@5,STAFR1	IREPORT DAR NOT CORRECT
897	005446	000004			LPST74:	SCOPE		IENTFR SCOPE LOOP
898	005450	005244				STAI74		


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899
900
901      I
902      IIN THIS ROUTINE THE ABILITY OF THE CONTROL
903      ITO INCREMENT THE DISK NO. IS CHECKED
904      I
905      IROUTINE PARAMETERS AT START
906      IDAE=00COX3      (X=EXISTING DISK NO)
907      IDAP=177777
908      IAC=1
909      ICMA=OUTRUF
910      ICCS=3
911      I
912      IPARAMETERS AT THE END OF ROUTINE
913      IDAE=X+1
914      IDAP=C
915      IAC=0
916      ICMA=OUTRUF+2
917      IDCS=0
918      I
919      I
920      STA177:  MOV      FLAG,WORK1      IFETCH PROGRAM FLAG
921              RIC      @177743,WORK1    IMASK DISK NO.
922              RIS      @3,WORK1        ISET ADDR EXT. BITS
923              MOV      WORK1,DAE       ISET DAE PFG
924              MOV      @177777,ADAP    IDAR EQUALS ALL ONES
925              MOV      @177777,DC     IWORD COUNT SET FOR ONE WORD
926              MOV      @OUTBUF,OCMA   ICURRENT ADDRESS SET UP
927              RIS      @3,DCS          IGO WRITE
928              TSTR     DCS             IIS KEY CLEARED
929              RPI      STA100          I
930              MOV      @DCS,WORK      IFETCH CONTROL WUG
931      ERR77:  MOV      @77,ERCOUNT    ISET UP ERROR COUNT 77
932              JSR     @5,STAEP       IREPORT BUSY NOT SET
933              RR      STA177         IRESTART ROUTINE
934      STA100: CLR      WORK
935      INXDSK: TSTB     DCS             IIS X-FER COMPLETE
936              BMI     STA101
937              INC     WORK
938              RNE     INXDSK
939              MOV     @DCS,WORK      ITEST READY SHOULD BE SET
940      ERR100: MOV     @100,ERCOUNT    IGO CHECK AGAIN
941              JSR     @5,STAEP       IFETCH CONTENTS OF DCS
942              JMP     STA177         ISET UP ERROR COUNT 100
943              TST     ADAP           IREPORT X-FER NOT COMPLETE
944              REQ     STA102         IRESTART ROUTINE
945              MOV     @DAR,WORK      IIS DAR CLEARED
946      ERR101: MOV     @101,ERCOUNT    IYES
947              JSR     @5,STAEP       IFETCH DAR ITS NOT CLEAR
948              JMP     STA177         ISET UP ERROR COUNT 101
949              INC     WORK1         IREPORT DAR NOT CLEAR.
950              CMP     WORK1,DAE     IRESTART ROUTINE
951              REQ     LPST77         IDAE SHOULD=THIS AT END X-FER
952              MOV     @DAE,WORK      IIS DAE CORRECT
953              MOV     @102,ERCOUNT    IDAE IS CORRECT
954              MOV     @102,ERCOUNT    IFETCH CONTENTS OF DAE
955              JSR     @5,STAEP       ISET UP EPROP COUNT 102
956              JMP     STA177

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943 005710 004567 002640
944 005714 000167 177532
945 005720 000004
946 005722 005452

JSR 85,STAEP1
JMP STAI77
I.PSI77: SCOPE
STAI77

!REPORT DAF INCORRECT
!PSTART ROUTINE
!ENTER SCOPE LOOP

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976 005724 052777 000400 173062 STA103: BIS      @BIT0,@DCS      ;CLEAR THE DISK
977 005732 012777 000037 173064      MOV      @37,@DAE      ;SET ALL EXT ADDR, BITS
978 005740 012777 177777 173054      MOV      @177777,@DAR  ;SET DAR=TO ALL ONES
979 005746 012777 177776 173042      MOV      @177776,@WC   ;WORD COUNT=2
980 005754 012777 011620 173036      MOV      @OUTBUF,@CMA  ;CURRENT ADDRESS=OUTBUF
981 005762 052777 000003 173024      BIS      @3,@DCS      ;GO WRITE
982 005770 005067 173074      CLR      WORK
983 005774 105777 173014      WAFBUS: TSTB     @DCS      ;IS RDY SET
984 006000 100414      RMI      STA104      ;YES EXIT
985 006002 005267 173062      INC      WORK        ;NO BUSY STILL SET
986 006006 001372      RNF      WAFBUS     ;GO WAIT FOR BUSY=0
987 006010 017767 173000 173052      MOV      @DCS,@ORK    ;FETCH CONTENTS OF DCS
988 006016 012767 000103 173034 ERR103: MOV      @103,ERCOUNT  ;SET UP ERROR COUNT 103
989 006024 004567 002472      JSR      @5,STAER    ;REPORT BUSY SET
990 006030 000735      RR       STA103     ;RESTART ROUTINE
991 006032 032777 004000 172754 STA104: BIT      @BIT11,@DCS ;IS MCD SET
992 006040 001011      BNE      STA105     ;YES! IS ERROR SET
993 006042 017767 172746 173020      MOV      @DCS,WORK   ;FFETCH DCS
994 006050 012767 000104 173002 ERR104: MOV      @104,ERCOUNT  ;SET UP ERROR COUNT 104
995 006056 004567 002440      JSR      @5,STAER    ;REPORT NEED NOT SET
996 006062 000720      RR       STA103     ;RESTART ROUTINE
997 006064 005777 172724      STA105: TST      @DCS   ;IS ERROR FLAG SET
998 006070 100411      BMT      LPSX103    ;ERROR IS SET
999 006072 017767 172716 172770      MOV      @DCS,WORK   ;FETCH CONTENTS OF DCS
1000 006100 012767 000105 172752 ERR105: MOV      @105,ERCOUNT  ;SET UP ERROR COUNT 105
1001 006106 004567 002410      JSR      @5,STAER    ;REPORT ERROR NOT SET
1002 006112 000704      RR       STA103     ;RESTART ROUTINE
1003 006114 000004      LPSX103: SCOPF    ;ENTER SCOPE LOOP
1004 006116 005724      STA103

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1013	006120	052777	000400	172666	ST105X:	BIS	#BITR,#DCS		!CLEAR THE DISK
1014	006126	012777	011620	172664		MOV	#OUTBUF,#CMA		!SFT UP CURRENT ADDR
1015	006134	012777	177777	172654		MOV	#-1,#AC		!SET #ORD COUNT TO -1
1016	006142	052777	000400	172654		BIS	#BITR,#DAE		!SET CURRENT ADDR. INHIBIT
1017	006150	105777	172640			TSTB	#DCS		!TEST FOR READY
1018	006154	100406				BMI	LPX105		!BRANCH IF READY SET
1019	006156	012767	000106	172674	ERR106:	MOV	#106,ERCOUNT		!SET UP FPROP COUNT 106
1020	006164	004567	002332			JSR	#5,STAER		!REPORT READY NOT SET
1021	006170	000753				BR	ST105X		!TRY AGAIN
1022	006172	012777	000003	172614	LPX105:	MOV	#3,#DCS		!GO WRITE
1023	006200	105777	172610			TSTB	#DCS		!TEST FOR NOT RDY
1024	006204	100006				BPL	LPX106		!BRANCH IF RDY#0
1025	006206	012767	000107	172644	ERR107:	MOV	#107,ERCOUNT		!SET UP FPROP COUNT 107
1026	006214	004567	002302			JSR	#5,STAER		!REPORT RDY NOT CLEARED BY CMD.
1027	006220	000737				BR	ST105X		!LOOP ON ERROR
1028	006222	005067	172642		LPX106:	CLP	WORK		
1029	006226	105777	172562		WATRDRY:	TSTB	#DCS		
1030	006232	100411				BMI	LPX107		!BRANCH IF RDY SFT
1031	006234	005267	172630			INC	WORK		!WAIT FOR RDY
1032	006240	001372				BNE	WATRDRY		
1033	006242	012767	000110	172610	ERR110:	MOV	#110,ERCOUNT		!SFT UP ERROR COUNT 110
1034	006250	004567	002246			JSR	#5,STAER		!READY NEVER SET AFTER X-FER
1035	006254	000721				BR	ST105X		!LOOP ON ERROR
1036	006256	012767	011620	172606	LPX107:	MOV	#OUTBUF,#CRK1		!WHAT CMA SHOULD BE
1037	006264	017767	172530	172576		MOV	#CMA,#ORK		!WHAT CMA IS
1038	006272	026767	172572	172572		CMP	WORK,#OPK1		!COMPARE
1039	006300	001406				REQ	LPX108		!BRANCH IF EQUAL
1040	006302	012767	000111	172550	ERR111:	MOV	#111,ERCOUNT		!SET UP ERROR COUNT 111
1041	006310	004567	002260			JSR	#5,STAER1		!REPORT THEY DID NOT CMF
1042	006314	000701				BR	ST105X		!LOOP ON ERROR
1043	006316	000004			LPX108:	SCOPE			!ENTER SCOPE LOOP
1044	006320	006120				ST105X			

1099	006630	000167	177446			JMP	NXMTSM	;LOOP ON ERROR
1100	006634	032777	002000	172162	CKNEW:	RIT	#RIT10,0DAE	;IS NEW CLEARED BY DISK CLEAR
1101	006642	001412				REQ	LPNEW	;NEW CLEARED BY DISK CLEAR
1102	006644	012767	000170	172206	FRW120:	MOV	#120,ERCOUNT	;SET UP ERROR COUNT 120
1103	006652	017767	172146	172210		MOV	#DAE,#ORK	;REPORT NEW NOT CLEARED BY DISK CLEAR
1104	006660	004567	001636			JSR	#5,STAFF	
1105	006664	000167	177432			JMP	NXMTSM	;LOOP ON ERROR
1106	006670	000004			LPNEW:	SCOPF		;IDENTIF SCOPE LOOP
1107	006672	006322				NXMTSM		

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1116 006674 012767 007000 171302 STA106: MOV      #INT106,204    ;SET UP INTERRUPT VECTOR
1117 006702 012777 000340 172072      MOV      #340,0PS      ;LOCK OUT ALL INTERRUPTS
1118 006710 005077 172110              CLR      @DAE          ;CLEAR ADDRESS REGISTERS
1119 006714 005077 172102              CLR      @DAP
1120 006720 012777 177777 172070      MOV      #177777,0nC   ;SET *OPD COUNT TO -1
1121 006726 012777 011620 172064      MOV      @OUTBUF,@CMA  ;LOAD CURRENT ADDRESS
1122 006734 052777 000103 172052      BIS      #103,@DCS    ;GO WRITE (INTERRUPT ENABLED)
1123 006742 005000              CLR      @0
1124 006744 005200              INC      @0
1125 006746 001376              RRF      ,=2
1126 006750 105777 172040              TSTB    @DCS          ;IS CONTROL STILL NOT RDY
1127 006754 100423              RVI      IP106        ;NO
1128 006756 017767 172032 172104      MOV      @DCS,@ORR    ;YES!
1129 006764 012767 000121 172066  ERR121: MOV      #121,ERCOUNT ;SET UP ERROR COUNT 121
1130 006772 004567 001524              JSR      @5,STAFR     ;REPORT CONTROL STILL BUSY
1131 006776 000414              BR      STA110
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1136 007000
1137 007000 012767 000122 172052 INT106: MOV      #122,ERCOUNT ;SET UP ERROR COUNT 122
1138 007006 017767 171770 172054  ERR122: MOV      @PS,WORK ;FFICH PROCESSOR PRIORITY
1139 007014 022626              CMP      (6)+,(6)+
1140 007016 004567 001500              JSR      @5,STAFR     ;REPORT DISK INTERRUPTED
1141 007022 000724              BR      STA106
1142 007024 000004              LP106: SCOPF          ;ENTER SCOPE LOOP
1143 007026 006674              STA106

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1146      ;
1147      ;IN THIS ROUTINE THE PROGRAM WILL TEST
1148      ;THAT THE DISK WILL ONLY TRAP
1149      ;AT BR5 ONLY WHEN A INTERRUPT IS GENERATED
1150      ;BY CLEARING THE DOLF
1151      ;PROCESSOR OPERATING AT PRIORITY6
1152      ;
1152 007030 012767 007134 171146 STA110: MOV      @INT110,204      ;SET UP INTERRUPT VECTOR
1153 007036 012777 000300 171736      MOV      @300,@PS      ;LOCK OUT ALL INTERRUPTS ABOVE
1154 007044 005077 171754      CLR      @DAE      ;CLEAR ADDRESS REGISTERS
1155 007050 005077 171746      CLR      @DAP
1156 007054 012777 177777 171734      MOV      @177777,@AC      ;SET WORD COUNT TO -1
1157 007062 012777 011620 171730      MOV      @OUTRUF,@CMA      ;LOAD CURRENT ADDRESS
1158 007070 052777 000103 171716      BIS      @103,@DCS      ;GO WRITE (INTERRUPT ENABLED)
1159 007076 005000      CLR      @0      ;WAIT FOR NOT BUSY
1160 007100 005200      INC      @0
1161 007102 001376      BNE      @-2
1162 007104 105777 171704      TSTB    @DCS      ;IS CONTROL STILL BUSY
1163 007110 100423      BVT     LP110      ;NO
1164 007112 017767 171676 171750      MOV      @DCS,@ORK      ;YES!
1165 007120 012767 000123 171732 ERR123: MOV      @123,ERCOUNT      ;SET UP ERROR COUNT 123
1166 007126 004567 001370      JSR     @5,STAEP      ;REPORT CONTROL STILL BUSY
1167 007132 000414      BR      STA112
1168
1169      ;
1170      ;PROCESSOR SHOULD NOT TRAP TO INT106
1171      ;PROCESSOR PRIORITY IS LOCKED AT 6
1172      ;
1172 007134
1173 007134 012767 000124 171716 ERR124: MOV      @124,ERCOUNT      ;SET UP ERROR COUNT 124
1174 007142 017767 171634 171720      MOV      @PS,@ORK      ;FFICH PROCESSOR PRIORITY
1175 007150 022626      CMP     (6)+,(6)+
1176 007152 004567 001344      JSR     @5,STAEP      ;REPORT DISK INTERRUPTED
1177 007156 000402      BR      STA112
1178
1179 007160 000004      ;
1180 007162 007030      LP110: SCOPE      ;ENTER SCOPE LOOP
1181      STA110
1182      ;
1183      ;IN THIS ROUTINE THE PROGRAM WILL TEST
1184      ;THAT THE DISK WILL ONLY TRAP
1185      ;AT BR5 ONLY WHEN A INTERRUPT IS GENERATED
1186      ;BY CLEARING THE DOLF
1187      ;PROCESSOR OPERATING AT PRIORITY5
1188      ;
1188 007164 012767 007270 171012 STA112: MOV      @INT112,204      ;SET UP INTERRUPT VECTOR
1189 007172 012777 000240 171602      MOV      @240,@PS      ;LOCK OUT ALL INTERRUPTS ABOVE
1190 007200 005077 171620      CLR      @DAE      ;CLEAR ADDRESS REGISTERS
1191 007204 005077 171612      CLR      @DAP
1192 007210 012777 177777 171600      MOV      @177777,@AC      ;SET WORD COUNT TO -1
1193 007216 012777 011620 171574      MOV      @OUTRUF,@CMA      ;LOAD CURRENT ADDRESS
1194 007224 052777 000103 171562      BIS      @103,@DCS      ;GO WRITE (INTERRUPT ENABLED)
1195 007232 005000      CLR      @0      ;WAIT FOR NOT BUSY
1196 007234 005200      INC      @0
1197 007236 001376      BNE      @-2

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1198 007240 105777 171550          TSTB   @DCS           ;IS CONTROL STILL BUSY
1199 007244 100423                   MVI    LP112         ;NO
1200 007246 017767 171542 171614   MOV    @DCS,@ORK    ;YFSI
1201 007254 012767 000125 171576   FFP125: MOV    @125,ERCOUNT ;SET UP ERROR COUNT 125
1202 007262 004567 001234          JSR    @5,STAER     ;REPORT CONTROL STILL BUSY
1203 007266 000414                   BR     STA114
1204
1205          ;PROCESSOR SHOULD NOT TRAP TO INT106
1206          ;PROCESSOR PRIORITY IS LOCKED AT 7
1207
1208 007270          INT112:
1209 007270 012767 000126 171562   ERR126: MOV    @126,ERCOUNT ;SET UP ERROR COUNT 126
1210 007276 017767 171500 171564   MOV    @PS,@ORK    ;FFTCR PROCESSOR PRIORITY
1211 007304 022626                   CMP    (6)+,(6)+
1212 007306 004567 001210          JSR    @5,STAER     ;REPORT DISK INTERRUPTED
1213 007312 000402                   BR     STA114
1214
1215 007314 000004          LP112: SCOPF         ;ENTER SCOPE LOOP
1216 007316 007164                   STA112
1217
1218
1219
1220          ;THIS ROUTINE WILL TEST THE ABILITY OF THE DISK CONTROL
1221          ;TO TRAP AT BR5 WHEN THE DONE FLAG IS SET.
1222
1223 007320 052777 000400 171466   STA114: BIS    @BIT0,@DCS    ;CLEAR THE DISK
1224 007326 012767 007424 170650   MOV    @INT114,204 ;SET UP DISK TRAP VECTOR
1225 007334 012777 000200 171440   MOV    @200,@PS     ;SET PROCESSOR TO PRIORITY 4
1226 007342 005077 171456          CLR    @DAF         ;CLEAR EXT ADDRESS BITS
1227 007346 005077 171450          CLR    @DAP         ;CLEAR LOW ORDER ADDRESS BITS
1228 007352 012777 177777 171436   MOV    @177777,@WC  ;SET WORD COUNT TO -1
1229 007360 012777 011620 171432   MOV    @OUTRUF,@CMA ;LOAD CURRENT ADDRESS
1230 007366 052777 000103 171420   BIS    @103,@DCS    ;WRITE (INTERRUPT ENABLE)
1231 007374 005000                   CLR    @0
1232 007376 005200                   INC    @0            ;WAIT FOR INTERRUPT TO OCCUR
1233 007400 001376                   RNE   @=2
1234 007402 012767 000127 171450   ERR127: MOV    @127,ERCOUNT ;SET UP ERROR COUNT 127
1235 007410 017767 171400 171452   MOV    @DCS,@ORK    ;FFTCR CONTENTS OF DCS
1236 007416 004567 001100          JSR    @5,STAER     ;REPORT INTERRUPT NO INTERRUPT
1237 007422 000403                   BR     ADT1         ;RESTART ROUTINE
1238
1239
1240
1241 007424 022626          INT114: CMP    (6)+,(6)+    ;TRAP OK
1242 007426 000004                   SCOPE
1243 007430 007320                   STA114             ;ENTER SCOPE LOOP
1244
1245          ;* * * ADDRESS TEST * * *
1246          ;EXECUTE A ONE WORD WRITE
1247          ;IF THE TIMING ON THE DISK IS CORRECT
1248          ;THE TERMINATING ADDRESS IN THE DAP REGISTER
1249          ;WILL EQUAL THE ADDRESS +1 OF THE WORD
1250          ;THAT WAS WRITTEN
1251          ;
1251          ;NOTE: DATA IS NOT CHECKED IN THIS TEST.

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1252
1253 007432 012706 001000          ;
1254 007436 012767 000001 171374 ADT1:  MOV      01000,06      ;SET UP STACK
1255 007444 012767 011620 171376      MOV      01,WRDCT      ;SET UP WORD COUNT
1256 007452 005067 171366      MOV      0OUTBUF,BUF   ;SET UP CURRENT ADDRESS
1257 007456 005067 171360      CLR      DMA
1258 007462 052777 000400 171324 WRADT:  CLR      TRACK
1259 007470 104403      RIS      0BITR,0DCS    ;CLEAR THE DISK
1260 007472 105777 171316      WRITE
1261 007476 100375      TSTB     0DCS          ;CHECK FOR READY
1262 007500 005777 171310      BPL      0-4
1263 007504 100011      TST      0DCS          ;CHECK FOR ERROR
1264 007506 017767 171302 171354      RPL      CHKADT        ;BRANCH IF NO ERROR
1265 007514 012767 000130 171336 ERR130: MOV      0130,ERRCOUNT ;SET UP ERROR COUNT 130
1266 007522 004567 000774      JSR      05,STAER      ;REPORT ERROR
1267 007526 000755      BR       WRADT         ;LOOP ON ERROR
1268 007530 016767 171310 171334 CHKADT: MOV      DMA,WORK1
1269 007536 005267 171330      INC      WORK1         ;WHAT DAP SHOULD CONTAIN
1270 007542 017767 171254 171320      MOV      0DAP,WORK
1271 007550 026767 171316 171312      CMP      WORK1,WORK
1272 007556 001406      REQ     INCDAR
1273 007560 012767 000131 171272 ERR131: MOV      0131,ERRCOUNT ;SET UP ERROR COUNT 131
1274 007566 004567 001002      JSR      05,STAER1    ;REPORT DAP NOT CORRECT
1275 007572 000733      BR       WRADT         ;LOOP ON ERROR
1276 007574 022767 004000 171270 INCDAR: CMP      04000,WORK1 ;IS IT THE LAST ADDR.
1277 007602 001405      REQ     LPADT          ;LAST ADDRESS EXIT
1278 007604 016767 171262 171232      MOV      WORK1,DMA    ;SET UP FOR NEXT ADDR.
1279 007612 000167 177644      JMP      WRADT         ;CHECK NEXT ADDRESS
1280 007616 032777 004000 171154 LPADT:  BIT      0BIT11,0SAR  ;LOOP ON TEST
1281 007624 001402      REQ     0+6
1282 007626 000167 177600      JMP      ADT1         ;YES! BIT11 SET IN SWH
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1296 007632 012706 001000          ;
1297 007636 012767 000001 171174 ACT2X:  MOV      01000,06      ;SET UP STACK
1298 007644 012767 011630 171176      MOV      01,WRDCT      ;SET UP WORD COUNT
1299 007652 005067 171166      MOV      0INBUF,BUF   ;SET UP CURRENT ADDRESS
1300 007656 005067 171160      CLR      DMA
1301 007662 052777 000400 171124 ROADT:  CLR      TRACK
1302 007670 104403      RIS      0BITR,0DCS    ;CLEAR THE DISK
1303 007672 105777 171116      READ
1304 007676 100375      TSTB     0DCS          ;CHECK FOR READY
1305 007700 005777 171110      BPL      0-4
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1306	007704	100011				RPL	XCHKDT		IBRANCH IF NO ERROR
1307	007706	017767	171102	171154		MOV	BDCS,ADPK		
1308	007714	012767	000132	171136	EPR132:	MOV	B132,ERCOUNT		ISET UP ERROR COUNT 132
1309	007722	004567	000574			JSR	B5,STAEP		IREPORT ERROR
1310	007726	000755				RP	ROADT		ILoop ON ERROR
1311	007730	016767	171110	171134	XCHKDT:	MOV	DVA,WORK1		
1312	007736	005267	171130			INC	WORK1		WHAT DAP SHOULD CONTAIN
1313	007742	017767	171054	171120		MOV	B0AP,ADPK		
1314	007750	026767	171116	171112		CMP	WORK1,WORK		IS DAP CORRECT
1315	007756	001406				REQ	ADDAP		YES DAP IS CORRECT
1316	007760	012767	000133	171072	EPR133:	MOV	B133,ERCOUNT		SET UP ERROR COUNT 133
1317	007766	004567	000602			JSR	B5,STAER1		IREPORT DAP NOT CORRECT
1318	007772	000733				RR	ROADT		ILoop ON ERROR
1319	007774	022767	004000	171070	ADDAP:	CMP	B4000,WORK1		IS IT THE LAST ADDR.

1320	010002	001405			REQ	LPADT2		!LAST ADDRESS EXIT
1321	010004	016767	171062	171032	MOV	WORK1,CMA		!SET UP FOR NEXT ADDR
1322	010012	000167	177644		JMP	ROADT		!CHECK NEXT ADDRESS
1323	010016	032777	004000	170754	BIT	@BIT11,@S&P		!LOOP ON TEST
1324	010024	001402			REQ	,+6		!NO
1325	010026	000167	177600		JMP	ACT2X		!YES! BIT11 SET IN S&P
1326								
1327								
1328								
1329								
1330								
1331								
1332	010032	104001			FMT+1			!REPORT END
1333	010034	011542			END			
1334	010036	013700	000042		MOV	@042,80		!GET MONITOR ADDRESS
1335	010042	001404			REQ	LXIT		!SKIP IF NOT MONITOR LOAD
1336	010044	004710			LOGICAL	JSR	7,(0)	!GO TO MONITOR
1337	010046	000240			NOP			
1338	010050	000240			NOP			
1339	010052	000240			NOP			
1340	010054	000167	171142		LXIT:	JMP	STAI1	!RESTART TEST
1341								
1342								
1343								
1344								
1345	010060	032777	004000	170712	LOOP:	BIT	@BIT11,@S&P	!TEST FOR BIT 11
1346	010066	001402			REQ	,+6		!BIT 11 NOT SET
1347	010070	013646			MOV	@(6)+,-(6)		
1348	010072	000002			BIT			!BIT 11 SET! LOOP ON TEST
1349	010074	005767	170766		TST	PASS		!TEST TO SET UP PASS COUNT
1350	010100	001003			RNE	,+10		!PASS COUNT SET
1351	010102	012767	000025	170756	MOV	@25,PASS		!SET UP PASS COUNT
1352	010110	005367	170752		DEC	PASS		!SUB, =1 EACH PASS
1353	010114	001402			REQ	,+6		
1354	010116	013646			MOV	@(6)+,-(6)		
1355	010120	000002			BIT			!LOOP ON TEST
1356	010122	062716	000002		ADD	@2,(6)		!INDEX POINTER FOR NEXT TEST
1357	010126	000002			BIT			!EXIT TO NEXT TEST

```
1350  
1359  
1360  
1361  
1362  
1363  
1364  
1365  
1366  
1367  
1368 010130 016705 170672  
1369 010134 016745 170702  
1370 010140 016745 170700  
1371 010144 016745 170700  
1372 010150 016745 170664  
1373 010154 005115  
1374 010156 005215  
1375 010160 011604  
1376 010162 014467 170702  
1377 010166 042767 177600 170674  
1378 010174 016745 170670  
1379 010200 000002  
1380  
1381  
1382  
1383  
1384  
1385  
1386
```

;
;
;
;
;
;
;
;
;ENTER DISK HANDLER BY THE TRAP INSTRUCTION
;ARGUMENT TO TRAP INSTRUCTION IS TWO ORDER
;BYTE OF THE CONTROL REGISTER.
;
DISK: MOV DRP,85 ;SET UP TO LOAD DISK PFG
MOV TRACK,-(5) ;LOAD TRACK NUMBER
MOV DMA,-(5) ;LOAD WORD ADDRESS
MOV RUF,-(5) ;SET UP CURRENT ADDRESS
MOV WPDCT,-(5) ;LOAD WORD COUNT
COM (5) ;SET UP TWO'S COMPLEMENT
INC (5)
MOV (6),84
MOV -(4),WOPK ;
BIC 8177600,WOPK ;MASK FUNCTION BITS
MOV WOPK,-(5) ;LOAD FUNCTION PFG.
PTI ;RETURN FROM TRAP
;
;
;
;
;
;

```

1387      |
1388      |
1389      |
1390      |
1391      |
1392      |
1393      |
1394      |ROUTINE TO ALLOW THE OPERATOR TO SET BITS
1395      |IN THE I/O REGISTERS VIA THE SWITCH REGISTER
1396      |
1397      |WORD COUNT REGISTER
1398      |SELDCI: MOV    @SWR,@AC          |MOV SWR INTO WORD COUNT REG
1399      |          BR    SELAC
1400      |
1401      |CURRENT ADDRESS REGISTER
1402      |SELCPA: MOV    @SWR,@CMA        |MOV SWR INTO CURRENT ADDR REG
1403      |          BR    SELCPA
1404      |
1405      |DISK ADDRESS REGISTER
1406      |SELDCR: MOV    @SWR,@DAP        |MOV SWR INTO DISK ADDR REG
1407      |          BR    SELDCR
1408      |
1409      |DISK ADDRESS EXT AND ERROR REGISTER
1410      |SELDAE: MOV    @SWR,@DAE        |MOV SWR INTO DISK ADDR EXT REG
1411      |          BR    SELDAE
1412      |
1413      |DATA BUFFER REGISTER
1414      |SELDBR: MOV    @SWR,@DBR        |MOV SWR INTO DATA BUFFER
1415      |          BR    SELDBR
1416      |
1417      |
1418      |LOOK AHEAD REGISTER
1419      |MOVLK: MOV    @ADS,@O          |FETCH LOOK AHEAD
1420      |          RESET                                |DISPLAY IN LIGHTS
1421      |          RESET
1422      |          BR    MOVLK
1423      |
1424      |DISK CONTROL STATUS REGISTER
1425      |SELDCS: MOV    @340,@PS          |LOCK UP INTERRUPTS
1426      |          MOV    @177777,@AC      |SET WORD COUNT =1 WORD
1427      |          MOV    @OUTBUF,@CMA     |SET UP CURRENT ADDRESS
1428      |          MOV    @SWR,@DCS        |MOV SWR INTO CONTROL REG
1429      |          BIT    @BIT0,@DCS       |IS FUNCTION BITS SET
1430      |          RFO    SELDCS           |FUNCTION BITS NOT SET
1431      |          DKRUSY: TSTB @DCS       |TEST FOR DISK READY
1432      |          RPL    DKRUSY           |DISK STILL NOT READY
1433      |          BR    SELDCS           |DISK NOT BUSY SELECT NEW CR
1434      |
1435      |
1436      |
1437      |
1438      |
1439      |
1440      |

```

```

1441
1442
1443      ;
1444      ;THIS ROUTINE ENABLES THE OPERATOR TO SELECT A TRACK STATICLY
1445      ;THE ROUTINE DOES A ONE WORD READ TO SELECT THE TRACK
1446      ;THE OPERATOR MAY CHANGE THE SWITCH REGISTER AT ANY TIME
1447      ;SWR6=0 EQUALS THE TRACK NUMBER
1448      ;SWR9=7 EQUALS THE DISK NUMBER
1449      ;
1449 010334 052777 000400 170452 STAMP:  RIS      BRITB,0DCS
1450 010342 017767 170432 170522      MOV      @SWR,@CRK1      ;FETCH SWR
1451 010350 016767 170516 170512      MOV      WORK1,@CRK
1452 010356 042767 176000 170504      BIC      @176000,WORK      ;MASK DISK AND TRACK NO.
1453 010364 006067 170500      ROR      WORK
1454 010370 006067 170474      ROR      WORK
1455 010374 006067 170470      ROR      WORK
1456 010400 006067 170464      ROR      WORK
1457 010404 006067 170460      ROR      WORK
1458 010410 016777 170454 170406      MOV      WORK,@DAE      ;DISK EXT. ADDR. REG. LOADED
1459 010416 017767 170356 170444      MOV      @SWR,@CRK
1460 010424 000367 170440      S&AB     WORK
1461 010430 006167 170434      ROL      WORK
1462 010434 006167 170430      ROL      WORK
1463 010440 006167 170424      ROL      WORK
1464 010444 042767 003777 170416      BIC      @3777,WORK
1465 010452 016777 170412 170342      MOV      WORK,@DAR      ;DISK ADDRESS REG LOADED
1466 010460 012777 011630 170332      MOV      @INBUF,@CMA      ;LOAD CURRENT ADDRESS
1467 010466 012777 177777 170322      MOV      @177777,@&C      ;LOAD WORD COUNT
1468 010474 052777 000005 170312      RIS      @5,0DCS      ;GO AND READ
1469 010502 105777 170306      CTIBUSY: TSTB     0DCS      ;TEST FOR CONTROL READY
1470 010506 100375      RPL      CTIBUSY      ;WAIT FOR CONTROL READY
1471 010510 026777 170356 170262 SRCHG:  CMP      WORK1,@SWR
1472 010516 001306      RNE      STAMP
1473 010520 000773      BR       SRCHG      ;SWR HAS CHANGED
1474      ;
1475      ;
1476      ;
1477      ;
1478      ;
1479      ;
  
```

```

1480
1481
1482          |
1483          | ROUTINE TO REPORT ERROR COUNT AND CONTENTS OF ONE REGISTER
1484          |
1485          | STAER1: JSP      85,CONV      | CONVERT OCTAL TO ASCII
1486          |         WORK      | DATA TO BE CONVERTED
1487          |         MES6      | ADDRESS OF MESSAGE
1488          |         6        |
1489          |         JSP      85,CONV      | CONVERT OCTAL TO ASCII
1490          |         FRCOUNT   | ERROR COUNT TO BE CONVERTED
1491          |         MFD5      | ADDRESS OF MESSAGE
1492          |         3        |
1493          |         FMT      +0          | REPORT MESSAGE
1494          |         MED5A     |
1495          |         MFD5      |
1496          |         MES6      |
1497          |         -1        |
1498          |         RIT      8BIT10,BS+R |
1499          |         REQ      .+4        |
1500          |         HALT     |
1501          |         PTS      85          | EXIT ROUTINE
1502
1503          |
1504          | ROUTINE TO REPORT ERROR COUNT AND THE CONTENTS OF TWO REGISTERS
1505          |
1506          |
1507          | STAER11: JSP     85,CONV     | CONVERT OCTAL TO ASCII
1508          |          WORK     | DATA TO BE CONVERTED
1509          |          MES6     | ADDRESS OF MESSAGE
1510          |          6        |
1511          |          JSP     85,CONV     | CONVERT OCTAL TO ASCII
1512          |          WORK1    | DATA TO BE CONVERT
1513          |          MES5     | ADDRESS OF MESSAGE
1514          |          6        |
1515          |          JSP     85,CONV     | CONVERT OCTAL TO ASCII
1516          |          FRCOUNT  | ERROR COUNT TO BE CONVERTED
1517          |          MFD5     | ADDRESS OF MESSAGE
1518          |          3        |
1519          |          FMT     +0          | REPORT MESSAGE
1520          |          MED5A    |
1521          |          MFD5     |
1522          |          MES5     |
1523          |          MES6     |
1524          |          -1       |
1525          |          RIT     8BIT10,BS+R |
1526          |          REQ     .+4        |
1527          |          HALT    |
1528          |          PTS     85          | EXIT ROUTINE
1529
1530          |
1531          | ROUTINE TO DECODE FMT CALLS
1532          | FMT+1=TYPE ONE LINE OF TEXT
1533          | FMT+0=TYPE A SERIES OF LINES
1534          | EMTRP:  MOV      (6),R0

```


1514 010664 022740 104001
1515 010670 001103
1516 010672 000400

CMP @ENT+1,-(0)
RNF TYP
RP TYP

;AS THE CALL ENT+1
;NOI TYPE A SERIES OF LINES OF TEXT
;YFS TYPE ONE LINE OF TEXT

```
1537
1538
1539 010674 011600
1540 010676 062716 000002
1541 010702 011000
1542 010704 112067 000164
1543 010710 127767 000100 000156
1544 010716 001005
1545 010720 005067 000150
1546 010724 004767 000030
1547 010730 000002
1548 010732 127767 000045 000134
1549 010740 001442
1550 010742 127767 000042 000124
1551 010750 001443
1552 010752 004767 000002
1553 010756 000752
1554 010760 032777 040000 170012
1555 010766 001026
1556 010770 116777 000100 170006
1557 010776 105777 170006
1558 011002 100375
1559 011004 127767 000015 000062
1560 011012 001003
1561 011014 012767 000011 000054
1562 011022 005767 000050
1563 011026 001406
1564 011030 005367 000042
1565 011034 116767 166740 000032
1566 011042 000746
1567 011044 000207
1568 011046 112767 000015 000020
1569 011054 004767 177700
1570 011060 112767 000012 000006
1571 011066 004767 177666
1572 011072 000704
1573 011074 000000
1574 011076 000000
1575
1576 011100 011600
1577 011102 062716 000002
1578 011106 011067 000014
1579 011112 022767 177777 000006
1580 011120 001001
1581 011122 000002
1582 011124 104001
1583 011126 000000
1584 011130 000763
1585
1586
1587
1588
1589
1590
```

```

;SUBROUTINE TO OUTPUT ASCII MESSAGE ON TELETYPE PRINTER.
TYP1:  MOV    006,00          ;GET ADDRESS THAT CONTAINS MESSAGE ADDRESS
        ADD    02,006        ;UPDATE TO NEXT MESSAGE ADDRESS
        MOV    000,00        ;ADDRESS OF MESSAGE TO FO.
        TYP1:  MOVB  (0),TYPDAT ;GET CHARACTER
        CMPB  0100,TYPDAT    ;CHECK FOR "0" CHARACTER
        BNE   TYP1          ;BRANCH IF NOT "0".
        CLR   TYPDAT         ;OUTPUT NULL TO
        JSR   07,TYPD        ;CLEAR BUFFER
        RTI                    ;TERMINATOR CHAR, DONE, EXIT.
        TYP1:  CMPB  045,TYPDAT ;CHECK FOR "0".
        BEQ   TYP1          ;BRANCH IF "0".
        CMPB  042,TYPDAT    ;NOT "0", CHECK FOR "8".
        BEQ   TYP1          ;BRANCH IF "8"
        JSR   07,TYPD        ;TYPE CHAR IN TYPDAT
        BR    TYP1
        TYPD:  BIT    0BIT14,05,R ;
        BNE   TYP1          ;
        MOVB  TYPDAT,07,R     ;OUTPUT CHARACTER TO PRINTER
        TSTR  07PS          ;WAIT FOR DONE FLAG.
        RPL   0-4
        CMPB  015,TYPDAT    ;CHECK FOR CR
        BNE   18            ;NO - SKIP
        MOV   09,,NULL      ;SET NULL COUNTER
        TST   NULL          ;TEST COUNTER
        BEQ   TYP1          ;ZERO - EXIT
        DEC   NULL          ;DECREMENT
        MOVB  0,TYPDAT      ;ZERO OUTPUT
        BR    TYP1          ;OUTPUT NULL
        TYP1:  RTS    07     ;EXIT
        TYP1:  MOVB  015,TYPDAT ;MOVE CARRIAGE RETURN CODE TO TYPDAT
        JSR   07,TYPD        ;GO TYPE CHAR.
        TYP1:  MOVB  012,TYPDAT ;MOVE LF CODE TO TYPDAT.
        JSR   07,TYPD        ;GO TYPE CHAR.
        BR    TYP1
        TYPDAT:  0
        NULL:    0
;SUBROUTINE TO OUTPUT A SERIES OF ASCII MESSAGES ON TELETYPE PRINTER
TYP5:  MOV    006,00          ;GET ADDRESS THAT CONTAINS MESSAGE ADDRESS
        ADD    02,006        ;UPDATE TO NEXT MESSAGE ADDRESS
        MOV    000,TYPSB     ;ADDRESS OF MESSAGE TO TYPSB
        CMP    0-1,TYPSA     ;CHECK FOR TERMINATOR
        BNE   TYP5          ;BRANCH IF NOT TERMINATOR.
        RTI                    ;TERMINATOR, EXIT
        TYP5A:  FMT    +1      ;CALL ON TYP SUB TO TYPE MESSAGE
        TYP5B:  0           ;ADDRESS OF MESSAGE GOPS HERE
        BR    TYP5          ;GO PROCESS NEXT MESSAGE
;
;
;
;
;OCTAL TO ASCII CONVERT ROUTINE
;
```

1501
1502
1503
1504
1505
1506
1507
1508
1509
1600
1601

011132 013567 00054
011136 017501
011140 012502
011142 060201

IDENTR ROUTINE AS FOLLOWS
JSR05,CONV
;ADDR=ADDRESS OF NUMBER TO BE CONVERTED
;ADDR BYTE=LSB OF -HEX ASCII IS GOING
;ASCII=THE NUMBER OF ASCII CHAR. TO BE CONVERTED
;
;
CONV: MOV 0(5)+,ACNVX ;VALUE OF 0 TO BE CONVERTED
MOV (5)+,01 ;ASCII ADDR
MOV (5)+,02 ;# OF ASCII CHAR
ADD 02,01

```

1602
1603 011144 016703 000042          ACVX:  MOV      ACVX,03
1604 011150 042703 177770          PIC      0177770,03      ;ISOLATE LEAST SIGNIFICANT OCTAL
1605 011154 062703 0000A0          ADD      060,03         ;SET UP ASCII
1606 011160 110341                    MOVVB    03,=(1)        ;STORE ASCII CHAR
1607 011162 042767 000007 000022  PIC      07,ACVX
1608 011170 006067 000016          ROR      ACVX           ;ROTATE OCTAL
1609 011174 006067 000012          ROR      ACVX
1610 011200 006067 000006          ROR      ACVX
1611 011204 005302                    DEC      02             ;-1 FROM ASCII CHAR COUNT
1612 011206 001356                    RNF     ACVX
1613 011210 000205                    RTS     05             ;EXIT & CONVERTED
1614 011212 000000          ACVX:  0             ;WORK REGISTER
1615
1616
1617
1618
1619
1620 011214 052777 000400 167572  DOWN:  RIS      0BIT0,0DCS      ;ABORT DISK
1621 011222 012767 011232 166574  MOV      0UP,24
1622 011230 000000                    HALT
1623
1624 011232 012767 011214 166564  UP:    MOV      0DOA4,24
1625 011240 012706 001000          MOV      01000,06
1626 011244 012767 177324 167616  MOV      0=300,, WORK
1627 011252 000005          TIMCNT: RESET
1628 011254 005267 167610          INC      WORK           ;TIMEOUT
1629 011260 001374          RNF     TIMCNT
1630 011262 104001          FMT+1      ;REPORT
1631 011264 011574          PRWF
1632 011266 000167 167604          JMP      START         ;START TEST
1633
1634
1635
1636
1637
1638
1639
1640
1641
1642
1643
1644 011272 012737 011364 000114  MAMF:  MOV      0PARSRV,0=PARVEC ;SET PARITY INTERRUPT VECTOR
1645 011300 012737 000340 000116  MOV      0340,0=PARVEC+2 ;AND PRIORITY LEVEL 7 ON INTERRUPT
1646 011306 013746 000004          MOV      0=ERRVEC,=(SP) ;SAVE CURRENT ERROR VECTOR
1647 011312 013746 000006          MOV      0=ERRVEC+2,=(SP) ;AND PRIORITY LEVEL
1648 011316 012737 000006 000004  MOV      0ERRVEC+2,0=ERRVEC
1649 011324 012737 000002 000006  MOV      0PTI,0=ERRVEC+2
1650 011332 012700 172100          MOV      0PARCSR,00     ;GET FIRST CSR ADDRESS
1651 011336 012702 000001          MOV      01,02
1652 011342 012720 000001 181   MOV      01,(0)+        ;SET ACTION ENABLE IF AVAILABLE
1653 011346 006302          ASL     02             ;SHIFT AVAILABILITY INDICATOR
1654 011350 103374          RCC     18
1655 011352 012637 000006          MOV      (SP)+,0=ERRVEC+2 ;RESTORE ERROR VECTOR

```

```

1656 011356 012637 000004      MOV      (SP)+,00EPRVEC ;PRIORITY LEVEL AND INTERRUPT VECTOR
1657 011362 000207      RTS      07
1658                                ;PARITY ERROR SERVICE ROUTINE
1659                                ;WHEN A PARITY ERROR IS DETECTED THE ROUTINE SEARCHES
1660                                ;MEMORY FOR THE PARITY ERROR. WHEN THE ERROR
1661                                ;IS DETECTED THE PROGRAM HALTS WITH THE ADDRESS
1662                                ;CAUSING THE ERROR IN R0.
1663                                ;TO CONTINUE PRESS CONTINUE.
1664 011364 104001      PARSRV; FMT+1
1665 011366 011547      PARERR
1666 011370 012737 011416 000114      MOV      020,00PARVEC ;REPOSITION PARITY ERROR INTERRUPT
1667 011376 012737 011444 000004      MOV      040,00EPRVEC ;SFT TIME OUT TRAP
1668 011404 005037 000006      CLR      00EPRVEC+2
1669 011410 005000      CLR      00
1670 011412 005720      180    TST      (0)+ ;SCAN MEMORY
1671 011414 000776      BR      18
1672 011416 000000      280    HALT ;PARITY ERROR = ADDRESS CAUSING
1673                                ;ERROR IS IN REGISTER 0
1674 011420 000005      380    RESET
1675 011422 012737 011364 000114      MOV      0PARSRV,00PARVEC ;RESTORE PARITY VECTOR
1676 011430 012737 000006 000004      MOV      0EPRVEC+2,00EPRVEC ;RESTORE TIME OUT HALT
1677 011436 004767 177630      JSR      07,NAME
1678 011442 000002      PTI
1679 011444 000000      480    HALT ;ERROR = PARITY ERROR NOT DETECTED ON SCAN.
1680 011446 000764      RF      38 ;R0(SP) CONTAINS PC WHERE
1681                                ;PARITY ERROR WAS ORIGINALLY DETECTED.

```

1682						
1683	011450	000000			TEXTBUF: 0	
1684	011452	000000			TSTCH: 0	
1685						
1686						
1687						
1688						
1689						
1690						
1691						
1692						
1693						
1694	011454	040045			HEDSA: .EVEN	
1695	011456	020040	020040	051105	HEDSA: .ASCII /80/	
1696	011464	047522	020122	047503	HEDSA: .ASCII / ERROR COUNT 0/	
1697	011472	047125	020124	100		
1698						
1699						
1700						
1701						
1702						
1703						
1704						
1705	011477	040	020040	020040	MESS: .ASCII / GOOD DATA 0/	
1706	011504	020040	047507	042117		
1707	011512	042040	052101	020101		
1708	011520	040040				
1709						
1710						
1711						
1712	011522	020040	020040	020040	MESS: .ASCII / BAD DATA/	
1713	011530	041040	042101	042040		
1714	011536	052101	040101			
1715						
1716						
1717						
1718	011542	042445	042116	100	END: .ASCII /8END0/	
1719	011547	045	042515	047515	PARERR: .ASCII /MEMORY PARITY ERROR0/	
1720	011554	054522	050040	051101		
1721	011562	052111	020131	051105		
1722	011570	047522	040122			
1723	011574	020045	047520	042527	PRWF: .ASCII /8 POWER HAS FAILED0/	
1724	011602	020122	040510	020123		
1725	011610	040506	046111	042105		
1726	011616	100				
1727						
1728						
1729		011620				
1730	011620	000000	000000	000000	OUTBUF: .EVEN	
1731	011626	000000			.WORD 0,0,0,0	
1732						
1733						
1734	011630	000000	000000	000000	INBUF: .WORD 0,0,0,0	
1735	011636	000000				

1736		:	
1737		:	
1738		:	
1739		:	
1740	000001		.ENC

ACPVX	011212	1598	1603	1607	1608	1609	1610	1614						
ACVX	011144	1603	1612											
ADDAP	007774	1315	1319											
ADS	001032	133	141											
ADT1	007432	79	1237	1253	1282									
ADT2X	007632	82	1296	1325										
BIT0	= 000001	6	461	461	498	611	613	647	762	764	797	1429		
BIT1	= 000002	7												
BIT10	= 002000	16	1081	1100	1497	1524								
BIT11	= 004000	17	991	1280	1323	1345								
BIT12	= 010000	18												
BIT13	= 020000	19												
BIT14	= 040000	20	1075	1094	1554									
BIT15	= 100000	21												
BIT2	= 000004	8												
BIT3	= 000010	9												
BIT4	= 000020	10												
BIT5	= 000040	11												
BIT6	= 000100	12												
BIT7	= 000200	13												
BIT8	= 000400	14	284	308	352	375	401	422	570	722	869	974	1013	1016
		1054	1087	1223	1258	1301	1449	1620						
BIT9	= 001000	15												
BUF	001050	14	1255	1298	1371									
CATST1	001776	323	325											
CHKADT	007530	1263	1268											
CKMWD	006600	1089	1094											
CKNEM	006634	1095	1100											
CLRNEM	006536	1082	1087											
CMA	001020	12	209	296	297	307	309	323	324	327	424	475	545	572
		624	697	724	775	844	871	925	980	1014	1037	1057	1121	1157
		1193	1229	1402	1427	1466								
CONV	011132	1484	1488	1506	1510	1514	1598							
CTRUSY	010502	1469	1470											
DAE	001024	130	240	387	388	400	402	454	519	524	526	604	676	678
		754	818	823	825	872	890	922	949	951	977	1016	1081	1084
		1100	1103	1118	1154	1190	1226	1410	1458					
DAP	001022	129	230	363	364	374	376	378	460	531	610	683	761	830
		873	884	886	923	942	944	978	1119	1155	1191	1227	1270	1313
		1406	1465											
DBR	001026	131	250	1368	1414									
DCS	001014	126	195	270	271	283	284	285	308	311	352	375	401	422
		426	427	429	436	440	446	498	499	501	507	511	516	518
		570	574	575	577	584	588	594	647	648	650	656	660	665
		667	722	726	727	729	736	740	746	797	798	800	806	810
		815	817	869	874	876	880	926	927	929	934	938	976	981
		983	987	991	993	997	999	1013	1017	1022	1023	1029	1054	1058
		1060	1062	1067	1072	1075	1078	1087	1088	1091	1094	1097	1122	1126
		1128	1158	1162	1164	1194	1198	1200	1223	1230	1235	1258	1260	1262
		1264	1301	1303	1305	1307	1428	1429	1431	1449	1468	1469	1620	
DISK	010130	170	1368											
DKPUSY	010324	1431	1432											
DMA	001044	146	178	1256	1268	1278	1299	1311	1321	1370				
DOWN	011214	175	1620	1624										

EMTRP	010667	168	1533*																
FND	011547	1333	1718*																
ERCOU*	001060	152*	199*	202*	211*	221*	232*	242*	252*	262*	275*	288*	300*	312*					
		328*	343*	355*	367*	379*	391*	404*	431*	443*	451*	457*	465*	472*					
		480*	503*	513*	521*	528*	536*	542*	550*	579*	591*	601*	607*	615*					
		621*	629*	652*	662*	673*	680*	688*	694*	702*	731*	743*	751*	758*					
		766*	772*	780*	802*	812*	820*	827*	835*	841*	849*	881*	887*	895*					
		930*	939*	945*	952*	988*	994*	1000*	1019*	1025*	1033*	1040*	1066*	1071*					
		1077*	1083*	1090*	1096*	1102*	1129*	1137*	1165*	1173*	1201*	1209*	1234*	1265*					
		1273*	1308*	1316*	1489	1515													
FROR1	002466	430*																	
FROR10	003026	502*																	
FROR11	003072	512*																	
FROR12	003132	520*																	
FROR13	003164	527*																	
FROR14	003226	535*																	
FROR15	003254	541*																	
FROR16	003316	549*																	
FROR17	003412	578*																	
FROR2	002542	442*																	
FROR20	003466	590*																	
FROR21	003536	597	600*																
FROR22	003564	606*																	
FROR23	003626	614*																	
FROR24	003654	620*																	
FROR25	003716	628*																	
FROR26	003764	651*																	
FROR27	004030	661*																	
FROR3	002600	450*																	
FROR30	004106	672*																	
FROR31	004140	679*																	
FROR32	004202	687*																	
FROR33	004230	693*																	
FROR34	004272	701*																	
FROR35	004366	730*																	
FROR36	004442	742*																	
FROR37	004500	750*																	
FROR4	002626	456*																	
FROR40	004532	757*																	
FROR41	004574	765*																	
FROR42	004622	771*																	
FROR43	004664	779*																	
FROR44	004732	801*																	
FROR45	004776	811*																	
FROR46	005036	819*																	
FROR47	005070	826*																	
FROR5	002670	464*																	
FROR50	005132	836*																	
FROR51	005160	840*																	
FROR52	005222	848*																	
FROR6	002716	471*																	
FROR7	002760	479*																	
FRPVEC =	000004	1641*	1646	1647	1648*	1649*	1655*	1656*	1667*	1668*	1676*								
FRRO	001246	198*																	

ERR1	001266	2020
ERR10	001556	2750
ERR100	005610	9390
ERR101	005642	9450
ERR102	005702	9520
ERR103	006016	9880
ERR104	006050	9940
ERR105	006100	10000
ERR106	006156	10190
ERR107	006206	10250
ERR11	001626	2880
ERR110	006242	10330
ERR111	006302	10400
ERR112	006406	10660
ERR113	006430	10710
ERR114	006462	10770
ERR115	006514	10830
ERR116	006554	10900
ERR117	006610	10960
ERR17	001676	3000
ERR120	006644	11020
ERR121	006764	11290
ERR122	007000	11370
ERR123	007120	11650
ERR124	007134	11730
ERR125	007254	12010
ERR126	007270	12090
ERR127	007402	12340
ERR13	001744	3120
ERR130	007514	12650
ERR131	007560	12730
ERR132	007714	13080
ERR133	007760	13160
ERR14	002104	3430
ERR15	002146	3550
ERR16	002216	3670
ERR17	002264	3790
ERR2	001316	2110
ERR20	002334	3910
ERR21	002376	4040
ERR22	002464	4310
ERR23	002542	4430
ERR24	002600	4510
ERR25	002626	4570
ERR26	002670	4650
ERR27	002716	4720
ERR3	001346	2210
ERR30	002760	4800
ERR31	003026	5030
ERR32	003072	5130
ERR33	003132	5210
ERR34	003164	5280
ERR35	003226	5360
ERR36	003254	5420

FPM37	003316	4570				
FRR4	001376	2320				
FRR40	003412	5700				
ERR41	003466	5910				
FRR42	003536	6010				
FRR43	003564	6070				
FRR44	003626	6150				
FRR45	003654	6210				
ERR46	003716	6290				
FRR47	003764	6520				
FRR5	001426	2420				
FRR50	004030	6620				
FRR500	001762	3200	330	334		
ERR51	004106	669	6730			
ERR52	004160	6800				
FRR53	004202	6800				
FRR54	004230	6940				
FRR55	004272	7020				
FRR56	004366	7310				
ERR57	004442	7430				
FRR6	001456	2520				
ERR60	004500	7510				
FRR61	004532	7580				
FRR62	004574	7660				
ERR63	004622	7720				
FRR64	004664	7800				
ERR65	004732	8020				
FRR66	004774	8120				
FRR67	005036	8200				
ERR7	001506	2620				
FRR70	005070	8270				
ERR71	005132	8350				
FRR72	005160	8410				
FRR73	005222	8490				
ERR74	005334	8810				
FRR75	005364	8870				
FRR76	005434	8950				
FRR77	005546	9300				
FLAG	001034	1420	919			
HED5	011456	1490	1494	1516	1520	16950
HED5A	011454	1493	1519	16940		
HWDOK	006504	1076	10810			
INRUF	011630	1290	1466	17340		
INCBUS	003050	5070	510			
INCDAR	007574	1272	12760			
INCEM	006364	10600	1065			
INCRD	004754	8060	809			
INCMAT	002506	4350	430			
INT106	007000	1116	11360			
INT110	007134	1152	11720			
INT112	007270	1180	12000			
INT114	007424	1224	12410			
INXDSK	005566	9340	937			
LOGICA	010044	13360				

LOOP	010060	173	1345a																	
LPADT	007616	1277	1280a																	
LPADT2	01001A	1320	1323a																	
LPNEV	006670	1101	1106a																	
LPST1	001300	201	204a																	
LPST10	001570	273	277a																	
LPST11	001640	287	290a																	
LPST12	001710	299	302a																	
LPST13	001756	310	314a																	
LPST14	002116	341	345a																	
LPST15	002160	354	357a																	
LPST16	002230	366	369a																	
LPST17	002276	377	381a																	
LPST2	001330	210	213a																	
LPST20	002346	390	393a																	
LPST21	002410	403	407a																	
LPST22	003334	548	553a																	
LPST3	001360	220	223a																	
LPST4	001410	231	234a																	
LPST40	004310	700	705a																	
LPST5	001440	241	244a																	
LPST6	005240	847	852a																	
LPST6	001470	251	254a																	
LPST7	001520	261	264a																	
LPST74	005446	893	897a																	
LPST77	005720	950	955a																	
LPSX10	006114	998	1003a																	
LPX105	006172	1018	1022a																	
LPX106	006222	1024	1028a																	
LPX107	006256	1030	1036a																	
LPX108	006316	1039	1043a																	
LP106	007024	1127	1142a																	
LP110	007160	1163	1179a																	
LP112	007314	1199	1215a																	
LTS-T	005312	876a	879																	
LXII	010054	1335	1340a																	
MA	001030	132a	260																	
MAUF	011272	194	1644a	1677																
MES5	011477	1512	1521	1705a																
MES6	011522	1484	1495	1508	1522	1712a														
MOVLA	010252	94	1419a	1422																
N	000134	5a	198	199a	202	203a	211	212a	221	222a	232	233a	242	243a						
		252	253a	262	263a	275	276a	288	289a	300	301a	312	313a	343						
		344a	355	356a	367	368a	379	380a	391	392a	404	405a	430	432a						
		442	444a	450	452a	456	458a	464	466a	471	473a	479	481a	502						
		504a	512	514a	520	522a	527	529a	535	537a	541	543a	549	551a						
		578	580a	590	592a	600	602a	606	608a	614	616a	620	622a	628						
		630a	651	653a	661	663a	672	674a	679	681a	687	689a	693	695a						
		701	703a	730	732a	742	744a	750	752a	757	759a	765	767a	771						
		773a	779	781a	801	803a	811	813a	819	821a	826	828a	834	836a						
		840	842a	848	850a	881	882a	887	888a	895	896a	930	931a	939						
		940a	945	946a	957	953a	988	989a	994	995a	1000	1001a	1019	1020a						
		1025	1026a	1033	1034a	1040	1041a	1066	1067a	1070	1072a	1077	1078a	1083						
		1084a	1090	1091a	1096	1097a	1102	1103a	1129	1130a	1136	1138a	1165	1166a						

		1172	1174*	1201	1202*	120*	1210*	1234	1235*	1265	1266*	1273	1274*	130*
		1309*	1316	1317*										
NULL	011076	1561*	1562	1564*	1574*									
NXMTSM	006322	70	1054*	1069	1074	1080	1086	1093	1099	1105	1107			
OUTBUF	011620	423*	424	476	546	571*	572	625	69*	723*	724	776	845	871
		925	980	1014	1036	1121	1157	1193	1229	1255	1427	1730*		
PARCSR =	172100	1639*	1650											
PAPERR	011547	1665	1719*											
PARSPV	011364	1644	1664*	1675										
PARVFC =	000114	1640*	1644*	1645*	1666*	1675*								
PASS	001066	155*	1349	1351*	1352*									
PATM1	001046	147*												
PRWF	011574	1631	1723*											
PS	001002	118*	172*	1055*	1117*	1138	1153*	1174	1189*	1210	1225*	1425*		
RANM1	001036	143*												
RDWAT	004406	735*	739											
RDYERX	006430	1063	1070*											
READ =	104405	2*	1302											
ROADT	007662	1301*	1310	1310	1322									
SAVE	001062	153*												
SAV1	001064	154*												
SCOPE =	000004	22*	204	213	223	234	244	254	264	277	290	302	314	333
		345	357	360	381	393	407	553	705	852	897	955	1003	1043
		110*	1142	117*	1215	1242								
SELCMA	010212	90	1407*	1403										
SELDAE	010232	92	1410*	1411										
SELDAR	010222	91	1406*	1407										
SELDAR	010242	93	1414*	1415										
SELDCS	010264	95	1425*	1430	1433									
SELWC	010202	89	139*	1399										
SP =	0000006	1642*	1646*	1647*	1655	1656								
SRCHG	010510	1471*	1471											
STAER	010522	199	203	212	222	233	243	253	263	289	313	356	380	406
		432	45*	473	504	514	529	543	580	60*	622	653	663	681
		695	732	759	773	803	813	82*	842	882	88*	931	940	946
		989	995	1001	1020	1026	1034	1068	1073	1079	1085	1092	1098	1104
		1130	1140	1166	1176	1207	1212	1236	1266	1309	1484*			
STAER1	010574	276	301	329	344	36*	392	444	452	466	481	522	537	551
		592	602	616	630	674	689	703	744	752	767	781	821	836
		850	896	953	1041	1274	1317	1506*						
STAI1	001222	38	193*	205	1340									
STAI10	001524	45	270*	278										
STAI11	001574	46	283*	291										
STAI12	001644	4*	295*	303										
STAI13	001714	49	307*	315										
STAI14	002052	51	338*	346										
STAI15	002122	52	351*	35*										
STAI16	002164	54	362*	370										
STAI17	002234	55	374*	382										
STAI2	001704	39	208*	214										
STAI20	002302	5*	386*	394										
STAI21	002352	59	400*	408										
STAI22	002414	60	422*	433	445	453	459	467	474	482	505	515	523	530
		538	544	552	554	827								

STAI73	002502	428	4348																		
STAI74	002556	437	4468																		
STAI75	002616	448	4548																		
STAI76	002644	455	4608																		
STAI77	002706	462	4698																		
STAI78	001734	40	2188	224																	
STAI79	002734	470	4758																		
STAI80	002776	478	4978																		
STAI81	003044	500	5068																		
STAI82	003110	508	5168																		
STAI83	003150	517	5248																		
STAI84	003202	525	5318																		
STAI85	003244	534	5398																		
STAI86	003272	540	5458																		
STAI87	001364	41	2288	235																	
STAI88	003340	62	5708	581	593	603	609	617	623	631	654	664	675	682							
		690	696	704	706																
STAI89	003426	576	5828																		
STAI90	003502	585	5948																		
STAI91	003554	595	6048																		
STAI92	003602	605	6108																		
STAI93	003644	612	6188																		
STAI94	003672	619	6248																		
STAI95	003734	627	6468																		
STAI96	001414	42	2398	245																	
STAI97	004002	649	6558																		
STAI98	004046	657	6658																		
STAI99	004124	666	6768																		
STAI100	004156	677	6838																		
STAI101	004220	686	6918																		
STAI102	004246	692	6978																		
STAI103	004314	64	7228	733	745	753	760	768	774	782	804	814	829	837							
		843	851	853																	
STAI104	004402	728	7348																		
STAI105	001444	43	2498	255																	
STAI106	004456	737	7468																		
STAI107	004516	748	7548																		
STAI108	004550	756	7618																		
STAI109	004612	763	7698																		
STAI110	004640	770	7758																		
STAI111	004702	778	7968																		
STAI112	004750	799	8058																		
STAI113	005014	807	8158																		
STAI114	001474	44	2598	265																	
STAI115	005054	816	8238																		
STAI116	005106	824	8308																		
STAI117	005150	833	8388																		
STAI118	005176	839	8448																		
STAI119	005244	66	8698	883	889	898															
STAI120	005350	877	8848																		
STAI121	005402	885	8908																		
STAI122	005452	67	9198	932	941	947	954	956													
STAMP	010334	98	14488	1472																	
STAPT	001076	34	1638	1632																	

STA100	005562	928	933																
STA101	005626	935	942																
STA102	005660	943	948																
STA103	005724	68	976	990	996	1002	1004												
STA104	006032	984	991																
STA105	006064	992	997																
STA106	006674	71	1116	1141	1143														
STA110	007030	73	1131	1152	1180														
STA112	007164	75	1167	1177	1188	1216													
STA114	007320	77	1203	1213	1223	1243													
STOP	002040	321	332																
ST105X	006120	69	1013	1021	1027	1035	1042	1044											
SWR	001000	117	1280	1323	1345	1398	1402	1406	1410	141	142A	1450	1459	1471					
		1497	1524	1554															
S&PDCI	001056	151																	
TDMA	001054	150																	
TEXBIF	011450	1683																	
TIVCNT	011252	1627	1629																
TKR	001006	120																	
TKS	001012	122																	
TPR	001004	119	1556																
TPS	001010	121	1557																
TRACK	001042	145	177	1257	1300	1369													
TSTCH	011452	1684																	
TSTNEM	006457	1061	1075																
TWRDCT	001057	149																	
TYEXTT	011044	1555	1563	1567															
TYP	010674	1536	1539																
TYPA	010704	1542	1553	1572															
TYPC	010732	1544	1548																
TYPD	010760	1546	1552	1554	1566	1569	1571												
TYFDAT	011074	1542	1543	1545	1548	1550	1556	1559	1565	1568	1570	1573							
TYPF	011046	1549	1568																
TYPG	011060	1551	1570																
TYPS	011100	1535	1576	1584															
TYPSA	011124	1580	1582																
TYPSR	011126	1578	1579	1583															
UP	011232	1621	1624																
WAFRUS	005774	983	986																
WATRDY	006226	1029	1032																
WC	001016	127	219	339	340	342	351	353	425	469	497	539	573	618					
		646	691	725	769	796	838	870	924	979	1015	1056	1120	1156					
		1192	1228	1398	1426	1467													
WCRUSI	004006	656	659																
WCHAT	003432	583	587																
WDRK	001070	159	195	196	200	209	219	230	240	250	260	271	272	285					
		286	297	298	311	327	342	353	364	365	378	388	389	402					
		429	434	435	438	440	446	447	454	460	461	469	475	477					
		501	506	509	511	518	526	531	533	539	545	547	577	582					
		583	586	588	594	596	604	610	611	618	624	626	650	655					
		658	660	667	668	678	683	685	691	697	699	729	734	735					
		738	740	746	747	754	755	761	762	769	775	777	800	805					
		808	810	817	825	830	832	838	844	846	875	878	880	886					
		890	891	892	929	933	936	938	944	951	982	985	987	993					

		999	1028	1031	1037	1038	1059	1064	1067	1072	1078	1084	1091	1097
		1103	1128	1138	1164	1174	1200	1210	1235	1264	1270	1271	1307	1313
		1314	1376	1377	1378	1451	1452	1453	1454	1455	1456	1457	1458	1459
		1460	1461	1462	1463	1464	1465	1485	1507	1624	1628			
WORK1	001072	1608	274	295	296	298	326	338	339	340	362	363	365	386
		387	389	441	449	463	476	477	519	532	533	546	547	589
		598	599	613	625	626	670	671	684	685	698	699	741	749
		764	776	777	818	831	832	845	846	894	919	920	921	922
		948	949	1036	1038	1268	1269	1271	1276	1278	1311	1312	1314	1319
		1321	1450	1451	1471	1511								
WORK2	001074	1618												
WRADT	007462	1258	1267	1275	1279									
WRCHFC	= 104407	278												
WRDCT	001040	1448	1254	1297	1372									
WRITF	= 104403	268	1259											
XCHFDI	007730	1306	1311											
XSTAT1	001260	197	2008											
.	= 011640	298	37	338	378	858	1128	1125	1161	1197	1233	1261	1281	1304
		1324	1346	1350	1353	1498	1525	1558	1729					

FRPOP	328	198	202	211	221	232	242	252	262	275	288	300	312	343	355
	367	379	391	404	430	442	450	456	464	471	479	502	512	520	527
	535	541	549	578	590	600	606	614	620	628	641	661	672	679	687
	693	701	730	742	750	757	765	771	779	801	811	819	826	834	840
	848	881	887	895	930	939	945	952	988	994	1000	1019	1029	1033	1040
	1066	1070	1077	1083	1090	1096	1102	1129	1134	1165	1172	1201	1208	1234	1265
	1273	1308	1316												

ADD	1356	1540	1577	1601	1605										
ASL	1653														
RCC	1654														
BEQ	197	210	220	231	241	251	261	273	287	299	310	325	341	354	366
	377	390	403	455	462	470	478	525	534	540	548	605	612	619	627
	677	686	692	700	756	763	770	778	824	833	839	847	885	893	943
	950	1039	1080	1095	1101	1272	1277	1281	1315	1320	1324	1335	1346	1353	1430
	1498	1525	1540	1551	1563										
BIC	991	920	1377	1452	1464	1604	1607								
RIS	284	308	352	375	401	422	426	441	498	570	574	580	599	647	671
	722	726	741	797	860	921	926	976	981	1013	1016	1054	1058	1087	1122
	1158	1194	1223	1230	1258	1301	1449	1468	1420						
RIT	196	991	1075	1081	1094	1100	1280	1323	1345	1429	1497	1524	1554		
RMI	437	508	585	657	737	807	877	935	984	998	1018	1030	1061	1063	1127
	1163	1199													
RNE	201	430	510	587	597	650	660	730	800	879	937	986	992	1032	1065
	1076	1082	1125	1161	1197	1233	1350	1472	1535	1544	1555	1560	1580	1612	1629
BPL	428	448	500	517	576	595	649	666	728	748	799	816	928	1024	1261
	1263	1304	1306	1432	1470	1558									
BR	433	445	581	593	733	745	883	932	990	996	1002	1021	1027	1035	1042
	1060	1074	1080	1086	1131	1141	1167	1177	1203	1213	1237	1267	1275	1310	1318
	1399	1403	1407	1411	1415	1422	1431	1473	1536	1553	1566	1572	1584	1671	1680
CLP	164	177	178	322	434	506	582	655	734	805	872	875	933	982	1028
	1059	1118	1119	1123	1154	1155	1159	1190	1191	1195	1226	1227	1231	1256	1257
	1299	1300	1545	1668	1669										
CMP	272	286	298	324	340	365	389	461	477	533	547	596	611	626	668
	685	699	762	777	832	846	892	949	1038	1088	1139	1175	1211	1241	1271
	1276	1314	1319	1471	1534	1570									
CMR	1543	1548	1550	1559											
COV	1373														
DEC	1352	1564	1611												
RMT	1332	1492	1518	1534	1582	1630	1664								
HALT	32	1490	1526	1622	1672	1679									
IAC	435	509	583	658	735	808	878	936	948	985	1031	1064	1124	1160	1196
	1232	1260	1312	1374	1428										
IOI	22														
JMP	34	38	39	40	41	42	43	44	45	46	48	49	51	52	54
	55	58	59	60	62	64	66	67	68	69	70	71	73	75	77
	79	82	89	90	91	97	93	94	95	98	330	453	459	467	474
	482	505	515	523	530	538	544	552	603	609	617	623	631	654	664
	675	682	690	696	704	753	760	768	774	782	804	814	822	829	837
	843	851	889	941	947	954	1093	1099	1105	1279	1282	1322	1325	1340	1632
JSP	194	199	203	212	222	233	243	253	263	276	289	301	313	329	344
	356	368	380	392	406	432	444	452	458	466	473	481	504	514	522
	529	537	543	551	580	597	602	608	616	622	630	653	663	674	681
	689	695	703	732	744	757	759	767	773	781	803	813	821	828	836
	842	850	882	888	896	931	940	946	953	989	995	1001	1020	1026	1034
	1041	1068	1073	1079	1085	1092	1098	1104	1130	1140	1166	1176	1202	1212	1236
	1266	1274	1309	1317	1336	1484	1488	1506	1510	1514	1546	1552	1569	1571	1677
MOV	164	165	167	168	169	170	171	172	173	174	175	176	195	198	202
	209	211	219	221	230	232	240	242	250	252	260	262	270	271	274
	275	283	285	288	295	296	297	300	307	311	312	320	321	323	326
	327	328	332	338	339	342	343	351	353	355	362	363	364	367	374
	378	379	386	387	388	391	400	402	404	423	424	425	429	431	440

	443	446	449	451	454	457	460	463	465	469	472	475	474	480	497
	501	503	511	513	514	519	521	526	528	531	532	536	539	542	545
	546	550	571	572	573	577	579	588	591	594	598	601	604	607	610
	613	615	618	621	624	625	629	646	650	652	660	662	667	670	673
	678	680	683	686	688	691	694	697	698	707	723	724	725	729	731
	740	743	746	749	751	754	758	761	764	766	769	772	775	776	780
	796	800	802	810	812	817	818	820	825	827	830	831	835	838	841
	844	845	849	870	871	873	874	880	881	886	887	890	894	895	919
	922	923	924	925	929	930	938	939	944	945	951	952	977	978	979
	980	987	988	993	994	999	1000	1014	1015	1019	1022	1025	1033	1036	1037
	1040	1055	1056	1057	1066	1067	1071	1072	1077	1078	1083	1084	1090	1091	1094
	1097	1102	1103	1116	1117	1120	1121	1128	1129	1137	1138	1152	1153	1156	1157
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	1307	1308	1311	1313	1316	1321	1334	1347	1351	1354	1368	1369	1370	1371	1372
	1375	1376	1378	1398	1402	1406	1410	1414	1419	1425	1426	1427	1428	1450	1451
	1458	1459	1465	1466	1467	1533	1539	1541	1561	1576	1578	1598	1599	1600	1603
	1621	1624	1625	1626	1644	1645	1646	1647	1648	1649	1650	1651	1652	1655	1656
	1666	1667	1675	1676											
MOV8	1542	1556	1565	1568	1570	1606									
NOP	1337	1338	1339												
RESET	163	193	208	218	229	239	249	259	1420	1421	1627	1674			
ROL	1461	1462	1463												
ROP	1453	1454	1455	1456	1457	1608	1609	1610							
RTI	1348	1355	1357	1379	1547	1581	1649	1678							
RTS	1500	1527	1567	1613	1657										
SAB	1460														
TRAP	26	27	28												
TST	309	376	438	447	516	524	586	665	676	738	747	755	815	823	884
	942	997	1060	1262	1305	1349	1562	1670							
TSTB	200	427	436	499	507	575	584	648	656	727	736	798	806	876	927
	934	983	1017	1023	1029	1062	1126	1162	1198	1260	1303	1431	1469	1557	
.ASCII	1694	1695	1705	1712	1718	1719	1723								
.ENABL	4														
.EVD	1740														
.EVEN	114	1693	1729												
.LIST	2	32	199	203	212	222	233	243	253	263	276	289	301	313	344
	356	368	380	392	405	432	444	452	458	466	473	481	504	514	522
	529	537	543	551	580	592	602	608	616	622	630	653	663	674	681
	689	695	703	732	744	752	759	767	773	781	803	813	821	828	836
	842	850	882	888	896	931	940	946	953	989	995	1001	1020	1026	1034
	1041	1067	1072	1078	1084	1091	1097	1103	1130	1138	1166	1174	1202	1210	1235
	1266	1274	1309	1317											
.MACP	32														
.NLIST	2	32	199	203	212	222	233	243	253	263	276	289	301	313	344
	356	368	380	392	405	432	444	452	458	466	473	481	504	514	522
	529	537	543	551	580	592	602	608	616	622	630	653	663	674	681
	689	695	703	732	744	752	759	767	773	781	803	813	821	828	836
	842	850	882	888	896	931	940	946	953	989	995	1001	1020	1026	1034
	1041	1067	1072	1078	1084	1091	1097	1103	1130	1138	1166	1174	1202	1210	1235
	1266	1274	1309	1317											
.RFPT	32														
.TITLE	1														
.WORD	1730	1734													

ERRORS DETECTED: 0

MAINDEC-11-DZRFAB-B RF-11 STATIC TEST REPLACES D50A
DZRFAB.BIC

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*DZRFAB.DZRFAB/SOL/CHF_DZRFAB.BIC
RUN-TIME: 6 13 3 SECONDS
CORE USED: RK