

IDENTIFICATION

PRODUCT CODE: MAINDEC-08-DHRKA-E-D
PRODUCT NAME: RK8E DISKLESS CONTROL TEST
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1. ABSTRACT

THE RK8E DISKLESS CONTROL TEST IS DESIGNED FOR THE PURPOSE OF CHECKOUT OF THE RK8E DISK CONTROL LOGIC NOT REQUIRING THE USE OF THE DISK DRIVE. THIS TEST SHOULD BE RUN WITH ALL EXISTING DRIVES SET TO THE LOAD POSITION.

2. REQUIREMENTS

2.1 HARDWARE

PDP-8/E, 8/M, OR 8/F COMPUTER OR OTHER FAMILY OF 8 COMPATIBLE COMPUTER WITH NECESSARY DW8E BUS ADAPTER.

AT LEAST 4K OF READ/WRITE MEMORY. AT LEAST 8K OF MEMORY IS NEEDED FOR OPERATION OF THE CONSOLE PACKAGE.

ASR-33 TELETYPE OR EQUIVALENT
RK8E DISK CONTROL
RK05J OR RK05F DISK DRIVE(S)

2.2 SPECIAL

THE DISKLESS TEST CAN BE RUN WITH ALL DRIVES AVAILABLE CABLED TO THE RK8E CONTROL. HOWEVER, THE POWER MUST BE SUPPLIED TO THE DRIVES, AND ALL THE DRIVES MUST BE SET TO THE LOAD POSITION.

THE DISKLESS TEST CAN ALSO BE RUN WITH THE CABLES TO THE DRIVES DISCONNECTED FROM THE RK8E CONTROL.

2.3 STORAGE

THE PROGRAM UTILIZES OR OCCUPIES LOCATIONS 0000 TO 7377 OF FIELD 0 AND LOCATIONS 0200 TO 1377 OF FIELD 1.

THE PROGRAM WILL ALSO TEST DATA BREAK TRANSFER TO ALL EXISTING EXTENDED FIELDS AS INDICATED BY SWP9-11 IF THE CONSOLE PACKAGE IS NOT ENABLED.

3. PRELIMINARY PROGRAMS

ALL BASIC AND EXTENDED MEMORY DIAGNOSTICS SHOULD BE RUN PRIOR TO THIS TEST.

4. SWITCH REGISTER SETTINGS

SWR0=1 ENTER SCOPE LOOP, AFTER AN ERROR HALT AT LOCATION "ERHLT9" RAISING THIS SWITCH AND PRESSING KFY CONTINUE WILL CAUSE A SCOPE LOOP ON THE CURRENT TEST. IF SWR2=0 AND THE TEST IS STILL FAILING, THE ERROR BELL SHOULD RING INDICATING AN ERROR.

SWR1=1 INHIBIT END OF TEST HALT. AT THE COMPLETION OF THE TEST THE PROGRAM SHOULD HALT AT LOCATION "ENDHLT". RAISING THIS SWITCH WILL INHIBIT THE END OF TEST HALT.

SWR2=1 INHIBIT ERROR BELL ON SCOPE LOOP.

SWR3=1 GET ALL REGISTERS AFTER "ERHLT9". AFTER AN ERROR HALT AT LOCATION "ERHLT9", RAISING THIS SWITCH AND PRESSING KEY CONTINUE WILL RESULT IN THE TIMEOUT OF THE ABSOLUTE CONTENTS OF THE STATUS, COMMAND, CPC, LOWER DATA, AND SURFACE AND SECTOR REGISTERS. ONCE THIS SWITCH IS USED IT IS NECESSARY TO RESART THE DIAGNOSTIC AT THE START (LOCATION 0200).

SWR4=1 STOP PROGRAM OR TEST HALT. RAISING THIS SWITCH WILL HALT THE PROGRAM AT THE COMPLETION OF THE CURRENT TEST. IF POSSIBLE THIS SWITCH SHOULD ALWAYS BE USED TO STOP THE PROGRAM.

SWR9-11 AMOUNT OF EXTENDED BANKS OF MEMORY. AT INITIAL START OF THE PROGRAM, SWR9-11 INDICATES THE AMOUNT OF EXISTING EXTENDED MEMORY FIELDS AVAILABLE TO TEST.

5. OPERATOR AND/OR PROGRAM ACTION

5.1 STANDARD TEST PROCEDURE

- A. START AS SPECIFIED THROUGHOUT THIS DOCUMENTATION IS KEY CLEAR AND THEN KEY CONTINUE ON A PDP8/E, PDP8/F, OR PDP8/M COMPUTER.
- B. LOAD THE PROGRAM INTO FIELD 0 USING THE STANDARD BINARY LOADER TECHNIQUE.

- C. IF IT IS DESIRED TO CHANGE THE IOT CODES WITHIN THE PROGRAM, FOLLOW THE PROCEDURE IN SECTION 5.4.
- D. RUN THE DISKLESS CONTROL TEST PORTION BY FOLLOWING THE PROCEDURE IN SECTION 5.2.
- E. RUN THE MANUAL SCOPE TEST BY FOLLOWING THE PROCEDURE IN SECTION 5.3.

5.2 DISKLESS CONTROL TEST -----

- A. SET THE SWITCH LABELED "RUN/LOAD" TO THE "LOAD" POSITION ON ALL DRIVES, OR DISCONNECT DRIVES FROM RK8E CONTROL.
- B. IF DRIVES ARE CABLED TO THE RK8E CONTROL, VERIFY AC POWER IN THE DRIVE(S) IS ON.
- C. SET THE SWITCH REGISTER TO 0200 AND PRESS LOAD ADDRESS.
- D. SET THE SWITCH REGISTER TO 0000.
- E. SET SWR9-11 TO THE AMOUNT OF AVAILABLE EXTENDED R/W MEMORY BANKS AND START THE COMPUTER RUNNING.
- F. SET SWR1=1 IF THE OPERATOR DESIRES TO INHIBIT THE END OF TEST HALT AT LOCATION "ENDHLT".
- G. SWR4=1 SHOULD ALWAYS BE USED TO STOP THE PROGRAM.
- H. THE PROGRAM SHOULD PRINT THE FOLLOWING MESSAGE AT THE COMPLETION OF EACH SUCCESSFUL PASS APPROX. EVERY 3.5 MINUTES.

"RK8E DISKLESS PASS COMPLETE"

- I. ANY HALTS OR TYPEOUTS OTHER THAN THE PASS COMPLETE TYPEOUT AND THE END OF TEST HALT MENTIONED ABOVE WILL BE CONSIDERED AN ERROR CONDITION. IN ALL CASES ACCESS "ERRORS" SECTION 6 IN THIS DOCUMENTATION.
- J. FOR ABSOLUTE LOCATIONS OF ALL KNOWN HALTS ACCESS PAGE 1 OF THE PROGRAM LISTING.

5.3 MANUAL SCOPE TEST FOR 16 BIT COUNTER -----

THIS TEST ENABLES THE OPERATOR TO TEST THE 16 BIT COUNTER WHICH CANNOT BE TESTED UNDER PROGRAM CONTROL IN THE REGULAR DISKLESS TEST. TO RUN THIS TEST, SIMPLY FOLLOW THE FOLLOWING INSTRUCTIONS.

- A. RUN THE DISKLESS CONTROL TEST PORTION PRIOR TO THIS MANUAL TEST.
- B. SET THE SWITCH REGISTER TO 0204 AND PRESS LOAD ADDRESS.

- C. SET THE SWITCH REGISTER TO 0000 AND PRESS START.
- D. SCOPE THE 16TH CARRY OUTPUT, TEST POINT 1 (T1), ON THE M7106 MODULE IN THE RKRE CONTROL LOGIC, FOR A POSITIVE GOING SIGNAL.
- E. THE APROX. SIGNAL SHOULD BE A GROUND TO + 3 VOLT PULSE, 9 MICRO-SECONDS WIDE, OCCURRING AT A 140 MICRO-SECOND RATE.
- F. ALL THAT THE PROGRAM DOES IN THIS SCOPE TEST IS TO CONSISTANTLY ISSUE HI MAIN SHIFT PULSES TO THE 16 BIT COUNTER ON THE M7106 MODULE.

5.4 CHANGE PROGRAM DEVICE IOT CODES

THE PROGRAM NORMALLY RECOGNIZES PROGRAM DEVICE IOT CODE X74X. TO CHANGE THE PROGRAM DEVICE IOT CODE:

- A. SET THE SWITCH REGISTER TO 0205 AND PRESS LOAD ADDRESS.
- B. SET THE SWITCH REGISTER TO 0000, SET SWITCH REGISTER BITS 3-8 TO THE DESIRED DEVICE IOT CODE, AND PRESS START.
- C. THE PROGRAM WILL CHANGE THE DEVICE IOT CODES WITHIN THE PROGRAM AND THEN HALT.
- D. PRESSING KEY CONTINUE WILL RESULT IN A START OF THE PROGRAM AT LOCATION 0200 (SEE SECTION 5.2 FOR OPERATION INSTRUCTIONS).

6. ERRORS

6.1 USEFUL ERROR INFORMATION

THE LOCATION OF ALL KNOWN HALTS CAN BE FOUND BY ACCESSING PAGE 1 OF THE PROGRAM LISTING.

ALL ERRORS FOUND WHEN RUNNING THIS TEST SHOULD BE CORRECTED BEFORE PROCEEDING ON IN THE TEST.

WHEN AN OPERATOR ENCOUNTERS AN ERROR WHEN RUNNING THIS TEST HE SHOULD, IN ALL CASES, READ THE ERROR TYPEOUT INFORMATION, NOTE THE LOCATION OF THE FAILURE, READ ALL THE INFORMATION UNDER ERRORS IN THIS DOCUMENTATION, AND THEN ACCESS THE PROGRAM LISTING FOR FURTHER INFORMATION.

6.2 NON-RECOVERABLE ERROR HALTS

NON-RECOVERABLE ERROR HALTS FOR WHICH THERE ARE NO
TIMEOUTS OR SCOPE LOOPS ARE LISTED AND DEFINED AS FOLLOWS:

ERHLT1	UNDEFINED INTERRUPT
ERHLT2	SKIP TRAP FOR IOT "DCLR"
ERHLT3	SKIP TRAP FOR IOT "DLAG"
ERHLT4	SKIP TRAP FOR IOT "DLCA"
ERHLT5	SKIP TRAP FOR IOT "DRST"
ERHLT6	SKIP TRAP FOR IOT "DLDC"
ERHLT7	SKIP TRAP FOR IOT "DMAN"

6.3 RECOVERABLE ERROR HALT

ALL RECOVERABLE ERRORS, FOR WHICH THERE ARE SCOPE LOOPS
AND ERROR TIMEOUTS, SHOULD RESULT IN AN ERROR HALT AT
"ERHLT9".

ERHLT9	RECOVERABLE ERROR HALT. READ INFORMATION TIMEOUT ON TTY AND ACCESS LISTING.
--------	--

6.4 ERROR TIMEOUTS

WHEN A RECOVERABLE ERROR OCCURS THE PROGRAM WILL
PRINT AN "ERROR HEADER" WHICH WILL SPECIFY THE
PARTICULAR REGISTER IN ERROR OR TYPE OF ERROR FOUND
AT THE TIME OF THE FAILURE.

POSSIBLE "ERROR HEADERS" ARE AS FOLLOWS.

AC REGISTER ERROR
STATUS REGISTER ERROR
COMMAND REGISTER ERROR
DISK ADDRESS REGISTER ERROR
DATA BREAK ERROR
CRC REGISTER ERROR
DATA REGISTER ERROR
DISK SKIP ERROR
DISK INTERRUPT ERROR

AFTER THE "ERROR HEADER" MENTIONED ABOVE IS TYPED, THE PROGRAM WILL PRINT THE FOLLOWING ERROR INFORMATION FOUND AT THE TIME OF THE FAILURE, PERTAINING TO THE FAILURE. POSSIBLE TYPEOUTS ARE AS FOLLOWS.

PC: PROGRAM LOCATION OF THE ACTUAL FAILURE.

GD: REFERS TO THE DATA EXPECTED IN THE REGISTER OR TYPE OF TEST SPECIFIED IN THE "ERROR HEADER".

CR: CONTENTS OF THE CRC REGISTER.

ST: CONTENTS OF THE STATUS REGISTER.

DB: CONTENTS OF THE LOWER DATA REGISTER.

CM: CONTENTS OF THE COMMAND REGISTER.

DA: CONTENTS OF THE DISK ADDRESS REGISTER OF THE CYLINDER, SURFACE, AND SECTOR BITS.

AD: BREAK ADDRESS OF DATA BREAK.

DT: DATA FOUND DURING DATA BREAK.

AC: CONTENTS OF THE AC REGISTER.

THE "GD;" INFORMATION TYPED OUT POINTS TO THE DATA EXPECTED IN THE REGISTER IN ERROR OR TYPE OF ERROR TYPED OUT IN THE "ERROR HEADER".

THE ERROR INFORMATION INDICATED BY THE "ERROR HEADER" (I.E. DA: FOR DISK ADDRESS ERROR, CM: FOR COMMAND REGISTER ERROR, CR: FOR CRC REGISTER ERROR, ETC.), IS THE ACTUAL CONTENTS OF THAT PARTICULAR REGISTER. ERROR INFORMATION OTHER THAN THAT SUGGESTED BY THE "ERROR HEADER" IS THE SOFTWARE INFORMATION LOADED INTO THAT REGISTER PRIOR TO THE FAILURE. (NOTE: "ST:" STATUS ALWAYS INDICATES THE ACTUAL CONTENTS.)

TO TYPEOUT THE ACTUAL CONTENTS OF THE CRC, STATUS, LOWER DATA, COMMAND, AND SURFACE AND SECTOR REGISTERS, AFTER AN ERROR HALT AT LOCATION "ERHLT9", SET SWR3=1 AND PRESS KEY CONTINUE.

6.5 SCOPE LOOPS

THERE ARE SCOPE LOOPS AVAILABLE FOR ALL ERRORS RESULTING IN AN ERROR HALT AT "ERHLT9".

TO ENTER SCOPE LOOP, INHIBIT ERROR TYPEOUT, AND INHIBIT ERROR HALT, AFTER AN ERROR HALT AT "ERHLT9", SET SWR0=1 AND PRESS KEY CONTINUE.

IF THE SCOPE LOOP IS WORKING CORRECTLY AND IF THE TEST IS STILL FAILING THE TTY BELL SHOULD RING. SET SWR2=1 TO INHIBIT THE TTY BELL.

6.6 TYPICAL ERROR TYPEOUTS

THE FOLLOWING IS A TYPICAL EXAMPLE OF AN "ERROR HEADER" AND TYPEOUT THAT COULD HAVE OCCURRED IF A DISK IOT FAILED TO CLEAR THE AC REGISTER.

AC REGISTER ERROR
PC:1541 GD:0000 AC:0100

THE FOLLOWING IS AN EXAMPLE OF AN "ERROR HEADER" AND TYPEOUT THAT COULD HAVE OCCURRED WHEN READING THE COMMAND REGISTER.

COMMAND REGISTER ERROR
PC:2100 GD:0222 CM:0200

THE FOLLOWING IS AN EXAMPLE OF AN "ERROR HEADER" AND TYPEOUT THAT COULD HAVE OCCURRED IF THE DISK SKIP IOT FAILED TO SKIP.

DISK SKIP ERROR
PC:3332

THE FOLLOWING IS AN EXAMPLE OF AN "ERROR HEADER" AND TYPEOUT THAT COULD HAVE OCCURRED ON A WRITE DATA BREAK.

DATA BREAK ERROR
PC:4453 GD:5252 CM:4000 AD:7777 DT:5250

7. RESTRICTIONS

THE PROGRAM IS ONLY OPERATIONAL IN FIELD 0.

IF THE DRIVES ARE CABLED TO THE RK8E CONTROL LOGIC, THE AC POWER TO THE DRIVES MUST BE ON AND THE DRIVES MUST BE SET TO THE LOAD POSITION.

8. TROUBLE SHOOTING INFORMATION

IOT ---	FUNCTION -----
6741 DSKP	"SKIP" SKIP IF TRANSFER DONE FLAG OR ERROR FLAG IS SET.
6742 DCLR	"CLEAR" FUNCTION IS REGULATED BY AC BITS 10 AND 11. THE AC IS THEN CLEARED.
AC10 AC11 -----	
0 0	CLEAR THE AC AND STATUS REGISTER.
0 1	CLEAR THE AC, CONTROL, AND MAJOR REGISTERS. THIS INSTRUCTION WILL STOP THE CONTROL EVEN IF IT IS WRITING A HEADER. THIS IS THE ONLY INSTRUCTION THAT WILL CLEAR MAINTENANCE MODE.
1 0	CLEAR AC, RECALIBRATE DISK DRIVE, AND CLEAR STATUS REGISTER.
6743 DLAG	"LOAD DISK ADDRESS AND GO" LOAD THE DISK CYLINDER, SURFACE, AND SECTOR FROM THE AC, CLEAR THE AC, AND DO THE COMMAND IN THE COMMAND REGISTER.
AC --	
0-6	CYLINDER
7	SURFACE (1= UPPER) (0= LOWER)
8-11	SECTOR
6744 DLCA	"LOAD CURRENT ADDRESS" LOAD THE CURRENT ADDRESS FROM AC. THE AC IS THEN CLEARED.
AC --	
0-11	CURRENT ADDRESS
6745 DRST	"READ STATUS" CLEAR THE AC AND READ THE CONTENTS OF THE STATUS REGISTER INTO THE AC.

AC
--

0	TRANSFER DONE
1	READY TO SEEK, READ, OR WRITE.
2	NOT USED
3	SEEK FAIL
4	DISK FILE READY
5	CONTROL BUSY ERROR
6	TIME OUT ERROR
7	WRITE LOCK ERROR
8	CRC ERROR
9	DATA RATE ERROR
10	DRIVE STATUS ERROR
11	CYLINDER ADDRESS ERROR

6746 DLDC

"LOAD COMMAND" LOAD THE COMMAND REGISTER FROM AC, CLEAR THE AC, AND CLEAR THE STATUS REGISTER.

AC
--

0-2=0	READ DATA
0-2=1	READ ALL
0-2=2	WRITE LOCK
0-2=3	SEEK ONLY
0-2=4	WRITE DATA
0-2=5	WRITE ALL
0-2=6	NOT USED
0-2=7	NOT USED
3	ENABLE INTERRUPT
4	ENABLE SET TRANSFER DONE ON SEEK DONE
5	HALF BLOCK 128 WORDS
6	EXTENDED MEMORY ADDRESS
7	EXTENDED MEMORY ADDRESS
8	EXTENDED MEMORY ADDRESS
9	UNIT SELECT
10	UNIT SELECT
11	EXTENDED CYLINDER ADDRESS

6747 DMAN

"MAINTENANCE IOT" LOAD THE MAINTENANCE REGISTER FROM THE AC. THE FUNCTION IS REGULATED BY THE AC BITS. MAINTENANCE MODE CAN ONLY BE CLEARED BY OCLR "CLEAR CONTROL".

AC
--

0	ENTER MAINTENANCE MODE
1	ENABLE SHIFT TO LOWER BUFFER
2	AC BIT 10, CRC REGISTER, AND THE LOWER DATA BUFFER ARE CONNECTED AS A SHIFT REGISTER. AC BIT 10 DATA SHIFTS TO THE CRC, THE CRC SHIFTS TO THE LOWER DATA BUFFER.
3	SHIFT COMMAND REGISTER TO THE LOWER DATA BUFFER.
4	SHIFT THE SURFACE AND SECTOR REGISTER TO THE LOWER DATA BUFFER.
5	SHIFT AC 10 DATA TO THE UPPER DATA BUFFER. THE UPPER BUFFER SHOULD SINK IN THE SILO WHEN FULL.
6	ONE SINGLE CYCLE BREAK REQUEST. DIRECTION IS REGULATED BY FUNCTION IN THE COMMAND REGISTER.
7	CLEAR AC THEN READ THE LOWER DATA BUFFER TO THE AC.
8	NOT USED.
9	NOT USED.
10	USED AS DATA WITH OTHER BITS IN THE MAINTENANCE MODE.
11	NOT USED.

9. PROGRAM DESCRIPTION

THE RK8E DISKLESS CONTROL TEST IS BASICALLY A STATIC REGISTER AND IOT TEST ON THE RK8E DISK CONTROL LOGIC NOT REQUIRING THE USE OF THE DISK DRIVE. SINGLE CYCLE BREAKS ARE ALSO EXECUTED TO AND FROM THE CONTROL LOGIC.

THE PROGRAM IS DIVIDED INTO MANY SEPARATE INDIVIDUAL SUBTESTS, WHICH WILL TEST DIFFERENT PARTS OF THE CONTROL LOGIC. THE SUBTESTS ARE ARRANGED IN SUCH A MANNER TO TEST THE EASIEST FUNCTIONS FIRST. PRECEEDING EACH SUBTEST, IN THE LISTING, IS A SHORT EXPLANATION OF THE TEST AND LOGIC TESTED.

A BRIEF EXPLANATION OF SUBTESTS AND PROGRAM FLOW IS
AS FOLLOWS:

A. SETUP

SETUP POINTERS AND RETURNS FOR CURRENT FIELD, AMOUNT
OF EXTENDED FIELDS, AND INTERRUPT SERVICE.

B. TST0-TST3

VERIFY REGISTERS AND CONTROL FLIP-FLOPS WERE CLEARED
BY "CLR ALL" AT START OF TEST. (NOTE: "CLR ALL" GENERATED
BY KEY START ON MOST PDP-8'S OR KEYS CLEAR AND THEN
CONTINUE ON A PDP-8/E, 8/F OR 8/M.)

C. TST4

VERIFY ALL DRIVES ARE SET TO "LOAD" OR WERE
DISCONNECTED FROM CONTROL AT START OF TEST.

D. TST5

VERIFY "DSKP" DISK SKIP IOT DOESN'T AFFECT AC REGISTER.

E. TST6-TST9

VERIFY THAT IOTS "DLCA LOAD CURRENT ADDRESS", "DLDC LOAD
COMMAND", "DLAG LOAD DISK ADDRESS", AND "DCLF CLEAR CONTROL
FUNCTION" DO CLEAR THE AC REGISTER AFTER THEIR EXECUTION.

F. TST10-TST14

VERIFY LOADING, CLEARING, AND READING THE COMMAND REGISTER
USING VARIOUS DATA PATTERNS

G. TST15-TST28

VERIFY LOADING, CLEARING, AND READING THE DISK ADDRESS
REGISTER USING VARIOUS DATA PATTERNS.

H. TST29-TST30

VERIFY LOADING, CLEARING, AND READING THE COMMAND REGISTER
USING VARIOUS DATA PATTERNS

I. TST31

VERIFY LOADING, CLEARING, AND READING THE DISK ADDRESS REGISTER.

J. TST32-TST33

VERIFY "DMAN MAINTENANCE IOT" DOES NOT EFFECT AC REGISTER.

K. TST34-TST35

VERIFY MAINTENANCE MODE CAN BE SET AND CLEARED CORRECTLY.

L. TST36-TST40

VERIFY LOADING, READING, AND CLEARING THE CPC REGISTER USING VARIOUS DATA PATTERNS.

M. TST41-TST48

VERIFY LOADING, READING, AND CLEARING THE BUFFER REGISTERS USING VARIOUS DATA PATTERNS

N. TST49-TST76

VERIFY SETTING AND CLEARING VARIOUS STATUS REGISTER BITS, ERROR FLAGS, SKIP FUNCTIONS, AND INTERRUPT FUNCTIONS.

O. TST77-TST100

VERIFY READ AND WRITE MAINTENANCE DATA BREAKS TO AND FROM CONTROL USING VARIOUS DATA PATTERNS IN CURRENT FIELD.

P. TST101-TST105

VERIFY READ AND WRITE MAINTENANCE DATA BREAKS TO AND FROM CONTROL USING VARIOUS DATA PATTERNS IN ALL EXISTING EXTENDED R/W MEMORY FIELDS.

Q. TYPE PASS COMPLETE AND LOOP TO TST4.

10. CONSOLE PACKAGE ADDENDUM

10.1. DESCRIPTION

THE CONSOLE PACKAGE HAS BEEN ADDED TO THIS DIAGNOSTIC TO ALLOW THE PROGRAM TO RUN WITH NO HARDWARE SWITCH REGISTER AND TO HAVE COMMUNICATIONS WITH THE DIAGNOSTIC VIA A TERMINAL. THE DIAGNOSTIC CAN BE RUN IN TWO MODES WITH THE CONSOLE PACKAGE . 1) RUNNING WITH THE CONSOLE PACKAGE ACTIVE - THIS ALLOWS THE OPERATOR CONTROL OF THE DIAGNOSTIC THROUGH THE TERMINAL. THE DIAGNOSTIC WILL ASK FOR THE VALUE OF THE PSEUDO SWITCH REGISTER, BEFORE CONTINUING WITH EXECUTION OF THE DIAGNOSTIC. ALL ERRORS AND PASS COMPLETES WILL BE PRINTED AT THE TERMINAL. NO HALTS WILL BE EXECUTED. 2) CONSOLE PACKAGE NOT ACTIVE-THIS WILL RESULT IN THE NORMAL STANDALONE OPERATION OF THE PROGRAM AS DISCRIBED IN SECTIONS 1 THROUGH 9 OF THIS DOCUMENT.

10.2 RESTRICTIONS

- 1) RUNNING THE CONSOLE PACKAGE REQUIRES THAT THE PSEUDO SWITCH REGISTER BE USED.
- 2) ONCE RUNNING THE CONSOLE PACKAGE NONACTIVE AND NOW DESIRE TO RUN IT ACTIVE. ONE MUST RELOAD THE DIAGNOSTIC AND INITILIZE FOR A ACTIVE CONSOLE PACKAGE.

10.3 INITIALIZATION

FOR A ACTIVE CONSOLE PACKAGE

- 1.) SET LOCATION 21 BIT0=0 TO INDICATE USE PSEUDO SWITCH REGISTER.
- 2.) SET LOCATION 22 BIT3=1 TO INDICATE CONSOLE PACKAGE ACTIVE.

FOR A NON ACTIVE CONSOLE PACKAGE

- 1.) SET LOCATION 21 BIT0=1 TO INDICATE NOT TO USE PSEUDO SWITCH REGISTER, BUT TO USE HARDWARE SWITCHES.
- 2.) SET LOCATION 22 BIT3=0 TO INDICATE CONSOLE PACKAGE NOT ACTIVE.

10.4 CONTROL CHARACTERS

CONTROL CHARACTERS ARE USED TO GIVE THE OPERATOR THE ABILITY TO PERFORM THE FOLLOWING FUNCTIONS.

NOTE: THE PROGRAM WILL RESPOND TO THE CONTROL CHARACTER IN FIVE (5) SECONDS OR LESS.

CONTROL C

THIS WILL START THE LOADER THAT IS IN LOCATION 7600.

CONTROL R

THIS WILL RESTART THE PROGRAM AND REASK THE SWITCH REGISTER QUESTION AS DESCRIBED IN SETION 10.2.

CONTROL E

THIS WILL CONTINUE THE PROGRAM FROM AN ERROR IF ALLOWED BY THE DIAGNOSTIC OR FROM A WAITING STATEMENT.

CONTROL L

THIS WILL SWITCH THE TERMINAL MESSAGES FROM THE DISPLAY TO A LINE PRINTER. TO RESTORE THE MESSAGES ON THE TERMINAL CONTROL L MUST BE TYPED AGAIN. IF NO PRINTER IS AVAIBLE AND CONTROL L IS TYPED THE RESULT WILL BE THAT THE CONSOLE PACKAGE WILL WAIT FOR CONTROL C OR R. THE CONTROL L WILL OUTPUT TO THE LINE PRINTER AND THE PROGRAM WILL ATTEMPT TO CONTINUE AS IF A CONTROL E WAS TYPED IN.

CONTROL D

THIS WILL ALLOW THE ABILITY TO CHANGE THE SWITCH REGISTER DURING PROGRAM OPERATION. TYPING THIS CHARACTER WILL RESULT IN AN INTERIGATION OF THE SWITCH REGISTER QUESTION AS DESCRIBED IN SECTION 10.6.

CONTROL S

THIS WILL STOP PROGRAM EXECTUION AND WAIT IN A LOOP FOR A CONTINUE. THE ONLY WAY TO CONTINUE WILL BE TO TYPE A CONTROL W, R OR C . THIS IS A NONPRINTING CHARACTER.

CONTROL Q

THIS IS TO CONTINUE A PROGRAM AFTER A CONTROL S IS TYPED. THIS IS A NONPRINTING CHARACTER.

10.5 WAITING MESSAGE

THE WAITING MESSAGE IS USED TO ALLOW THE OPERATOR TIME TO MAKE A DECISION AS TO WHAT CONTROL CHARACTER TO TYPE. THIS MESSAGE MAY APPEAR AT THE END OF PASS MESSAGE IF THE HALT ON PASS BIT IS SET. THE CONTROL CHARACTERS MAY NOW BE USED TO PERFORM THE NEEDED FUNCTION.

THE WAITING MESSAGE MAY BE PRINTED AFTER A ERROR MESSAGE IF THE HALT ON ERROR BIT IS SET. HERE AGAIN THE CONTROL CHARACTERS MAY BE USED. THE WAITING MESSAGE MAY BE PRINTED IF OPERATOR INTERVENTION IS REQUIRED.

10.6 SWITCH REGISTER MESSAGE

THIS MESSAGE IS USED TO SETUP THE PSEUDO SWITCH REGISTER BEFORE PROGRAM EXECUTION TAKES PLACE. THE SWITCH REGISTER IS SETUP WHEN THE FOURTH CHARACTER IS ENTERED OR A CARRIAGE RETURN IS TYPED

SR=0000 4000

UNDER SCORING INDICATES OPERATOR RESPONSE

10.7 END OF PASS

AN INDICATION WILL BE GIVEN WHEN THE DIAGNOSTIC HAS MADE A SUCCESSFUL PASS. THE PRINT OUT WILL INDICATE THE DIAGNOSTIC MAINDEC NUMBER THE WORD PASS AND A FOUR DIGIT PASS NUMBER. A PASS WILL BE A TIME PERIOD RATHER THAN A PROGRAM PASS OF THE DIAGNOSTIC. THE TIME PERIOD WILL BE IN THE RANGE OF ONE (1) TO FIVE (5) MINUTES. IF THE DIAGNOSTIC MAKES A PROGRAM PASS IN THE 1 TO 5 MINUTE RANGE THEN THE PASS COUNT WILL BE THE SAME AS THE NUMBER OF PROGRAM PASSES. IF THE PROGRAM MAKES A PROGRAM PASS IN LESS THEN ONE MINUTE THEN THE PASS COUNT WILL NOT BE THE SAME AS THE PASS COUNTER THE PASS COUNTER WILL REFLECT MORE THEN ON PROGRAM PASS. THE NUMBER OF PROGRAM PASSES REQUIRED FOR "A PASS MESSAGE CAN BE FOUND IN LOCATION 0246.

IF HALT AT END OF PASS IS SET THEN THE PASS MESSAGE WILL BE
PRINTED AND A WAITING STATEMENT WILL ALSO BE PRINTED.
A CONTROL CHARACTER IS NEEDED TO CONTINUE FROM THIS MESSAGE.
THE FORMAT OF THE END OF PASS MESSAGE IS

NAME PASS 0001

10.8 ERRORS

THE STANDARD ERROR REPORTS AS DESCRIBED IN SECTION 6
OF THIS DOCUMENT WILL BE USED.

10.9 SWITCH REGISTER SETTINGS

THE STANDARD SWITCH SETTINGS AS DESCRIBED IN SECTION 4
OF THIS DOCUMENT WILL BE USED.

10.10 PARAMETER CONTROL WORDS

THE CONSOLE PACKAGE USES THE LOCATIONS 20 21 22 FOR THE
FOLLOWING PURPOSES.

LOCATION 20
PSEUDO SWITCH REGISTER

LOCATION 21
HARDWARE IDENTIFIER 1

LOCATION 22
HARDWARE IDENTIFIER 2

LOCATION 0021

BIT ---	OCTAL VALUE -----	FUNCTION WHEN 0 -----	FUNCTION WHEN 1 -----
0	4000	USE PSEUDO SWITCHES	USE HARDWARE SWITCHES
1	2000	NO OPTION 1	HAS OPTION 1
2	1000	NO OPTION 2	HAS OPTION 2
3	400	NO 8A SIMULATOR	HAS 8A SIMULATOR
4	200	NO OPTION SIMULATOR	HAS OPTION SIMULATOR
5	100	NOT ON 8A XOR	ON 8A XOR
6	40	NOT PDP8-E TYPE CPU	PDP8-E TYPE CPU
7-11		8A MEMORY SIZE EX. 1K=00 7K=01 7K=06 32K=31	

LOCATION 0022

BIT ---	OCTAL VALUE -----	FUNCTION WHEN 0 -----	FUNCTION WHEN 1 -----
0	4000	NOT ON ACT8A LINE	ON ACT 8A LINE
1	2000	NOT ON ACT 8E LINE	ON ACT 8E LINE
2	1000	NOT YET DEFINED	
3	400	DEACTIVE CONSOLE PACKAGE	ACTIVE CONSOLE PACKAGE

10.11 LOCATION CHANGES -----

THE FOLLOWING FIELD 1 LOCATIONS CAN BE CHANGED TO MEET THE SPECIFIC NEED FOR MODIFICATION OF THE DIAGNOSTIC.

- 0246 IS THE LOCATION FOR THE VALUE OF THE
 NUMBER OF PROGRAM PASSES NEED TO
 PRINT THE END OF PASS MESSAGE.
- 1037 IS THE LOCATION SET FOR THE NUMBER OF
 FILLER CHARACTERS AFTER A CRLF SET TO FOUR (4)

11. APT-8 HOOKS -----

11.1 DESCRIPTION. -----

TWO INTERFACES HAVE BEEN PROVIDED WHICH ALLOW THIS DIAGNOSTIC TO RUN UNDER THE STANDARD APT-8 SYSTEM, THESE CONSIDERATIONS ARE:

1. ERROR INTERFACE
2. TIMING INTERFACE

EACH WILL BE EXPLAINED IN MORE DETAIL.

11.2 SET-UP -----

ONLY HARDWARE CONFIGURATION WORD 2 NEED BE ESTABLISHED AT PROGRAM START UP. BIT ZERO (0) MUST BE SET TO A ONE (1) TO INDICATE THAT THE PROGRAM IS TO RUN UNDER APT-8.

11.3 APT-8 INTERFACES -----

11.3.1. TIMING -----

APT-8 IS NOTIFIED OF PROGRAM RUN WITHIN A .2 SEC TO 2.0 SEC WINDOW WHEN USED WITH A 1.2 MICROSECOND MEMORY CYCLE TIME. THIS WINDOW WAS ESTABLISHED SO THAT IF RUN ON THE SLOWER MOS MEMORY THE DIAGNOSTIC WOULD NOT CAUSE A TIMEOUT ERROR ON THE APT-8 SYSTEM.

11.3.2 ERRORS -----

WHEN ON APT-8 ALL ERRORS ARE CONSIDERED FATAL. WHEN REPORTING AN ERROR ONLY THE ERROR PC IS REPORTED TO APT. ERRORS WHICH CAUSE A SYSTEM HALT ARE NOT REPORTED. THESE ERRORS ARE INDICATED BY A TIMEOUT ERROR ON APT. THE ACTUAL ERROR CAN BE DETERMINED BY EXAMINING THE AC AT THE TIME OF THE HALT.

PROGRAMED HALTS ARE EXPLAINED EARLIER IS THIS
DOCUMENT.

12.

PROGRAM LISTING

```

1 /
2 /PK0E DISKLESS CONTROL TEST
3 /
4 /MAINDEC-00-DHRKA-E-L
5 /
6 /COPYRIGHT (C) 1972, 1975 DIGITAL EQUIP. CORP.
7 /
8 /MAYNARD, MASS. 01754.
9 /
10 0001 / FIELD 1
11 /
12
13 /CONSOL SRC =V2-R0= CONSOLE PACKAGE
14
15
16 /LAS= CALL C8CKSW OR JMS XC8SW
17 /THIS WILL READ THE SWITCH REGISTER FROM THE PLACE SPECIFIED
18 /BY LOCATION 20 BIT 0.
19
20
21 /THE PROGRAM SHOULD CHECK FOR A CONTROL CHARACTER FROM THE TERMINAL
22 /EVERY FIVE(5) SECONDS OR SOONER.
23
24 /LOCATIONS THAT NEED TO BE SET UP FOR USING THE CONSOLE PACKAGE.
25
26 /CNTVAL IN XC8PASS THIS LOCATION DETERMINES THE NUMBER OF
27 /PROGRAM COMPLETIONS THAT ARE NEEDED BEFORE THE PASS MESSAGE IS TYPED
28 /THE VALUE SHOULD PUT THE PASS MESSAGE OUT IN THE RANGE OF 1 TO 5 MINUTES.
29 /THIS SHOULD BE A POSITIVE NUMBER.
30
31 /CRSTRT THIS IS FOUND IN CNTRL ROUTINE CONTROL R PART
32 /IT IS THE RETURN WHEN CONTROL R IS ENTERED (RESTART PROGRAM)
33 /THE RETURN JUMPS TO XD0SW WHICH CONTAINS CRSTRT SO PUT THE LABEL CRSTRT
34 /WHERE YOU WANT TO RESTART THE PROGRAM.
35
36
37 /SETUP1 IN XC8ERP THIS IS THE MASK BIT FOR HALT ON ERROR
38 /PLACE THE CORRECT BIT IN THIS LOCATION FOR HALTING ON ERRORS.
39
40 /SETUP2 IN XC8PASS THIS IS THE MASK FOR HALT A END OF PASS.
41
42 /THE CALL TABLE IS A CONDITIONAL ASSEMBLY.
43 /TO ASSEMBLE THE CALL REMOVE THE / BEFORE CONSOL=0.
44 /IN COMBINING THE CONSOL PACKAGE TO A DIAGNOSTIC.
45 /THE CALL TABLE IS TO BE AT THE BEGINNING OF A PROGRAM.
46
47
48 0000 CONSOL=0
49 6661 PSKF= 6661
50 6662 PCLF= 6662
51 6663 PSKE= 6663
52 6664 PSTB= 6664
53 6665 PSIE= 6665
54 6004 GTF= 6004
55 7701 ACL= 7701

```

```

56 6007 CAF= 6007
57 7421 MQL= 7421
58 7501 MGA= 7501
59 /
60 0020 *20
61 /
62 0020 0000 F1SWR, 0 /PSEUDO SWITCH REGISTER
63 0021 0000 F1OP1, 0 /CONTROL 1
64 0022 0000 F1OP2, 0 /CONTROL 2
65 /
66 /
67 IFDEF CONSOL <
68
69
70 0024 *24
71
72 4424 CRPASS= JMS I .
73 0024 0200 XC8PAS . /C8 PASS COMPLETION ROUTINE
74 4425 C8CKSW= JMS I .
75 0025 0262 XC8SW . /CHECK SW REG SETTING
76 4426 C8TTYI= JMS I .
77 0026 0272 XC8TTY . /FETCH CONSOL CHAR
78 4427 C8CNTR= JMS I .
79 0027 0400 XC8CNT . /CHECK FOR CONTROL CHAR
80 4430 C8PRNT= JMS I .
81 0030 0303 XC8PNT . /C8 PRINT A BUFFER
82 4431 C8SWIT= JMS I .
83 0031 0656 XC8PSW . /SET UP PSEUDO SW. REG
84 4432 C8OCTA= JMS I .
85 0032 1000 XC8OCT . /CONVERT TO ASCII AND PRINT
86 4433 C8CRLF= JMS I .
87 0033 1023 XC8CRL . /DO A CARRIAGE RETUR + LINE FEED
88 4434 C8ECHO= JMS I .
89 0034 1063 XC8ECH . /CHECK INPUT CHAR
90 4435 C8TYPE= JMS I .
91 0035 1077 XC8TYP . /C8 PRINT ONE CHAR
92 4436 C8ERR= JMS I .
93 0036 1207 XC8ERR . /C8 ERROR HANDLER
94 4437 C8INQU= JMS I .
95 0037 0635 XC8ING . /LOOK FOR OPERATOR INTERVENTION
96 4440 C8CKPA= JMS I .
97 0040 1041 XC8CKP . /CHECK IF CONTROL CHAR
98 4441 C8PAUS= JMS I .
99 0041 0337 XC8PAU . /IF CONSOL PACKAGE RETURN CALL PLUS ONE
100 /IF NOT USING CONSOL REPLACE CALL WITH
101 /A HLT AND THEN GO TO THE HALT
102
103 /*****
104 /#20 /PSEUDO SWITCH REGISTER
105
106 /#21 /HARDWARE INDICATORS
107 /#000=USE FRONT PANEL SWITCH REGISTER
108 /#000=USE THE PSEUDO SWITCH REGISTER LOC.20
109
110 /#27 /SYSTEM CONFIGURATION

```

```

111                                     /400=CONSOL PACKAGE SET ACTIVE
112                                     /0000=CONSOLE PACKAGE SFT DEACTIVE
113
114                                     /#23                                     /RESERVED FOR FUTURE USE
115
116      0200      *200
117      /*****
118      /CSPASS
119      /THIS IS CALLED AT THE END OF EACH PROGRAM COMPLETION
120      /THE VALUE OF** CNTVAL** WILL BE DETERMINED BY THE TIME IT TAKES
121      /THE PROGRAM TO COMPLETE THIS MANY CSPASS TO BE IN THE 1 TO 4 MINUTE
122      /RANGE
123      /      CSPASS=JMS      XCSPAS
124      /EX. OF CALL      CSPASS
125
126      /      JMP      START1      /      HLT      /HALT IF NON CONSOL PACKAGE
127      /      /CONTINUE RUNNING THIS PROGRAM
128
129      /RETURN TO LOCATION CALL PLUS ONE WITH THE AC=0 IF NON CONSOL PACKAGE AND HLT
130      /IF CONTINUE TO RUN THEN RETURN TO CALL PLUS2 AC=0
131      /THE LOCATION SETUP2 IS THE MASK BIT FOR THE HALT AT END OF PASS
132      /CHECK THAT IT IS CORRECT FOR THE CURRENT PROGRAM
133
134      /CALLS USED BY XCSPAS ARE  CHKCLA=XC8CRLF=XC8OCTA=XC8SW=XC8PNT=XC8INO=
135
136
137      0200      0000      XCSPAS, 0
138      0201      7200      CLA
139      0202      4777      JMS      CHKCLA      /IS WORD 22 BIT 3 ACTIVE CONSOLE?
140      0203      5212      JMP      DOPACK      /IS CLASSIC
141      0204      4776      JMS      C8GET      /GET ALL REGISTERS.
142      0205      4262      JMS      XC8SW      /DEACTIVE CONSOL CHECK SR SETTING
143      0206      0375      AND      (400      /FOR HALT ON END OF CSPASS
144      0207      7640      SZA CLA      /1= HALT 0 CONTINUE
145      0210      5600      JMP I      XCSPAS      /GO TO HALT
146      0211      5230      JMP      C8BY1      /CONTINUE ON RUNNING PROGRAM
147      0212      4232      DOPACK, JMS      CKCOUT      /CLASS CHECK CSPASS COUNT
148      0213      5230      JMP      C8BY1      /CSPASS COUNT NOT DONE REDO PROGRAM
149      0214      2250      ISZ      PASCNT      /CSPASS COUNT DONE SET CSPASS COUNT
150      0215      4774      JMS      XC8CRLF
151      0216      4303      JMS      XC8PNT      /C8PNT BUFFER
152      0217      0753      MESPAS
153      0220      1750      TAD      PASCNT      /GET NUMBER
154      0221      4773      JMS      XC8OCTA      /CONVERT IT TO ASCII
155      0222      4774      JMS      XC8CRLF      /DO A CARRIAGE RETURN
156      0223      4776      JMS      C8GET      /GET ALL REGISTERS.
157      0224      4262      JMS      XC8SW      /CHECK A HALT AT END OF CSPASS
158      0225      0375      AND      (400      /MASK BIT
159      0226      7640      SZA CLA      /HALT =1 NO SKIP CONTINUE =0
160      0227      4772      JMS      XC8INO      /STOP PROGRAM EXECUTION-LOOK FOR INPUT
161      0230      2200      C8BY1, ISZ      XCSPAS      /BUMP RETURN
162      0231      5600      JMP I      XCSPAS
163      0232      0000      CKCOUT, 0
164      0233      1251      TAD      DOSET      /CHECK IF SET UP NEEDED
165      0234      7640      SZA CLA      /0=SET UP CSPASS COUNT VALUE

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166
167      0235      5242      JMP      NOSET      /1=CSPASS COUNT VALUE OK
168      0236      1252      TAD      CNTVAL      /CSPASS COUNT VALUE ON
169      0237      7040      CMA      /GET COUNT VALUE FOR THIS PROG
170      0240      3247      DCA      DOCNT      /SET TO NEGATIVE
171      0241      2251      ISZ      DOSET      /STORE IN HERE
172      0242      2247      NOSET, ISZ      DOCNT      /INDICATE VALUE SET UP
173      0243      5230      JMP      C8BY1      /COUNT THE NUMBER OF PASSES
174      0244      3251      DCA      DOSET      /EXIT FOR ANOTHER PASS
175      0245      2232      ISZ      CKCOUT      /SET TO C8PNT CSPASS
176      0246      5632      JMP I      CKCOUT      /BUMP RETURN FOR
177      0247      0000      DOCNT, 0      /CSPASS C8TYPE OUT
178      0250      0000      PASCNT, 0
179      0251      0000      DOSET, 0
180      0252      0000      CNTVAL, 0
181      0253      0410      MESPAS, TEXT      "DHKAE PASS "
182
183
184
185
186      /*****
187      /C8CKSW
188
189      /THIS ROUTINE CAN BE USED INPLACE OF A READ THE SWITCHES LAS.
190      /ROUTINE THAT WILL CHECK WHERE TO READ THE
191      /C8 SWITCHES FROM IE. FROM PANEL OR PSEUDO SWITCH REGISTER
192      /THE SELECTION IS DETERMINED BY THE STATE OF BIT 0 IN LOCATION 21.
193
194      /CRCKSW=      JMS XC8SW
195      /EX.      JMS      XC8SW      /READ THE C8SWIT REGISTER
196      /RETURN WITH THE CONTENTS OF SWITCH REGISTER
197
198      /RETURN TO NEXT LOCATION FOLLOWING CALL WITH THE AC= TO VALUE OF C8SWIT SETTING
199
200      /CALLS USED ARE=XC8CKPA=
201
202
203
204      0262      0000      XC8SW, 0
205      0263      4771      JMS      XC8CKPA      /GO CHECK THE IF ANY CONTRL
206      0264      7000      NOP
207      0265      1921      TAD      21      /GET WD FOR INDICATOR
208      0266      7710      SPA CLA      /CHECK IF FROM PANEL 4000
209      0267      7614      TAD      7614      /DO LAS AND SKIP GET FROM PANFL WITH LAS
210      0270      1020      TAD      20      /PSEUDO SWITCH
211      0271      5662      JMP I      XC8SW      /EXIT WITH STATUS BIT IN AC.
212
213
214      /*****

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215
216 /C8TTYI
217 /THIS ROUTINE WILL LOOK FOR A INPUT FROM THE TERMINAL
218 /AND REMOVE ANY PARITY BITS, THEN MAKE IT 8 BIT ASCII.
219 / C8TTYI= JMS XC8TTY
220 /EX. JMS XC8TTYI /READ CHAR FROM THE CONSOL DEVICE
221 / /RETURN TO CALL PLUS ONE AC CONTAINS THE CHAR
222
223
224 /CALLS USED -NONE- BUT C8CHAR IS OFF PAGE AND IN ROUTINE CALLED XC8ECHO
225
226 /
227
228 0272 0000 XC8TTY, 0
229 0273 6031 KSF /LOOK FOR KEYBOARD FLAG
230 0274 5273 JMP .-1
231 0275 6036 KRB /GET CHAR
232 0276 0370 AND (177 /MASK FOR 7 BITS
233 0277 1367 TAD (200 /ADD THE EIGHTH BIT
234 0300 3766 DCA C8CHAR /STORE IT
235 0301 1766 TAD C8CHAR
236 0302 5672 JMP I XC8TTY /EXIT
237
238
239
240
241 /*****
242 /C8PRNT
243
244 /THIS ROUTINE WILL TYPE THE CONTENTS OF THE C8 PRINT BUFFER, THE LOCATION
245 /OF THE BUFFER WILL BE IN THE ADDR FOLLOWING THE CALL. PRINTING OF THE BUFFER
246 /WILL STOP WHEN A 00 CHAR IS DETECTED. CHARACTERS ARE PACKED 2 PER WORD.
247
248 / C8PRNT= JMS XC8PNT
249
250
251 /EX. JMS XC8PNT /C8PRNT THE CONTENTS OF THE FOLLOWING BUFFER
252 / MESS77 /LOCATION OF C8PRNT BUFFER
253
254 /C8PRNT WILL USE THE LOCATION FOLLOWING THE CALL AS THE POINTER FOR THE
255 /C8PRNT ROUTINE, RETURN TO CALL PLUS TWO WITH AC= 0
256
257 /CALLS USED ARE-XC8TYPE-XC8PNT
258
259
260
261 0303 0000 XC8PNT, 0
262 0304 7300 CLA CLL
263 0305 1703 TAD I XC8PNT /GET C8PRNT BUFFERS STARTING LOCATION
264 0306 3336 DCA PTSTOR /STORE IN PTSTOR
265 0307 2303 ISZ XC8PNT /BUMP RETURN
266 0310 1736 C8DO1, TAD I PTSTOR /GET DATA WORD
267 0311 0365 AND (7700 /MASK FOR LEFT BYTE
268 0312 7450 SNA /CHECK IF 00 TERMINATE
269 0313 5703 JMP I XC8PNT /EXIT

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270 0314 7500 SMA /IS AC MINUS
271 0315 7020 CML /MAKE CHAR A 300 AFTER ROTATE
272 0316 7001 IAC /MAKE CHAR A 200 AFTER ROTATE
273 0317 7012 RTP
274 0320 7012 RTP
275 0321 7012 RTP
276 0322 4764 JMS XC8TYPE /PUT CHAR IN BITS 4-11 MAKE IT 8 BIT ASCII
277 0323 1736 TAD I PTSTOR /C8PRNT IT ON CONSOLE
278 0324 0363 AND (0077 /GET DATA WORD
279 0325 7450 SNA /MASK FOR RIGHT BYTE
280 0326 5703 JMP I XC8PNT /CHECK IF 00 TERMINATOR
281 0327 1362 TAD (3740 //EXIT
282 0330 7500 SMA /ADD FUDGE FACTOR TO DETERMINE IF 200
283 0331 1361 TAD (100 /OR 300 IS TO BE ADD TO CHAR
284 0332 1360 TAD (240 /ADD 100
285 0333 4764 JMS XC8TYPE /ADD 200
286 0334 2336 ISZ PTSTOR /C8TYPE ONLY BITS 4-11
287 0335 5310 JMP C8DO1 /BUMP POINTER FOR NEXT WORD
288 0336 0000 PTSTOR, 0 /DO AGAIN
289 /STOR FOR C8PRNT BUFFER
290 /*****
291
292 /C8PAUS
293 /THIS ROUTINE WILL CHECK IF THE CONSOL PACKAGE IS ACTIVE, IF ACTIVE
294 /IT WILL RETURN TO CALL PLUS ONE AC= 0, AND DO THAT INSTRUCTION.
295 /IF THE CONSOL PACKAGE IS NOT ACTIVE THE CALL WILL BE REPLACED
296 /WITH A 7402 HALT AND THEN RETURN TO THE HALT.
297
298 / C8PAUS= JMS XC8PAU
299 /
300 /
301 /EX. JMS XC8PAUS /CHECK IF ON ACTIVE CONSOL IF NOT HALT HERE
302 / ANYTHING /RETURN HERE IF ON ACTIVE CONSOL
303 /
304 /
305
306 /CALLS USED ARE -CHKCLA-
307
308
309
310 0337 0000 XC8PAU, 0
311 0340 7300 CLA CLL
312 0341 4777 JMS CHKCLA /CHECK LOC 22 BIT 3 CONSOLE BIT
313 0342 5350 JMP C8DO3 /GO DO CONSOL PART RETURN CALL +1
314 0343 7040 CMA /DEACTIVE CONSOLE PACKAGE PUT HLT IN CALL
315 0344 1337 TAD XC8PAU /GET CORRECT RETURN ADDRS
316 0345 3337 DCA XC8PAU /SET UP RETURN
317 0346 1357 TAD (7402 /GET CODE FOR HLT
318 0347 3737 DCA I XC8PAU /PUT HLT IN CALL LOCATION
319 0350 5737 C8DO3, JMP I XC8PAU /GO TO HALT OR RETURN TO NEXT LOCATION
320
321
322 0357 7402
323 0360 0240
324 0361 0100

```

```

325 0362 3740
326 0363 0077
327 0364 1077
328 0365 7700
329 0366 1075
330 0367 0200
331 0370 0177
332 0371 1041
333 0372 0635
334 0373 1000
335 0374 1023
336 0375 0400
337 0376 0624
338 0377 1200
339 0400
PAGE
/*****
340
341
342
343 /C8CNTR
344 /THIS ROUTINE WILL CHECK FOR THE PRESENCE OF CONTROL CHARACTERS
345 /IT WILL CHECK FOR THE FOLLOWING CHAR C-R-Q-L-S
346 /
347 /EX, JMS XC8CNTR /CHECK FOR CONTROL CHARACTER
348 / JMP ANYTHING /LOC FOLLOWING CALL IS FOR CONTINUING THE PROGRAM
349 / JMP ANYTHING /LOC, IS FOR RETURN IF INMODE SET AND NOT CNTRL CHAR
350
351
352 /RETURN IS TO CALL PLUS ONE IF CONTINUE
353 /RETURN IS TO CALL PLUS TWO IF INMODE SET AND NOT CONTROL CHAR
354 /RETURN IS TO CALL PLUS TWO IF INMODE IS NOT SET AND NO
355 /CONTROL CHAR ..THIS WILL PRINT THE CHARACTER AND A ?
356 /CLEAR THE AC AND RETURN CALL+2.
357
358 /CALLS USED ARE-CHKCLA-XC8TYPE-XC8CRLF-C8GET-UPAROW-XC8TYI-XC8PSW-
359 /
360 /
361
362 0400 0000 XC8CNT, 0
363 0401 3777 DCA ACSAVE /SAVE THE AC
364 0402 4776 JMS CHKCLA /CHECK LOC,22 BITS FOR CONSOLE BIT
365 0403 5206 JMP ,+3 /ON ACTIVE CONSOLE
366 0404 1777 TAD ACSAVE /DEACTIVE CONSOLEGET AC FOR RETURN
367 0405 5600 JMP I XC8CNT /EXIT NOT ON ACTIVE CONSOLE
368 0406 6004 GTF
369 0407 3775 DCA FLSAVE
370 0410 7501 MQA
371 0411 3774 DCA MGSAVE /SAVE THE MQ
372 0412 3255 DCA INDEXA /SET DISPLACEMENT INTO TABLE B
373 0413 1257 TAD XTABLA /GET ADDRS OF TABLE A
374 0414 3256 DCA GETDAT /CONTAINS POINTER TO CONTROL CHAR
375 0415 1656 REDOA, TAD I GETDAT /GET CONTROL CHAR FROM TABLE
376 0416 7450 SNA /CHECK FOR A 0 END OF TABLE
377 0417 5226 JMP DONEA /END OF TABLE NO CONTROL CHAR
378 0420 1773 TAD C8CHAR /COMPARE CHAR TO CONTROL CHAR

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379 0421 7650 SNA CLA /0 IF MATCH
380 0422 5243 JMP GOITA /MATCH
381 0423 2255 ISZ INDEXA /NO MATCH NOT END OF TABLE REDO
382 0424 2256 ISZ GETDAT /BUMP INDEX FOR EXIT WHEN CONTROL FOUND
383 0425 5215 JMP REDOA /BUMP GETDAT FOR COMPARE OF NEXT CNTRL CHAR.
384 0426 1772 DONEA, TAD INMODE /CHECK IF PROGRAM EXPECTS CHAR
385 0427 7640 SZA CLA /1=CHAR EXPECTED 0= NO CHAR EXPECTED
386 0430 5240 JMP EXITA /CHAR EXPECTED
387 0431 1773 TAD C8CHAR /GET CHAR - NOT CONTROL + NOT EXPECTED
388 0432 4771 JMS XC8TYPE /C8PRNT CHAR
389 0433 1370 TAD (277 /GET CODE FOR "7"
390 0434 4771 JMS XC8TYPE
391 0435 4767 JMS XC8CRLF
392 0436 2200 ISZ XC8CNT /BUMP RETURN
393 0437 5600 JMP I XC8CNT /EXIT CALL+2
394 0440 2200 EXITA, ISZ XC8CNT /BUMP RETURN FOR MAIN PROGRAM CHECK OF CHAR
395 0441 1773 TAD C8CHAR /PUT CHAR IN AC.
396 0442 5600 JMP I XC8CNT /EXIT
397 0443 1773 GOITA, TAD C8CHAR /GET THE CONTENTS OF CHAR
398 0444 1366 TAD (100 /ADD 100 TO FORM A GOOD ASCII CHARACTER
399 0445 3773 DCA C8CHAR /RESTORE CORRECT CHAR
400 0446 1260 TAD XTABLA /GET START OF TABLE B
401 0447 1255 TAD INDEXA /GET NON FAR INTO TABLE
402 0450 3254 DCA GOTOA /STORE IT
403 0451 1654 TAD I GOTOA /GET THE ROUTINE STARTING ADDRESS
404 0452 3254 DCA GOTOA /STORE IT IN HERE
405 0453 5654 JMP I GOTOA /GOTO CONTROL CHAR ROUTINE
406 0454 0000 GOTOA, 0000 /ADD OF CNTRL ROUTINE TO EXECUTE
407 0455 0000 INDEXA, 0000 /DISPLACEMENT INTO CNTRL TABLA
408 0456 0000 GETDAT, 0000 /LOCATION OF ADDRS OF CONTROL CHAR.
409 0457 0461 XTABLA, TABLA /ADDRS OF TABLA
410 0460 0471 XTABLA, TABLB /ADDRS OF TABLB
411 0461 7575 TABLA, 7575 /CNTRL C BACK TO MONITOR 203
412 0462 7564 7564 /CNTRL L SWITCH ERROR PRINTING DEVICE 214
413 0463 7557 7557 /CNTRL O START DISPLAYING CHAR. AGAIN 221
414 0464 7556 7556 /CNTRL R BACK TO BEGINNING OF PROGRAM 222
415 0465 7555 7555 /CNTRL S STOP SENDING CHAR TO DISPLAY WAIT FOR CNTRL Q 223
416 0466 7573 7573 /CNTRL E CONTINUE WITH PROGRAM 205
417 0467 7574 7574 /CONTROL D CHANGE SWITCH REGISTER ON FLY
418 0470 0000 0000
419
420 0471 0551 TABLB, CNTRL C
421 0472 0537 CNTRL L
422 0473 0500 CNTRL O
423 0474 0511 CNTRL R
424 0475 0521 CNTRL S
425 0476 0545 CNTRL E
426 0477 0600 CNTRL D
427
428 /CONTROL Q
429 /START SENDING CHAR. TO THE DISPLAY
430 /THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
431 /THE CALL FOR CONTROL S.
432 /
433 0500 3772 CNTRL Q, DCA INMODE /SET SOFT FLAG FOR UNEXPECTED CHAR

```

```

434 0501 1335 TAD C8SETS /CHECK IF CONTROL S TYPED IN
435 0502 7640 SZA CLA
436 0503 5306 JMP BYRETR /CONTROL S TYPED IN
437 0504 4765 JMS C8GET /NO CONTROL S TYPED PREVIOUSLY
438 0505 5600 JMP I XC8CNTR /LEAVE VIA CNTR ENTRY ADDRESS
439 0506 3335 BYRETR, DCA C8SETS /CLEAR THE SOFT FLAG
440 0507 4765 JMS C8GET /RESTORE REGISTERS
441 0510 5736 JMP I C8RETR /EXIT TO ADDRESS SET BY CONTROL S
442 /
443 /
444 /CONTROL R
445 /GO TO THE QUESTION C8SWIT
446 0511 3764 CNTRLR, DCA TTYLPT /CLEAR THE TYPE FLAG SET TO TTY
447 0512 3335 DCA C8SETS /CLEAR SOFT FLAG FOR CNTRL S
448 0513 3772 DCA INMODF
449 0514 4763 JMS UPAROW /PRINT THE * AND C8CHAR
450 0515 3762 C8BY4, DCA C8SWST /CLEAR FLAG FOR CNTRL D OR R
451 0516 6203 CDF CIF
452 0517 5720 JMP I XDOSW /GO TO ADDRS OF C8SWIT
453 0520 0200 XDOSW, BGN /DOSW IS LABEL FOR C8SWIT QUESTION
454 /
455 /
456 /CONTROL S
457 /STOP SENDING CHAR, TO DISPLAY UNTIL A *Q IS RECEIVED
458 /
459 /
460 0521 1335 CNTRLG, TAD C8SETS /IF1 DO NOT STORE IN C8RETR
461 0522 7640 SZA CLA
462 0523 5327 JMP C8D07 /DONT SET UP C8RETR
463 0524 7001 IAC /MAKE RETURN CALL PLUS 2
464 0525 1200 TAD XC8CNT /GET RETURN FOR THIS CALL
465 0526 3336 DCA C8RETR /STORE IT HERE FOR USE BE CNTRL Q
466 0527 2335 C8D07, ISZ C8SETS /SET FLAG TO SAVE CALL
467 0530 4761 JMS XC8TTYI /LOOK FOR THE INPUT
468 0531 4765 JMS C8GET /GET REGISTERS
469 0532 4200 JMS XC8CNTR /CHECK FOR THE CONTROL CHAP
470 0533 7200 CLA
471 0534 5321 JMP CNTRLG /IF NOT A CNTRL Q R C REASK
472 0535 0000 C8SETS, 0
473 0536 0000 C8RETR, 0
474 /
475 /SWITCH OUTPUT FROM ONE OUTPUT DEVICE TO ANOTHER - THE TWO OUTPUTS ARE THE
476 /CONSOLE AND THE PRINTER WITH DEVICE CDOE 66.
477 /
478 /
479 0537 1764 CNTRLR, TAD TTYLPT /GET PRESENT C8SWIT INDICATOR
480 0540 7040 CMA /COMPLEMENT IT
481 0541 3764 DCA TTYLPT /STOR NEW C8SWIT
482 0542 4763 JMS UPAROW /C8PRNT * AND CHAR ON NEW DEVICE
483 0543 4765 JMS C8GET /RESTORE THE REGISTERS
484 0544 5600 JMP I XC8CNT /EXIT
485 /
486 /CONTROL E
487 /CONTINUE RUNNING FROM A INQUIRE OR ERROR
488 /

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```

489 /
490 0545 4763 CNTRLR, JMS UPAROW /PRINT THE CONTROL CHAR
491 0546 3762 DCA C8SWST /CLEAR FLAG.
492 0547 4765 JMS C8GET /GET THE REGISTERS
493 0550 5600 JMP I XC8CNT /RETURN TO CALL PLUS ONE
494 /
495 /
496 /CONTROL C
497 /RETURN TO MONITOR CONTROL C
498 0551 3764 CNTRLR, DCA TTYLPT /CLEAR THE LPT FLAG TO PRINT ON DISPLAY
499 0552 3762 DCA C8SWST /CLEAR FLAG.
500 0553 4763 JMS UPAROW /C8PRNT * AND LETTER IN CHAR
501 0554 6203 CDF CIF /GO TO 0 FLD
502 0555 6007 CAF /CLEAR THE WORLD
503 0556 5760 JMP I (7600 /GO TO DIAGNOSTIC MONITOR
504 /*****
505 /
506 /
507 /
508 0560 7600
509 0561 0272
510 0562 0745
511 0563 0615
512 0564 1121
513 0565 0624
514 0566 0100
515 0567 1023
516 0570 0277
517 0571 1077
518 0572 1076
519 0573 1075
520 0574 1346
521 0575 1347
522 0576 1200
523 0577 1345
524 0600 PAGE
525 /
526 /
527 /CONTROL D
528 /CHANGE THE SWITCH REGISTER ANYTIME CNTRL D AND RETURN TO
529 /THE PROGRAM RUNNING.
530 /
531 0600 4215 CNTRLR, JMS UPAROW
532 0601 1213 TAD C8SETD /CHECK IF THE RETURN ADDPS IS SAFE
533 0602 7640 SZA CLA
534 0603 5207 JMP C8D011 /DO NOT CHANGE THE RETURN ADDPS
535 0604 1777 TAD XC8CNT /GET THE RETURN ADDRS AND SAVE IT
536 0605 3214 DCA C8RETR /SAVE THE RETURN HERE
537 0606 2213 ISZ C8SETD /INDICATE RETURN SAVED DONT DESTROY
538 0607 4256 C8D011, JMS XC8PSW /GO CHANGE THE SWITCH REGISTER
539 0610 3213 DCA C8SETD /CLEAR THE FLAG
540 0611 4224 JMS C8GET /RESTORE THE AC MQ LINK ETC
541 0612 5614 JMP I C8RETR /RETURN TO THE PROGRAM
542 /

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543 0613 0000 C0SETD, 0
544 0614 0000 C0RETD, 0
545
546
547
548 /THIS WILL TYPE A UP ARROW AND THE CHAR IN C0CHAR.
549
550 0615 0000 UPAROW, 0
551 0616 1376 TAD (336 /C0PRNT THE "" AND THE CHAR C0TYPED IN
552 0617 4775 JMS XC8TYPE /CODE FOR "
553 0620 1774 TAD C0CHAR /C0TYPE THE CHAR
554 0621 4775 JMS XC8TYPE
555 0622 4773 JMS XC8CRLF
556 0623 5615 JMP I UPAROW /EXIT
557
558
559
560 /*****
561
562 0624 0000 C0GET, 0
563 0625 7200 CLA
564 0626 1772 TAD MQSAVE
565 0627 7421 MQL /RESTORE MQ
566 0630 1771 TAD FLSAVE
567 0631 7004 RAL /RESTORE THE LINK
568 0632 7200 CLA
569 0633 1770 TAD ACSAVE /RESTORE THE AC
570 0634 5624 JMP I C0GET /GET THE REGISTERS
571
572
573
574 /*****
575
576 /C0INQU
577 /C0INQU ROUTINE WILL PRINT A WAITING
578 /AND THE PROGRAM IS EXPECTING A CONTROL CHAR INPUT
579 /IF CONTINUE FROM CONTROL CHAR RETURN IS CALL PLUS ONE
580 /IF NO CONTROL CHAR ENTERED THEN WAITING IS REPRINTED
581 /AND PROGRAM WAITS FOR A CONTROL CHAR AGAIN.
582
583 / C0INQU = JMS XC8ING
584
585 /EX. JMS XC8ING /C0 WILL PRINT A WAITING AND WAIT FOR INPUT
586 / DO ANYTHING /RETURN IS CALL PLUS ONE AC = 0 CONTINUE
587
588 /CALLS USED ARE -CHKCLA-XC8PNT-XC8TYI-C0GET-XC8CNTR-
589
590
591 0635 0000 XC8ING, 0
592 0636 7300 CLA CLL
593 0637 4767 JMS CHKCLA /CHECK LOC 22 BIT 3 CONSOLE BIT
594 0640 7410 SKP /ACTIVE CONSOLE PACKAGE
595 0641 5635 JMP I XC8ING /NOT CONSOLE LEAVE
596 0642 4766 JMS XC8PNT
597 0643 0651 WATMES /INQUIR WAITING

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598 0644 4765 JMS XC8TYI /GET CHARACTER
599 0645 4224 JMS C0GET
600 0646 4777 JMS XC8CNTR /CHECK IF CONTROL CHARACTER
601 0647 5635 JMP I XC8ING /EXIT AND CONTINUE
602 0650 5236 JMP XC8ING+1 /REASK
603 0651 2701 WATMES, TEXT "WAITING "
604 0652 1124
605 0653 1116
606 0654 0740
607 0655 0000
608
609 /*****
610
611 /ROUTINE WILL CHECK IF CONSOL IS ACTIVE IF IT IS ACTIVE DISPLAY
612 /SW QUESTION, IN NOT ACTIVE IT WILL NOT PRINT THE SW QUESTION BUT
613 /RETURN TO CALL PLUS ONE AC=0.
614 /C0SWIT WILL SET UP THE PSEUDO SWITCH
615 /REGISTER WITH THE NEW DATA ENTERED
616 /
617 / C0SWIT = JMS XC8PSW
618
619 /EX. JMS XC8PSW /SET UP PSEUDO C0SWIT REGISTER IF
620 /ON THE CONSOL PACKAGE. RETURN IS CALL PLUS ONE AC = 0
621
622 /CALLS USED ARE -CHKCLA-XC8PSW-XC8PNT-XC8OCTA-XC8TYPE-
623
624 0656 0000 XC8PSW, 0
625 0657 4767 JMS CHKCLA /CHECK LOC 22 BIT 3 CONSOLE BIT
626 0660 7410 SKP /ACTIVE CONSOLE
627 0661 5656 JMP I XC8PSW /DEACTIVE CONSOLE PACKAGE
628
629 0662 1345 TAD C0SWST /RETURN WITHOUT ASKING PSEUDO SWITCH
630 0663 7640 SEA CLA /IS THE SOFT FLAG SET FOR SWITCH?
631 0664 5764 JMP C0BY4 /SKIP IF ONE ENTRY AT A TIME OK
632 0665 2345 ISZ C0SWST /SECOND ENTRY WITH OUT A EXIT GO TO SW QUESTION
633 0666 4766 C0RDPS, JMS XC8PNT /FIRST ENTRY SET FLAG
634 0667 0747 MESA /C0PRNT SP=
635 0670 1020 TAD 20 /GET CONTENTS OF SW
636 0671 4763 JMS XC8OCTA /CONVERT IT TO ASCII
637 0672 1362 TAD (40 /GET SPACE
638 0673 4775 JMS XC8TYPE
639 0674 2761 ISZ INMODE /SET FLAG FOR CHAR EXECTED
640 0675 4760 JMS XC8ECHO /LOOK FOR INPUT
641 0676 4315 JMS TSTCHA /NOT CONTROL TEST IT IS LEGAL
642 0677 1774 TAD C0CHAR /STORE NEW CHAR IN SW REG
643 0700 3020 DCA 20
644
645 0701 1357 TAD (-3 /GET A MINUS 3
646 0702 3346 DCA TMPCNT /STORE IN TMPCNT COUNT
647 0703 4760 GETCH1, JMS XC8ECHO /GET NEXT CHAR
648 0704 4315 JMS TSTCHA /CHECK IF CP + GOOD CHAR

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649 0705 1020 TAD 20 /GET C0SWIT REGISTER
650 0706 7106 RTL CLL /ROTATE IT LEFT 3 PLACES
651 0707 7004 RAL
652 0710 1774' TAD C0CHAR /GET CHAR + ADD IT TO PREVIOUS CONTENTS
653 0711 3020 DCA 20 /SAVE NEW CONTENTS
654 0712 2346 ISZ TMCNT /BUMP COUNT
655 0713 5303 JMP GETCH1 /JMP BACK + GET NEXT CHAR
656 0714 5342 JMP ENDIT /END 4 CHAR CRTYPED IN
657 0715 0000 TSTCHA, 0
658 0716 7041 CIA /CMPL CHAR IN AC
659 0717 1356 TAD (215 /TEST IF IT IS A CARRIAGE RETURN
660 0720 7650 SMA CLA /SKIP IN NOT CR.
661 0721 5342 JMP ENDIT /WAS CARRIAGE RETURN
662 0722 1774' TAD C0CHAR /NOT CR. GET CHAR
663 0723 1355 TAD (-260 /CHECK IF IT IS IN RANGE
664 0724 7710 SPA CLA /IF NOT POSITIVE CBERK CHAR SMALLER THEN 260
665 0725 5336 JMP ERR1 /CBERR - CHAR TOO SMALL
666 0726 1774' TAD C0CHAR /GET CHAR
667 0727 1354 TAD (-270 /GET A -270 + CHECK IF IT IS LARGER THEN 7
668 0730 7700 SMA CLA /SKIP IF LESS THEN 7
669 0731 5336 JMP ERR1 /CBERR ON CHAR NOT IN RANGE
670 0732 1774' TAD C0CHAR /GET CHAR
671 0733 0353 AND (7 /MASK FOR RIGHT BYTE
672 0734 3774' DCA C0CHAR /STORE IN CHAR
673 /GET CHAR IN AC
674 0735 5715 JMP I TSTCHA /EXIT
675 0736 1352 ERR1, TAD (277 /CBPRNT
676 0737 4775' JMS XC0TYPE /?
677 0740 4773' JMS XC0CRIF /
678 0741 5266 JMP C0RDPS /EXIT + ASK AGAIN
679 0742 4773' ENDIT, JMS XC0CRLF /DO A CR LF
680 0743 3345 DCA C0SWST /CLEAR THE PSW ENTRY FLAG
681 0744 5656 JMP I XC0PSW /EXIT ROUTINE
682 0745 0000 C0SWST, 0
683
684 0746 0000 TMCNT, 0
685 0747 2322 MESA, TEXT "SR= "
686 0750 7540
687 0751 0000
688
689 0752 0277
690 0753 0007
691 0754 7510
692 0755 7520
693 0756 0215
694 0757 7775
695 0760 1063
696 0761 1076
697 0762 0040
698 0763 1000
699 0764 0515
700 0765 0272
701 0766 0303
702 0767 1200

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702 0770 1345
703 0771 1347
704 0772 1346
705 0773 1023
706 0774 1075
707 0775 1077
708 0776 0336
709 0777 0400
710 1000
711 1000
712 /CBOCTA
713 /OCTAL TO ASCII CONVERSION
714 /THIS ROUTINE WILL TAKE THE OCTAL NUMBER IN THE AC AND CONVERT IT TO ASCII
715 /THE RESULT WILL BE PRINTED ON THE CONSOL TERMINAL
716 / CBOCTA= JMS XCBOCT
717 /
718 /EX. JMS XCBOCTA /AC CONTAINS NUMBER TO BE CHANGE
719 / RETURN IS TO CALL PLUS ONE AC=0
720 /
721 /CALLS USED ARE -XC0TYPE-
722
723
724 1000 0000 XCBOCT, 0
725 1001 7106 CLL RTL
726 1002 7006 RTL
727 1003 3221 DCA C0TMP1 /POSITION THE FIRST CHAR FOR PRINTING
728 1004 1377 TAD (-4 /SAVE CORRECT POSITIONED WORD HERE
729 1005 3222 DCA C0CKP /STORE COUNTER IN HERE
730 1006 1221 TAD C0TMP1 /GET FIRST NUMBFR
731 1007 0376 AND (0007 /MASK
732 1010 1375 TAD (260 /ADD THE PRINT CONSTANT
733 1011 4277 JMS XC0TYPE /TYPE THE NUMBER
734 1012 1221 TAD C0TMP1 /
735 1013 7006 RTL
736 1014 7004 RAL /PUT NEXT NUMBER IN POSITION
737 1015 3221 DCA C0TMP1 /STORE IT
738 1016 2222 ISZ C0CKP /DONE YET WITH FOUR NUMBERS
739 1017 5206 JMP C0DO4 /NOT YET DO MORE
740 1020 5600 JMP I XCBOCT /DONE WITH FOUR
741 1021 0000 C0TMP1, 0
742 1022 0000 C0CKP, 0
743
744
745 /*****
746
747 /C0CRLF
748 /C0TYPE CR AND LF WITH FILLERS FOLLOWING EACH LF AND CR
749 /
750 / C0CRLF= JMS XC0CPL
751 /
752 /EX. JMS XC0CRLF /CBPRNT A CR AND LF WITH FILL
753 / /RETURN TO CALL PLUS ONE AC =0
754 /CALLS USED ARE -XC0TYPE-
755

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756
757 1023 0000 XC8CRLF,0
758 1024 7300 CLA CLL
759 1025 1374 TAD (215 /GET CODE FOR CR
760 1026 4277 JMS XC8TYPE
761 1027 1237 TAD FILLER
762 1030 7040 CMA
763 1031 3740 DCA FILCNT /STORE FILLER IN HERE
764 1032 1373 TAD (212 /GET CODE FOR LF
765 1033 4277 C8DO2, JMS XC8TYPE
766 1034 2240 ISZ FILCNT /CHECK ON FILLER CHAR
767 1035 5233 JMP C8DO2 /TYPE A NON PRINTING CHAR
768 1036 5623 JMP I XC8CRL /EXIT
769 1037 0004 FILLER, 0004 /FILLER SET FOR 4 CHAP
770 1040 0000 FILCNT, 0 /COUNTER FOR FILL
771
772
773
774 //*****
775 /C8CKPA
776 /THIS ROUTINE WILL CHECK IF A CHARACTER WAS ENTERED FROM THE
777 /TERMINAL. IF THE FLAG IS SET AND THE CONSOLE PACKAGE IS
778 /ACTIVE A CHECK IS MADE TO DETERMINE IF IT IS A CONTROL CHAR.
779 /IF IT WAS A CONTROL CHAR THEN ITS CONTROL FUNCTION IS PERFORMED.
780 /IF NOT A CONTROL CHARACTER OR A CONTROL E-D-L-O- IT WILL DO
781 /THE CONTROL FUNCTION AND RETURN TO CALL PLUS 2.
782 /A NON CONTROL CHARACTER WILL BE PRINTED AND A "?" IT WILL RETURN TO
783 /CALL PLUS 2.
784 /IF NO FLAG IS SET OR THE CONSOLE IS NOT ACTIVE THE RETURN IS TO
785 /CALL PLUS 1.
786
787
788 / C8CKPA= JMS XC8CKP
789
790
791 /EX. JMS XC8CKPA /CALL TO CHECK IF CONTROL CHAR SET
792 / ANYTHING(SKIP) /RETURN IF NOT FLAG OR NOT CONSOLE ACTIVE
793 / ANYTHING(JMP EXIT SKIP CHAIN) /RETURN IF NOT CONTROL OR CONTINUE CONTROL
794
795
796 /CALLS USED ARE -XC8TTYI-XC8CNTR-C8GET-
797
798
799 1041 0000 XC8CKP, 0
800 1042 3772 DCA ACSAVE /SAVE THE AC
801 1043 6004 GTF /SAVE THE FLAGS
802 1044 3771 DCA FLSAVE /SAVE THE FLAGS
803 1045 7001 MOA /PUT MO IN AC
804 1046 3770 DCA MQSAVE /SAVE THE MO
805 1047 6031 KSF /CHECK THE KEYBOARD FLAG
806 1050 5261 JMP C8BY3 /EXIT TO CALL PLUS 1
807 1051 4767 JMS CHKCLA /CHECK LOC 22 BIT 3 CONSOLE BIT
808 1052 7410 SKP /ACTIVE CONSOLE PACKAGE
809 1053 5261 JMP C8BY3 /EXIT TO CALL PLUS 1
810 1054 4766 JMS XC8TTYI /GET THE CHAR

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811 1055 4765 JMS C8GET /GET THE FLAGS
812 1056 4764 JMS XC8CNTR /CHECK IF CONTROL CHAR.
813 1057 7000 NOP /RETURN IF A CONTINUE CHAR.
814 1060 2241 ISZ XC8CKP /BUMP RETURN FOR CALL PLUS 2
815 1061 4765 JMS C8GET /GET REGISTERS
816 1062 5641 JMP I XC8CKP /SAY GOOD BY
817
818 //*****
819
820 /C8ECHO
821 /THIS ROUTINE WILL LOOK FOR A CHAR FROM THE KEYBOARD. STORE IT IN LOCATION CHAR
822 /CHECK IF IT WAS A CONTROL CHARACTER - SET INMODE - PRINT CHARACTER
823
824 / C8ECHO = JMS XC8ECHO
825 /EX. JMS XC8ECHO /LOOK FOR CONSOLE CHAR C8PRNT IT
826 /RETURN CALL PLUS ONE AC = CHAR C8TYPED IN
827
828 /CALLS USED ARE -XC8TTYI-XC8CNTR-C8GET-XC8ECHO-XC8TYP-
829
830
831 1063 0000 XC8ECHO, 0
832 1064 4766 JMS XC8TTYI /WAIT FOR CHAR FROM KEYBOARD
833 1065 4765 JMS C8GET /RESTORE THE REGISTERS
834 1066 2276 ISZ INMODE /SET INMODE IDENTIFYING THIS AS A EXPECTED CHAR
835 1067 4764 JMS XC8CNTR /GO CHECK IF IT IS A CONTROL CHAR
836 1070 5663 JMP I XC8ECHO /WAS A CONTROL CHAR - CONTINUE RUNNING
837 1071 4277 JMS XC8TYPE /NOT A CONTROL CHAR C8PRNT IT
838 1072 3776 DCA INMODE /CLEAR FLAG THAT CHAR EXPECTED
839 1073 1275 TAD C8CHAR /GET CHAR IN AC
840 1074 5663 JMP I XC8ECHO /EXIT
841 1075 0000 C8CHAR, 0
842 1076 0000 INMODE, 0
843
844 //*****
845
846 /C8TYPE
847 /THIS ROUTINE WILL C8PRNT ON THE CONSOLE OR THE LPT WITH DEVICE CODE 66.
848 /
849 / C8TYPE= JMS XC8TYP
850
851 /EX. JMS XC8TYPE /C8PRNT THE CHAR IN THE AC.
852 / /RETURN CALL PLUS ONE AC = 0000
853 /DO NOT CLEAR THE LINK IN THIS ROUTINE NEEDED BYC8OCT
854
855 /CALLS USED ARE -C8HANG-XC8CNTR-XC8PNT-XC8CRLF-XC8INQU-
856
857
858 1077 0000 XC8TYP, 0
859 1100 3320 DCA PNTBUF /STORE CHAR
860 1101 1321 TAD TTYLPT /CHECK 0=TTY 7777=LPT
861 1102 7640 SZA CLA
862 1103 5312 JMP XDOLPT /DO OUT PUT ON LPT
863 1104 1320 TAD PNTBUF
864 1105 6046 TIS
865 1106 6041 TSF

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866 1107 5306 JMP , -1
867 1110 6042 TCF
868 1111 5316 JMP C8BY5
869 1112 1320 XDOLPT, TAD PNTBUF /GET CHAR
870 1113 6666 PSTB PCLF /C8PNT IT
871 1114 4322 JMS C8HANG /CHECK KEYBOARD IF HUNG
872 1115 6662 PCLF /CLEAR THE FLAG
873 1116 7600 C8BY5, 7600 /CLEAR THE AC
874 1117 5677 JMP I XC8TYP /EXIT
875 1120 0000 PNTBUF, 0
876 1121 0000 TTYLPT, 0
877
878
879 1122 0000 C8HANG, 0
880 1123 7200 CLA /
881 1124 1316 TAD C8BY5 /GET CONSTANT 7600
882 1125 3320 DCA PNTBUF /PNTBUF IS NOW A COUNTER
883 1126 6661 PSKF /SKIP ON PRINTER DONE
884 1127 7410 SKP /NOT DONE YET
885 1130 5722 JMP I C8HANG /SAW FLAG DONE
886 1131 2345 ISZ C8CONT /FIRST COUNTER FAST ONE
887 1132 5326 JMP , -4 /CHECK IF FLAG SET YET
888 1133 2320 ISZ PNTBUF /MADE 4096 COUNTS ON FAST COUNTER
889 1134 5331 JMP , -3 /KEEP IT UP FOR 5 SEC
890 1135 1764 TAD XC8CNTR /GET THE RETURN ADDRESS IN CONTROL
891 1136 3322 DCA C8HANG /SAVE IT IN HANG
892 1137 3321 DCA TTYLPT /ALLOW PRINTING ON TTY
893 1140 4763 JMS XC8PNT
894 1141 1146 MESHANG /LPT ERROR
895 1142 4223 JMS XC8CRLF
896 1143 4762 JMS XC8INQU /PRINT WAITING
897 1144 5722 JMP I C8HANG /CONTINUE TO SAVE ADDRESS
898 1145 0000 C8CONT, 0 /COUNTER FOR TIMER
899 1146 1420 MESHANG, TEXT "LPT ERROR"
1147 2440
1150 0522
1151 2217
1152 2200
900
901 1162 0635
902 1163 0303
903 1164 0400
904 1165 0624
905 1166 0272
906 1167 1200
907 1170 1346
908 1171 1347
909 1172 1345
910 1173 0212
911 1174 0215
912 1175 0260
913 1176 0007
914 1177 7774
1200
915
PAGE
/*****

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916 /*****
917
918 /THIS ROUTINE WILL CHECK LOCATION 22 THE HARD WARE CONFIG WORD.
919 /TO SEE IF THE CONSOLE BIT 3 (400) IS SET IF SET THEN RETURN
920 /TO CALL PLUS TWO FOR A ACTIVE CONSOLE PACKAGE AC=0
921 /IF NOT SET THEN TO CALL PLUS ONE FOR A DEACTIVE CONSOLE PACKAGE.
922
923
924 1200 0000 CHKCLA, 0
925 1201 7200 CLA
926 1202 1022 TAD 22 /GET THE CONTENT OF LOCATION 22
927 1203 0377 AND (400) /MASK FOR BIT 3 (400)
928 1204 7650 SNA CLA /
929 1205 2200 ISZ CHKCLA /ACTIVE CONSOLE PACKAGE RETURN
930
931 1206 5600 JMP I CHKCLA /CALL PLUS ONE (1) FOR ACTIVE
932 /DEACTIVE CONSOLE PACKAGE RETURN
933 /CALL PLUS TWO (2)
934
935 /C8ERR
936 /THIS ROUTINE WILL DETERMINE WHAT TO DO WHEN A C8ERR IS ENCOUNTERED
937 /WILL CHECK IF CLASSIC SYSTEM, WILL CHECK C8SWIT REGISTERS.
938 / C8ERR= JMS XC8ERR
939 /EX, JMS XC8ERR /GO TO C8ERR CALL IF NOT CONSOLE
940 / /RETURN IS CALL PLUS ONE AC =0000
941
942 /CALLS USED ARE -CHKCLA-XC8CRLF-XC8SW-XC8INQU-XC8PNT-XC8OCTA-
943
944 1207 0000 XC8ERR, 0
945 1210 6002 IOF
946 1211 3345 DCA ACSAVE /SAVE AC
947 1212 6004 GTF
948 1213 3347 DCA FLSAVE /SAVE THE FLAGS
949 1214 7501 MQA
950 1215 3346 DCA MQSAVE /SAVE THE MQ
951 1216 7340 CLA CLL CMA /SUBTRACT A 1 FOR TRUE LOCATION
952 1217 1207 TAD XC8ERR /GET RETURN LOCATION
953 1220 3344 DCA PCSAVE /SAVE ADD OF C8ERR CALL
954 1221 6201 CDF
955 1222 7340 CLA CLL CMA
956 1223 1776 TAD I (CLASTK)
957 1224 3316 DCA REALPC /SAVE REAL PC,
958 1225 6211 CDF 10
959 1226 4200 JMS CHKCLA /CHECK LOC, 22 BIT 3 CONSOLE BIT
960 1227 7410 SKP /ACTIVE CONSOLE PACKAGE
961 1230 5270 JMP NTCLAS /NOT CLASSIC SYSTEM
962 1231 4775 JMS C8GET /GET ALL REGISTERS,
963 1232 4774 JMS XC8SW /CHECK SWITCH REG FOR BIT THAT INDICATES
964 /NO ERROR MESSAGE
965 1233 0373 SETUP1, AND (0000) /MASK FOR BIT FOR NO ERROR PRINTING
966 /IF THIS ERROR MESSAGE IS TO ALWAYS
967 /BE PRINTED LEAVE AND VALUE AT 0000
968 1234 7640 SZA CLA /SKIP IF BIT IS 0 PRINT ERROR MESSAGE
969 1235 5262 JMP C8D010 /DO NOT PRINT
970 1236 4772 JMS XC8CRLF

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971 1237 4771' JMS XC8PNT
972 1240 1320 EPRMES /PRINT THE ERROR MESSAGE
973 1241 4771' JMS XC8PNT
974 1242 1330 MESPC /PRINT THE PC STATEMENT
975 1243 1316 TAD REALPC
976 1244 4770' JMS XC8OCTA /CONVERT 4 DIGIT PC TO ASCII
977 1245 4771' JMS XC8PNT
978 1246 1333 MESAC /PRINT THE AC MESS
979 1247 1345 TAD ACSAVE
980 1250 4770' JMS XC8OCTA
981 1251 4771' JMS XC8PNT
982 1252 1336 MESMQ /PRINT MQ
983 1253 1346 TAD MQSAVE
984 1254 4770' JMS XC8OCTA
985 1255 4771' JMS XC8PNT
986 1256 1341 MESFL /PRINT FL
987 1257 1347 TAD FLSAVE
988 1260 4770' JMS XC8OCTA
989 1261 4772' JMS XC8CRLF
990 1262 4775' C8D010, JMS C8GET /GET ALL REGISTERS.
991 1263 4774' JMS XC8SW /CHECK SWITCH REGISTER
992 1264 7610 SKP CLA /SKIP IF BIT 0 SET
993 1265 5300 JMP C8BY2 /LEAVE
994 1266 4767' JMS XC8INO /GO TO THE INQUIRE ROUTINE
995 1267 5300 JMP C8BY2 /LEAVE
996 1270 4775' NTCLAS, JMS C8GET /GET ALL REGISTERS.
997 1271 4774' JMS XC8SW /CHECK PSEUDO SWITCH REGISTER
998 / /CHECK THE C8SWIT REGISTER
999 1272 7610 SKP CLA /SKIP IF HALT
1000 1273 5607 JMP I XC8ERR /NO HALT CONTINUE
1001 1274 1366 TAD (7402) /CODE FOR HLT
1002 1275 3744 DCA I PCSAVE /PUT IT IN CALL LOC.
1003 1276 4775' JMS C8GET
1004 1277 5744 JMP I PCSAVE /EXIT TO CALL AND HALT
1005 1300 4775' C8BY2, JMS C8GET /GET THE REGISTERS
1006 1301 5607 JMP I XC8ERR
1007 /
1008 1302 7402 /ROUTINE, HLT /PUT INSTRUCTION TO EXECUTE HERE!!!!
1009 1303 7000 NOP
1010 1304 3317 DCA MYAC /SAVE AC.
1011 1305 6201 CDF 0
1012 1306 1020 TAD SWR
1013 1307 3765 DCA I (SWR) /MOVE SWITCHES DOWN.
1014 1310 1776 TAD I (CLASIK)
1015 1311 3315 DCA CLRTRN
1016 1312 1317 TAD MYAC
1017 1313 6202 CIF 0
1018 1314 5715 JMP I CLRTRN /RETURN TO FIELD 0.
1019 /
1020 1315 0000 CLRTRN, 0
1021 1316 0000 REALPC, 0
1022 1317 0000 MYAC, 0
1023 /
1024 1320 0410 ERRMES, TEXT "DHRKAE FAILED "
1321 2213

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1322 0105
1323 4040
1324 0601
1325 1114
1326 0504
1327 4000
1025 1330 4040 MESPC, TEXT " PC;"
1331 2003
1332 7200
1026 1333 4040 MESAC, TEXT " AC;"
1334 0103
1335 7200
1027 1336 4040 MESMQ, TEXT " MQ;"
1337 1521
1340 7200
1028 1341 4040 MESFL, TEXT " FL;"
1342 0614
1343 7200
1029 1344 7777 PCSAVE, 7777
1030 1345 7777 ACSAVE, 7777
1031 1346 7777 MQSAVE, 7777
1032 1347 7777 FLSAVE, 7777
1033 /
1034 1365 0020
1035 1366 7402
1036 1367 0635
1037 1370 1000
1038 1371 0303
1039 1372 1023
1040 1373 0000
1041 1374 0262
1042 1375 0624
1043 1376 5732
1044 1377 0400
0000

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FIELD 0

0000 00000000 00000000 11101111 11111111 11000000 00000000 00000000 00000000
0100 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0300 11111111 11111111 11111111 11111111 11111111 10000001 11111111 11111111
0400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0500 11111111 11111111 11111111 11111111 11111111 11111110 11111111 11111111
0600 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
0700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1000 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1100 11111111 11111111 11111111 11111111 11111111 11100000 00111111 11111111
1200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1300 11111111 11111111 11111111 11111111 11111111 00000000 00000111 11111111
1400
1500
1600
1700
2000
2100
2200
2300
2400
2500
2600
2700
3000
3100
3200
3300
3400
3500
3600
3700

4000
4100
4200
4300
4400
4500
4600
4700
5000
5100
5200
5300
5400
5500
5600
5700
6000
6100
6200
6300
6400
6500
6600
6700
7000
7100
7200
7300
7400
7500
7600
7700

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1045 /
1046 /ALL KNOWN HLTS.
1047 /
1048 /
1049 1400 6031 ERHLT1 /UNDEFINED INTERRUPT
1050 1401 6142 ERHLT2 /SKIP TRAP FOR DCLR
1051 1402 6115 ERHLT3 /SKIP TRAP FOR DLAG
1052 1403 6104 ERHLT4 /SKIP TRAP FOR DLCA
1053 1404 6070 ERHLT5 /SKIP TRAP FOR DRST
1054 1405 6126 ERHLT6 /SKIP TRAP FOR DLDC
1055 1406 6151 ERHLT7 /SKIP TRAP FOR DMAN
1056 1407 6726 ERHLT9 /RECOVERABLE ERROR HALT
1057 1410 5716 ENDHLT /END OF TEST HALT
1058 1411 7014 STPHLT /HALT FROM SWR4=j
1059 1412 7126 CHNHLT /IOT CHANGE HALT
1060 /
1061 6741 DSKP=6741 /SKIP ON TRANSFER DONE OR ERROR
1062 6742 DCLR=6742 /CLEAR DISK CONTROL LOGIC
1063 6743 DLAG=6743 /LOAD ADDRESS AND GO
1064 6744 DLCA=6744 /LOAD CURRENT ADDRESS
1065 6745 DRST=6745 /READ STATUS REGISTER
1066 6746 DLDC=6746 /LOAD COMMAND REGISTER
1067 6747 DMAN=6747 /LOAD MAINTENANCE
1068 /
1069 4405 SET=JMS I XSET
1070 4424 TICK=JMS I XTICK
1071 4425 AERRO=JMS I XAERRO
1072 4423 APT0A=JMS I XAPT0A
1073 4404 LAS=JMS I XLAS
1074 4406 CLASIC=JMS I XCLAS

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1075 5426 IOTCHN=JMS I XCHANG
1076 5430 MANUAL=JMS I MANTST
1077 4444 ENMAN1=JMS I XMAN1
1078 4445 ENMAN2=JMS I XMAN2
1079 4435 NERROR=JMS I XNERRO
1080 4436 ERROR=JMS I XERRO
1081 4437 IONWAT=JMS I XIONWT
1082 4440 ACCMP1=JMS I XCOMP1
1083 4441 ACCMP2=JMS I XCOMP2
1084 4442 RDSTAT=JMS I XRDST
1085 4443 RDCMD=JMS I XRDCM
1086 4446 RDADD=JMS I XRDAD
1087 4427 LDBUF=JMS I XUPPER
1088 4452 LDADD=JMS I XLDDAD
1089 4447 DSKSKP=JMS I XSDKP
1090 4450 LDCMD=JMS I XLDCM
1091 4451 LDCUR=JMS I XLDCA
1092 4453 CLRALL=JMS I XCLDR
1093 4454 RDCRC=JMS I XRDRC
1094 4455 LDMAN=JMS I XLDMN
1095 4456 RDBUF=JMS I XRDBF
1096 4457 PRNTER=JMS I XPRN
1097 4460 OCTEL=JMS I XFROCT
1098 4461 TWOCT=JMS I XTOCT
1099 4434 TYPE=JMS I XPRINT
1100 4462 CRLF=JMS I XCRLF
1101 /
1102 0000 *0
1103 /
1104 0000 0305 305
1105 0001 5001 5001 /REV E
1106 0002 0002 0002
1107 0003 0003 0003
1108 /
1109 0004 5764 XLAS, MYLAS
1110 0005 7040 XSET, SETUP
1111 0006 5732 XCLAS, CLASIC
1112 0007 0000 SAVEND, 0
1113 /
1114 0010 *10
1115 /
1116 0010 0000 AUTO10, 0
1117 /
1118 0020 *20
1119 /
1120 0020 0000 SWR, 0
1121 0021 4000 OP1, 4000
1122 0022 0000 OP2, 0
1123 /
1124 0023 7200 XAPT0A, APT0
1125 0024 7220 XTICK,KTICK
1126 0025 7241 XAERRO,WAERRO
1127 0026 7101 XCHANG, CHANG
1128 0027 7055 XUPPER, UPPER
1129 0030 5723 MANTST, MANUL

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1130	0031	6011	INTRQ,	INTADD
1131	0032	5670	XEND,	ENDTST
1132	0033	0210	THSFLO,	PRSFLO
1133	0034	6463	XPRINT,	PRINT
1134	0035	7000	XNERR0,	NERR0
1135	0036	6600	XERR0,	ERR0
1136	0037	6900	XIONWT,	IONWT
1137	0040	6033	XCOMP1,	COMP1
1138	0041	6044	XCOMP2,	COMP2
1139	0042	6063	XRDST,	RDST
1140	0043	6240	XRDCM,	RDCM
1141	0044	6256	XMAIN1,	MAIN1
1142	0045	6760	XMAIN2,	MAIN2
1143	0046	6200	XRDAD,	RAD
1144	0047	6130	XSDKP,	SDKP
1145	0050	6117	XLDCM,	LDCM
1146	0051	6075	XLDCA,	LDCA
1147	0052	6106	XLDD,	LDD
1148	0053	6135	XLDR,	CLDR
1149	0054	6263	XRDCR,	RDCR
1150	0055	6144	XLDNM,	LDMN
1151	0056	6226	XRDBF,	RDBF
1152	0057	6423	XPRN,	PRN
1153	0060	6400	XFROCT,	FROCT
1154	0061	6314	XTOCT,	TOCT
1155	0062	6331	XCRLF,	UPONE
1156	0063	0260	K0260,	0260
1157	0064	0000	K0000,	0000
1158	0065	0001	K0001,	0001
1159	0066	0002	K0002,	0002
1160	0067	0003	K0003,	0003
1161	0070	0004	K0004,	0004
1162	0071	0006	K0006,	0006
1163	0072	0007	K0007,	0007
1164	0073	0010	K0010,	0010
1165	0074	0020	K0020,	0020
1166	0075	0037	K0037,	0037
1167	0076	0040	K0040,	0040
1168	0077	0100	K0100,	0100
1169	0100	0200	K0200,	0200
1170	0101	0207	K0207,	0207
1171	0102	0400	K0400,	0400
1172	0103	1000	K1000,	1000
1173	0104	2000	K2000,	2000
1174	0105	3777	K3777,	3777
1175	0106	4000	K4000,	4000
1176	0107	7000	K7000,	7000
1177	0110	7776	K7776,	7776
1178	0111	7775	K7775,	7775
1179	0112	7700	K7700,	7700
1180	0113	7740	K7740,	7740
1181	0114	0070	K0070,	0070
1182	0115	0077	K0077,	0077
1183	0116	0377	K0377,	0377
1184	0117	0177	K0177,	0177

1185	0120	2525	K2525,	2525
1186	0121	5252	K5252,	5252
1187	0122	3737	K3737,	3737
1188	0123	7717	K7717,	7717
1189	0124	4100	K4100,	4100
1190	0125	7600	K7600,	7600
1191	0126	5000	K5000,	5000
1192	0127	5777	K5777,	5777
1193	0130	7774	K7774,	7774
1194	0131	7771	K7771,	7771
1195	0132	7777	K7777,	7777
1196			/	
1197			DECIMAL	
1198			/	
1199	0133	7774	M4,	-4
1200	0134	7773	M5,	-5
1201	0135	7771	M7,	-7
1202	0136	7764	M12,	-12
1203	0137	7760	M16,	-16
1204	0140	7720	M40,	-40
1205	0141	7600	M120,	-120
1206	0142	7501	M191,	-191
1207	0143	7401	M255,	-255
1208	0144	7324	M300,	-300
1209			/	
1210			OCTAL	
1211			/	
1212	0145	0017	K0017,	0017
1213	0146	0215	K0215,	0215
1214	0147	0212	K0212,	0212
1215	0150	6201	KCDF,	CD
1216	0151	6244	KRMF,	RMF
1217	0152	3741	M1505,	-TST05 -1
1218	0153	0000	REG1,	0
1219	0154	0000	REG2,	0
1220	0155	0000	8BCNT1,	0
1221	0156	0000	TCNTR1,	0
1222	0157	0000	TCNTR2,	0
1223	0160	0000	TCNTR3,	0
1224	0161	0000	TCNTR4,	0
1225			/	
1226	0162	0000	GDREG1,	0
1227	0163	0000	GDREG2,	0
1228	0164	0000	CRREG1,	0
1229	0165	0000	CRREG2,	0
1230	0166	0000	STREG,	0
1231	0167	0000	DBREG,	0
1232	0170	0000	CMREG,	0
1233	0171	0000	DAREG,	0
1234	0172	0000	ADREG,	0
1235	0173	0000	DTREG,	0
1236	0174	0000	ACREG,	0
1237	0175	0000	HOMEAX,	0
1238	0176	0000	FLDMAX,	0
1239	0177	2200	STCON,	2200

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1240 /
1241 0200 *200
1242 /
1243 /SETUP POINTERS FOR AMOUNT OF EXTENDED
1244 /BANKS OF MEMORY, INTERRUPT SERVICE, CURRENT
1245 /FIELD, AND TESTS FOR CLASSIC PACKAGE OR APT SYSTEM.
1246 /IF CONSOLE IS ACTIVE APT FUNCTIONS OR NOP.
1247 /
1248 /
1249 0200 5203 BGN, JMP .+3 /RUN DISKLESS.
1250 0201 5430 MANUAL /TO MANUAL SCOPE TEST
1251 0202 5426 IOTCHN /TO IOT CHANGE ROUTINE
1252 0203 6224 RIF
1253 0204 3175 DCA HOMEMA
1254 0205 1175 TAD HOMEMA
1255 0206 1150 TAD KCDF /MAKE HOMEDF
1256 0207 3210 DCA PRSFLD
1257 0210 7402 PRSFLD, HLT /MAKE DF=IF
1258 0211 4405 SET /SETUP FIELD 0
1259 0212 1176 TAD FLDMAX /GET FIRST PASS POINTER
1260 0213 7640 SZA CLA /IS IT FIRST PASS
1261 0214 5217 JMP .+3 /NO, MUST BE A RESTART
1262 0215 1532 TAD I K7777 /GET LAST LOCATION
1263 0216 3007 DCA SAVEND /SAVE IT FOR A RESTORE
1264 0217 4423 APT8A /NOP CONSOLE IF ON APT8A
1265 0220 4406 CLASIC /CHECK FOR CONSOLE CLASSIC
1266 0221 4431 C8SWIT /CHECK FOR SWITCH SR=.
1267 0222 7000 NOP
1268 0223 4404 LAS
1269 0224 0072 AND K0007 /MASK 9-11
1270 0225 7040 CMA
1271 0226 3176 DCA FLDMAX /SAVE AMOUNT OF EXTENDED MEMORY
1272 0227 1022 TAD 22
1273 0230 0102 AND K0400
1274 0231 7640 SZA CLA /ON CLASSIC.
1275 0232 6007 6007 /YES, THEN CLEAR ALL FLAGS.
1276 /
1277 /VERIFY THAT THE DISK MOTOR IS OFF. THE
1278 /STATUS REGISTER SHOULD ONLY CONTAIN NOT READY TO
1279 /SEEK, READ, OR WRITE AND NOT DISK FILE READY.
1280 /INITIALIZE SHOULD HAVE CLEARED ALL OTHER BITS
1281 /
1282 /
1283 0233 3153 DCA REG1
1284 0234 1177 TAD STCON /GET EXPECTED STATUS
1285 0235 3163 DCA GDREG2 /SETUP TEST HANDLER
1286 /
1287 0236 1153 TST0, TAD REG1 /GET AC VALUE
1288 0237 4442 RDSTAT /READ STATUS REGISTER
1289 0240 4440 ACCMP1 /CHECK RESULTS
1290 0241 4435 NERROR /AC O.K. 4096 LOOPS
1291 0242 4436 ERROR /ERROR, "INITIALIZE" CLEAR STATUS
1292 /REGISTER FAILED.
1293 0243 0236 TST0 /SCOPE LOOP POINTER
1294 0244 5000 5000 /TEXT POINTER

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1295 /
1296 /VERIFY THAT SKIP CONDITIONS WERE CLEARED
1297 /BY "INITIALIZE" ON START OF TEST.
1298 /
1299 0245 4447 TST1, DSKSKP /ISSUE "DSKP" IOT
1300 0246 4435 NERROR /DSKP O.K. 4096 LOOPS
1301 0247 4436 ERROR /ERROR, "INITIALIZE" CLEAR
1302 /SKIP CONDITIONS
1303 0250 0245 TST1 /SCOPE LOOP POINTER
1304 0251 0006 0006 /TEXT POINTER
1305 /
1306 /VERIFY THAT INTERRUPT REQUESTS WERE
1307 /CLEARED BY "INITIALIZE" AT START OF TEST
1308 /
1309 0252 4437 TST2, IONWAT /GO WAIT FOR INT.
1310 0253 4435 NERROR /INT. O.K. 4096 LOOPS
1311 0254 4436 ERROR /ERROR, "INITIALIZE" CLEAR
1312 /INT. CONDITION
1313 0255 0252 TST2 /SCOPE LOOP POINTER
1314 0256 0007 0007 /TEXT POINTER
1315 /
1316 /VERIFY THAT COMMAND REGISTER WAS CLEARED
1317 /BY "INITIALIZE" AT START OF TEST. READ COMMAND
1318 /REGISTER WITH "DMAN" (MAINTENANCE IOT)
1319 /
1320 0257 3163 TST3, DCA GDREG2 /SETUP COMPARE REGISTER
1321 0260 4443 RDCMD /READ COMMAND REGISTER
1322 0261 7650 SNA CLA /AC SHOULD BE 0
1323 0262 4435 NERROR /AC O.K. 4096 LOOPS
1324 0263 4436 ERROR /ERROR, "INITIALIZE" CLEAR
1325 /COMMAND REGISTER
1326 0264 0760 TST3 /SCOPE LOOP POINTER
1327 0265 4201 4201 /TEXT POINTER
1328 /
1329 /VERIFY THAT ALL DRIVES ON CONTROL ARE OFF.
1330 /THE STATUS SHOULD BE 2200 WHEN DRIVES ARE SELECTED.
1331 /
1332 0266 1177 TST4, TAD STCON /EXPECTED STATUS
1333 0267 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1334 0270 7391 CLA CLL IAC /ENABLE CLEAR CONTROL
1335 0271 4453 CLRALL /OCLR "CLR ALL"
1336 0272 1153 TAD REG1 /GET AC VALUE
1337 0273 4450 LDCMD /LOAD COMMAND
1338 0274 4442 RDSTAT /READ STATUS
1339 0275 4440 ACCMP1 /CHECK RESULTS
1340 0276 4435 NERROR /O.K. 4096 LOOPS
1341 0277 4436 ERROR /ERROR, STATUS
1342 0300 0266 TST4 /SCOPE LOOP POINTER
1343 0301 5000 5000 /TEXT POINTER
1344 /
1345 /VERIFY THAT IOT "DSKP" DOES NOT AFFECT
1346 /AC REGISTER. TRY ALL COMBINATIONS IN AC.
1347 /
1348 0302 1153 TST5, TAD REG1 /GET AC VALUE
1349 0303 3163 DCA GDREG2 /SETUP COMPARE REGISTER

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1350 0304 1153 TAD REG1
1351 0305 4447 DSKSKP /ISSUE "DSKP" IOT
1352 0306 7000 NOP
1353 0307 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1354 0310 4435 NERROR /AC O.K. 4096 LOOPS
1355 0311 4436 ERROR /ERROR, "DSKP" CHANGED AC.
1356 0312 0302 TST5 /SCOPE LOOP POINTER
1357 0313 4010 /TEXT POINTER
1358
1359 /VERIFY THAT "DLCA" LOAD CURRENT ADDRESS
1360 /REGISTER CLEARS THE AC, TRY ALL COMBINATIONS IN AC
1361 /
1362 0314 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1363 0315 1153 TST6, TAD REG1 /GET AC VALUE
1364 0316 4451 LDCUR /LOAD CURRENT ADDRESS "DLCA"
1365 0317 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1366 0320 4435 NERROR /AC O.K. 4096 LOOPS
1367 0321 4436 ERROR /ERROR, DLCA CLEAR AC
1368 0322 0315 TST6 /SCOPE LOOP POINTER
1369 0323 4010 /TEXT POINTER
1370
1371 /VERIFY THAT "DLDC" LOAD COMMAND REGISTER
1372 /CLEARS THE AC, TRY ALL COMBINATIONS IN AC.
1373 /
1374 0324 1153 TST7, TAD REG1 /GET AC VALUE
1375 0325 4450 LDCMD /"DLDC" LOAD COMMAND REGISTER
1376 0326 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1377 0327 4435 NERROR /AC O.K. 4096 LOOPS
1378 0330 4436 ERROR /ERROR, DLDC CLEAR AC
1379 0331 0324 TST7 /SCOPE LOOP POINTER
1380 0332 4010 /TEXT POINTER
1381
1382 /VERIFY THAT "DLAG" CLEARS THE AC REGISTER.
1383 /TRY ALL COMBINATIONS IN AC.
1384 /
1385 0333 7301 TST8, CLA CLL IAC
1386 0334 4453 CLRALL /CLEAR CONTROL
1387 0335 1154 TAD REG2 /GET DATA
1388 0336 4452 LDADD /LOAD DISK ADDRESS
1389 0337 4440 ACCMP1 /CHECK RESULTS
1390 0340 4435 NERROR /O.K. 4096 LOOPS
1391 0341 4436 ERROR /ERROR, DLAG, CLEAR AC
1392 0342 0333 TST8 /SCOPE LOOP POINTER
1393 0343 4010 /TEXT POINTER
1394
1395 /VERIFY THAT "DCLR" CLEARS THE AC.
1396 /TRY ALL COMBINATIONS IN AC
1397 /
1398 0344 1153 TST9, TAD REG1
1399 0345 4453 CLRALL /DCLR "CLR ALL"
1400 0346 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1401 0347 4435 NERROR /AC O.K. 4096 LOOPS
1402 0350 4436 ERROR /ERROR, DCLR CLEAR AC
1403 0351 0344 TST9 /SCOPE LOOP POINTER
1404 0352 4010 /TEXT POINTER

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1405 /
1406 /VERIFY THAT THE COMMAND REGISTER CAN BE LOADED
1407 /AND SHIFTED INTO THE LOWER DATA BUFFER WITH
1408 /THE MAINTENANCE IOT. USE DATA PATTERN 0000 + 7777.
1409 /
1410 0353 7301 TST10, CLA CLL IAC
1411 0354 4453 CLRALL /DCLR "CLR ALL"
1412 0355 1153 TAD REG1
1413 0356 7110 CLL RAR
1414 0357 7630 SZL CLA /DATA 7777 IF LINK IS SET
1415 0360 7240 CLA CMA
1416 0361 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1417 0362 1163 TAD GDREG2
1418 0363 7040 CMA
1419 0364 4450 LDCMD /SET COMMAND TO OPOSITE
1420 0365 1163 TAD GDREG2
1421 0366 4450 LDCMD /SET COMMAND TO VALUE EXPECTED
1422 0367 4443 RDCMD /READ COMMAND REGISTER
1423 0370 4440 ACCMP1 /CHECK RESULTS
1424 0371 4435 NERROR /O.K. 4096 LOOPS
1425 0372 4436 ERROR /ERROR, COMMAND REGISTER
1426 0373 0353 TST10 /SCOPE LOOP POINTER
1427 0374 4201 /TEXT POINTER
1428
1429 /VERIFY THAT THE COMMAND REGISTER CAN BE LOADED
1430 /AND SHIFTED INTO THE LOWER DATA BUFFER WITH
1431 /THE MAINTENANCE IOT. USE DATA PATTERN 2525 + 5252
1432 /
1433 0375 7301 TST11, CLA CLL IAC
1434 0376 4453 CLRALL /DCLR "CLR ALL"
1435 0377 1153 TAD REG1
1436 0400 7110 CLL RAR
1437 0401 7630 SZL CLA /DATA 5252 IF LINK IS SET
1438 0402 1120 TAD K2525
1439 0403 1120 TAD K2525
1440 0404 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1441 0405 1163 TAD GDREG2
1442 0406 7040 CMA
1443 0407 4450 LDCMD /SET COMMAND TO OPOSITE
1444 0410 1163 TAD GDREG2
1445 0411 4450 LDCMD /SET COMMAND TO VALUE EXPECTED
1446 0412 4443 RDCMD /READ COMMAND REGISTER
1447 0413 4440 ACCMP1 /CHECK RESULTS
1448 0414 4435 NERROR /O.K. 4096 LOOPS
1449 0415 4436 ERROR /ERROR, COMMAND REGISTER
1450 0416 0375 TST11 /SCOPE LOOP POINTER
1451 0417 4201 /TEXT POINTER
1452
1453 /VERIFY THAT THE COMMAND REGISTER
1454 /BE LOADED AND THEN SHIFTED INTO THE LOWER
1455 /DATA BUFFER. TRY ALL COMBINATIONS.
1456 /
1457 0420 1154 TST12, TAD REG2 /GET AC VALUE
1458 0421 4450 LDCMD /LOAD COMMAND REGISTER
1459 0422 1153 TAD REG1

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/ PAL10 V142A 7-MAR-77 13:55 PAGE 3-7
1460 0423 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1461 0424 1153 TAD REG1
1462 0425 4450 LDCMD /LOAD COMMAND REGISTER
1463 0426 4443 RDCMD /READ COMMAND REGISTER
1464 0427 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1465 0430 4435 NERROR /AC O.K. 4096 LOOPS
1466 0431 4436 ERROR /ERROR, LOAD OR READ
1467 /COMMAND REGISTER
1468 0432 0420 TST12 /SCOPE LOOP POINTER
1469 0433 4201 4201 /TEXT POINTER
1470
1471 /VERIFY THAT DCLR DOES NOT CLEAR COMMAND
1472 /REGISTER WHEN AC10=0 AND A11=0
1473 /
1474 0434 1153 TST13, TAD REG1
1475 0435 4450 LDCMD /LOAD COMMAND REGISTER
1476 0436 1154 TAD REG2
1477 0437 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1478 0440 1154 TAD REG2
1479 0441 4450 LDCMD /LOAD COMMAND REGISTER
1480 0442 4453 CLRALL /DCLR "CLR ALL"
1481 0443 4443 RDCMD /READ COMMAND REGISTER
1482 0444 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1483 0445 4435 NERROR /AC O.K. 4096 LOOPS
1484 0446 4436 ERROR /ERROR, DCLR CLEAR COMMAND
1485 /REGISTER WHEN AC10=0 + AC11=0
1486 0447 0434 TST13 /SCOPE LOOP POINTER
1487 0450 4201 4201
1488
1489 /VERIFY THAT DCLR DOES CLEAR COMMAND
1490 /REGISTER WHEN AC10=0 AND AC11=1
1491 /
1492 0451 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1493 0452 1153 TAD REG1
1494 0453 4450 LDCMD /LOAD COMMAND REGISTER
1495 0454 7301 CLA CLL IAC /ENABLE CLEAR CONTROL
1496 0455 4453 CLRALL /DCLR "CLR ALL"
1497 0456 4443 RDCMD /READ COMMAND REGISTER
1498 0457 7650 SNA CLA /CHECK AC, SHOULD EQUAL 0
1499 0460 4435 NERROR /AC O.K. LOOP 4096
1500 0461 4436 ERROR /ERROR, DCLR CLEAR COMMAND
1501 /REGISTER WHEN AC10=0+AC11=1
1502 0462 0452 TST14 /SCOPE LOOP POINTER
1503 0463 4201 4201 /TEXT POINTER
1504
1505 /VERIFY THAT DLAG DOES LOAD THE SURFACE AND SECTOR
1506 /REGISTER, USE DATA PATTERN 00 + 37.
1507 /
1508 0464 7301 TST15, CLA CLL IAC /ENABLE CLEAR CONTROL
1509 0465 4453 CLRALL /CLEAR CONTROL
1510 0466 1136 TAD M12
1511 0467 3156 DCA TCNTR1 /SETUP 12 BIT SHIFT COUNTER
1512 0470 1153 TAD REG1
1513 0471 7110 CLL RAR
1514 0472 7630 SZL CLA /DATA 00 + 37??

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SEQ 0052

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/ PAL10 V142A 7-MAR-77 13:55 PAGE 3-8
1515 0473 7340 CLA CLL CMA /37?
1516 0474 4452 LDADD /LOAD DISK ADDRESS "DLAG"
1517 0475 1171 TAD DAREG
1518 0476 0075 AND K0037 /MASK EXPECTED VALUE
1519 0477 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1520 0500 4445 ENMAN2 /ENTER MAINTENANCE
1521 0501 1100 TAD K0200 /ENABLE SHIFT LOWER BUFFER
1522 0502 4455 LDMAN /LOAD MAINTENANCE
1523 0503 2156 ISZ TCNTR1 /COUNT 12 SHIFTS
1524 0504 5302 JMP -2
1525 0505 7300 CLA CLL
1526 0506 1074 TAD K0020 /ENABLE READ LOWER BUFFER
1527 0507 4455 LDMAN /LOAD MAINTENANCE
1528 0510 3171 DCA DAREG /SAVE VALUE FOUND
1529 0511 1171 TAD DAREG
1530 0512 4440 ACCMP1 /CHECK RESULTS
1531 0513 4435 NERROR /O.K. 4096 LOOPS
1532 0514 4436 ERROR /ERROR, SURFACE AND SECTOR SHIFT
1533 0515 0464 TST15 /SCOPE LOOP POINTER
1534 0516 4102 4102 /TEXT POINTER
1535
1536 /VERIFY THAT DLAG LOADS THE SURFACE AND
1537 /SECTOR REGISTER, USE DATA PATTERN ALL
1538 /COMBINATIONS.
1539 /
1540 0517 7301 TST16, CLA CLL IAC /ENABLE CLEAR CONTROL
1541 0520 4453 CLRALL /CLEAR CONTROL
1542 0521 1136 TAD M12
1543 0522 3156 DCA TCNTR1 /SETUP 12 BIT SHIFT COUNTER
1544 0523 1153 TAD REG1
1545 0524 0075 AND K0037 /MASK EXPECTED VALUE
1546 0525 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1547 0526 1153 TAD REG1
1548 0527 4452 LDADD /LOAD DISK ADDRESS "DLAG"
1549 0530 4445 ENMAN2 /ENTER MAINTENANCE
1550 0531 1100 TAD K0200 /ENABLE SHIFT LOWER BUFFER
1551 0532 4455 LDMAN /LOAD MAINTENANCE
1552 0533 2156 ISZ TCNTR1 /COUNT 12 SHIFTS
1553 0534 5332 JMP -2
1554 0535 7300 CLA CLL
1555 0536 1074 TAD K0020 /ENABLE READ LOWER BUFFER
1556 0537 4455 LDMAN /LOAD MAINTENANCE
1557 0540 3171 DCA DAREG /SAVE VALUE FOUND
1558 0541 1171 TAD DAREG
1559 0542 4440 ACCMP1 /CHECK RESULTS
1560 0543 4435 NERROR /O.K. 4096 LOOPS
1561 0544 4436 ERROR /ERROR, SURFACE AND SECTOR SHIFT
1562 0545 0517 TST16 /SCOPE LOOP POINTER
1563 0546 4102 4102 /TEXT POINTER
1564
1565 /VERIFY THAT THE DISK ADDRESS REGISTER CAN BE LOADED
1566 /AND SHIFTED TO LOWER DATA BUFFER WITH THE MAINTENANCE
1567 /IOT, USE DATA PATTERN 0000 + 7777
1568 /SHIFT THE SURFACE AND SECTOR FROM THE SURFACE AND SECTOR
1569 /REGISTER, SHIFT THE LOWER CYLINDER BITS FROM THE CRC REGISTER.

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SEQ 0053

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1570 /
1571 0547 7301 TST17, CLA CLL IAC
1572 0550 4453 CLRALL /DCLR "CLR ALL"
1573 0551 1153 TAD REG1
1574 0552 7110 CLL RAR
1575 0553 7630 SZL CLA /USE DATA 7777 IF LINK IS SET
1576 0554 7240 CLA CMA
1577 0555 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1578 0556 1163 TAD GDREG2
1579 0557 7040 CMA
1580 0560 4452 LDADD /SET DISK ADDRESS TO OPOSITE
1581 0561 1163 TAD GDREG2
1582 0562 4452 LDADD /SET DISK ADDRESS TO EXPECTED
1583 0563 4446 RDADD /READ DISK ADDRESS
1584 0564 4440 ACCMP1 /CHECK RESULTS
1585 0565 4435 NERROR /O.K. 4096 LOOPS
1586 0566 4436 ERROR /ERROR, DISK ADDRESS REGISTER
1587 0567 0547 TST17 /SCOPE LOOP POINTER
1588 0570 4102 4102 /TEXT POINTER
1589 /
1590 /VERIFY THAT THE DISK ADDRESS REGISTER CAN BE LOADED
1591 /AND SHIFTED TO LOWER DATA BUFFER WITH THE MAINTENANCE
1592 /IOT. USE DATA PATTERN 2525 + 5252.
1593 /SHIFT THE SURFACE AND SECTOR FROM THE SURFACE AND SECTOR
1594 /REGISTER. SHIFT THE LOWER CYLINDER BITS FROM THE CRC REGISTER.
1595 /
1596 0571 7301 TST18, CLA CLL IAC
1597 0572 4453 CLRALL /DCLR "CLR ALL"
1598 0573 1153 TAD REG1
1599 0574 7110 CLL RAR
1600 0575 7630 SZL CLA /USE DATA 5252 IF LINK IS SET
1601 0576 1120 TAD K2525
1602 0577 1120 TAD K2525
1603 0600 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1604 0601 1163 TAD GDREG2
1605 0602 7040 CMA
1606 0603 4452 LDADD /SET DISK ADDRESS TO OPOSITE
1607 0604 1163 TAD GDREG2
1608 0605 4452 LDADD /SET DISK ADDRESS TO EXPECTED
1609 0606 4446 RDADD /READ DISK ADDRESS
1610 0607 4440 ACCMP1 /CHECK RESULTS
1611 0610 4435 NERROR /O.K. 4096 LOOPS
1612 0611 4436 ERROR /ERROR, DISK ADDRESS REGISTER
1613 0612 0571 4102 /SCOPE LOOP POINTER
1614 0613 4102 4102 /TEXT POINTER
1615 /
1616 /VERIFY THAT THE DISK ADDRESS REGISTER
1617 /CAN BE LOADED AND SHIFTED INTO THE LOWER
1618 /DATA BUFFER. TRY ALL COMBINATIONS IN AC
1619 /SHIFT THE SURFACE AND SECTOR FROM THE SURFACE AND SECTOR
1620 /REGISTER. SHIFT THE LOWER CYLINDER BITS FROM THE CRC REGISTER.
1621 /
1622 0614 1153 TST19, TAD REG1 /GET AC VALUE
1623 0615 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1624 0616 1153 TAD REG1

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1625 0617 4452 LDADD /LOAD DISK ADDRESS REGISTER
1626 0620 4446 RDADD /READ DISK ADDRESS REGISTER
1627 0621 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1628 0622 4435 NERROR /AC O.K., LOOP 4096 TIMES
1629 0623 4436 ERROR /ERROR, LOAD OR READ DISK
1630 /ADDRESS REGISTER
1631 0624 0614 TST19 /SCOPE LOOP POINTER
1632 0625 4102 4102 /TEXT POINTER
1633 /
1634 /VERIFY THAT DCLR DOES NOT AFFECT THE SURFACE
1635 /AND SECTOR WHEN AC10=0 + AC11=0
1636 /
1637 0626 1153 TST20, TAD REG1 /GET AC VALUE
1638 0627 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1639 0630 1154 TAD REG2 /AC VALUE, COMPLIMENT OF REG1
1640 0631 4452 LDADD /LOAD DISK ADDRESS
1641 0632 1153 TAD REG1
1642 0633 4452 LDADD /LOAD DISK ADDRESS
1643 0634 4453 CLRALL /DCLR "CLR ALL"
1644 0635 4446 RDADD /READ DISK ADDRESS
1645 0636 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1646 0637 4435 NERROR /AC O.K., LOOP 4096 TIMES
1647 0640 4436 ERROR /ERROR, LOAD OR READ DISK
1648 /ADDRESS OR DCLR CLEAR
1649 0641 0626 TST20 /SCOPE LOOP POINTER
1650 0642 4102 4102 /TEXT POINTER
1651 /
1652 /VERIFY THAT "DCLR" DOESN'T CLEAR SURFACE AND SECTOR
1653 /REGISTER WHEN A10=0 + A11=1
1654 /
1655 0643 1153 TST21, TAD REG1 /GET AC VALUE
1656 0644 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1657 0645 1153 TAD REG1
1658 0646 4452 LDADD /LOAD DISK ADDRESS
1659 0647 7301 CLA CLL IAC /ENABLE "CLR ALL" BIT
1660 0650 4453 CLRALL /DCLR "CLR ALL"
1661 0651 4446 RDADD /READ DISK ADDRESS
1662 0652 4440 ACCMP1 /CHECK RESULTS
1663 0653 4435 NERROR /AC O.K. LOOP 4096
1664 0654 4436 ERROR /ERROR, LOAD, READ, OR CLEAR
1665 /DISK ADDRESS
1666 0655 0643 TST21 /SCOPE LOOP POINTER
1667 0656 4102 4102 /TEXT POINTER
1668 /
1669 /VERIFY THAT THE CRC CAN BE LOADED BY "DLAC"
1670 /AND "DLDC". USE DATA PATTERN 0000 + 7777.
1671 /THIS WILL VERIFY THAT THE CRC CAN BE LOADED
1672 /BY THE EXTENDED CYLINDER BIT IN THE COMMAND REGISTER
1673 /BY THE "DLAC" IOT.
1674 /
1675 0657 7301 TST22, CLA CLL IAC
1676 0660 4453 CLRALL /DCLR
1677 0661 1153 TAD REG1
1678 0662 7110 CLL RAR
1679 0663 7630 SZL CLA /USE DATA 7777 IF LINK IS SET

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1680 0664 7240 CLA CMA
1681 0665 0113 AND K7740
1682 0666 3163 DCA GDREG2 /SETUP COMPARE # 1
1683 0667 7004 RAL /LINK FOR EXTENDED BIT
1684 0670 3162 DCA GDREG1 /SETUP COMPARE REGISTER
1685 0671 1162 TAD GDREG1 /GET DATA
1686 0672 4450 LDCMD /LOAD CRC
1687 0673 1163 TAD GDREG2
1688 0674 4452 LDADD /LOAD CRC
1689 0675 4454 RDCRC /READ CRC
1690 0676 4441 ACCMP2 /CHECK RESULTS
1691 0677 4435 NERROR /O.K. 4096 LOOPS
1692 0700 4436 ERROR /ERROR, CRC REGISTER
1693 0701 0657 TST22 /SCOPE LOOP POINTER
1694 0702 6004 6004 /TEXT POINTER
1695
1696 /
1697 /VERIFY THAT THE CRC CAN BE LOADED BY "DLAG"
1698 /AND "DLDC". USE DATA PATTERN 2525 + 5252.
1699 /THIS WILL VERIFY THAT THE CRC CAN BE LOADED
1700 /BY THE EXTENDED CYLINDER BIT IN THE COMMAND REGISTER
1701 /BY THE "DLAG" IOT.
1702 0703 7301 TST23, CLA CLL IAC
1703 0704 4453 CLRALL /DCLR
1704 0705 1153 TAD REG1
1705 0706 7110 CLL RAR
1706 0707 7630 SZL CLA /USE DATA 5252 IF LINK IS SET
1707 0710 1120 TAD K2525
1708 0711 1120 TAD K2525
1709 0712 0113 AND K7740
1710 0713 3163 DCA GDREG2 /SETUP COMPARE # 1
1711 0714 7004 RAL /LINK FOR EXTENDED BIT
1712 0715 3162 DCA GDREG1 /SETUP COMPARE REGISTER
1713 0716 1162 TAD GDREG1 /GET DATA
1714 0717 4450 LDCMD /LOAD CRC
1715 0720 1163 TAD GDREG2
1716 0721 4452 LDADD /LOAD CRC
1717 0722 4454 RDCRC /READ CRC
1718 0723 4441 ACCMP2 /CHECK RESULTS
1719 0724 4435 NERROR /O.K. 4096 LOOPS
1720 0725 4436 ERROR /ERROR, CRC REGISTER
1721 0726 0703 TST23 /SCOPE LOOP POINTER
1722 0727 6004 6004 /TEXT POINTER
1723
1724 /
1725 /VERIFY THAT THE CRC CAN BE LOADED BY "DLAG"
1726 /AND "DLDC". USE DATA PATTERN ALL COMBINATIONS.
1727 /THIS WILL VERIFY THAT THE CRC CAN BE LOADED
1728 /BY THE EXTENDED CYLINDER BIT IN THE COMMAND REGISTER
1729 /BY THE "DLAG" IOT.
1730 0730 1153 TST24, TAD REG1 /GET AC VALUE
1731 0731 7106 CLL RTL
1732 0732 7006 RTL
1733 0733 7004 RAL
1734 0734 0113 AND K7740

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1735 0735 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1736 0736 7004 RAL /LINK FOR EXTENDED BIT
1737 0737 3162 DCA GDREG1 /SETUP COMPARE REGISTER
1738 0740 1162 TAD GDREG1 /GET DATA
1739 0741 4450 LDCMD /LOAD COMMAND REGISTER
1740 0742 1163 TAD GDREG2
1741 0743 4452 LDADD /LOAD DISK ADDRESS
1742 0744 4454 RDCRC /READ CRC REGISTER
1743 0745 4441 ACCMP2 /CHECK AC, COMPARE TO GDREG1 + GDREG2
1744 0746 4435 NERROR /AC O.K. LOOP 4096
1745 0747 4436 ERROR /ERROR, CRC REGISTER LOAD BY
1746 /DLAG OR DLDC.
1747 0750 0730 TST24 /SCOPE LOOP POINTER
1748 0751 6004 6004 /TEXT POINTER
1749
1750 /
1751 /
1752 /VERIFY THAT DCLR DOES NOT AFFECT CRC REGISTER.
1753 /LOAD CRC WITH DLAG + DLDC.
1754 0752 1154 TST25, TAD REG2
1755 0753 7106 CLL RTL
1756 0754 7006 RTL
1757 0755 7004 RAL
1758 0756 0113 AND K7740
1759 0757 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1760 0760 7004 RAL /LINK FOR EXTENDED BIT
1761 0761 3162 DCA GDREG1 /SETUP COMPARE REGISTER
1762 0762 1162 TAD GDREG1
1763 0763 4450 LDCMD /LOAD COMMAND REGISTER
1764 0764 1163 TAD GDREG2
1765 0765 4452 LDADD /LOAD DISK ADDRESS
1766 0766 1154 TAD REG2
1767 0767 0111 AND K7775 /DON'T DO RECAL.
1768 0770 4453 CLRALL /DCLR "CLR ALL"
1769 0771 4454 RDCRC /READ CRC REGISTER
1770 0772 4441 ACCMP2 /CHECK RESULTS, COMPARE TO GDREG1
1771 /AND GDREG2
1772 0773 4435 NERROR /O.K. 4096 LOOPS
1773 0774 4436 ERROR /ERROR, LOAD, READ, CLEAR CRC
1774 /REGISTER
1775 0775 0752 TST25 /SCOPE LOOP POINTER
1776 0776 6004 6004 /TEXT POINTER
1777
1778 /
1779 /VERIFY THAT THE CRC REGISTER IS NOT AFFECTED BY
1780 /"DLDC", "DSKP", "DRST", "RDBUF", OR "DLCA".
1781 /USE DATA PATTERN 2525 + 5252.
1782 0777 7301 TST26, CLA CLL IAC
1783 1000 4453 CLRALL /DCLR
1784 1001 1153 TAD REG1
1785 1002 7110 CLL RAR
1786 1003 7630 SZL CLA /USE DATA 5252 IF LINK IS SET
1787 1004 1120 TAD K2525
1788 1005 1120 TAD K2525
1789 1006 0113 AND K7740

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1790 1007 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1791 1010 7000 RAL /LINK FOR EXTENDED RII
1792 1011 3162 DCA GDREG1 /SETUP COMPARE REGISTER
1793 1012 1162 TAD GDREG1 /GET UPPER DATA
1794 1013 4450 LDCMD /LOAD COMMAND
1795 1014 1163 TAD GDREG2
1796 1015 4452 LOADD /LOAD DISK ADDRESS
1797 1016 1154 TAD REG2
1798 1017 4442 RDSTAT /READ STATUS
1799 1020 1154 TAD REG2
1800 1021 4447 DSKSKP /"DSKP"
1801 1022 7000 NOP
1802 1023 4456 RDBUF /READ BUFFER
1803 1024 1154 TAD REG2
1804 1025 4451 LDCUR /LOAD CURRENT ADDRESS
1805 1026 1154 TAD REG2
1806 1027 4450 LDCMD /LOAD COMMAND
1807 1030 1153 TAD REG1
1808 1031 4427 LDBUF /LOAD UPPER BUFFER
1809 1032 4454 RDCRC /READ CRC REGISTER
1810 1033 4441 ACCMP2 /CHECK RESULTS
1811 1034 4435 NERROR /O.K. 4096 LOOPS
1812 1035 4436 ERROR /ERROR, CRC REGISTER
1813 1036 0777 TST26 /SCOPE LOOP POINTER
1814 1037 6004 /TEXT POINTER
1815
1816 /VERIFY THAT WRITE LOCK INHIBITS LOAD ADDRESS
1817 /WHEN IT IS SET.
1818
1819 1040 7301 TST27, CLA CLL IAC
1820 1041 4453 CLRALL /CLEAR CONTROL
1821 1042 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1822 1043 1153 TAD REG1 /GET AC VALUE
1823 1044 4452 LOADD /LOAD DISK ADDRESS
1824 1045 1104 TAD K2000
1825 1046 4450 LDCMD /SET WRITE LOCK
1826 1047 1154 TAD REG2 /GET AC VALUE
1827 1050 4452 LOADD /TRY TO LOAD DISK ADDRESS
1828 1051 4446 RDADD /READ DISK ADDRESS
1829 1052 4440 ACCMP1 /CHECK RESULTS
1830 1053 4435 NERROR /O.K. 4096 LOOPS
1831 1054 4436 ERROR /ERROR LOAD DISK ADDRESS
1832 1055 1040 TST27 /SCOPE LOOP POINTER
1833 1056 4102 4102 /TEXT POINTER
1834
1835 /VERIFY THAT THE DISK ADDRESS REGISTER IS NOT
1836 /AFFECTED BY "DCLR", "DLCA", "DRST", "DLDC", "DSKP"
1837 /OR "RDBUF". USE DATA PATTERN ALL COMBINATIONS.
1838
1839 1057 1153 TST28, TAD REG1 /GET AC VALUE
1840 1060 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1841 1061 1153 TAD REG1
1842 1062 4452 LOADD /LOAD DISK ADDRESS
1843 1063 1154 TAD REG2
1844 1064 0127 AND K5777 /MASK OUT WRITE LOCK

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1845 1065 4450 LDCMD /LOAD COMMAND REGISTER
1846 1066 1154 TAD REG2 /LOAD CURRENT ADDRESS
1847 1067 4451 LDCUR /LOAD CURRENT ADDRESS
1848 1070 1154 TAD REG2
1849 1071 4447 DSKSKP /"DSKP"
1850 1072 7000 NOP
1851 1073 4442 RDSTAT /READ STATUS
1852 1074 1154 TAD REG2
1853 1075 4427 LDBUF /LOAD BUFFERS
1854 1076 4456 RDBUF /READ LOWER BUFFER
1855 1077 7300 CLA CLL
1856 1100 4453 CLRALL /CLEAR STATUS
1857 1101 4446 RDADD /READ DISK ADDRESS
1858 1102 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1859 1103 4435 NERROR /AC O.K. 4096 LOOPS
1860 1104 4436 ERROR /ERROR, DISK ADDRESS AFFECTED
1861 1105 1057 TST28 /SCOPE LOOP POINTED
1862 1106 4102 4102 /TEXT POINTER
1863
1864 /VERIFY THAT THE COMMAND REGISTER IS NOT AFFECTED BY
1865 /"DCLR", "DLCA", "DRST", "DLDC", "DSKP", OR "RDBUF".
1866 /USE DATA PATTERN ALL COMBINATIONS.
1867
1868 1107 7301 TST29, CLA CLL IAC
1869 1110 4453 CLRALL /CLEAR CONTROL
1870 1111 1153 TAD REG1 /GET AC VALUE
1871 1112 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1872 1113 1153 TAD REG1
1873 1114 4450 LDCMD /LOAD COMMAND REGISTER
1874 1115 1154 TAD REG2
1875 1116 4452 LOADD /LOAD DISK ADDRESS
1876 1117 1154 TAD REG2
1877 1120 4451 LDCUR /LOAD CURRENT ADDRESS
1878 1121 1154 TAD REG2
1879 1122 4447 DSKSKP /"DSKP"
1880 1123 7000 NOP
1881 1124 4442 RDSTAT /READ STATUS
1882 1125 1154 TAD REG2
1883 1126 4427 LDBUF /LOAD UPPER BUFFER
1884 1127 4456 RDBUF /READ LOWER BUFFER
1885 1130 7300 CLA CLL
1886 1131 4453 CLRALL /CLEAR STATUS
1887 1132 7326 CLA CLL CML RTL
1888 1133 4453 CLRALL /RECALIBRATE
1889 1134 4443 RDCMD /READ COMMAND REGISTER
1890 1135 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1891 1136 4435 NERROR /AC O.K. 4096 LOOPS
1892 1137 4436 ERROR /ERROR, COMMAND REGISTER
1893 1140 1107 TST29 /SCOPE LOOP POINTER
1894 1141 4201 4201 /TEXT POINTER
1895
1896 /VERIFY THAT RECALIBRATE INHIBITS LOAD COMMAND
1897 /
1898 1142 7301 TST30, CLA CLL IAC /ENABLE CLEAR CONTROL
1899 1143 4453 CLRALL /CLEAR CONTROL

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1900 1144 4444 ENMAN1 /ENTER MAINTENANCE
1901 1145 7326 CLA CLL CML RTL /ENABLE RECALIBRATE
1902 1146 4453 CLRALL /RECALIBRATE
1903 1147 7326 CLA CLL CML RTL /ENABLE RECALIBRATE
1904 1150 4453 CLRALL /RECALIBRATE
1905 1151 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1906 1152 1153 TAD REG1
1907 1153 4450 LDCMD /TRY TO LOAD COMMAND
1908 1154 4443 RDCMD /READ COMMAND
1909 1155 4440 ACCMP1 /CHECK RESULTS
1910 1156 4435 NERROR /O.K., 4096 LOOPS
1911 1157 4436 ERROP /ERROR, IDLE (1)
1912 1160 1142 TST30 /SCOPE LOOP POINTER
1913 1161 4201 /TEXT POINTER
1914
1915 /VERIFY THAT RECALIBRATE INHIBITS
1916 /LOAD DISK ADDRESS DLAG
1917
1918 1162 7301 TST31, CLA CLL IAC /ENABLE CLEAR CONTROL
1919 1163 4453 CLRALL /CLEAR CONTROL
1920 1164 4444 ENMAN1 /ENTER MAINTENANCE
1921 1165 1153 TAD REG1 /GET AC VALUE
1922 1166 3163 DCA GDREG2 /SETUP COMPARE
1923 1167 1163 TAD GDREG2
1924 1170 4452 LDADD /LOAD DISK ADDRESS (DLAG)
1925 1171 7326 CLA CLL CML RTL /ENABLE RECAL.
1926 1172 4453 CLRALL /RECALIBRATE
1927 1173 1154 TAD REG2
1928 1174 4452 LDADD /LOAD DISK ADDRESS (DLAG)
1929 1175 4446 RDAOD /READ DISK ADDRESS
1930 1176 4440 ACCMP1 /CHECK RESULTS
1931 1177 4435 NERROR /O.K., 4096 LOOPS
1932 1200 4436 ERROR /ERROR ON INHIBIT
1933 1201 1162 TST31 /SCOPE POINTER
1934 1202 4102 /TEXT POINTER
1935
1936 /VERIFY THAT "DMAN" (MAINTENANCE) DOES NOT
1937 /AFFECT AC WHEN AC0=0 AND AC7=1 OR 0.
1938
1939 1203 7301 TST32, CLA CLL IAC /CLEAR ENABLE BIT
1940 1204 4453 CLRALL /DCLR "CLR ALL"
1941 1205 1153 TAD REG1
1942 1206 0122 AND K3737 /MASK OUT 0
1943 1207 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1944 1210 1163 TAD GDREG2
1945 1211 4455 LDMAN /LOAD MAINTENANCE "DMAN"
1946 1212 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1947 1213 4435 NERROR /AC O.K., 4096 LOOPS
1948 1214 4436 ERROP /ERROR, "DMAN" AFFECTED AC
1949 1215 1203 TST32 /SCOPE LOOP POINTER
1950 1216 4010 /TEXT POINTER
1951
1952 /VERIFY THAT "DMAN" DOES NOT AFFECT AC WHEN
1953 /AC7=0 AND AC0=1 OR 0.
1954

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1955 1217 7301 TST33, CLA CLL IAC /CLEAR ENABLE BIT
1956 1220 4453 CLRALL /DCLR "CLR ALL"
1957 1221 1153 TAD REG1 /GET AC VALUE
1958 1222 0123 AND K7717 /MASK OUT BIT 7
1959 1223 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1960 1224 1163 TAD GDREG2
1961 1225 4455 LDMAN /LOAD MAINTENANCE
1962 1226 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
1963 1227 4435 NERROR /AC O.K., 4096 LOOPS
1964 1230 4436 ERROR /ERROR, DMAN AFFECT AC
1965 1231 1217 TST33 /SCOPE LOOP POINTER
1966 1232 4010 /TEXT POINTER
1967
1968 /VERIFY THAT "DMAN" ONLY GETS CLEARED BY
1969 /DCLR NOT BY ANOTHER DMAN.
1970
1971 1233 7301 TST34, CLA CLL IAC /CLEAR ENABLE BIT
1972 1234 4453 CLRALL /DCLR "CLR ALL"
1973 1235 1153 TAD REG1
1974 1236 3163 DCA GDREG2 /SETUP COMPARE REGISTER
1975 1237 1153 TAD REG1
1976 1240 4450 LDCMD /LOAD COMMAND REGISTER
1977 1241 1136 TAD M12 /NO. OF SHIFTS
1978 1242 3156 DCA TCNTR1 /STORE IN COUNTER
1979 1243 4445 ENMAN2 /ENTER MAINTENANCE MODE + DB4=1
1980 1244 1102 TAD K0400 /GET ENABLE COMMAND REG.
1981 1245 4455 LDMAN /LOAD MAINTENANCE
1982 1246 2156 ISZ TCNTR1 /COUNT + SHIFT 12
1983 1247 5245 JMP *-2
1984 1250 7300 CLA CLL
1985 1251 4455 LDMAN /"DMAN" TRY TO CLEAR MAIN FLOP
1986 1252 1074 TAD K0020 /ENABLE BIT FOR READ BUFFER
1987 1253 4455 LDMAN /READ BUFFER
1988 1254 3167 DCA DBREG /SAVE FOR PRINTER
1989 1255 1167 TAD DBREG
1990 1256 4440 ACCMP1 /CHECK AC
1991 1257 4435 NERROR /AC O.K., 4096 LOOPS
1992 1260 4436 ERROR /ERROR, MAIN FLIP FLOP
1993 1261 1233 TST34 /SCOPE LOOP POINTER
1994 1262 4405
1995
1996 /VERIFY THAT "DMAN" GETS CLEARED BY DCLR
1997 /"CLR ALL"
1998
1999
2000 1263 7301 TST35, CLA CLL IAC /CLEAR "CLR ALL"
2001 1264 4453 CLRALL /DCLR "CLR ALL"
2002 1265 1074 TAD K0020
2003 1266 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2004 1267 1153 TAD REG1
2005 1270 4450 LDCMD /LOAD COMMAND REGISTER
2006 1271 1136 TAD M12
2007 1272 3156 DCA TCNTR1 /SHIFT 12 COUNTER
2008 1273 4445 ENMAN2 /ENTER MAINTENANCE MODE + DB4=1
2009 1274 1102 TAD K0400

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2010 1275 4455 LDMAN /LOAD MAINTENANCE "DMAN"
2011 1276 2156 ISZ TCNTR1
2012 1277 5275 JMP .-2 /12 COUNT
2013 1300 7301 CLA CLL IAC
2014 1301 4453 CLRALL /CLEAR ALL "DCLR"
2015 1302 1074 TAD K0020
2016 1303 4455 LDMAN /LOAD MAINTENANCE
2017 1304 4440 ACCMP1 /CHECK AC, COMPARE TO GOREG2
2018 1305 4435 NERROR /AC O.K. 4096 LOOPS
2019 1306 4436 ERROR /ERROR, DMAN AFFECTED AC
2020 1307 1263 TST35 /SCOPE LOOP POINTER
2021 1310 4010 4010 /TEXT POINTER
2022 /
2023 /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO
2024 /CRC REGISTER, THEN READ CRC REGISTER.
2025 /TRY ALL 1'S AND ALL 0'S.
2026 /
2027 1311 7301 TST36, CLA CLL IAC
2028 1312 4453 CLRALL /DCLR "CLP ALL"
2029 1313 1153 TAD RFG1
2030 1314 7110 CLL RAR
2031 1315 7630 SZL CLA /SKIP IF ALL 0'S DATA
2032 1316 7340 CLA CLL CMA /ALL ONE'S DATA
2033 1317 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2034 1320 1163 TAD GDREG2
2035 1321 0145 AND K0017
2036 1322 3162 DCA GDREG4 /SETUP COMPARE REGISTER
2037 1323 1137 TAD M16
2038 1324 3156 DCA TCNTR1 /SHIFTER FOR CRC
2039 1325 4444 ENMAN1 /ENTER MAINTENANCE MODE
2040 1326 1153 TAD REG1
2041 1327 7104 CLL RAL
2042 1330 0066 AND K0002
2043 1331 1103 TAD K1000 /ENABLE BITS
2044 1332 4455 LDMAN /LOAD MAINTENANCE
2045 1333 2156 ISZ TCNTR1
2046 1334 5332 JMP .-2 /16 COUNT
2047 1335 4454 RDCRC /READ CRC REGISTER
2048 1336 4441 ACCMP2 /COMPARE RESULTS
2049 1337 4435 NERROR /AC O.K. 4096 LOOPS
2050 1340 4436 ERROR /ERROR, CRC REGISTER
2051 1341 1311 TST36 /SCOPE LOOP POINTER
2052 1342 6004 6004 /TEXT POINTER
2053 /
2054 /
2055 /VERIFY THAT "AC 10 DATA" CAN BE SHIFTED TO
2056 /CRC REGISTER, THEN READ CRC REGISTER.
2057 /TRY PATTERN "125252"
2058 /
2059 /
2060 /
2061 /
2062 /
2063 /
2064 /

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2065 /
2066 /
2067 /
2068 /
2069 1343 7301 TST37, CLA CLL IAC
2070 1344 4453 CLRALL /DCLR "CLR ALL"
2071 1345 1121 TAD K5252
2072 1346 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2073 1347 1163 TAD GDREG2

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2074 1350 0145 AND K0017
2075 1351 3162 DCA GDREG1 /SETUP COMPARE REGISTER
2076 1352 1137 TAD M16
2077 1353 3156 DCA TCNTR1 /SETUP 16 COUNT
2078 1354 4444 ENMAN1 /ENTER MAINTENANCE MODE
2079 1355 7300 T37R, CLA CLL
2080 1356 1156 TAD TCNTR1
2081 1357 7004 RAL
2082 1360 0066 AND K0002 /SETUP DATA BIT
2083 1361 1103 TAD K1000 /ENABLE BITS
2084 1362 4455 LDMAN /LOAD MAINTENANCE
2085 1363 2156 ISZ TCNTR1
2086 1364 5355 JMP T37R /16 COUNT
2087 1365 4454 RDCRC /READ CRC REGISTER
2088 1366 4441 ACCMP2 /CHECK RESULTS
2089
2090 1367 4435 NEPROR /AC O.K. 4096 LOOPS
2091 1370 4436 ERROR /ERROR, CRC REGISTER
2092 1371 1343 TST37 /SCOPE LOOP POINTER
2093 1372 6004 6004 /TEXT POINTER
2094
2095 1373 5774 /
2096 1374 1400 JMP I ,+1 /TO NEXT TEST
2097 TST38
2098 /
2099 PAGE
2100 /
2101 /VERIFY THAT "AC10 DATA" CAN BE SHIFTED
2102 /TO CRC REGISTER, THEN READ CRC REGISTER.
2103
2104
2105
2106 /TRY PATTEN "052525"
2107 /
2108 1400 7301 TST38, CLA CLL IAC
2109 1401 4453 CLRALL /CLEAR ALL "DCRL"
2110 1402 1120 TAD K2525
2111 1403 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2112 1404 1163 TAD GDREG2
2113 1405 0145 AND K0017
2114 1406 3162 DCA GDREG1 /SETUP COMPARE REGISTER
2115 1407 1137 TAD M16
2116 1410 3156 DCA TCNTR1 /16 COUNTER SHIFTER
2117 1411 4444 ENMAN1 /ENTER MAINTENANCE MODE
2118 1412 7300 T38R, CLA CLL
2119 1413 1156 TAD TCNTR1
2120 1414 7044 CMA RAL
2121 1415 0066 AND K0002 /SETUP "AC 10 DATA"
2122 1416 1103 TAD K1000 /ENABLE BITS
2123 1417 4455 LDMAN /LOAD MAINTENANCE
2124 1420 2156 ISZ TCNTR1
2125 1421 5212 JMP T38R /16 COUNT
2126 1422 4454 RDCRC /READ CRC REGISTER
2127 1423 4441 ACCMP2 /CHECK RESULTS
2128 1424 4435 NEPROR /O.K. 4096 LOOPS

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SEQ 0064

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/ PAL10 V142A 7-MAR-77 13155 PAGE 5-1
2129 1425 4436 ERKOR /ERROR, CRC REGISTER
2130 1426 1400 TST38 /SCOPE LOOP POINTER
2131 1427 6004 6004 /TEXT POINTER
2132 /
2133 /
2134 /
2135 /
2136 /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO CRC
2137 /REGISTER, TRY ALL COMBINATIONS.
2138 /
2139 1430 7301 TST39, CLA CLL IAC
2140 1431 4453 CLRALL /CLR "CLR ALL"
2141 1432 1153 TAD REG1
2142 1433 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2143 1434 1153 TAD REG1
2144 1435 0145 AND K0017
2145 1436 3162 DCA GDREG1 /SETUP COMPARE REGISTER
2146 1437 7301 CLA CLL IAC
2147 1440 3156 DCA TCNTR1 /SETUP BIT MASKER
2148 1441 1137 TAD M16
2149 1442 3157 DCA TCNTR2 /SETUP FIRST SHIFT COUNTER
2150 1443 4444 ENMAN1 /ENTER MAINTENANCE MODE
2151 1444 1153 T39R, TAD REG1
2152 1445 0156 AND TCNTR1
2153 1446 7640 SZA CLA /SKIP IF 0
2154 1447 1066 TAD K0002 /WAS 1
2155 1450 1103 TAD K1000 /ENABLE BITS
2156 1451 4455 LDMAN /LOAD MAINTENANCE
2157 1452 7300 CLA CLL
2158 1453 1156 TAD TCNTR1
2159 1454 7004 RAL /ROTATE BIT MASKER
2160 1455 3156 DCA TCNTR1
2161 1456 7630 SZL CLA /WAIT FOR FIRST LINK THEN
2162 1457 5254 JMP ,=3 /RESET BIT 11 IN MASKER
2163 1460 2157 ISZ TCNTR2
2164 1461 5244 JMP T39R /LOOP BACK
2165 1462 4454 RDCRC /READ CRC REGISTER
2166 1463 4441 ACCMP2 /CHECK RESULTS
2167 1464 4435 NEPROR /O.K. 4096 LOOPS
2168 1465 4436 ERROR /ERROR, CRC REGISTER
2169 1466 1430 TST39 /ERROR, CRC REGISTER
2170 1467 6004 6004 /TEXT POINTER
2171 /
2172 /VERIFY THAT "DLAG" CLEARS ALL OF THE
2173 /CRC REGISTER, TRY ALL COMBINATIONS IN CRC.
2174 /
2175 1470 7301 TST40, CLA CLL IAC
2176 1471 4453 CLRALL /CLR "CLR ALL"
2177 1472 3163 DCA GDREG2 /SETUP COMPARE REGISTERS
2178 1473 3162 DCA GDREG1
2179 1474 7301 CLA CLL IAC
2180 1475 3156 DCA TCNTR1 /SETUP BIT MASKER
2181 1476 1137 TAD M16
2182 1477 3157 DCA TCNTR2 /SETUP FIRST SHIFT COUNTER
2193 1500 4444 ENMAN1 /ENTER MAINTENANCE MODE

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SEQ 0065

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2184 1501 1154 T40R, TAD REG2
2185 1502 0156 AND TCNTR1
2186 1503 7640 SZA CLA /SKIP IF 0
2187 1504 1066 TAD K0002 /WAS A 1
2188 1505 1101 TAD K1000 /ENABLE BITS
2189 1506 4455 LDHAN /LOAD MAINTENANCE
2190 1507 7300 CLA CLL
2191 1510 1156 TAD TCNTR1
2192 1511 7004 PAL /ROTATE BIT MASKER
2193 1512 3156 DCA TCNTR1
2194 1513 7630 SZL CLA /WAIT FOR FIRST LINK THEN
2195 1514 5311 JMP ,=3 /RESET BIT 11 IN MASKER
2196 1515 2157 ISZ TCNTR2
2197 1516 5301 JMP T40R /LOOP BACK
2198 1517 4452 LOADD /LOAD DISK ADDRESS AND CLEAR CRC
2199 1520 4454 RDCRC /READ CRC REGISTER
2200 1521 4441 ACCMP2 /CHECK RESULTS
2201 1522 4435 NERROR /O.K. 4096 LOOPS
2202 1523 4436 EPROP /ERROR, CRC REGISTER
2203 1524 1470 TST40 /ERROR, CRC REGISTER
2204 1525 6004 6004 /TEXT POINTER
2205 /
2206 /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO
2207 /UPPER DATA BUFFER THEN SINK TO LOWER DATA
2208 /BUFFER, TRY ALL 1'S AND 0'S.
2209 /
2210 1526 7301 TST41, CLA CLL IAC
2211 1527 4453 CLRALL /"DCLR" "CLR ALL"
2212 /
2213 1530 1153 TAD REG1
2214 1531 7110 CLL RAR
2215 1532 7630 SZL CLA
2216 1533 7240 CLA CMA
2217 1534 3163 DCA GDREG2
2218 1535 1163 TAD GDREG2
2219 1536 4427 LDBUF /GET VALUE TO LOAD
2220 1537 4456 RDBUF /LOAD UPPER BUFFER
2221 1540 4440 ACCMP1 /READ LOWER BUFFER
2222 1541 4435 NERROR /CHECK AC, COMPARE TO GDREG2
2223 1542 4436 ERROR /AC O.K. 4096 LOOPS
2224 1543 1526 TST41 /ERROR, DATA REGISTERS
2225 1544 4405 4405 /SCOPE LOOP POINTER
2226 /TEXT POINTER
2227 /
2228 /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO
2229 /UPPER DATA BUFFER THEN SINK TO LOWER DATA
2230 /BUFFER, TRY PATTERN 2525 + 5252
2231 /
2232 1545 7301 TST42, CLA CLL IAC
2233 1546 4453 CLRALL /"DCLR" "CLR ALL"
2234 1547 1153 TAD REG1
2235 1548 7110 CLL RAR
2236 1549 7630 SZL CLA /WHAT DATA????
2237 1550 1120 TAD K2525 /DATA 5252
2238 1551 1120 TAD K2525
2239 1552 3163 DCA GDREG2 /SETUP COMPARE REGISTER

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2239 1555 1163 TAD GDREG2 /GET VALUE TO LOAD
2240 1556 4427 LDBUF /LOAD UPPER BUFFER
2241 1557 4456 RDBUF /READ LOWER DATA BUFFER
2242 1560 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
2243 1561 4435 NERROR /AC O.K. 4096 LOOPS
2244 1562 4436 ERROR /ERROR, DATA BUFFERS
2245 1563 1545 TST42 /SCOPE LOOP POINTER
2246 1564 4405 4405 /TEXT POINTER
2247 /
2248 /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO
2249 /UPPER DATA BUFFER THEN SINK TO LOWER
2250 /DATA BUFFER, TRY PATTERN ALL COMBINATIONS
2251 /
2252 /
2253 1565 7301 TST43, CLA CLL IAC
2254 1566 4453 CLRALL /"DCLR" "CLR ALL"
2255 1567 1154 TAD REG2 /GET VALUE TO LOAD
2256 1568 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2257 1571 1163 TAD GDREG2 /GET IT
2258 1572 4427 LDBUF /LOAD UPPER BUFFER
2259 1573 4456 RDBUF /READ LOWER DATA BUFFER
2260 1574 4440 ACCMP1 /CHECK AC
2261 1575 4435 NERROR /AC O.K. 4096 LOOPS
2262 1576 4436 ERROR /ERROR, DATA REGISTERS
2263 1577 1565 TST43 /SCOPE LOOP POINTER
2264 1600 4405 4405 /TEXT POINTER
2265 /
2266 /VERIFY THAT "AC10 DATA" CAN BE SHIFTED
2267 /TO UPPER DATA BUFFER THEN SINK TO LOWER
2268 /DATA BUFFER, TRY ALL COMBINATIONS.
2269 /
2270 /
2271 1601 7301 TST44, CLA CLL IAC
2272 1602 4453 CLRALL
2273 1603 1153 TAD REG1
2274 1604 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2275 1605 1153 TAD REG1 /GET VALUE TO LOAD
2276 1606 4427 LDBUF /LOAD UPPER BUFFER
2277 1607 4456 RDBUF /READ DATA BUFFER
2278 1610 4440 ACCMP1 /CHECK AC, COMPARE TO GDREG2
2279 1611 4435 NERROR /AC O.K. 4096 LOOPS
2280 1612 4436 ERROR /ERROR, DATA REGISTERS
2281 1613 1601 TST44 /SCOPE LOOP POINTER
2282 1614 4405 4405 /TEXT POINTER
2283 /
2284 /VERIFY THAT ALL DATA BUFFERS CAN BE FULL
2285 /AT ONCE, TRY ALL COMBINATIONS
2286 /
2287 1615 7301 TST45, CLA CLL IAC
2288 1616 4453 CLRALL /"DCLR" "CLR ALL"
2289 1617 1153 TAD REG1
2290 1620 3161 DCA TCNTR4
2291 1621 1133 TAD M4
2292 1622 3160 DCA TCNTR3 /COUNTED FOR # OF BUFFERS
2293 1623 1161 T45R1, TAD TCNTR4
2294 1624 4427 LDBUF /LOAD UPPER BUFFER

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2294 1625 7301 CLA CLL IAC
2295 1626 1161 TAD TCNTR4
2296 1627 3161 DCA TCNTR4
2297 1630 2160 ISZ TCNTR3
2298 1631 5223 JMP T45R1 /4 COUNT, SKIP WHEN BUFFERS FULL
2299 1632 1153 TAD REG1
2300 1633 3163 DCA GDREG2 /SETUP FOR FIRST CMPARE
2301 1634 1131 TAD M4
2302 1635 3160 DCA TCNTR3
2303 1636 4456 T45R3, RDBUF /READ BUFFER
2304 1637 4440 ACCMP1 /CHECK
2305 1640 7610 SKP CLA /O.K, CHECK NEXT
2306 1641 5247 JMP T45E /ERROR DATA BUFFERS
2307 1642 2163 ISZ GDREG2
2308 1643 7000 NOP
2309 1644 2160 ISZ TCNTR1
2310 1645 5236 JMP T45R3
2311 1646 4435 NERROR
2312 1647 4436 T45E, ERROR /O.K, 4096 LOOPS
2313 1650 1615 TST45 /ERROR, DATA BUFFERS
2314 1651 4405 /SCOPE LOOP POINTER
2315 /TEXT POINTER
2316 /
2317 /VERIFY THAT THE SILO BUFFERS ARE NOT AFFECTED BY
2318 /"DCLR", "DLCL", "DLDC", "DLCA", "DSKP", OR "DRST" IOTS.
2319 /USE DATA PATTERN ALL COMBINATIONS
2320 /
2320 1652 7301 TST46, CLA CLL IAC
2321 1653 4453 CLRALL
2322 1654 1154 TAD REG2 /DCLR
2323 1655 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2324 1656 1133 TAD M4
2325 1657 3156 DCA TCNTR1 /COUNTER FOR AMOUNT OF BUFFERS
2326 1660 1163 TAD GDREG2 /GET VALUE TO LOAD
2327 1661 4427 LDBUF /LOAD UPPER BUFFER
2328 1662 2156 ISZ TCNTR1 /COUNT AMOUNT
2329 1663 5260 JMP T46A1 /MORE TO LOAD
2330 1664 1151 TAD REG1
2331 1665 4452 LDADD /LOAD DISK ADDRESS
2332 1666 1153 TAD REG1
2333 1667 4451 LDCUR /LOAD CURRENT ADDRESS
2334 1670 1153 TAD REG1
2335 1671 0105 AND K1777 /MASK OFF WRITE
2336 1672 4450 LDCMD /LOAD COMMAND REGISTER
2337 1673 1153 TAD REG1
2338 1674 4447 DSKSKP /DSKP
2339 1675 7000 NOP
2340 1676 4442 RDSTAT /READ STATUS
2341 1677 7300 CLA CLL
2342 1700 4453 CLRALL /CLEAR STATUS
2343 1701 1133 TAD M4
2344 1702 3156 DCA TCNTR1 /SETUP COUNTER
2345 1703 7300 T46A2, CLA CLL
2346 1704 1074 TAD K0020 /ENABLE READ BUFFER
2347 1705 4455 LDMAN /DMAN
2348 1706 3167 DCA DBREG /SAVE RESULTS

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2349 1707 1167 TAD DBREG
2350 1710 4440 ACCMP1 /CHECK RESULTS
2351 1711 7610 SKP CLA /DATA O.K.
2352 1712 5316 JMP T46E /ERROR
2353 1713 2156 ISZ TCNTR1 /READ ALL FOUR
2354 1714 5303 JMP T46A2 /LOOP
2355 1715 4435 NERROR /O.K, 4096 LOOPS
2356 1716 4436 T46E, ERROR /ERROR, BUFFER AFFECTED
2357 1717 1652 TST46 /SCOPE LOOP POINTER
2358 1720 4405 4405 /TEXT POINTER
2359 /
2360 /VERIFY THAT THE UPPER BUFFER CAN BE LOADED
2361 /THEN SINK TO LOWER BUFFER, USE A FLOATING
2362 /1'S PATTERN.
2363 /
2364 1721 3156 DCA TCNTR1 /START AT 0
2365 1722 7301 TST47, CLA CLL IAC /ENABLE CLEAR CONTROL
2366 1723 4453 CLRALL /CLEAR CONTROL
2367 1724 1156 TAD TCNTR1 /GET VALUE TO LOAD
2368 1725 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2369 1726 1156 TAD TCNTR1 /GET VALUE TO LOAD
2370 1727 4427 LDBUF /LOAD UPPER BUFFER
2371 1730 4456 RDBUF /READ LOWER BUFFER
2372 1731 4440 ACCMP1 /CHECK RESULTS
2373 1732 7610 SKP CLA /DATA O.K.
2374 1733 5342 JMP T47E /ERROR
2375 1734 1156 TAD TCNTR1
2376 1735 7104 CLL RAL
2377 1736 7450 SNA
2378 1737 7001 IAC
2379 1740 3156 DCA TCNTR1 /SET ONE TO LEFT
2380 1741 4435 NERROR /LOOP 4096 TIMES
2381 1742 4436 T47E, ERROR /ERROR SILO BUFFERS
2382 1743 1722 TST47 /SCOPE LOOP POINTER
2383 1744 4405 4405 /TEXT POINTER
2384 /
2385 /VERIFY THAT THE UPPER BUFFER CAN BE LOADED
2386 /THEN SINK TO LOWER BUFFER, USE A FLOATING
2387 /0'S PATTERN.
2388 /
2389 1745 3156 DCA TCNTR1 /START AT 7777
2390 1746 7301 TST48, CLA CLL IAC /ENABLE CLEAR CONTROL
2391 1747 4453 CLRALL /CLEAR CONTROL
2392 1750 1156 TAD TCNTR1 /GET VALUE TO LOAD
2393 1751 7040 CMA /INVERT FOR 0'S
2394 1752 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2395 1753 1163 TAD GDREG2 /GET VALUE TO LOAD
2396 1754 4427 LDBUF /LOAD UPPER BUFFER
2397 1755 4456 RDBUF /READ LOWER BUFFER
2398 1756 4440 ACCMP1 /CHECK RESULTS
2399 1757 7610 SKP CLA /DATA O.K.
2400 1760 5367 JMP T48E /ERROR
2401 1761 1156 TAD TCNTR1
2402 1762 7104 CLL RAL
2403 1763 7450 SNA

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2404 1764 7001 IAC
2405 1765 3156 DCA TCNTR1 /SET ONE TO LEFT
2406 1766 4435 NFRPRR /LOOP 4096 TIMES
2407 1767 4436 ERROR /ERROR SLO BUFFERS
2408 1770 1746 TST48 /SCOPE LOOP POINTER
2409 1771 4405 4405 /TEXT POINTER
2410
2411 1772 5773 / JMP I .+1 /TO NEXT TEST
2412 1773 2000 TST49
2413
2414 2000 PAGE
2415 /
2416 /VERIFY THAT "DRL" OCCURES WHEN BUFFER
2417 /EMPTY.
2418 /
2419 2000 7301 TST49, CLA CLL IAC
2420 2001 4453 CLRALL /"DCLR" CLEAR ALL
2421 2002 1177 TAD STCON /GET EXPECTED BITS
2422 2003 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2423 2004 1153 TAD REG1
2424 2005 4442 RDSTAT /READ STATUS REGISTER
2425 2006 4440 ACCMP1 /CHECK RESULTS
2426 2007 7610 SKP CLA /O.K.
2427 2010 5232 JMP T49E /ERROR, STATUS REGISTER
2428 2011 1177 TAD STCON
2429 2012 1070 TAD K0004 /GET EXPECTED BITS
2430 2013 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2431 2014 4444 ENMAN1 /ENTER MAINTENANCE MODE
2432 2015 1103 TAD K1000
2433 2016 4455 LDMAN /LOAD MAINTENANCE
2434 2017 7740 CLA CMA
2435 2020 4442 RDSTAT /READ STATUS REGISTER
2436 2021 4440 ACCMP1 /CHECK RESULTS
2437 2022 7610 SKP CLA /O.K.
2438 2023 5232 JMP T49E /ERROR, STATUS REGISTER
2439 2024 1177 TAD STCON
2440 2025 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2441 2026 4453 CLRALL /DCLR "CLR ALL"
2442 2027 4442 RDSTAT /READ STATUS REGISTER
2443 2030 4440 ACCMP1 /CHECK RESULTS
2444 2031 4435 NFRPRR /STATUS O.K., 4096 LOOPS
2445 2032 4436 ERROR /ERROR, STATUS REGISTER
2446 2033 2000 TST49 /SCOPE LOOP POINTER
2447 2034 5000 5000 /TEXT POINTER
2448
2449 /
2450 /VERIFY THAT BUFFER FULL CAUSES "DRL".
2451 /
2451 2035 7301 TST50, CLA CLL IAC
2452 2036 4453 CLRALL /DCLR "CLR ALL"
2453 2037 1177 TAD STCON
2454 2040 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2455 2041 1154 TAD REG2
2456 2042 4442 RDSTAT /READ STATUS REGISTER
2457 2043 4440 ACCMP1 /CHECK RESULTS
2458 2044 7610 SKP CLA /O.K.

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2459 2045 5274 JMP T50E /ERROR, STATUS REGISTER
2460 2046 1140 TAD M48
2461 2047 3156 DCA TCNTR1 /48 COUNTER
2462 2050 4444 ENMAN1 /ENTER MAINTENANCE MODE
2463 2051 1077 TAD K0100 /ENABLE BITS
2464 2052 4455 LDMAN /LOAD MAINTENANCE
2465 2053 2156 ISZ TCNTR1
2466 2054 5252 JMP .-2 /SKIP WHEN BUFFERS ARE FULL
2467 2055 7300 CLA CLL
2468 2056 4442 RDSTAT /READ STATUS REGISTER
2469 2057 4440 ACCMP1 /CHECK RESULTS
2470 2060 7610 SKP CLA
2471 2061 5274 JMP T50E /ERROR, STATUS REGISTER
2472 2062 1077 TAD K0100
2473 2063 4455 LDMAN /CAUSE "DRL" DMAN
2474 2064 7300 CLA CLL
2475 2065 1177 TAD STCON
2476 2066 1070 TAD K0004 /BIT EXPECTED
2477 2067 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2478
2479 2070 1153 TAD REG1
2480 2071 4442 RDSTAT /READ STATUS REGISTER
2481 2072 4440 ACCMP1 /CHECK RESULTS
2482 2073 4435 NFRPRR /STATUS O.K., 4096 LOOPS
2483 2074 4436 ERROR /ERROR, STATUS REGISTER
2484 2075 2035 TST50 /SCOPE LOOP POINTER
2485 2076 5000 5000 /TEXT POINTER
2486
2487 /
2488 /VERIFY THAT "DSKP" SKIPS ON "DPL" ERROR
2489 /
2489 2077 7301 TST51, CLA CLL IAC
2490 2100 4453 CLRALL /DCLR "CLR ALL"
2491 2101 4444 ENMAN1 /ENTER MAINTENANCE MODE
2492 2102 1103 TAD K1000
2493 2103 4455 LDMAN /SET "DRL" "DMAN"
2494 2104 7300 CLA CLL
2495 2105 4447 DSKSKP /"DSKP"
2496 2106 5314 JMP T51E /ERROR, "DSKP"
2497 2107 4447 DSKSKP /"DSKP"
2498 2110 5314 JMP T51E /ERROR, "DSKP"
2499 2111 4453 CLRALL /CLEAR STATUS "DCLR"
2500 2112 4447 DSKSKP /"DSKP" SKIP
2501 2113 4435 NFRPRR /SKIP O.K., 4096 LOOPS
2502 2114 4436 ERROR /ERROR, "DSKP" SKIP ON "DRL"
2503 2115 2077 TST51 /SCOPE LOOP POINTER
2504 2116 0006 0006 /TEXT POINTER
2505
2506 /
2507 /VERIFY THAT "DRL" DOES CAUSE DISK "INTERRUPT" IF
2508 /ENABLED BY "ENABLE INTERRUPT" BIT IN COMMAND REGISTER.
2509 /
2509 2117 7301 TST52, CLA CLL IAC
2510 2120 4453 CLRALL /"DCLR" "CLR ALL"
2511 2121 1102 TAD K0400
2512 2122 4450 LDCHD /SET INT. ENABLE "LOAD COMMAND REG."
2513 2123 4444 ENMAN1 /ENTER MAINTENANCE MODE

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2514 2124 1103 TAD K1000
2515 2125 4455 LDMAN
2516 2126 4437 IONWAT /"SET DRL" "DMAN"
2517 2127 7610 SKP CLA /WAIT FOR INTERRUPT
2518 2130 4435 NERROR /ERROR, NO INT, RQ.
2519 2131 4436 ERROR /O.K, INT, OCCURRED
2520 2132 2117 TST52 /ERROR, INT, REQUEST
2521 2133 0007 0007 /SCOPE LOOP POINTER
2522 /TEXT POINTER
2523 /
2524 /VERIFY THAT "DRL" SHOULD CAUSE INT, RQ, ONLY
2525 /WHEN "INT, ENABLE BIT IS SET, DOES LDCMD CLEAR INT,
2526 /
2527 /
2528 2134 7301 TST53, CLA CLL IAC
2529 2135 4453 CLRALL /DCLR "CLR ALL"
2530 2136 4444 ENMAN1 /ENTER MAINTENANCE MODE
2531 2137 1103 TAD K1000
2532 2140 4455 LDMAN
2533 2141 4437 IONWAT /SET "DRL" "DMAN"
2534 2142 7610 SKP CLA /WAIT FOR INT,
2535 2143 5356 JMP T53E /O.K, NO INT,
2536 2144 1102 TAD K0400 /ERROR, INT, OCCURRED
2537 2145 4450 LDCMD /SET INT, ENABLE AND CLEAR INT,
2538 2146 4437 IONWAT /WAIT FOR INT,
2539 2147 7610 SKP CLA /O.K, NO INT, RQ,
2540 2150 5356 JMP T53E /ERROR, INT, OCCURED
2541 2151 1103 TAD K1000
2542 2152 4455 LDMAN /SET "DRL" "DMAN"
2543 2153 4437 IONWAT /WAIT INT,, SHOULD INT,
2544 2154 7610 SKP CLA /ERROR, NO INT,
2545 2155 4435 NERROR /O.K, INT, OCCURRED
2546 2156 4436 ERROR /ERROR,, INT, RQ
2547 2157 2134 TST53 /SCOPE LOOP POINTER
2548 2160 0007 0007 /TEXT POINTER
2549 /
2550 2161 5762 JMP I ,+1 /TO NEXT TEST
2551 2162 2200 TST54
2552 /
2553 / PAGE
2554 /
2555 /VERIFY THAT "LDCMD" CLEARS STATUS REGISTER
2556 /
2557 2200 7301 TST54, CLA CLL IAC
2558 2201 4453 CLRALL /DCLR "CLR ALL"
2559 2202 1177 TAD STCON
2560 2203 1070 TAD K0004
2561 2204 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2562 2205 4444 ENMAN1 /ENTER MAINTENANCE MODE
2563 2206 1103 TAD K1000 /ENABLE
2564 2207 4455 LDMAN /SET "DRL" "DMAN"
2565 2210 7300 CLA CLL
2566 2211 1154 TAD REG2
2567 2212 4442 RDSTAT /READ STATUS REGISTER
2568 2213 4440 ACCMP1 /CHECK RESULTS

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2569 2214 7610 SKP CLA /O.K, CHECK CLEAR
2570 2215 5225 JMP T54E /STATUS REGISTER ERROR
2571 2216 4450 LDCMD /CLEAR STATUS, "LOAD COMMAND"
2572 2217 1177 TAD STCON
2573 2220 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2574 2221 1153 TAD REG1
2575 2222 4442 RDSTAT /READ STATUS REGISTER
2576 2223 4440 ACCMP1 /CHECK RESULTS
2577 2224 4435 NERROR /STATUS O.K, 4096 LOOPS
2578 2225 4436 ERROR /ERROR, STATUS REGISTER
2579 2226 2200 TST54 /SCOPE LOOP POINTER
2580 2227 5000 5000 /TEXT POINTER
2581 /
2582 /VERIFY THAT RECALIBRATE DOES SET DRIVE STATUS
2583 /ERROR IN THE STATUS REGISTER,
2584 /
2585 2230 7301 TST55, CLA CLL IAC /ENABLE CLEAR CONTROL
2586 2231 4453 CLRALL /CLEAR CONTROL
2587 2232 7301 CLA CLL IAC /ENABLE CLEAR CONTROL
2588 2233 4453 CLRALL /ENABLE CLEAR CONTROL
2589 2234 1177 TAD STCON /ENABLE CLEAR CONTROL
2590 2235 3163 DCA GDREG2
2591 2236 4442 RDSTAT /SETUP EXPECTED COMPARE
2592 2237 4440 ACCMP1 /READ STATUS REGISTER
2593 2240 7610 SKP CLA /CHECK RESULTS
2594 2241 5252 JMP T55E /STATUS O.K,
2595 2242 7326 CLA CLL CML RTL /ERROR, STATUS
2596 2243 1177 TAD STCON
2597 2244 3163 DCA GDREG2 /SETUP EXPECTED COMPARE
2598 2245 7326 CLA CLL CML RTL /ENABLE RECALIBRATE
2599 2246 4453 CLRALL /RECALIBRATE
2600 2247 4442 RDSTAT /READ STATUS
2601 2250 4440 ACCMP1 /CHECK RESULTS
2602 2251 4435 NERROR /O.K, 4096 LOOPS
2603 2252 4436 ERROR /ERROR, STATUS
2604 2253 2230 TST55 /SCOPE LOOP POINTER
2605 2254 5000 5000 /TEXT POINTER
2606 /
2607 /VERIFY THAT "LOAD DISK ADDRESS CAUSES" "DRIVE STATUS ERROR"
2608 /
2609 2255 7301 TST56, CLA CLL IAC /ENABLE CLEAR CONTROL
2610 2256 4453 CLRALL
2611 2257 4452 LDADD
2612 2260 1177 TAD STCON
2613 2261 1066 TAD K0002
2614 2262 3163 DCA GDREG2
2615 2263 1153 TAD REG1
2616 /
2617 2264 4442 RDSTAT /READ STATUS REGISTER
2618 2265 4440 ACCMP1 /CHECK RESULTS
2619 2266 4435 NERROR /STATUS O.K, 4096 LOOPS
2620 2267 4436 ERROR /ERROR, STATUS REGISTER
2621 2270 2255 TST56 /SCOPE LOOP POINTER
2622 2271 5000 5000 /TEXT POINTER
2623 /

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2624 /VERIFY THAT "DRIVE STATUS ERROR" CAUSES INT. REQ.
2625 / "DOES LDCMD CLEAR INT."
2626 /
2627 2272 7301 TST57, CLA CLL IAC
2628 2273 4453 CLRALL /DCLR "CLR ALL"
2629 2274 1102 TAD K0400
2630 2275 4450 LDCMD /SET INT. ENABLE "LOAD COMMAND"
2631 2276 4452 LOADD /SET "SELECT", LOAD DISK ADDRESS
2632 2277 4437 IONWAT /WAIT FOR EXPECTED INT.
2633 2300 5305 JMP T57E /ERROR, NO INT.
2634 2301 1102 TAD K0400
2635 2302 4450 LDCMD /CLEAR INT. "LOAD COMMAND"
2636 2303 4437 IONWAT
2637 2304 4435 NERROR
2638 2305 4436 T57E, ERROR /O.K. INT. WORKED
2639 2306 2272 TST57 /ERROR, SELECT ERROR INT.
2640 2307 0007 0007 /SCOPE LOOP POINTER
2641 /TEXT POINTER
2642 /
2643 /VERIFY THAT "LOAD DISK ADDRESS" CAUSES
2644 /"DRIVE STATUS ERROR". TEST WITH DISK SKIP
2645 /
2646 2310 7301 TST58, CLA CLL IAC
2647 2311 4453 CLRALL /DCLR "CLR ALL"
2648 2312 4452 LOADD /LOAD DISK AND GO
2649 2313 4447 DSKSKP /DSKP DISK SKIP IOT
2650 2314 5320 JMP T58E /ERROR, NO SKIP
2651 2315 4447 DSKSKP /DSKP DISK SKIP IOT
2652 2316 5320 JMP T58F /ERROR, NO SKIP
2653 2317 4435 NERROR /STATUS O.K.
2654 2320 4436 T58E, ERROR /ERROR, STATUS REGISTER
2655 2321 2310 TST58 /SCOPE LOOP POINTER
2656 2322 0006 0006 /TEXT POINTER
2657 /
2658 /VERIFY THAT SELECT ERROR CAUSES "DSKP" TO SKIP ON ERROR
2659 /
2660 2323 7301 TST59, CLA CLL IAC
2661 2324 4453 CLRALL /DCLR "CLR ALL"
2662 2325 4452 LOADD /LOAD DISK ADDRESS AND GO
2663 2326 4447 DSKSKP /DSKP "SKIP ON ERROR"
2664 2327 5333 JMP T59E /ERROR, NO SKIP
2665 2330 4453 CLRALL /CLEAR SKIP
2666 2331 4447 DSKSKP /DSKP
2667 2332 4435 NERROR /O.K. 4096 LOOPS
2668 2333 4436 T59E, ERROR /ERROR, "DSKP SKIP"
2669 2334 2323 TST59 /SCOPE LOOP POINTER
2670 2335 0006 0006 /TEXT POINTER
2671 /
2672 /
2673 /
2674 /VERIFY THAT SELECT ERROR CAUSES "DSKP" TO SKIP ON ERROR
2675 /THEN INTERRUPT
2676 /
2677 /
2678 2336 7301 TST60, CLA CLL IAC

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2679 2337 4453 CLPALL /DCLR "CLR ALL"
2680 2340 1071 TAD K0006
2681 2341 3356 DCA T60E+2 /SETUP TEXT POINTER
2682 2342 1102 TAD K0400
2683 2343 4450 LDCMD /SET INT. ENABLE
2684 2344 4452 LOADD /LOAD DISK AND GO
2685 2345 4447 DSKSKP /DSKP DISK SKIP
2686 2346 5354 JMP T60E /ERROR, NO SKIP
2687 2347 1072 TAD K0007
2688 2350 3356 DCA T60E+2 /SETUP TEXT POINTER
2689 2351 4437 IONWAT /WAIT FOR INT.
2690 2352 7610 SKP CLA /ERROR, NO INT. OCCURRED
2691 2353 4435 NERROR /SKIP AND INT. O.K.
2692 2354 4436 T60E, ERROR /ERROR, DSKP OR INT.
2693 2355 2336 TST60 /SCOPE LOOP POINTER
2694 2356 0006 0006 /MODIFIED TEXT POINTER
2695 /
2696 2357 5760 JMP I .+1 /TO NEXT TEST
2697 2360 2400 TST61
2698 2400 PAGE
2699 /
2700 /VERIFY THAT "DRL" CAUSES AN INT. THEN SKIP
2701 /
2702 2400 7301 TST61, CLA CLL IAC
2703 2401 4453 CLRALL /DCLR "CLR ALL"
2704 2402 1072 TAD K0007
2705 2403 3222 DCA T61E+2 /SETUP TEXT POINTER
2706 2404 1102 TAD K0400
2707 2405 4450 LDCMD /SETUP INT. ENABLE
2708 2406 4444 ENMAN1 /ENTER MAINTENANCE MODE
2709 2407 1103 TAD K1000
2710 2410 4455 LDMAN
2711 2411 4437 IONWAT /SET "DRL" DMAN
2712 2412 5220 JMP T61E /WAIT FOR INT.
2713 2413 1071 TAD K0006 /ERROR, NO INT.
2714 2414 3222 DCA T61E+2 /SETUP TEXT POINTER
2715 2415 4447 DSKSKP /"DSKP" SHOULD SKIP
2716 2416 7610 SKP CLA /ERROR, NO SKIP
2717 2417 4435 NERROR /O.K. 4096 LOOPS
2718 2420 4436 T61E, ERROR /ERROR, SKIP OR INT.
2719 2421 2400 TST61 /SCOPE LOOP POINTER
2720 2422 0007 0007 /MODIFIED TEXT POINTER
2721 /
2722 /VERIFY THAT MAINTENANCE DOES INHIBIT
2723 /DRIVE STATUS ERROR SKIP
2724 /
2725 2423 7301 TST62, CLA CLL IAC
2726 2424 4453 CLRALL /CLEAR CONTROL
2727 2425 4447 DSKSKP /DISK SKIP
2728 2426 7610 SKP CLA /O.K. NO SKIP
2729 2427 5744 JMP T62E /ERROR, SKIP
2730 2430 7126 CLA CLL CML RTL
2731 2431 4453 CLRALL /RECALIBRATE
2732 2432 4447 DSKSKP /DISK SKIP
2733 2433 5744 JMP T62E /ERROR, NO SKIP

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2734 2434 4444 ENMAN1 /SET MAIN
2735 2435 4447 DSKSKP /DISK SKIP
2736 2436 7610 SKP CLA /O.K, NO SKIP
2737 2437 5244 JMP T62E /ERROR, SKIP
2738 2440 7326 CLA CLL CML RTL
2739 2441 4453 CLRALL /RECALIBRATE
2740 2442 4447 DSKSKP /DISK SKIP
2741 2443 4435 NERROR /O.K, 4096 LOOPS
2742 2444 4436 T62E, ERROR /ERROR, DISK SKIP
2743 2445 2423 TST62 /SCOPE LOOP POINTER
2744 2446 0006 0006 /TEXT POINTER
2745 /
2746 /VERIFY THAT "RECALIBRATE" THEN DCLR DOES SET BUSY
2747 /AND DRIVE STATUS ERROR
2748 /
2749 2447 7301 TST63, CLA CLL IAC
2750 2450 4453 CLRALL /CLEAR CONTROL
2751 2451 1177 TAD STCON /EXPECTED STATUS
2752 2452 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2753 2453 4442 RDSTAT /READ STATUS
2754 2454 4440 ACCMP1 /CHECK RESULTS
2755 2455 7610 SKP CLA /STATUS O.K,
2756 2456 5304 JMP T63E /ERROR, STATUS
2757 2457 4444 ENMAN1 /ENTER MAINTENANCE
2758 2460 7326 CLA CLL CML RTL
2759 2461 1177 TAD STCON /EXPECTED STATUS
2760 2462 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2761 2463 7326 CLA CLL CML RTL
2762 2464 4453 CLRALL /"RECALIBRATE" DCLR
2763 2465 4442 RDSTAT /READ STATUS
2764 2466 4440 ACCMP1 /CHECK RESULTS
2765 2467 7610 SKP CLA /STATUS O.K,
2766 2470 5304 JMP T63E /ERROR, STATUS
2767 2471 1153 TAD REG1
2768 2472 0110 AND K7776 /MASK OUT CLEAR CONTROL
2769 2473 4453 CLRALL /DCLR
2770 2474 7326 CLA CLL CML RTL
2771 2475 1177 TAD STCON
2772 2476 1077 TAD K0100 /BUSY BIT
2773 2477 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2774 2500 1154 TAD REG2
2775 2501 4442 RDSTAT /READ STATUS REGISTER
2776 2502 4440 ACCMP1 /CHECK RESULTS
2777 2503 4435 NERROR /STATUS, O.K, 4096 LOOPS
2778 2504 4436 T63E, ERROR /ERROR, RECALIBRATE
2779 2505 2447 TST63 /SCOPE LOOP POINTER
2780 2506 5000 5000 /TEXT POINTER
2781 /
2782 /VERIFY THAT "RECALIBRATE" THEN "DRL" RESULTS IN DRL,
2783 /DRIVE STATUS, AND TRANSFER DONE
2784 /
2785 2507 7301 TST64, CLA CLL IAC
2786 2510 4453 CLRALL /CLEAR CONTROL
2787 2511 1177 TAD STCON
2788 2512 3163 DCA GDREG2 /SETUP COMPARE REGISTER

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2789 2513 4442 RDSTAT /READ STATUS
2790 2514 4440 ACCMP1 /CHECK RESULTS
2791 2515 7610 SKP CLA /STATUS O.K,
2792 2516 5344 JMP T64E /ERROR, STATUS
2793 2517 4444 ENMAN1 /ENTER MAINTENANCE
2794 2520 7326 CLA CLL CML RTL
2795 2521 1177 TAD STCON /EXPECTED STATUS
2796 2522 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2797 2523 7326 CLA CLL CML RTL
2798 2524 4453 CLRALL /DCLR
2799 2525 4442 RDSTAT /READ STATUS
2800 2526 4440 ACCMP1 /CHECK RESULTS
2801 2527 7610 SKP CLA /STATUS O.K,
2802 2530 5344 JMP T64E /ERROR, STATUS
2803 2531 7326 CLA CLL CML RTL
2804 2532 1177 TAD STCON
2805 2533 1106 TAD K4000
2806 2534 1070 TAD K0004 /EXPECTED STATUS
2807 2535 3163 DCA GDREG2
2808 2536 1103 TAD K1000 /ENABLE SHIFT
2809 2537 4455 LDMAN /LOAD MAINTENANCE SET DRL
2810 2540 1153 TAD REG1
2811 2541 4442 RDSTAT /READ STATUS REGISTER
2812 2542 4440 ACCMP1 /CHECK RESULTS
2813 2543 4435 NERROR /O.K, 4096 LOOPS
2814 2544 4436 T64E, ERROR /ERROR, STATUS REGISTER
2815 2545 2507 TST64 /SCOPE LOOP POINTER
2816 2546 5000 5000 /TEXT POINTER
2817 /
2818 2547 5750 JMP I .+1 /TO NEXT TEST
2819 2550 2600 TST65
2820 /
2821 PAGE
2822 /
2823 /VERIFY THAT "RECALIBRATE" THEN "DLCA" SETS
2824 /DRIVE STATUS AND BUSY ERROR IN STATUS REGISTER
2825 /
2826 2600 7301 TST65, CLA CLL IAC
2827 2601 4453 CLRALL /CLEAR CONTROL
2828 2602 1177 TAD STCON /EXPECTED STATUS
2829 2603 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2830 2604 4442 RDSTAT /READ STATUS
2831 2605 4440 ACCMP1 /CHECK RESULTS
2832 2606 7610 SKP CLA /STATUS O.K,
2833 2607 5233 JMP T65E /ERROR, STATUS
2834 2610 4444 ENMAN1 /ENTER MAINTENANCE
2835 2611 7326 CLA CLL CML RTL
2836 2612 1177 TAD STCON /EXPECTED STATUS
2837 2613 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2838 2614 7326 CLA CLL CML RTL
2839 2615 4453 CLRALL
2840 2616 4442 RDSTAT /READ STATUS
2841 2617 4440 ACCMP1 /CHECK RESULTS
2842 2620 7610 SKP CLA /STATUS O.K,
2843 2621 5233 JMP T65E /ERROR, STATUS

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2844 2622 7326 CIA CLL CML RTL
2845 2623 1077 TAD K0100
2846 2624 1177 TAD STCON /EXPECTED STATUS
2847 2625 3163 DCA GDREG2
2848 2626 4451 LDCUR /LOAD CURRENT ADDRESS
2849 2627 1154 TAD REG2
2850 2630 4442 RDSTAT /READ STATUS REGISTER
2851 2631 4440 ACCMP1 /CHECK RESULTS
2852 2632 4435 NERROR /O.K. 4096 LOOPS
2853 2633 4436 T65E, ERROR /ERROR, STATUS REGISTER
2854 2634 2600 TST65 /SCOPE LOOP POINTER
2855 2635 5000 5000 /TEXT POINTER
2856
2857 /VERIFY THAT "RECALIBRATE" THEN "DLDC"
2858 /DOES SET BUSY ERROR IN STATUS
2859
2860 2636 7301 TST66, CIA CLL IAC
2861 2637 4453 CLRALL /CLEAR CONTROL
2862 2640 4444 ENMAN1 /ENTER MAINTENANCE
2863 2641 7326 CIA CLL CML RTL
2864 2642 4453 CLRALL
2865 2643 7326 CIA CLL CML RTL
2866 2644 1077 TAD K0100
2867 2645 1177 TAD STCON /EXPECTED STATUS
2868 2646 3163 DCA GDREG2
2869 2647 4450 LDCMD /LOAD COMMAND REGISTER
2870 2650 1154 TAD REG2
2871 2651 4442 RDSTAT /READ STATUS REGISTER
2872 2652 4440 ACCMP1 /CHECK RESULTS
2873 2653 4435 NERROR /O.K. 4096 LOOPS
2874 2654 4436 ERROR /ERROR, STATUS REGISTER
2875 2655 2636 TST66 /SCOPE LOOP POINTER
2876 2656 5000 5000 /TEXT POINTER
2877
2878 /VERIFY THAT RECALIBRATE THEN FLAG RESULTS IN
2879 /BUSY AND DRIVE STATUS ERROR.
2880
2881 2657 7301 TST67, CIA CLL IAC
2882 2658 4453 CLRALL /CLEAR CONTROL
2883 2661 4444 ENMAN1 /ENTER MAINTENANCE
2884 2662 7326 CIA CLL CML RTL
2885 2663 1077 TAD K0100
2886 2664 1177 TAD STCON /EXPECTED STATUS
2887 2665 3163 DCA GDREG2 /SETUP EXPECTED COMPARE
2888 2666 7326 CIA CLL CML RTL /ENABLE RECALIBRATE
2889 2667 4453 CLRALL
2890 2670 4452 LDCMD /LOAD DISK ADDRESS
2891 2671 4442 RDSTAT /READ STATUS
2892 2672 4440 ACCMP1 /CHECK RESULTS
2893 2673 4435 NERROR /O.K. 4096 LOOPS
2894 2674 4436 ERROR /ERROR, BUSY OR DRIVE STATUS
2895 2675 2657 TST67 /SCOPE LOOP POINTER
2896 2676 5000 5000 /TEXT POINTER
2897
2898 /VERIFY THAT SKIP OCCURES ON BUSY ERROR

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2999
2900 2677 7301 TST68, CIA CLL IAC
2901 2700 4453 CLRALL /CLEAR CONTROL
2902 2701 4447 DSKSKP /DSKP
2903 2702 7610 SKP CIA /SKIP O.K.
2904 2703 5315 JMP T68E /ERROR, DISK SKIP
2905 2704 4444 ENMAN1 /ENTER MAINTENANCE
2906 2705 7326 CIA CLL CML RTL
2907 2706 4453 CLRALL
2908 2707 4451 LDCUR /DCLR
2909 2710 4447 DSKSKP /LOAD CURRENT ADDRESS
2910 2711 5315 JMP T68E /DSKP DISK SKIP
2911 2712 4447 DSKSKP /ERROR, NO SKIP
2912 2713 5315 JMP T68E /DSKP DISK SKIP
2913 2714 4435 NERROR /ERROR
2914 2715 4436 T68E, ERROR /O.K. 4096 LOOPS
2915 2716 2677 TST68 /ERROR, DSKP
2916 2717 0006 0006 /SCOPE LOOP POINTER
2917 /TEXT POINTER
2918
2919 /VERIFY THAT DCLR CLEARS ALL OF STATUS REGISTER
2920
2921 2720 7301 TST69, CIA CLL IAC
2922 2721 4453 CLRALL /CLEAR CONTROL
2923 2722 4444 ENMAN1 /ENTER MAINTENANCE
2924 2723 7326 CIA CLL CML RTL
2925 2724 4453 CLRALL /DCLR
2926 2725 7326 CIA CLL CML RTL
2927 2726 1177 TAD STCON
2928 2727 1106 TAD K4000
2929 2730 1070 TAD K0004 /EXPECTED STATUS
2930 2731 3163 DCA GDREG2
2931 2732 1103 TAD K1000 /ENABLE SHIFT
2932 2733 4455 LDMAN /LOAD MAINTENANCE SET DRL
2933 2734 1153 TAD REG1
2934 2735 4442 RDSTAT /READ STATUS REGISTER
2935 2736 4440 ACCMP1 /CHECK RESULTS
2936 2737 7610 SKP CIA /O.K.
2937 2740 5350 JMP T69E /ERROR
2938 2741 4453 CLRALL /DCLR
2939 2742 1177 TAD STCON
2940 2743 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2941 2744 1154 TAD REG2
2942 2745 4442 RDSTAT /READ STATUS
2943 2746 4440 ACCMP1 /CHECK RESULTS
2944 2747 4435 NERROR /O.K. 4096 LOOPS
2945 2750 4436 T69E, ERROR /ERROR, STATUS REGISTER
2946 2751 2720 TST69 /SCOPE LOOP POINTER
2947 2752 5000 5000 /TEXT POINTER
2948
2949 /VERIFY THAT INTERRUPT OCCURES ON BUSY ERROR
2950
2951 2753 7301 TST70, CIA CLL IAC
2952 2754 4453 CLRALL /CLEAR CONTROL
2953 2755 1102 TAD K0400 /ENABLE INT. HIT
2954 2756 4450 LDCMD /LOAD COMMAND

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2954 2757 4444 ENMAN1 /ENTER MAINTENANCE
2955 2760 7326 CLA CLL CML RTL
2956 2761 4453 CLRALL /DCLR
2957 2762 4437 IONWAT /WAIT FOR INT.
2958 2763 7610 SKP CLA /INT. O.K.
2959 2764 5374 JMP T70E /ERROR, DISK INT.
2960 2765 4453 CLRALL /CLEAR STATUS
2961 2766 4437 IONWAT /WAIT FOR INTERRUPT
2962 2767 5374 JMP T70E /ERROR, NO INT.
2963 2770 4453 CLRALL /DCLR
2964 2771 4437 IONWAT /WAIT FOR INT.
2965 2772 7610 SKP CLA /INT. O.K.
2966 2773 4435 NERROR /O.K. 4096 LOOPS
2967 2774 4436 T70E, ERROR /ERROR, INT.
2968 2775 2753 TST70 /SCOPE LOOP POINTER
2969 2776 0007 0007 /TEXT POINTER
2970
2971 /
2972 /VERIFY THAT "RDBUF", "DLCA", "DRST", "DLG"
2973 /OR "DSKP" DOES NOT AFFECT STATUS REGISTER.
2974
2974 2777 7301 TST71, CLA CLL IAC
2975 3000 4453 CLRALL /CLEAR CONTROL
2976 3001 4444 ENMAN1 /ENTER MAINTENANCE
2977 3002 7326 CLA CLL CML RTL
2978 3003 4453 CLRALL /DCLR
2979 3004 1103 TAD K1000 /ENABLE SHIFT
2980 3005 4453 LDHAN /LOAD MAINTENANCE
2981 3006 7326 CLA CLL CML RTL
2982 3007 1177 TAD STCON
2983 3010 1070 TAD K0004
2984 3011 1106 TAD K4000 /EXPECTED STATUS
2985 3012 3163 DCA GDREG2 /SETUP COMPARE REGISTER
2986 3013 4456 RDBUF /READ BUFFER
2987 3014 1153 TAD REG1
2988 3015 4442 RDSTAT /READ STATUS
2989 3016 1154 TAD REG2
2990 3017 4451 LDCLR /LOAD CURRENT ADDRESS
2991 3020 1153 TAD REG1
2992 3021 4447 DSKSKP /DSKP
2993 3022 7000 NOP
2994 3023 4452 LDADD /LOAD DISK ADDRESS
2995 3024 1153 TAD REG1
2996 3025 4427 LDBUF /LOAD BUFFER REGISTER
2997 3026 1154 TAD REG2
2998 3027 4442 RDSTAT /READ STATUS
2999 3030 4440 ACCMP1 /CHECK RESULTS
3000 3031 7610 SKP CLA /STATUS O.K.
3001 3032 5241 JMP T71E /ERROR, STATUS
3002 3033 4453 CLRALL /CLEAR STATUS
3003 3034 1177 TAD STCON /EXPECTED STATUS
3004 3035 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3005 3036 4442 RDSTAT /READ STATUS
3006 3037 4440 ACCMP1 /CHECK RESULTS
3007 3040 4435 NERROR /O.K. 4096 LOOPS
3008 3041 4436 T71E, ERROR /ERROR, STATUS REGISTER

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3009 3042 2777 TST71 /SCOPE LOOP POINTER
3010 3043 0000 0000 /TEXT POINTER
3011
3012 /
3013 /VERIFY THAT "WORD COUNT" OVERFLOWS AND SETS
3014 /TRANSFER DONE ONLY AFTER 256 (12 BIT COUNTS).
3015 /TRANSFER DONE SHOULD SET ON THE 11 TH. SHIFT
3016 /OF THE 256 TH. WORD.
3017
3017 3044 7240 TST72, CLA CMA
3018 3045 3153 DCA REG1 /SET FOR 1 PASS PER TEST
3019 3046 7301 CLA CLL IAC
3020 3047 4453 CLRALL /DCLR "CLR ALL"
3021 3050 1177 TAD STCON
3022 3051 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3023 3052 7326 CLA CLL CML RTL /TWO
3024 3053 1136 TAD M12
3025 3054 3156 DCA TCNTR1 /FOR FINAL WORD!
3026 3055 1143 TAD M255
3027 3056 3157 DCA TCNTR2 /FOR ONE LESS THAN "LAST WORD"
3028 3057 4444 ENMAN1 /ENTER MAINTENANCE MODE
3029 3060 1136 TAD M12
3030 3061 3160 DCA TCNTR1 /FOR EACH 12 BIT WORD
3031 3062 1077 TAD K0100 /ENABLE BITS TOSHIFT SILO
3032 3063 4455 LDHAN /LOAD MAINTENANCE
3033 3064 2160 ISZ TCNTR3 /SKIP ON EVERY "12 BIT WORD"
3034 3065 5263 JMP .-2
3035 3066 4456 RDBUF /THIS SHOULD PREVENT A "DRL"
3036 3067 4442 RDSTAT /GET STATUS
3037 3070 4440 ACCMP1 /CHECK RESULTS
3038 3071 7610 SKP CLA
3039 3072 5315 JMP T72E /STATUS ERROR
3040 3073 2157 ISZ TCNTR2
3041 3074 5260 JMP T72R /COUNT 255 "12 BIT WORDS"
3042 3075 1077 TAD K0100 /ENABLE SHIFT SILO
3043 3076 4455 LDHAN /LOAD MAINTENANCE
3044 3077 2156 ISZ TCNTR1 /BIT COUNTER
3045 3100 5276 JMP .-2 /COUNT 11 BITS
3046 3101 4442 RDSTAT /READ STATUS
3047 3102 4440 ACCMP1 /CHECK RESULTS
3048 3103 7610 SKP CLA /STATUS O.K.
3049 3104 5315 JMP T72E /ERROR, STATUS
3050 3105 7330 CLA CLL CML RAR
3051 3106 1177 TAD STCON
3052 3107 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3053 3110 1077 TAD K0100
3054 3111 4455 LDHAN /SHIFT IN LAST WORD
3055 3112 4442 RDSTAT /READ STATUS
3056 3113 4440 ACCMP1 /ONLY TRANSFER DONE
3057 3114 4435 NERROR /STATUS OK
3058 3115 4436 T72E, ERROR /ERROR, 12 BIT COUNTER
3059 3116 3044 TST72 /SCOPE LOOP
3060 3117 0000 0000 /TEXT POINTER
3061
3062 3120 5721 JMP I .+1 /TO NFXT TEST
3063 3121 3700 TST73

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3064 /
3065 / PAGE
3066 /
3067 / /VERIFY THAT DCLR DOES CLEAR 12 BIT COUNTER
3068 /
3069 3200 7240 TST73, CLA CMA
3070 3201 3153 DCA REG1 /SET FOR 1 PASS PER TEST
3071 3202 1143 TAD M255
3072 3203 3161 DCA TCNTR4 /SETUP COUNTER

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3073 3204 7301 T73R1, CLA CLL IAC
3074 3205 4453 CLRALL /DCLR "CLR ALL"
3075 3206 1161 TAD TCNTR4
3076 3207 3156 DCA TCNTR1
3077 3210 1136 T73R2, TAD M12
3078 3211 3157 DCA TCNTR2 /12 BIT WORD COUNTER
3079 3212 4444 ENMAN1 /ENTER MAINTENANCE MODE
3080 3213 1077 TAD K0100 /ENABLE SHIFT
3081 3214 4455 LDMAN /LOAD MAINTENANCE
3082 3215 2157 ISZ TCNTR2 /COUNT SHIFTS
3083 3216 5214 JMP .-2 /MORE TO GO
3084 3217 4456 RDBUF /PREVENT DRL
3085 3220 2156 ISZ TCNTR1 /DO IT 12 TIMES
3086 3221 5210 JMP T73R2 /MORE 12 BIT COUNTS
3087 3222 7301 CLA CLL IAC /ENABLE CLEAR CONTROL
3088 3223 4453 CLRALL /AND CLEAR THE COUNTER
3089 3224 1177 TAD STCON
3090 3225 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3091 3226 1136 TAD M12
3092 3227 3156 DCA TCNTR1 /FOR FINAL WORD1
3093 3230 1143 TAD M255
3094 3231 3157 DCA TCNTR2
3095 3232 4444 ENMAN1 /ENTER "MAINTENANCE MODE"
3096 3233 1136 T73R3, TAD M12
3097 3234 3160 DCA TCNTR3 /FOR EACH 12 BIT WORD
3098 3235 1077 TAD K0100 /ENABLE BITS TOSHIFT SILO
3099 3236 4455 LDMAN /LOAD MAINTENANCE
3100 3237 2160 ISZ TCNTR3 /SKIP ON EVERY "12 BIT WORD"
3101 3240 5236 JMP .-2
3102 3241 4456 RDBUF /THIS SHOULD PREVENT A "DRL"
3103 3242 4442 RDSTAT /GET STATUS
3104 3243 4440 ACCMP1 /CHECK RESULTS
3105 3244 7610 SKP CLA
3106 3245 5266 JMP T73E /STATUS ERROR
3107 3246 2157 ISZ TCNTR2
3108 3247 5233 JMP T73R3 /COUNT 255 "12 BIT WORDS"
3109 3250 7330 CLA CLL CML RAR
3110 3251 1177 TAD STCON
3111 3252 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3112 3253 1077 TAD K0100
3113 3254 4455 LDMAN /SHIFT IN LAST WORD
3114 3255 2156 ISZ TCNTR1
3115 3256 5254 JMP .-2
3116 3257 4442 RDSTAT /READ STATUS
3117 3260 4440 ACCMP1 /ONLY TRANSFER DONE
3118 3261 7610 SKP CLA
3119 3262 5266 JMP T73E /STATUS O.K.
3120 3263 2161 ISZ TCNTR4 /ERROR, STATUS
3121 3264 5204 JMP T73R1 /UPDATE SPECIAL COUNTER
3122 3265 4435 NERROR /MORE TO TEST
3123 3266 4436 T73E, ERROR /STATUS OK
3124 3267 3200 TST73 /ERROR, 12 BIT COUNTER
3125 3270 5000 /SCOP LOOP
3126 / /TEXT POINTER
3127 /

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3128 /VERIFY THAT 12TH BIT O.K. H DOES INHBIT
3129 /SETTING DB CONT1=1. THIS IS WHAT STOPS
3130 /HALF BLOCK DATA BREAKS ON A READ BREAK.
3131 /
3132 3271 7301 TST74, CLA CLL IAC
3133 3272 4451 CLRALL
3134 3273 1077 TAD K0100 /CLEAR CONTROL
3135 3274 4450 LDCMD /HALF BLOCK TRANSFERS
3136 3275 7340 CLA CLL CMA /LOAD COMMAND
3137 3276 3153 DCA REG1
3138 3277 1141 TAD M128 /SETUP FOR 1 PASS
3139 3300 3156 DCA TCNTR1
3140 3301 4444 ENMAN1 /COUNTER FOR 128 WORDS
3141 3302 3163 T74R1, DCA GDREG2 /ENTER MAINTENANCE MODE
3142 3303 1136 T74R1A, TAD M12 /SETUP COMPARE REGISTER
3143 3304 3157 DCA TCNTR2
3144 3305 7300 T74R2, CLA CLL
3145 3306 1077 TAD K0100 /12 BIT WORD COUNTER
3146 3307 4455 LDMAN /ENABLE SHIFT
3147 3310 2157 ISZ TCNTR2 /LOAD MAINTENANCE
3148 3311 5307 JMP ,-2
3149 3312 4456 RDBUF /READ LOWER BUFFER
3150 3313 4440 ACCMP1 /CHECK RESULTS
3151 3314 7610 SKP CLA /DATA O.K.
3152 3315 5340 JMP T74E /ERROR
3153 3316 2156 ISZ TCNTR1 /COUNT 128 WORDS
3154 3317 5302 JMP T74R1 /MORE TO GO
3155 3320 1141 TAD M128
3156 3321 3156 DCA TCNTR1 /SETUP COUNTER
3157 3322 1136 T74R3, TAD M12
3158 3323 3157 DCA TCNTR2 /SETUP BIT COUNTER
3159 3324 7326 CLA CLL CML RTL
3160 3325 1077 TAD K0100
3161 3326 4455 LDMAN /ENABLE SHIFT
3162 3327 2157 ISZ TCNTR2 /LOAD MAINTENANCE
3163 3330 5326 JMP ,-2 /COUNT BITS
3164 3331 4456 RDBUF /MORE TO GO
3165 3332 4440 ACCMP1 /READ LOWER BUFFER
3166 3333 7610 SKP CLA /CHECK RESULTS
3167 3334 5340 JMP T74E /DATA O.K.
3168 3335 2156 ISZ TCNTR1 /ERROR
3169 3336 5322 JMP T74R3 /UPDATE COUNTER
3170 3337 4435 NERROR /TEST 128 TIMES
3171 3340 4436 T74E, ERROR /TO NEXT TEST
3172 3341 3271 TST74 /ERROR, 128 WORD
3173 3342 4405 4405 /SCOPE LOOP POINTER
3174 /TEXT POINTER
3175 3343 5744 JMP I ,+1 /TO NEXT TEST
3176 3344 3400 TST75
3177 /
3178 /VERIFY THAT TRANSFER DONE "ALONE" CAUSES
3179 /DSKP TO SKIP.
3180 /
3181 PAGE
3182 3400 7340 TST75, CLA CLL CMA

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3183 3401 3153 DCA REG1 /SET FOR 1 PASS PER TEST
3184 3402 7301 CLA CLL IAC
3185 3403 4453 CLRALL /DCLR "CLR ALL"
3186 3404 1143 TAD M255
3187 3405 3156 DCA TCNTR1 /ONE LESS THAN "LAST WORD"
3188 3406 1136 TAD M12
3189 3407 3157 DCA TCNTR2 /FINAL WORD
3190 3410 4444 ENMAN1 /ENTER MAINTENANCE MODE
3191 3411 1136 T75R, TAD M12
3192 3412 3160 DCA TCNTR3 /"12 BIT" WORD COUNTER
3193 3413 1077 TAD K0100
3194 3414 4455 LDMAN /LOAD MAINTENANCE
3195 3415 2160 ISZ TCNTR3
3196 3416 5214 JMP ,-2 /COUNT 12 BIT WORDS
3197 3417 4456 RDBUF /PREVENT "DRL"
3198 3420 4447 DSKSKP /SHOULD NOT SKIP HERE
3199 3421 7610 SKP CLA /O.K.
3200 3422 5234 JMP T75E /ERROR, DSKP
3201 3423 2156 ISZ TCNTR1
3202 3424 5211 JMP T75R
3203 3425 1077 TAD K0100 /COUNT 255 WORDS
3204 3426 4455 LDMAN /LOAD MAINTENANCE
3205 3427 2157 ISZ TCNTR2
3206 3430 5226 JMP ,-2 /DO ONE MORE WORD
3207 3431 4447 DSKSKP /DSKP "SKIP"
3208 3432 7610 SKP CLA /ERROR, DSKP DID NOT SKIP
3209 3433 4435 NERROR /O.K. 4096 LOOPS
3210 3434 4436 T75E, ERROR /ERROR, DSKP
3211 3435 3400 TST75 /SCOPE LOOP POINTER
3212 3436 0006 0006 /TEXT POINTER
3213 /
3214 /VERIFY THAT TRANSFER DONE CAUSES "INT. RQ."
3215 /
3216 3437 7340 TST76, CLA CLL CMA
3217 3440 3153 DCA REG1 /SETUP FOR 1 PASS PER TEST
3218 3441 7301 CLA CLL IAC
3219 3442 4453 CLRALL /DCLR "CLR ALL"
3220 3443 1143 TAD M255
3221 3444 3156 DCA TCNTR1 /ONE LESS THAN "LAST WORD"
3222 3445 1136 TAD M12
3223 3446 3157 DCA TCNTR2 /FINAL WORD
3224 3447 1102 TAD K0400 /ENABLE INT. BIT
3225 3450 4450 LDCMD /LOAD COMMAND REGISTER
3226 3451 4444 ENMAN1 /ENTER MAINTENANCE MODE
3227 3452 1136 T76R, TAD M12
3228 3453 3160 DCA TCNTR3 /"12 BIT" WORD COUNTER
3229 3454 1077 TAD K0100 /ENABLE SHIFT SILO
3230 3455 4455 LDMAN /LOAD MAINTENANCE
3231 3456 2160 ISZ TCNTR3
3232 3457 5255 JMP ,-2 /COUNT "12 BIT" WORDS
3233 3460 4456 RDBUF /PREVENT "DRL"
3234 3461 4437 LDWAT /WAIT FOR INT.
3235 3462 7610 SKP CLA /O.K. NO INT.
3236 3463 5275 JMP T76E /ERROR, INT. OCCURED
3237 3464 2156 ISZ TCNTR1

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3238 3465 5252 JMP T76P /COUNT 255 WORDS
3239 3466 1077 TAD K0100
3240 3467 4455 LDMAN /LOAD MAINTENANCE
3241 3470 2157 ISZ TCNTR2
3242 3471 5267 JMP ,+2 /DO ONE MORE WORD
3243 3472 4437 IONWAT /WAIT FOR EXPECTED INT.
3244 3473 7610 SKP CLA /ERROR, INT. DIDN'T OCCUR
3245 3474 4435 NERROR /O.K. 4096 LOOPS
3246 3475 4436 T76E, FRROR /ERROR, INT.
3247 3476 3437 TST76 /SCOPE LOOP POINTER
3248 3477 0007 0007 /TEXT POINTER
3249
3250 /
3251 /
3252 /
3253 /VERIFY "DATA BREAK" FROM CURRENT FIELD LOCATION 0
3254 /USE DATA PATTERN 0000 AND 7777. "DO A WRITE"
3255 /
3256 3500 7301 TST77, CLA CLL IAC
3257 3501 4453 CLRALL /DCLR
3258 3502 4444 ENMAN1 /ENTER MAINTENANCE MODE
3259 3503 1175 TAD HOMENA /CURRENT FIELD BITS
3260 3504 1106 TAD K4000 /ENABLE "WRITE"
3261 3505 4450 LDCMD /LOAD COMMAND
3262 3506 1153 TAD REG1
3263 3507 7110 CLL RAR
3264 3510 7630 SZL CLA
3265 3511 7340 CLA CLL CMA /MAKE "DATA WORD"
3266 3512 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3267 3513 1163 TAD GDREG2
3268 3514 3000 DCA 0 /STORE OUT BOUND DATA
3269 3515 7340 CLA CLL CMA
3270 3516 4451 LDCUR /SET CURRENT ADDRESS TO 7777
3271 3517 4451 LDCUR /LOAD CURRENT ADDRESS TO 0
3272 3520 1076 TAD K0040 /ENABLE "BREAK"
3273 3521 4455 LDMAN /LOAD AND GO
3274 3522 4456 RDBUF /READ DATA BUFFER
3275 3523 4440 ACCMP1 /CHECK RESULTS
3276 3524 4435 NERROR /O.K. 4096 LOOPS
3277
3278 3525 4436 T77E, ERROR /ERROR, DATA BREAK
3279 3526 3500 TST77 /SCOPE LOOP POINTER
3280 3527 4263 4263 /TEXT POINTER
3281
3282 /
3283 /VERIFY THAT "DATA BREAK" WORKS FROM LOCATION 0
3284 /OF CURRENT FIELD, DO "A WRITE" AND USE DATA
3285 /PATTERN "2525 AND 5252"
3286 /
3287 3530 7301 TST78, CLA CLL IAC
3288 3531 4453 CLRALL /DCLR "CLR ALL"
3289 3532 4444 ENMAN1 /ENTER MAINTENANCE MODE
3290 3533 1153 TAD REG1
3291 3534 7110 CLL RAR
3292 3535 7630 SZL CLA

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3293 3536 1120 TAD K2525
3294 3537 1120 TAD K2525 /TAKE DATA WORD
3295 3540 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3296 3541 1163 TAD GDREG2
3297 3542 3000 DCA 0 /STORE OUTBOUND DATA
3298 3543 1175 TAD HOMENA /GET CURRENT FIELD BITS
3299 3544 1126 TAD K5000 /GET "WRITE ENABLE BIT"
3300 3545 4450 LDCMD /LOAD COMMAND REGISTER
3301 3546 1154 TAD REG2
3302 3547 4451 LDCUR /SET CURRENT ADDRESS TO 7777
3303 3550 4451 LDCUR /LOAD CURRENT ADDRESS TO 0
3304 3551 1076 TAD K0040 /DATA BREAK ENABLE BIT
3305 3552 4455 LDMAN /LOAD AND GO
3306 3553 4456 RDBUF /READ DATA BUFFER
3307 3554 4440 ACCMP1 /CHECK RESULTS
3308 3555 4435 NERROR /O.K. 4096 LOOPS
3309 3556 4436 T78E, ERROR /ERROR, DATA BREAK
3310 3557 3530 TST78 /SCOPE LOOP POINTER
3311 3560 4263 4263 /TEXT POINTER
3312
3313 /
3314 /VERIFY THAT "DATA BREAK" WORK FROM LOCATION 7777
3315 /OF CURRENT FIELD, DO A WRITE AND USE DATA PATTERN
3316 /0000 AND 7777.
3317 3561 7301 TST79, CLA CLL IAC
3318 3562 4453 CLRALL /DCLR "CLR ALL"
3319 3563 4444 ENMAN1 /ENTER MAINTENANCE MODE
3320 3564 1153 TAD REG1
3321 3565 7110 CLL RAR
3322 3566 7630 SZL CLA
3323 3567 7340 CLA CLL CMA /MAKE DATA WORD
3324 3570 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3325 3571 1163 TAD GDREG2
3326 3572 3532 DCA I K7777 /STORE OUTBOUND DATA
3327 3573 1153 TAD REG1
3328 3574 4451 LDCUR /SET CURRENT ADDRESS
3329 3575 7340 CLA CLL CMA
3330 3576 4451 LDCUR /LOAD CURRENT ADDRESS TO 7777
3331 3577 1175 TAD HOMENA /CURRENT FIELD BITS
3332 3600 1106 TAD K4000 /WRITE ENABLE
3333 3601 4450 LDCMD /LOAD COMMAND REGISTER
3334 3602 1076 TAD K0040 /BREAK ENABLE BIT
3335 3603 4455 LDMAN /LOAD AND GO
3336 3604 4456 RDBUF /READ DATA BUFFER
3337 3605 4440 ACCMP1 /CHECK RESULTS
3338 3606 4435 NERROR /O.K. 4096 LOOPS
3339 3607 4436 T79E, ERROR /ERROR, DATA BREAK
3340 3610 3561 TST79 /SCOPE LOOP POINTER
3341 3611 4263 4263 /TEXT POINTER
3342
3343 /
3344 /VERIFY "DATA BREAK" FROM LOCATION 7777 OF
3345 /CURRENT FIELD, DO A "WRITE" AND USE DATA
3346 /PATTERN 2525 AND 5252.
3347 /

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3348 3612 7301 TST00, CLA CLL IAC
3349 3613 4453 CLRALL /DCLR "CLR ALL"
3350 3614 4444 ENMAN1 /ENTER MAINTENANCE MODE
3351 3615 1153 TAD REG1
3352 3616 7110 CLL RAR
3353 3617 7630 SZL CLA
3354 3620 1120 TAD K2525
3355 3621 1120 TAD K2525 /WAKE DATA WORD
3356 3622 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3357 3623 1163 TAD GDREG2
3358 3624 3532 DCA I K7777 /STORE OUTBOUND DATA
3359 3625 1175 TAD HOMEWA /CURRENT FIELD BITS
3360 3626 1126 TAD K5000 /FUNCTION "WRITE"
3361 3627 4450 LDCMD /LOAD COMMAND
3362 3630 1154 TAD REG2
3363 3631 4451 LDCUR /SET CURRENT ADDRESS
3364 3632 7340 CLA CLL CMA
3365 3633 4451 LDCUR /LOAD CURRENT ADDRESS TO 7777
3366 3634 1076 TAD K0040 /BREAK ENABLE BIT
3367 3635 4455 LDMAN /LOAD MAINTENANCE AND GO
3368 3636 4456 RDBUF /READ BUFFER
3369 3637 4440 ACCMP1 /CHECK RESULTS
3370 3640 4435 NERROR /O.K. 4096 LOOPS
3371 3641 4436 T00E, ERROR /ERROR, DATA BREAK
3372 3642 3612 TST00 /SCOPE LOOP POINTER
3373 3643 4263 4263 /TEXT POINTER
3374
3375 /
3376 /VERIFY THAT "DATA BREAK" WORKS FROM CURRENT FIELD
3377 /LOCATION 0, DO A "WRITE" AND USE ALL COMBINATION PATTERN
3378 /ALSO VERIFY THAT DATA IN LOCATION 0 DOESN'T CHANGE
3379 /ON A WRITE BREAK. (NOTE: DATA FROM LOCATION 0 PUT
3380 /IN INDICATOR "DTI")
3381
3381 3644 7301 TST01, CLA CLL IAC
3382 3645 4453 CLRALL /DCLR "CLR ALL"
3383 3646 4444 ENMAN1 /ENTER MAINTENANCE MODE
3384 3647 1154 TAD REG2
3385 3650 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3386 3651 1163 TAD GDREG2
3387 3652 3000 DCA 0 /STORE OUTBOUND DATA
3388 3653 4451 LDCUR /SET CURRENT ADDRESS TO 0
3389 3654 1175 TAD HOMEWA /CURRENT FIELD BITS
3390 3655 1106 TAD K4000 /WRITE FUNCTION
3391 3656 4450 LDCMD /LOAD COMMAND
3392 3657 1076 TAD K0040 /DATA BREAK ENABLE BIT
3393 3660 4455 LDMAN /LOAD AND GO
3394 3661 4456 RDBUF /READ BUFFER
3395 3662 4440 ACCMP1 /CHECK RESULTS
3396 3663 7610 SKP CLA
3397 3664 5272 JMP T01E /ERROR
3398 3665 1000 TAD 0
3399 3666 3173 DCA DTREG /SAVE IN CASE OF ERROR
3400 3667 1173 TAD DTREG
3401 3670 4440 ACCMP1 /CHECK RESULTS
3402 3671 4435 NERROR /O.K. 4096 LOOPS

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3403 3672 4436 T01E, ERROR /ERROR, DATA BREAK
3404 3673 3644 TST01 /SCOPE LOOP POINTER
3405 3674 4263 4263 /TEXT POINTER
3406
3407 /
3408 /VERIFY "DATA BREAK" FROM LOCATION 7777 OF
3409 /CURRENT FIELD, DO A "WRITE" AND USE ALL COMBINATIONS.
3410 /ALSO VERIFY THAT OUTBOUND DATA IN LOCATION 7777
3411 /DOESN'T CHANGE WHEN DOING A WRITE BREAK. (NOTE: DATA FROM
3412 /LOCATION 7777 PUT IN INDICATOR "DTI")
3413
3414 3675 7301 TST02, CLA CLL IAC
3415 3676 4453 CLRALL /DCLR "CLR ALL"
3416 3677 4444 ENMAN1 /ENTER MAINTENANCE MODE
3417
3418 3700 1153 TAD REG1
3419 3701 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3420 3702 1163 TAD GDREG2
3421 3703 3532 DCA I K7777 /STORE OUTBOUND DATA
3422 3704 7340 CLA CLL CMA
3423 3705 4451 LDCUR /SET CURRENT ADDRESS TO 7777
3424 3706 1175 TAD HOMEWA /CURRENT FIELD BITS
3425 3707 1126 TAD K5000 /WRITE FUNCTION
3426 3710 4450 LDCMD /LOAD COMMAND
3427 3711 1076 TAD K0040 /BREAK ENABLE BIT
3428 3712 4455 LDMAN /LOAD AND GO
3429 3713 4456 RDBUF /READ BUFFER
3430 3714 4440 ACCMP1 /CHECK RESULTS
3431 3715 7610 SKP CLA
3432 3716 5324 JMP T02E /ERROR
3433 3717 1532 TAD I K7777
3434 3720 3173 DCA DTREG /SAVE IN CASE OF ERROR
3435 3721 1173 TAD DTREG
3436 3722 4440 ACCMP1 /CHECK RESULTS
3437 3723 4435 NERROR /O.K. 4096 LOOPS
3438 3724 4436 T02E, ERROR /ERROR, DATA BREAK
3439 3725 3675 TST02 /SCOPE LOOP POINTER
3440 3726 4263 4263 /TEXT POINTER
3441
3442 /
3443 /VERIFY THAT "DCLR" CLEARS CURRENT ADDRESS
3444 /FIRST DO A DATA BREAK FROM LOCATION 7776
3445 /THEN "DCLR" FROM LOCATION 0000, DO "A WRITE"
3446 /AND USE DATA PATTERN ALL COMBINATIONS.
3447
3447 3727 7301 TST03, CLA CLL IAC
3448 3730 4453 CLRALL /DCLR "CLR ALL"
3449 3731 4444 ENMAN1 /ENTER MAINTENANCE MODE
3450 3732 1153 TAD REG1
3451 3733 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3452 3734 1163 TAD GDREG2
3453 3735 3510 DCA I K7776 /STORE OUTBOUND DATA BREAK 1
3454 3736 1154 TAD REG2
3455 3737 3000 DCA 0 /STORE OUTBOUND DATA BREAK 2
3456 3740 1175 TAD HOMEWA /CURRENT FIELD BITS
3457 3741 1106 TAD K4000 /WRITE FUNCTION

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3458 3742 4450 LDCMD /LOAD COMMAND
3459 3743 7344 CLA CLL CMA RAL
3460 3744 4451 LDCUR /LOAD CURRENT ADDRESS TO 7776
3461 3745 1076 TAD K0040 /BREAK ENABLE BIT
3462 3746 4455 LDMAN /LOAD AND GO
3463 3747 4456 RDBUF /READ BUFFER
3464 3750 4440 ACCMP1 /CHECK RESULTS
3465 3751 7610 SKP CLA /O.K. TRY LOCATION A
3466 3752 5371 JMP T03E /ERROR, DATA BREAK
3467 3753 7301 CLA CLL IAC
3468 3754 4453 CLRALL /DCLR "CLEAR CURRENT ADDRESS"
3469 3755 4444 ENMAN1 /ENTER MAINTENANCE MODE
3470 3756 3172 DCA ADREG /SETUP FOR ERROR PRINTER
3471 3757 1175 TAD HOMEWA /CURRENT FIELD BITS
3472 3760 1126 TAD K5000 /FUNCTION WRITE
3473 3761 4450 LDCMD /LOAD COMMAND
3474 3762 1154 TAD REG2
3475 3763 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3476 3764 1076 TAD K0040 /BREAK ENABLE BIT
3477 3765 4455 LDMAN /LOAD AND GO
3478 3766 4456 RDBUF /READ BUFFER
3479
3480 3767 4440 ACCMP1 /CHECK RESULTS
3481 3770 4435 NERROR /ALL WORKFD 4096 LOOPS
3482 3771 4436 T03E, ERROR /ERROR, DATA BREAK
3483 3772 3727 TST03 /SCOPE LOOP POINTER
3484 3773 4263 4263 /TEXT POINTER
3485
3486 /
3487 /VERIFY THAT CURRENT ADDRESS DOES INCREMENT FROM 7777
3488 /TO 0000. DO A WRITE DATA BREAK AND USE DATA PATTERN
3489 /ALL COMBINATION.
3490
3490 3774 7301 TST04, CLA CLL IAC
3491 3775 4453 CLRALL /CLEAR CONTROL
3492 3776 1153 TAD REG1
3493 3777 3000 DCA 0 /STORE OUTBOUND DATA
3494 4000 1154 TAD REG2
3495 4001 3532 DCA I K7777 /STORE OUTBOUND DATA
3496 4002 7340 CLA CLL CMA
3497 4003 4451 LDCUR /LOAD CURRENT ADDRESS
3498 4004 4444 ENMAN1 /ENTER MAINTENANCE MODE
3499 4005 1126 TAD K5000 /WRITE FUNCTION
3500 4006 1175 TAD HOMEWA /CURRENT FIELD
3501 4007 4450 LDCMD /LOAD COMMAND
3502 4010 7344 CLA CLL CMA R
3503 4011 3156 DCA TCNTR1 /2 BREAK COUNTER
3504 4012 1076 TAD K0040 /ENABLE BREAK BIT
3505 4013 4455 LDMAN /LOAD MAINTENANCE
3506 4014 2156 ISZ TCNTR1 /COUNT BREAKS
3507 4015 5213 JMP *-2 /DO 2
3508 4016 7300 CLA CLL
3509 4017 1154 TAD REG2
3510 4020 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3511 4021 4456 RDBUF /GET FIRST WORD
3512 4022 4440 ACCMP1 /CHECK IT

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3513 4023 7610 SKP CLA /FIRST O.K.
3514 4024 5233 JMP T04E /ERROR, FIRST WORD
3515 4025 3172 DCA ADREG /SETUP ERROR PRINTER
3516 4026 1153 TAD REG1
3517 4027 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3518 4030 4456 RDBUF /GET SECOND WORD
3519 4031 4440 ACCMP1 /CHECK IT
3520 4032 4435 NERROR /O.K. 4096 LOOPS
3521 4033 4436 T04E, ERROR /DATA BREAK
3522 4034 3774 TST04 /SCOPE LOOP POINTER
3523 4035 4263 4263 /TEXT POINTER
3524
3525 /
3526 /
3527 /VERIFY THAT CURRENT ADDRESS DOES INCREMENT
3528 /ADDRESS TEST FROM 0200 TO TST05 OF CURRENT
3529 /FIELD. DO A WRITE DATA BREAK.
3530
3530 4036 7301 TST05, CLA CLL IAC
3531 4037 4453 CLRALL /DCLR "CLR ALL"
3532 4040 7340 CLA CLL CMA
3533 4041 3153 DCA REG1 /SETUP FOR 1 PASS PER TEST
3534 4042 1100 TAD K0200
3535 4043 3157 DCA TCNTR2 /START AT ADDRESS 0200
3536 4044 1100 TAD K0200
3537 4045 4451 LDCUR /LOAD CURRENT ADDRESS
3538 4046 4444 ENMAN1 /ENTER MAINTENANCE MODE
3539 4047 4452 LDADD /KEEP WRITE INHIBIT CLEAR
3540 4050 1557 TAD I TCNTR2 /GET INSTRUCTION
3541 4051 3156 DCA TCNTR1 /SAVE INSTRUCTION
3542 4052 1157 TAD TCNTR2
3543 4053 7110 CLL RAR
3544 4054 7630 SZL CLA
3545 4055 7240 CLA CMA /USE DATA 7777
3546 4056 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3547 4057 1163 TAD GDREG2
3548 4060 3557 DCA I TCNTR2 /STORE OUTBOUND DATA
3549 4061 1175 TAD HOMEWA /CURRENT FIELD BITS
3550 4062 1106 TAD K4000 /WRITE FUNCTION
3551 4063 4450 LDCMD /LOAD COMMAND REGISTER
3552 4064 1076 TAD K0040 /BREAK ENABLE BIT
3553 4065 4455 LDMAN /LOAD AND GO
3554 4066 7300 CLA CLL
3555 4067 1156 TAD TCNTR1 /GET INSTRUCTION
3556 4070 3557 DCA I TCNTR2 /REPLACE INSTRUCTION
3557 4071 1157 TAD TCNTR2
3558 4072 3172 DCA ADREG /ADDRESS OF BREAK
3559 4073 4456 RDBUF /GET DATA
3560 4074 4440 ACCMP1 /CHECK RESULTS
3561 4075 7610 SKP CLA
3562 4076 5306 JMP T05E /ERROR, DATA BREAK
3563 4077 1157 TAD TCNTR2
3564 4100 1152 TAD TST05 /SPECIAL POINTER FOR START OF
3565 4101 7650 SNA CLA /THIS TEST.
3566 4102 5305 JMP T05OK /TEST O.K.
3567 4103 2157 ISZ TCNTR2

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3560 4104 5246 JMP T85R1 /LOOP DO 0200 TO T860
3569 4105 4435 T85OK, NERROR /THIS ADDRESS WORKED TRY NEXT
3570 4106 4436 T85E, ERROR /ERROR, DATA BREAK
3571 4107 4036 T85S /SCOPE LOOP POINTER
3572 4110 4263 4263 /TEXT POINTER
3573 /
3574 4111 5712 JMP I ,+1 /TO NEXT TEST
3575 4112 4200 T8706
3576 /
3577 /VERIFY THAT B LAST BREAK SETS AFTER 256 WRITE DATA BREAKS
3578 /AND VERIFY THAT DCLR CLEARS WRITE INHIBIT COUNTER.
3579 /
3580 4200 PAGE
3581 4200 7340 T8706, CLA CLL CMA
3582 4201 3153 DCA REG1 /SETUP FOR 1 PASS PER TEST
3583 4202 1143 TAD M255
3584 4203 3156 DCA TCNTR1 /SPECIAL COUNTER
3585 4204 7301 T86R1, CLA CLL IAC
3586 4205 4453 CLRALL /CLEAR CONTROL
3587 4206 1156 TAD TCNTR1
3588 4207 3157 DCA TCNTR2 /AMOUNT OF BREAKS TO DO
3589 4210 4444 ENMAN1 /ENTER MAINTENANCE MODE
3590 4211 1175 TAD HOMEWA /CURRENT FIELD BITS
3591 4212 1106 TAD K4000 /WRITE FUNCTION
3592 4213 4450 LDCMD /LOAD COMMAND
3593 4214 4451 T86R2, LDCUR /LOAD CURRENT ADDRESS
3594 4215 7340 CLA CLL CMA
3595 4216 3000 DCA 0 /STORE OUTBOUND DATA
3596 4217 7340 CLA CLL CMA
3597 4220 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3598 4221 1076 TAD K0040 /BREAK ENABLE BIT
3599 4222 4455 LDMAN /LOAD AND GO
3600 4223 4456 RDBUF /GET WORD
3601 4224 4440 ACCMP1 /CHECK RESULTS
3602 4225 7610 SKP CLA
3603 4226 5276 JMP T86E /DATA ERROR
3604 4227 2157 ISZ TCNTR2
3605 4230 5214 JMP T86R2 /DO 0-255 BREAKS
3606 4231 7301 CLA CLL IAC
3607 4232 4453 CLRALL /CLEAR CONTROL AND COUNTER
3608 4233 7340 CLA CLL CMA
3609 4234 1143 TAD M255
3610 4235 3157 DCA TCNTR2 /256 BREAK COUNTER
3611 4236 7300 T86R3, CLA CLL
3612 /
3613 4237 3000 DCA 0 /MAKE DATA PATTERN
3614 4240 3163 DCA GDREG2 /STORE OUTBOUND DATA
3615 4241 4444 ENMAN1 /SETUP COMPARE REGISTER
3616 4242 4451 LDCUR /ENTER MAINTENANCE MODE
3617 4243 1126 TAD K5000 /LOAD CURRENT ADDRESS
3618 4244 1175 TAD HOMEWA /WRITE FUNCTION
3619 4245 4450 LDCMD /CURRENT FIELD
3620 4246 1076 TAD K0040 /LOAD COMMAND
3621 4247 4455 LDMAN /ENABLE BREAK BIT
3622 4250 4456 RDBUF /LOAD MAINTENANCE
/GET WORD

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3623 4251 4440 ACCMP1 /CHECK RESULTS
3624 4252 7610 SKP CLA /WORD O.K.
3625 4253 5276 JMP T86E /DATA ERROR
3626 4254 2157 ISZ TCNTR2
3627 4255 5236 JMP T86R3 /DO 256 WRITE BREAKS
3628 4256 1107 TAD K7000
3629 4257 3160 DCA TCNTR3 /CLEAR COUNTER
3630 4260 7340 T86R4, CLA CLL CMA
3631 4261 3000 DCA 0 /STORE NOT OUTBOUND DATA
3632 4262 4451 LDCUR /LOAD CURRENT ADDRESS
3633 4263 1076 TAD K0040 /ENABLE BREAK BIT
3634 4264 4455 LDMAN /LOAD "SHOULD NOT BREAK"
3635 4265 4456 RDBUF /GET DATA
3636 4266 4440 ACCMP1 /CHECK IT
3637 4267 7610 SKP CLA /DATA O.K.
3638 4270 5276 JMP T86E /ERROR, DATA BREAK INHIBIT
3639 4271 2160 ISZ TCNTR3
3640 4272 5260 JMP T86R4 /DO "1000 FAKE" BREAKS
3641 4273 2156 ISZ TCNTR1
3642 4274 5204 JMP T86R1 /START ALL OVER WITH ONE LESS
3643 4275 4435 NERROR /TO NEXT TEST
3644 4276 4436 T86E, ERROR /ERROR, DATA BREAK
3645 4277 4200 T8706 /SCOPE LOOP POINTER
3646 4300 4263 4263 /TEXT POINTER
3647 /
3648 4301 5702 JMP I ,+1 /TO NEXT TEST
3649 4302 4303 T8707
3650 /
3651 /
3652 /VERIFY THAT B LAST BREAK SETS AFTER 128 BREAKS IF
3653 /HALF BIT IS SET, ALSO MAKE SURE LOAD DISK ADDRESS LOADS
3654 /THE INHIBIT COUNTER CORRECTLY.
3655 /
3656 4303 7340 T8707, CLA CLL CMA
3657 4304 3153 DCA REG1 /SETUP FOR 1 PASS PER TEST
3658 4305 1141 TAD M255
3659 4306 3156 DCA TCNTR1 /SPECIAL COUNTER
3660 4307 7301 T87R1, CLA CLL IAC
3661 4310 4453 CLRALL /CLEAR CONTROL
3662 4311 1156 TAD TCNTR1
3663 4312 3157 DCA TCNTR2 /AMOUNT OF BREAKS TO DO
3664 4313 4444 ENMAN1 /ENTER MAINTENANCE MODE
3665 4314 1077 TAD K0100 /HALF BIT
3666 4315 1175 TAD HOMEWA /CURRENT FIELD BITS
3667 4316 1106 TAD K4000 /WRITE FUNCTION
3668 4317 4450 LDCMD /LOAD COMMAND
3669 4320 4451 T87R2, LDCUR /LOAD CURRENT ADDRESS
3670 4321 7340 CLA CLL CMA
3671 4322 3000 DCA 0 /STORE OUTBOUND DATA
3672 4323 7340 CLA CLL CMA
3673 4324 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3674 4325 1076 TAD K0040 /BREAK ENABLE BIT
3675 4326 4455 LDMAN /LOAD AND GO
3676 4327 4456 RDBUF /GET WORD
3677 4330 4440 ACCMP1 /CHECK RESULTS

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3678 4331 7610 SKP CLA
3679 4332 5374 JMP T87E /DATA ERROR
3680 4333 2157 ISZ TCNTR2
3681 4334 5320 JMP T87R2 /DO SO MANY BREAKS
3682 4335 4452 L0ADD /LOAD ADDRESS AND INHIBIT COUNT
3683 4336 1141 TAD M128
3684 4337 3157 DCA TCNTR2 /128 BREAK COUNTER
3685 4340 7300 T87R3, CLA CLL
3686 /MAKE DATA WORD
3687 4341 3000 DCA 0 /STORE OUTBOUND DATA
3688 4342 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3689 4343 4451 L0CUR /LOAD CURRENT ADDRESS
3690 4344 1076 TAD K0040 /ENABLE BREAK BIT
3691 4345 4455 LDMAN /LOAD MAINTENANCE
3692 4346 4456 ROBUF /GET WORD
3693 4347 4440 ACCMP1 /CHECK RESULTS
3694 4350 7610 SKP CLA /WORD O.K.
3695 4351 5374 JMP T87E /DATA ERROR
3696 4352 2157 ISZ TCNTR2
3697 4353 5340 JMP T87R3 /DO 128 WRITE BREAKS
3698 4354 1107 TAD K7000
3699 4355 3160 DCA TCNTR1 /CLEAR COUNTER
3700 4356 7340 T87R4, CLA CLL CMA
3701 4357 3000 DCA 0 /STORE NOT OUTBOUND DATA
3702 4360 4451 L0CUR /LOAD CURRENT ADDRESS
3703 4361 1076 TAD K0040 /ENABLE BREAK BIT
3704 4362 4455 LDMAN /LOAD "SHOULD NOT BREAK"
3705 4363 4456 ROBUF /GET DATA
3706 4364 4440 ACCMP1 /CHECK IT
3707 4365 7610 SKP CLA /DATA O.K.
3708 4366 5374 JMP T87E /ERROR, DATA BREAK INHIBIT
3709 4367 2160 ISZ TCNTR3
3710 4370 5356 JMP T87R4 /DO "1000 FAKE" BREAKS
3711 4371 2156 ISZ TCNTR1
3712 4372 5307 JMP T87R1 /START ALL OVER WITH ONE LESS
3713 4373 4435 NERROR /TO NEXT TEST
3714 4374 4436 EPROR /ERROR, DATA BREAK
3715 4375 4303 TST87 /SCOPE LOOP POINTER
3716 4376 4263 4263 /TEXT POINTER
3717 /
3718 /VERIFY THAT "DATA BREAK" WORKS WITH A "READ"
3719 /TO LOCATION 0 OF CURRENT FIELD, USE DATA
3720 /PATTERN 0000 AND 7777.
3721 /
3722 4377 7301 TST88, CLA CLL IAC
3723 4400 4453 CLRALL /DCLR "CLF ALL"
3724 4401 1175 TAD HOMFMA /CURRENT FIELD
3725 4402 4450 L0CMD /LOAD COMMAND TO 0
3726 4403 1153 TAD REG1
3727 4404 7110 CLL RAR
3728 4405 7630 SZL CLA
3729 4406 7240 CLA CMA
3730 4407 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3731 4410 1163 TAD GDREG2 /GET VALUE TO LOAD
3732 4411 4427 LDBUF /LOAD UPPER BUFFER

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3733 4412 1076 TAD K0040
3734 4413 4455 LDMAN /LOAD AND GO
3735 4414 7300 CLA CLL
3736 4415 3172 DCA ADREG /ADDRESS FOR PRINTER
3737 4416 1000 TAD 0 /GET INBOUND WORD
3738 4417 3173 DCA DTREG /SAVE IT
3739 4420 1173 TAD DTREG
3740 4421 4440 ACCMP1 /CHECK
3741 4422 4435 NERROR /O.K. 4096 LOOPS
3742 4423 4436 ERROR /ERROR, DATA BREAK
3743 4424 4377 TST88 /SCOPE LOOP POINTER
3744 4425 4263 4263 /TEXT POINTER
3745 /
3746 /
3747 /
3748 /VERIFY WITH A "READ" THAT "DATA BREAK" WORKS
3749 /FROM LOCATION "7777" OF CURRENT FIELD USE
3750 /DATA PATTERN 0000 AND 7777.
3751 /
3752 4426 7301 TST89, CLA CLL IAC
3753 4427 4453 CLRALL
3754 4430 1103 TAD K1000
3755 4431 1175 TAD HOMEMA /CURRENT FIELD
3756 4432 4450 L0CMD /LOAD COMMAND FOR READ
3757 4433 1153 TAD REG1
3758 4434 7110 CLL RAR
3759 4435 7630 SZL CLA
3760 4436 7240 CLA CMA
3761 4437 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3762 4440 7240 CLA CMA
3763 4441 4451 L0CUR /LOAD CURRENT ADDRESS
3764 4442 1163 TAD GDREG2 /GET VALUE TO LOAD
3765 4443 4427 L0BUF /LOAD UPPER BUFFER
3766 4444 1076 TAD K0040 /ENABLE BREAK BIT
3767 4445 4455 LDMAN /LOAD AND GO
3768 4446 7300 CLA CLL
3769 4447 1532 TAD I K7777 /GET "WORD"
3770 4450 3173 DCA DTREG /SAVE INBOUND WORD
3771 4451 1173 TAD DTREG
3772 4452 4440 ACCMP1 /CHECK IT
3773 4453 4435 NERROR /O.K. 4096 LOOPS
3774 4454 4436 EPROR /ERROR, DATA BREAK
3775 4455 4426 TST89 /SCOPE LOOP POINTER
3776 4456 4263 4263 /TEXT POINTER
3777 /
3778 /VERIFY THAT "DATA BREAK" WITH A "READ" TO
3779 /CURRENT FIELD LOCATION 0 USE DATA PATTERN
3780 /5252 + 2525
3781 /
3782 4457 7301 TST90, CLA CLL IAC
3783 4460 4453 CLRALL /DCLR
3784 4461 1175 TAD HOMEMA /CURRENT FIELD
3785 4462 4450 L0CMD /LOAD COMMAND TO READ
3786 4463 1153 TAD REG1
3787 4464 7110 CLL RAR

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3788 4465 7630 SZL CLA /WHAT DDATA
3789 4466 1120 TAD K2525 /DATA 5252
3790 4467 1120 TAD K2525
3791 4470 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3792 4471 1163 TAD GDREG2 /GET VALUE TO LOAD
3793 4472 4427 LDBUF /LOAD UPPER BUFFER
3794 4473 4451 LDCUR /LOAD CURRENT ADDRESS TO 0
3795 4474 1076 TAD K0040 /ENABLE BREAK
3796 4475 4455 LDMAN /LOAD AND GO
3797 4476 7300 CLA CLL
3798 4477 1000 TAD 0
3799 4500 3173 DCA DTREG /SAVE DATA
3800 4501 1000 TAD 0
3801 4502 4440 ACCMP1 /CHECK
3802 4503 4435 NERROR /O.K, 4096 LOOPS
3803 4504 4436 ERROR /ERROR, DATA BREAK
3804 4505 4457 TST90 /SCOPE LOOP POINTER
3805 4506 4263 4263 /TEXT POINTER
3806
3807 /
3808 /VERIFY THAT "DATA BREAK" WORD WITH A "READ"
3809 /TO CURRENT FIELD LOCATION LOCATION 7777.
3810 /USE DATA PATTERN 5252 + 2525
3811 4507 7301 TST91, CLA CLL IAC
3812 4510 4453 CLRALL
3813 4511 1175 TAD HOMEMA /CURRENT FIELD
3814 4512 4450 LDCMD /LOAD COMMAND
3815 4513 7240 CLA CMA
3816 4514 4451 LDCUR /LOAD CURRENT ADDRESS
3817 4515 1153 TAD REG1
3818 4516 7110 CLL RAR
3819 4517 7630 SZL CLA /WHAT DATA TO USE
3820 4520 1120 TAD K2525 /DATA 5252
3821 4521 1120 TAD K2525
3822 4522 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3823 4523 1163 TAD GDREG2 /GET VALUE TO LOAD
3824 4524 4427 LDBUF /LOAD UPPER BUFFER
3825 4525 1076 TAD K0040 /ENABLE BREAK BIT
3826 4526 4455 LDMAN /LOAD MAINTENANCE
3827 4527 7300 CLA CLL
3828 4530 1532 TAD I K7777 /GET BREAK WORD
3829 4531 3173 DCA DTREG /SAVE FOR ERROR PRINTER
3830 4532 1173 TAD DTREG
3831 4533 4440 ACCMP1 /CHECK
3832 4534 4435 NERROR /O.K, 4096 LOOPS
3833 4535 4436 ERROR /ERROR, DATA BREAK
3834 4536 4507 TST91 /SCOPE LOOP POINTER
3835 4537 4263 4263 /TEXT POINTER
3836
3837 4540 5741 JMP I .+1 /TO NEXT TEST
3838 4541 4600 TST92
3839
3840 /
3841 /VERIFY THAT "DATA BUFFERS" CAN BE FILLED
3842 /ON A WRITE DATA BREAK FROM LOCATION

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3843 /0 OF CURRENT FIELD, USE ALL COMBINATIONS.
3844 /
3845 PAGE
3846 4600 7301 TST92, CLA CLL IAC
3847 4601 4453 CLRALL /DCLR "CLR ALL"
3848 4602 4444 ENMAN1 /ENTER MAINTENANCE MODE
3849 4603 1133 TAD M4
3850 4604 3156 DCA TCNTR1 /FOR FOUR WORDS
3851 4605 1153 TAD REG1
3852 4606 3157 DCA TCNTR2 /DATA START
3853 4607 1175 TAD HOMEMA /CURRENT FIELD
3854 4610 1106 TAD K4000 /WRITE FUNCTION
3855 4611 4450 LDCMD /LOAD COMMAND
3856 4612 4451 T92R1, LDCUR /LOAD CURRENT ADDRESS TO 0
3857 4613 1157 TAD TCNTR2
3858 4614 3000 DCA 0 /STORE OUT BOUND DATA
3859 4615 1076 TAD K0040 /ENABLE BREAK BIT
3860 4616 4455 LDMAN /LOAD AND GO
3861 4617 7300 CLA CLL
3862 4620 2157 ISZ TCNTR2 /UPDATE DATA WORD
3863 4621 7000 NOP
3864 4622 2156 ISZ TCNTR1
3865 4623 5212 JMP T92R1 /FILL BUFFER
3866 4624 1133 TAD M4
3867 4625 3156 DCA TCNTR1
3868 4626 1153 TAD REG1
3869 4627 3163 DCA GDREG2
3870 4630 4456 T92R2, RDBUF
3871 4631 4440 ACCMP1
3872 4632 7610 SKP CLA
3873 4633 5241 JMP T92E
3874 4634 2163 ISZ GDREG2
3875 4635 7000 NOP
3876 4636 2156 ISZ TCNTR1
3877 4637 5230 JMP T92R2
3878 4640 4435 NERROR /O.K, 4096 LOOPS
3879 4641 4436 ERROR /ERROR, DATA BREAK
3880 4642 4600 TST92 /SCOPE LOOP POINTER
3881 4643 4263 4263 /TEXT POINTER
3882 /
3883 4644 5645 JMP I .+1 /TO NEXT TEST
3884 4645 4646 TST93
3885
3886 /
3887 /VERIFY THAT "DATA BREAK" WORKS WITH
3888 /A "READ" TO CURRENT FIELD LOCATION 0
3889 /TRY ALL COMBINATIONS
3890 /
3891 4646 7301 TST93, CLA CLL IAC
3892 4647 4453 CLRALL /DCLR "CLR ALL"
3893 4650 1175 TAD HOMEMA /CURRENT FIELD
3894 4651 4450 LDCMD /LOAD COMMAND FOR READ
3895 4652 3172 DCA ADREG /SAVE ADDRESS
3896 4653 1154 TAD REG2
3897 4654 3163 DCA GDREG2 /SETUP COMPARE REGISTER

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3898 4655 1163 TAD GDREG2 /GET VALUE TO LOAD
3899 4656 4427 LDBUF /LOAD UPPER BUFFER
3900 4657 1076 TAD K0040 /BREAK ENABLE BIT
3901 4660 4455 LDMAN /LOAD AND GO
3902 4661 7300 CLA CLL
3903 4662 1000 TAD 0 /GET DATA WORD
3904 4663 3173 DCA DTREG /SAVE FOR ERROR PRINTER
3905 4664 1173 TAD DTREG
3906 4665 4440 ACCMP1 /CHECK
3907 4666 4435 NERROR /O.K. 4096 LOOPS
3908 4667 4436 ERROR /ERROR, DATA BREAK
3909 4670 4646 TST93 /SCOPE LOOP POINTER
3910 4671 4263 4263 /TEXT POINTER
3911 /
3912 /VERIFY THAT A READ DATA BREAK DOES OCCUR
3913 /WHEN FUNCTION = 2
3914 /
3915 4672 7301 TST94, CLA CLL IAC
3916 4673 4453 CLRALL /DCLR
3917 4674 1153 TAD REG1 /GET VALUE TO LOAD
3918 4675 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3919 4676 1163 TAD GDREG2
3920 4677 4427 LDBUF /LOAD UPPER BUFFER
3921 4700 1163 TAD GDREG2
3922 4701 7040 CMA
3923 4702 3000 DCA 0
3924 4703 4451 LDCUR /SET CURRENT ADDRESS TO 0
3925 4704 1175 TAD HOMEMA /CURRENT FIELD
3926 4705 1104 TAD K2000
3927 4706 4450 LDCMD /LOAD COMMAND REGISTER
3928 4707 1076 TAD K0040 /ENABLE BREAK
3929 4710 4455 LDMAN /GO
3930 4711 7300 CLA CLL
3931 4712 1000 TAD 0
3932 4713 3173 DCA DTREG /SAVE FOR ERROR PRINTER
3933 4714 1173 TAD DTREG
3934 4715 4440 ACCMP1 /DID 0 CHANGE
3935 4716 4435 NERROR /ALL O.K.
3936 4717 4436 T94E, ERROR /ERROR, DATA BREAK
3937 4720 4672 TST94 /SCOPE LOOP POINTER
3938 4721 4263 4263 /TEXT POINTER
3939 /
3940 /VERIFY THAT A READ DATA BREAK DOES OCCUR
3941 /WHEN FUNCTION = 3
3942 /
3943 4722 7301 TST95, CLA CLL IAC
3944 4723 4453 CLRALL /DCLR
3945 4724 1154 TAD REG2
3946 4725 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3947 4726 1163 TAD GDREG2
3948 4727 4427 LDBUF /LOAD UPPER BUFFER
3949 4730 1163 TAD GDREG2
3950 4731 7040 CMA
3951 4732 3000 DCA 0
3952 4733 4451 LDCUR /SET CURRENT ADDRESS TO 0

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3953 4734 1175 TAD HOMEMA /CURRENT FIELD
3954 4735 1103 TAD K1000
3955 4736 1104 TAD K2000
3956 4737 4450 LDCMD /LOAD COMMAND REGISTER
3957 4740 1076 TAD K0040 /ENABLE BREAK
3958 4741 4455 LDMAN /GO
3959 4742 7300 CLA CLL
3960 4743 1000 TAD 0
3961 4744 3173 DCA DTREG /SAVE FOR ERROR PRINTER
3962 4745 1173 TAD DTREG
3963 4746 4440 ACCMP1 /DID 0 CHANGE
3964 4747 4435 NERROR /ALL O.K.
3965 4750 4436 T95E, ERROR /ERROR, DATA BREAK
3966 4751 4722 TST95 /SCOPE LOOP POINTER
3967 4752 4263 4263 /TEXT POINTER
3968 /
3969 4753 5754 JMP I .+1 /TO NEXT TEST
3970 4754 5000 TST97
3971 /
3972 /
3973 /
3974 /VERIFY THAT A READ DATA BREAK DOES OCCUR
3975 /WHEN FUNCTION = 6
3976 /
3977 5000 7301 TST97, CLA CLL IAC
3978 5001 4453 CLRALL /DCLR
3979 5002 1153 TAD REG1
3980 5003 3163 DCA GDREG2 /SETUP COMPARE REGISTER
3981 5004 1163 TAD GDREG2
3982 5005 4427 LDBUF /LOAD UPPER BUFFER
3983 5006 1163 TAD GDREG2
3984 5007 7040 CMA
3985 5010 3000 DCA 0
3986 5011 4451 LDCUR /SET CURRENT ADDRESS TO 0
3987 5012 1175 TAD HOMEMA /CURRENT FIELD
3988 5013 1106 TAD K4000
3989 5014 1104 TAD K2000
3990 5015 4450 LDCMD /LOAD COMMAND REGISTER
3991 5016 1076 TAD K0040 /ENABLE BREAK
3992 5017 4455 LDMAN /GO
3993 5020 7300 CLA CLL
3994 5021 1000 TAD 0
3995 5022 3173 DCA DTREG /SAVE FOR ERROR PRINTER
3996 5023 1173 TAD DTREG
3997 5024 4440 ACCMP1 /DID 0 CHANGE
3998 5025 4435 NERROR /ALL O.K.
3999 5026 4436 T97E, ERROR /ERROR, DATA BREAK
4000 5027 5000 TST97 /SCOPE LOOP POINTER
4001 5030 4263 4263 /TEXT POINTER
4002 /
4003 /VERIFY THAT A READ DATA BREAK DOES OCCUR
4004 /WHEN FUNCTION = 7
4005 /
4006 5031 7301 TST98, CLA CLL IAC
4007 5032 4453 CLRALL /DCLR

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4008 5033 1154 TAD REG2
4009 5034 3163 DCA GDREG2 /SETUP COMPARE REGISTER
4010 5035 1163 TAD GDREG2
4011 5036 4427 LDBUF /LOAD UPPER BUFFER
4012 5037 1161 TAD GDREG2
4013 5040 7040 CMA
4014 5041 3000 DCA 0
4015 5042 4451 LDCUR /SET CURRENT ADDRESS TO 0
4016 5043 1175 TAD HOMEMA /CURRENT FIELD
4017 5044 1106 TAD K4000
4018 5045 1103 TAD K1000
4019 5046 1104 TAD K2000
4020 5047 4450 LDCMD /LOAD COMMAND REGISTER
4021 5050 1076 TAD K0040 /ENABLE BREAK
4022 5051 4455 LDMAN /GO
4023 5052 7300 CLA CLL
4024 5053 1000 TAD 0
4025 5054 3173 DCA DTREG /SAVE FOR ERROR PRINTER
4026 5055 1173 TAD DTREG
4027 5056 4440 ACCMP1 /DID 0 CHANGE
4028 5057 4435 NERROR /ALL 0,K
4029 5060 4436 T98E, ERROR /ERROR, DATA BREAK
4030 5061 5031 TST98 /SCOPE LOOP POINTER
4031 5062 4263 4263 /TEXT POINTER
4032 /
4033 /VERIFY THAT ALL DATA BUFFERS CAN BE FULL
4034 /AT ONCE, USE A READ BREAK AND PATTERN
4035 /ALL COMBINATIONS,
4036 /
4037 5063 7301 TST99, CLA CLL IAC
4038 5064 4453 CLRALL /DCLR "CLR ALL"
4039 5065 1154 TAD REG2
4040 5066 3161 DCA TCNTR4
4041 5067 1133 TAD M4
4042 5070 3160 DCA TCNTR3 /COUNTER FOR # OF BUFFERS
4043 5071 1161 TAD TCNTR4
4044 5072 4427 LDBUF /LOAD UPPER BUFFER
4045 5073 7340 CLA CLL CMA
4046 5074 1161 TAD TCNTR4
4047 5075 3161 DCA TCNTR4
4048 5076 2160 ISZ TCNTR3
4049 5077 5271 JMP T99R1 /4 COUNT, SKIP WHEN BUFFERS FULL
4050 5100 1154 TAD REG2
4051 5101 3163 DCA GDREG2 /SETUP FOR FIRST CNMPARE
4052 5102 1133 TAD M4
4053 5103 3160 DCA TCNTR3
4054 5104 1175 TAD HOMEMA /CURRENT FIELD
4055 5105 4450 LDCMD /LOAD COMMAND
4056 5106 4451 T99R2, LDCUR /LOAD CURRENT ADDRESS
4057 5107 1076 TAD K0040 /GET ENABLE BREAK
4058 5110 4455 LDMAN /LOAD MAINTENANCE
4059 5111 7300 CLA CLL
4060 5112 1000 TAD 0 /GET DATA
4061 5113 3173 DCA DTREG /SAVE FOR PRINTER
4062 5114 1173 TAD DTREG

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4063 5115 4440 ACCMP1 /CHECK
4064 5116 7610 SKP CLA /O.K. CHECK NEXT
4065 5117 5326 JMP T99E /ERROR DATA BUFFERS
4066 5120 7340 CLA CLL CMA
4067 5121 1163 TAD GDREG2
4068 5122 3163 DCA GDREG2 /SETUP FOR NEXT
4069 5123 2160 ISZ TCNTR3
4070 5124 5306 JMP T99R2
4071 5125 4435 NERROR /O.K. 4096 LOOPS

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4072 5126 4436 T99E, ERROR /ERROR, DAT* BUFFERS
4073 5127 5063 TST99 /SCOPE LOOP JINTER
4074 5130 4263 4263 /TEXT POINTER
4075
4076
4077 /VERIFY A WRITE THEN READ BREAK FROM
4078 /LOCATIONS 7777 THEN 0000 OF THE
4079 /CURRENT FIELD, USE PATTERS 0-7777.
4080
4081 5131 7301 TST100, CLA CLL IAC
4082 5132 4453 CLRALL /CLEAR CONTROL
4083 5133 4444 ENMAN1 /ENTER MAINTENANCE
4084 5134 7340 CLA CLL CMA
4085 5135 4451 LDCUR /LOAD CURRENT ADDRESS
4086 5136 1154 TAD REG2
4087 5137 3532 DCA I K7777 /STORE OUT BOUND DATA
4088 5140 1175 TAD HOMEMA /CURRENT FIELD
4089
4090
4091 5141 1106 TAD K4000 /WRITE FUNCTION
4092 5142 4450 LDCMD /LOAD COMMAND REGISTER
4093 5143 1076 TAD K0040 /ENABLE BREAK
4094 5144 4455 LDMAN /ISSUE MAINTENANCE IOT
4095 5145 7300 CLA CLL /READ FUNCTION
4096 5146 1175 TAD HOMEMA /CURRENT FIELD
4097 5147 4450 LDCMD /LOAD COMMAND REGISTER
4098 5150 1076 TAD K0040 /ENABLE BREAK
4099 5151 4455 LDMAN /ISSUE MAINTENANCE IOT
4100 5152 7300 CLA CLL
4101 5153 2172 ISZ ADREG
4102 5154 7000 NOP
4103 5155 1154 TAD REG2
4104 5156 3163 DCA GDREG2 /SETUP COMPARE
4105 5157 1000 TAD 0
4106 5160 3173 DCA DTREG /STORE DATA READ FOR PRINTER
4107 5161 1000 TAD 0
4108 5162 4440 ACCMP1 /CHECK RESULTS
4109 5163 4435 NERROR /O.K, 4096 LOOPS
4110 5164 4436 ERROR /ERROR, WRITE OR READ
4111 5165 5131 TST100 /SCOPE POINTER
4112 5166 4263 4263
4113 5167 7301 CLA CLL IAC
4114 5170 1176 TAD FLDMAX
4115 5171 7650 SNA CLA /IS IT TEST EXTENDED MEM.
4116 5172 5432 JMP I XEND /NO, END OF TEST
4117
4118 5173 5774 JMP I .+1 /TO NEXT TEST
4119 5174 5201 EXTFLD
4120
4121 5200 /PAGE
4122
4123 /ROUTINE TO CHECK IF CONSOLE PACKAGE ACTIVE.
4124 /IF SO, THEN INHIBIT EXTENDED MEMORY TESTS.
4125
4126 5200 5670 TSTLAS, ENDTST

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4127 5201 1022 EXTFLD, TAD 22
4128 5202 0102 AND K0400 /MASK CLASSIC BIT
4129 5203 7640 SZA CLA /ON CLASSIC SYSTEM?
4130 5204 5600 JMP I TSTLAS /BY-PASS EXT. TESTS.
4131
4132 /VERIFY THAT DATA BREAK WORKS WITH A WRITE FROM
4133 /LOCATION 0000 IN ALL EXISTING EXTENDED FIELDS.
4134 /USE DATA PATTERN 0000 + 7777.
4135
4136 5205 7301 TST101, CLA CLL IAC
4137
4138
4139
4140
4141
4142
4143 5206 4453 CLRALL /DCLR
4144 5207 4444 ENMAN1 /ENTER MAINTENANCE MODE
4145 5210 1150 TAD KCDF
4146 5211 3232 DCA TOFLD2 /START FIELD 0
4147 5212 1176 TAD FLDMAX
4148 5213 3156 DCA TCNTR1 /FIELDS TO TEST -1
4149 5214 1433 TAD I THSFLD
4150 5215 3234 DCA RTFLD2 /RETURN FIELD CDF
4151 5216 1153 TAD REG1
4152 5217 7110 CLL RAR
4153 5220 7630 SZL CLA /USE DATA 7777 IF LINK IS SET
4154 5221 7240 CLA CMA
4155 5222 3163 DCA GDREG2 /SETUP COMPARE REGISTER
4156 5223 4451 LDCUR /SET CURRENT ADDRESS TO 0000
4157 5224 1232 TAD TOFLD2
4158 5225 7041 CIA
4159 5226 1234 TAD RTFLD2
4160 5227 7650 SNA CLA /CURRENT FIELD
4161 5230 5247 JMP NEXFL2 /YES, NOT THIS ONE
4162 5231 1163 TAD GDREG2 /OUTBOUND DATA
4163 5232 7402 TOFLD2, HLT /MODIFIED CDF
4164 5233 3464 DCA I K0000 /STORE DATA
4165 5234 7402 RTFLD2, HLT /HOME CDF
4166 5235 1232 TAD TOFLD2
4167 5236 0114 AND K0070
4168 5237 1106 TAD K4000 /WRITE
4169 5240 4450 LDCMD /LOAD COMMAND REGISTER
4170 5241 1076 TAD K0040 /ENABLE WRITE BREAK
4171 5242 4455 LDMAN /GO
4172 5243 4456 RDBUF /GET RESULTS
4173 5244 4440 ACCMP1 /CHECK RESULTS
4174 5245 7610 SKP CLA /O.K, TRY NEXT
4175 5246 5257 JMP T101E /ERROR
4176 5247 2156 NEXFL2, ISZ TCNTR1
4177 5250 7610 SKP CLA
4178 5251 5256 JMP T101D /DONE WITH ALL
4179 5252 1232 TAD TOFLD2
4180 5253 1073 TAD K0010
4181 5254 3232 DCA TOFLD2 /SET TO NEXT FIELD

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4182 5255 5223 JMP T101R /TRY IT
4183 5256 4435 T101D, NERROR /O.K 4096 LOOPS
4184 5257 4436 T101E, ERROR /ERROR, DATA BREAK
4185 5260 5205 TST101 /SCOPE LOOP POINTER
4186 5261 4263 4263 /TEXT POINTER
4187 /
4188 /
4189 /
4190 /VERIFY THAT DATA BREAK WORKS WITH A WRITE FROM
4191 /LOCATION 0000 IN ALL EXISTING EXTENDED FIELDS,
4192 /USE DATA PATTERN 2525 + 5252.
4193 /
4194 5262 7301 TST102, CLA CLL IAC
4195 5263 4453 CLRALL /DCLR
4196 5264 4444 ENMAN1 /ENTER MAINTENANCE MODE
4197 5265 1150 TAD KCDF
4198 5266 3310 DCA TOFLD3 /START FIELD 0
4199 5267 1176 TAD FLDMAX
4200 5270 3156 DCA TCNTR1 /FIELDS TO TEST -1
4201 5271 1433 TAD I THSFLO
4202 5272 3312 DCA RTFLD3 /RETURN FIELD CDF
4203 5273 1153 TAD REG1
4204 5274 7110 CLL RAR
4205 5275 7630 SZL CLA /USE DATA 5252 IF LINK IS SET
4206 5276 1120 TAD K2525
4207 5277 1120 TAD K2525
4208 5300 3163 DCA GDREG2 /SETUP COMPARE REGISTER
4209 5301 4451 T102R, LDCUR /SET CURRENT ADDRESS TO 0000
4210 5302 1310 TAD TOFLD3
4211 5303 7041 CIA
4212 5304 1312 TAD RTFLD3
4213 5305 7650 SNA CLA /CURRENT FIELD
4214 5306 5325 JMP NEXFL3 /YES, NOT THIS ONE
4215 5307 1163 TAD GDREG2 /OUTBOUND DATA
4216 5310 7402 TOFLD3, HLT /MODIFIED CDF
4217 5311 3464 DCA I K0000 /STORE DATA
4218 5312 7402 RTFLD3, HLT /HOME CDF
4219 5313 1310 TAD TOFLD3
4220 5314 0114 AND K0070
4221 5315 1106 TAD K4000 /WRITE
4222 5316 4450 LDCMD /LOAD COMMAND REGISTER
4223 5317 1076 TAD K0040 /ENABLE WRITE BREAK
4224 5320 4455 LDMAN /GO
4225 5321 4456 RDBUF /GET RESULTS
4226 5322 4440 ACCMP1 /CHECK RESULTS
4227 5323 7610 SKP CLA /O.K, TRY NEXT
4228 5324 5335 JMP T102E /ERROR
4229 5325 2156 NEXFL3, ISZ TCNTR1
4230 5326 7610 SKP CLA
4231 5327 5334 JMP T102D /DONE WITH ALL
4232 5330 1310 TAD TOFLD3
4233 5331 1073 TAD K0010
4234 5332 3310 DCA TOFLD3 /SET TO NEXT FIELD
4235 5333 5301 JMP T102R /TRY IT
4236 5334 4435 T102D, NERROR /O.K 4096 LOOPS

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4237 5335 4436 T102E, ERROR /ERROR, DATA BREAK
4238 5336 5262 TST102 /SCOPE LOOP POINTER
4239 5337 4263 4263 /TEXT POINTER
4240 5340 5741 JMP I ,+1
4241 5341 5400 TST103
4242 5400 PAGE
4243 /
4244 /VERIFY THAT DATA BREAK WORKS WITH A WRITE FROM
4245 /LOCATION 7777 IN ALL EXISTING EXTENDED FIELDS,
4246 /USE DATA PATTERN 0000 + 7777.
4247 /
4248 5400 7301 TST103, CLA CLL IAC
4249 5401 4453 CLRALL /DCLR
4250 5402 4444 ENMAN1 /ENTER MAINTENANCE MODE
4251 5403 1150 TAD KCDF
4252 5404 3226 DCA TOFLD4 /START FIELD 0
4253 5405 1176 TAD FLDMAX
4254 5406 3156 DCA TCNTR1 /FIELDS TO TEST -1
4255 5407 1433 TAD I THSFLO
4256 5410 3230 DCA RTFLD4 /RETURN FIELD CDF
4257 5411 1153 TAD REG1
4258 5412 7110 CLL RAR
4259 5413 7630 SZL CLA /USE DATA 7777 IF LINK IS SET
4260 5414 7240 CLA CMA
4261 5415 3163 DCA GDREG2 /SETUP COMPARE REGISTER
4262 5416 7240 T103R, CLA CMA
4263 5417 4451 LDCUR /SET CURRENT ADDRESS TO 7777
4264 5420 1226 TAD TOFLD4
4265 5421 7041 CIA
4266 5422 1230 TAD RTFLD4
4267 5423 7650 SNA CLA /CURRENT FIELD
4268 5424 5243 JMP NEXFL4 /YES, NOT THIS ONE
4269 5425 1163 TAD GDREG2 /OUTBOUND DATA
4270 5426 7402 TOFLD4, HLT /MODIFIED CDF
4271 5427 3532 DCA I K7777 /STORE DATA
4272 5430 7402 RTFLD4, HLT /HOME CDF
4273 5431 1226 TAD TOFLD4
4274 5432 0114 AND K0070
4275 5433 1106 TAD K4000 /WRITE
4276 5434 4450 LDCMD /LOAD COMMAND REGISTER
4277 5435 1076 TAD K0040 /ENABLE WRITE BREAK
4278 5436 4455 LDMAN /GO
4279 5437 4456 RDBUF /GET RESULTS
4280 5440 4440 ACCMP1 /CHECK RESULTS
4281 5441 7610 SKP CLA /O.K, TRY NEXT
4282 5442 5253 JMP T103E /ERROR
4283 5443 2156 NEXFL4, ISZ TCNTR1
4284 5444 7610 SKP CLA
4285 5445 5252 JMP T103D /DONE WITH ALL
4286 5446 1226 TAD TOFLD4
4287 5447 1073 TAD K0010
4288 5450 3226 DCA TOFLD4 /SET TO NEXT FIELD
4289 5451 5216 JMP T103R /TRY IT
4290 5452 4435 T103D, NERROR /O.K 4096 LOOPS
4291 5453 4436 T103E, ERROR /ERROR, DATA BREAK

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4292 5454 5400 TST103 /SCOPE LOOP POINTER
4293 5455 4263 4263 /TEXT POINTER
4294 /
4295 /
4296 /
4297 /VERIFY THAT DATA BREAK WORKS WITH A WRITE FROM
4298 /LOCATION 7777 IN ALL EXISTING EXTENDED FIELDS.
4299 /USE DATA PATTERN 2525 + 5252.
4300 /
4301 5456 7301 TST104, CLA CLL IAC
4302 5457 4453 CLRALL /DCLR
4303 5460 4444 ENMAN1 /ENTER MAINTENANCE MODE
4304 5461 1150 TAD KCDF
4305 5462 3305 DCA TOFLD5 /START FIELD 0
4306 5463 1176 TAD FLDMAX
4307 5464 3156 DCA TCNTR1 /FIELDS TO TEST -1
4308 5465 1433 TAD I THSFLD
4309 5466 3307 DCA RTFLD5 /RETURN FIELD CDF
4310 5467 1153 TAD REG1
4311 5470 7110 CLL RAR
4312 5471 7630 SZL CLA /USE DATA 5252 IF LINK IS SET
4313 5472 1120 TAD K2525
4314 5473 1120 TAD K2525
4315 5474 3163 DCA GDREG2 /SETUP COMPARE REGISTER
4316 5475 7240 T104R, CLA CMA
4317 5476 4451 LDCUR /SET CURRENT ADDRESS TO 7777
4318 5477 1305 TAD TOFLD5
4319 5500 7041 CIA
4320 5501 1307 TAD RTFLD5
4321 5502 7650 SNA CLA /CURRENT FIELD
4322 5503 5322 JMP NEXFL5 /YES, NOT THIS ONE
4323 5504 1163 TAD GDREG2 /OUTBOUND DATA
4324 5505 7402 TOFLD5, HLT /MODIFIED CDF
4325 5506 3532 DCA I K7777 /STORE DATA
4326 5507 7402 RTFLD5, HLT /HOME CDF
4327 5510 1305 TAD TOFLD5
4328 5511 0114 AND K0070
4329 5512 1106 TAD K4000 /WRITE
4330 5513 4450 LDCMD /LOAD COMMAND REGISTER
4331 5514 1076 TAD K0040 /ENABLE WRITE BREAK
4332 5515 4455 LDMAN /GO
4333 5516 4456 RDBUF /GET RESULTS
4334 5517 4440 ACCMP1 /CHECK RESULTS
4335 5520 7610 SKP CLA /O.K, TRY NEXT
4336 5521 5332 JMP T104E /ERROR
4337 5522 2156 NEXFL5, ISZ TCNTR1
4338 5523 7610 SKP CLA
4339 5524 5331 JMP T104D /DONE WITH ALL
4340 5525 1305 TAD TOFLD5
4341 5526 1073 TAD K0010
4342 5527 3305 DCA TOFLD5 /SET TO NEXT FIELD
4343 5530 5275 JMP T104R /TRY IT
4344 5531 4435 T104D, NERROR /O.K 4096 LOOPS
4345 5532 4436 T104E, ERROR /ERROR, DATA BREAK
4346 5533 5456 TST104 /SCOPE LOOP POINTER

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4347 5534 4263 4263 /TEXT POINTER
4348 5535 5736 JMP I .+1
4349 5536 5600 TST105
4350 5600 PAGE
4351 /
4352 /VERIFY THAT DATA BREAK WORKS FROM ALL LOCATIONS
4353 /IN ALL EXISTING EXTENDED FIELDS.
4354 /USE DATA PATTERN ALL COMBINATIONS
4355 /
4356 5600 1150 TST105, TAD KCDF
4357 5601 3221 DCA TOFLD1
4358 5602 1176 TAD FLDMAX
4359 5603 3156 DCA TCNTR1
4360 5604 1433 TAD I THSFLD
4361 5605 3245 DCA RTFLD1
4362 5606 1153 TAD REG1
4363 5607 3163 DCA GDREG2 /SETUP COMPARE REGISTER
4364 5610 7301 T105R, CLA CLL IAC
4365 5611 4453 CLRALL /DCLR
4366 5612 4444 ENMAN1 /ENTER MAINTENANCE MODE
4367 5613 1221 TAD TOFLD1
4368 5614 7041 CIA
4369 5615 1245 TAD RTFLD1
4370 5616 7650 SNA CLA /IS IT CURRENT FIELD
4371 5617 5255 JMP NEXFL1 /YES, BYPASS
4372 5620 1163 TAD GDREG2
4373 5621 0000 TOFLD1, 0 /MODIFIED CDF
4374 5622 3554 DCA I REG2 /STORE DATA WORD
4375 5623 1221 TAD TOFLD1
4376 5624 0114 AND K0070 /MASK DF BITS
4377 5625 1106 TAD K4000
4378 5626 4450 LDCMD /LOAD COMMAND REGISTER
4379 5627 1154 TAD REG2
4380 5630 4451 LDCUR /LOAD CURRFNT ADDRESS
4381 5631 1076 TAD K0040 /ENABLE BREAK
4382 5632 4455 LDMAN /GO
4383 5633 7301 CLA CLL IAC
4384 5634 1154 TAD REG2
4385 5635 3172 DCA ADREG /SETUP BREAK TO ADDRESS
4386 5636 1221 TAD TOFLD1
4387 5637 0114 AND K0070 /MASK FIELD BITS
4388 5640 4450 LDCMD /LOAD COMMAND
4389 5641 1076 TAD K0040
4390 5642 4455 LDMAN /LOAD MAINTENANCE
4391 5643 7300 CLA CLL
4392 5644 1572 TAD I ADREG /GET DATA READ
4393 5645 0000 RTFLD1, 0 /CURRENT FIELD CDF
4394 5646 3173 DCA DTREG /STORE FOR PRINTER
4395 5647 1173 TAD DTREG
4396 5650 4440 ACCMP1 /CHECK RESULTS
4397 5651 7610 SKP CLA /THIS FIELD O.K.
4398 5652 5265 JMP T105E /ERROR
4399 5653 2163 ISZ GDREG2 /UPDATE WORD
4400 5654 7000 NOP
4401 5655 2156 NEXFL1, ISZ TCNTR1

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4402 5656 7610 SKP CLA
4403 5657 5264 JMP T105D /ALL DONE
4404 5660 1221 TAD TOFLD1
4405 5661 1073 TAD K0010
4406 5662 3221 DCA TOFLD1
4407 5663 5210 JMP T105R /TRY NEXT FIELD
4408 5664 4435 T105D, NERROR /O.K. NEXT ADDRESS
4409 5665 4436 T105E, ERROR /ERROR, DATA BREAK
4410 5666 5600 TST105 /SCOPE LOOP POINTER
4411 5667 4263 4263 /TEXT POINTER
4412
4413 5670 4405 /ENDTST, SET /SETUP FIELD 0
4414 5671 1007 TAD SAVEND
4415 5672 3532 DCA I K7777 /REPLACE BINARY
4416 5673 1022 TAD 22
4417 5674 0106 AND K4000 /TEST FOR APT
4418 5675 7650 SNA CLA /APT??
4419 5676 5301 JMP .+3 /NO. NORMAL RUN
4420 5677 2371 ISZ PCOUNT
4421 5700 5317 JMP ENDHLT+1 /LOOP PROGRAM
4422 5701 4406 CLASIC /CHECK FOR CONSOLE CLASSIC
4423 5702 4424 CRPASS /CHECK FOR PASS COMPLETE TYPEOUT.
4424 5703 7610 SKP CLA
4425 5704 5310 JMP .+4 /BYPASS NORMAL TYPEOUT.
4426 5705 4462 CRLF
4427 5706 4457 PRNTER /PRINT END OF TEST MESSAGE
4428 5707 7562 TEXEND /POINTER
4429 5710 4404 LAS
4430 5711 7004 RAL
4431 5712 7710 SPA CLA
4432 5713 5317 JMP .+4 /NO STOP.
4433 5714 4406 CLASIC /CHECK FOR CLASSIC.
4434 5715 4437 CRINQU /ROUTINE TO EXECUTE.
4435 5716 7402 ENDHLT, HLT /END OF TEST
4436 5717 7301 CLA CLL IAC
4437 5720 4453 CLRALL
4438 5721 5722 JMP I .+1 /DCLR
4439 5722 0766 TST4 /LOOP ON PROGRAM
4440
4441
4442 /MANUAL TEST FOR 16 BIT COUNTER.
4443 /SET SWITCH REGISTER TO 0201 AND PRESS
4444 /LOAD ADDRESS. SET THE SWITCH REGISTER TO 0000.
4445 /THEN PRESS CLEAR AND CONTINUE.
4446 /SCOPE THE 16TH CARRY OUTPUT TEST POINT
4447 /FOR A GROUND TO +3 VOLT SIGNAL.
4448
4449 5723 7301 MANUL, CLA CLL IAC
4450 5724 4453 CLRALL
4451 5725 4444 ENMAN1 /FIRST, CLEAR CONTROL
4452 5726 1077 TAD K0100 /ENTER MAINTENANCE MODE
4453 5727 4455 LDMAN /ENABLE SHIFT PULSES
4454 5730 5327 JMP .-1 /ISSUE MAINTENANCE IOT AND
4455 5731 5327 JMP .-2 /CAUSE HI MAIN SHIFTS TO THE
4456 /INPUT OF THE 16 BIT COUNTER.

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4457 /THIS ROUTINE WILL BE A SKIP INSTRUCTION FOR SYSTEMS WITHOUT CLASSIC
4458 /OTHERWISE IT WILL EXECUTE THE NEXT INSTRUCTION IN FIELD 0 AND THEN
4459 /SKIP THE INSTRUCTION AFTER THAT ONE.
4460
4461 5732 0000 CLASIK, 0
4462 5733 3363 DCA SAVAC /SAVE CURRENT AC.
4463 5734 1732 TAD I CLASIK /GET INSTRUCTION
4464 5735 3362 DCA ROUTHMP /SAVE THE CLASSIC ROUTINE.
4465 5736 2332 ISZ CLASIK /BUMP AFTER THE CALL.
4466 5737 1022 TAD OP2
4467 5740 0377 AND (400)
4468 5741 7640 SZA CLA /IS THIS A CLASSIC SYSTEM?
4469 5742 5345 JMP .+3 /YES.
4470 5743 1363 TAD SAVAC /NO THEN RETURN TO PROGRAM.
4471 5744 5732 JMP I CLASIK
4472 5745 2332 ISZ CLASIK
4473 5746 6211 CDF 10
4474 5747 1020 TAD SWR
4475 5750 3776 DCA I (SWR) /MOVE POINTERS TO FIELD 1.
4476 5751 1021 TAD OP1
4477 5752 3775 DCA I (OP1)
4478 5753 1022 TAD OP2
4479 5754 3774 DCA I (OP2)
4480 5755 1362 TAD ROUTHMP
4481 5756 3773 DCA I (ROUINS) /SAVE ROUTINE IN FIELD 1.
4482 5757 1363 TAD SAVAC
4483 5760 6212 CDF 10
4484 5761 5773 JMP I (ROUINS) /GO EXECUTE ROUTINE.
4485
4486 5762 0000 ROUTHMP, 0
4487 5763 0000 SAVAC, 0
4488
4489 /ROUTINE TO GET SWITCHES.
4490
4491 5764 0000 MYLAS, 0
4492 5765 4406 CLASIC /CHECK IF CLASSIC.
4493 5766 4425 CRCKSW /GET SWITCHES.
4494 5767 7604 7604 /NOP IF ON APT
4495 5770 5764 JMP I MYLAS /EXIT
4496
4497 5771 0000 PCOUNT, 0
4498
4499 5773 1302 /
4500 5774 0027
4501 5775 0021
4502 5776 0020
4503 5777 0400 PAGE
4504
4505 /SUBROUTINE TO WAIT FOR INTERRUPTS
4506 /IF INTERRUPT OCCURS GO BACK +1
4507
4508 6000 0000 IONWT, 0
4509 6001 7300 CLA CLL
4510 6002 1112 TAD K7700

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/ PAL10 V142A 7-MAR-77 13:55 PAGE 9-8
4511 6003 3233 DCA COMP1
4512 6004 6001 IONW /TURN IT ON
4513 6005 2233 ISZ COMP1
4514 6006 5205 JMP ,=1
4515 6007 6002 IOF /TURN IT OFF
4516 6010 5600 JMP I IONWT /NO INT OCCURED
4517 6011 2200 INTADD, ISZ IONWT
4518 6012 4447 DSKSKP /DISK SKIP IOT
4519 6013 7410 SKP /ERROR
4520 6014 5600 JMP I IONWT /EXIT.
4521 6015 7240 CLA CMA
4522 6016 1200 TAD IONWT
4523 6017 3200 DCA IONWT /RESET RETURN ADDRESS.
4524 6020 1022 TAD 22
4525 6021 8102 AND K0400 /MASK CLASSIC.
4526 6022 7640 SZA CLA /ON CLASSIC?
4527 6023 6031 KSF /IF SO ALLOW KEY FLAG.
4528 6024 5227 JMP ,+3 /NO KEY
4529 6025 6032 KCC /WAS CLEAR FLAG.
4530 6026 5201 JMP IONWT +1 /RETURN AND WAIT.
4531 6027 4406 CLASIC /CHECK FOR CLASSIC.
4532 6030 4436 CRERR /ROUTINE TO EXECUTE.
4533 6031 7402 ERHLT1, HLT /ERROR, ILLEGAL INTERRUPT
4534 6032 5227 JMP ,=3 /NON-RECOVERABLE ERROR.
4535
4536 /ROUTINE TO COMPARE AC TO GDREG2
4537 /
4538 6033 0000 COMP1, 0
4539 6034 3174 DCA ACREG
4540 6035 1174 TAD ACREG /SAVE AC
4541 6036 7041 CIA
4542 6037 1163 TAD GDREG2
4543 6040 7640 SZA CLA /SKIP IF O.K.
4544 6041 2233 ISZ COMP1 /ERROR, DON'T COMPARE
4545 6042 4424 TICK /GENERATE TIMING IF NEEDED
4546 6043 5633 JMP I COMP1
4547
4548 /ROUTINE TO COMPARE CRREG1 AND CRREG2 TO
4549 /GDREG1 AND GDREG2.
4550 /
4551 6044 0000 COMP2, 0
4552 6045 7300 CLA CLL
4553 6046 1162 TAD GDREG1
4554 6047 0145 AND K0017
4555 6050 7041 CIA
4556 6051 1164 TAD CRREG1
4557 6052 7640 SZA CLA
4558 6053 5260 JMP CRERR /NOT THE SAME
4559 6054 1165 TAD CRREG2
4560 6055 7041 CIA
4561 6056 1163 TAD GDREG2
4562 6057 7640 SZA CLA
4563 6060 2244 CRERR, ISZ COMP2 /ERROR, NOT THE SAME
4564 6061 4424 TICK /TIMING FOR APT IF NEEDED
4565 6062 5644 JMP I COMP2

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SEQ 0110

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/ PAL10 V142A 7-MAR-77 13:55 PAGE 9-9
4566 /
4567 /SUBROUTINE TO READ STATUS REGISTER
4568 /
4569 6063 0000 RDST, 0
4570 6064 6745 IOT5, DRST /READ STATUS IOT
4571 6065 5272 JMP ,+5 /O.K. NO SKIP.
4572 6066 4406 CLASIC /CHECK FOR CLASSIC.
4573 6067 4436 CRERR /ROUTINE TO EXECUTE.
4574 6070 7402 ERHLT5, HLT /SKIP TRAP
4575 6071 5266 JMP ,=3 /NON-RECOVERABLE ERROR.
4576 6072 3166 DCA STREG /SAVE RESULTS
4577 6073 1166 TAD STREG
4578 6074 5663 JMP I RDST /EXIT
4579
4580 /SUBROUTINE TO LOAD CURRENT ADDRESS REGISTER
4581 /
4582 6075 0000 LDCA, 0
4583 6076 3172 DCA ADREG /SAVE IN ADDRESS
4584 6077 1172 TAD ADREG
4585 6100 6744 IOT4, DLCA /LOAD CURRENT ADDRESS IOT
4586 6101 5675 JMP I LDCA /EXIT
4587 6102 4406 CLASIC /CHECK FOR CLASSIC.
4588 6103 4436 CRERR /ROUTINE TO EXECUTE.
4589 6104 7402 ERHLT4, HLT /SKIP TRAP ERROR
4590 6105 5302 JMP ,=3 /NON-RECOVERABLE ERROR.
4591
4592 /
4593 /SUBROUTINE TO LOAD DISK ADDRESS REGISTER
4594 /
4595 6106 0000 LDAD, 0
4596 6107 3171 DCA DAREG /SAVE OUTBOUND DATA
4597 6110 1171 TAD DAREG
4598 6111 6743 IOT3, DLAG /LOAD DISK ADDRESS REGISTER
4599 6112 5706 JMP I LDAD /EXIT
4600 6113 4406 CLASIC /CHECK FOR CLASSIC.
4601 6114 4436 CRERR /ROUTINE TO EXECUTE.
4602 6115 7402 ERHLT3, HLT /SKIP TRAP ERROR
4603 6116 5313 JMP ,=3 /NON-RECOVERABLE ERROR.
4604
4605 /
4606 /SUBROUTINE TO LOAD COMMAND REGISTER
4607 /
4608 6117 0000 LDCM, 0
4609 6120 3170 DCA CMREG /SAVE OUTBOUND DATA
4610 6121 1170 TAD CMREG
4611 6122 6746 IOT6, DLDC /LOAD COMMAND REGISTER
4612 6123 5717 JMP I LDCM /EXIT
4613 6124 4406 CLASIC /CHECK FOR CLASSIC.
4614 6125 4436 CRERR /ROUTINE TO EXECUTE.
4615 6126 7402 ERHLT6, HLT /SKIP TRAP ERROR.
4616 6127 5324 JMP ,=3 /NON-RECOVERABLE ERROR.
4617
4618 /SUBROUTINE TO ISSUE "DSKP" DISK SKIP IOT
4619 /
4620 6130 0000 SDKP, 0

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SEQ 0111

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4621 6131 6741 IOT1, DSKP /DISK SKIP IOT
4622 6132 7410 SKP /DID NOT SKIP
4623 6133 2330 ISZ SDKP
4624 6134 5730 JMP I SDKP /EXIT
4625
4626 /SUBROUTINE TO ISSUE "DCLR" CLEAR IOT
4627 /
4628 6135 0000 CLDR, 0
4629 6136 6742 IOT2, DCLR /DCLR "CLEAR IOT"
4630 6137 5735 JMP I CLDR /EXIT
4631 6140 4406 CLASIC /CHECK FOR CLASSIC.
4632 6141 4436 CERR /ROUTINE TO EXECUTE.
4633 6142 7402 ERHLT2, HLT /SKIP TRAP ERROR.
4634 6143 5340 JMP ,=3 /NON-RECOVERABLE ERROR.
4635
4636 /SUBROUTINE TO ISSUE "DMAN" MAINTENANCE IOT
4637 /
4638 6144 0000 LDMN, 0
4639 6145 6747 IOT7, DMAN /"DMAN" MAINTENANCE IOT
4640 6146 5744 JMP I LDMN /EXIT
4641 6147 4406 CLASIC /CHECK FOR CLASSIC.
4642 6150 4436 CERR /ROUTINE TO EXECUTE.
4643 6151 7402 ERHLT7, HLT /SKIP TRAP ERROR.
4644 6152 5347 JMP ,=3 /NON-RECOVERABLE ERROR.
4645
4646 PAGE
4647 /
4648 /SUBROUTINE TO SHIFT, THEN READ DISK
4649 /ADDRESS INTO DATA BUFFER, 12 SHIFTS
4650 /
4651 6200 0000 R0AD, 0
4652 6201 4445 ENMAN2 /ENTER MAINTENANCE MODE + DB4=1
4653 6202 1134 TAD M5
4654 6203 3155 DCA SBCNT1 /SETUP COUNTER
4655 6204 1103 TAD K1000 /ENABLE SHIFT CRC
4656 6205 1100 TAD K0200 /ENABLE SHIFT SURFACE AND SECTOR
4657 6206 4455 LDMAN /LOAD MAINTENANCE
4658 6207 2155 ISZ SBCNT1 /FOUR SHIFTS
4659 6210 5206 JMP ,=2 /MORE TO GO
4660 6211 7300 CLA CLL
4661 6212 1135 TAD M7
4662 6213 3155 DCA SBCNT1
4663 6214 1103 TAD K1000 /SHIFT CRC
4664 6215 4455 LDMAN /LOAD MAINTENANCE IOT
4665 6216 2155 ISZ SBCNT1
4666 6217 5215 JMP ,=2 /SHIFT 12 BITS
4667 6220 7300 CLA CLL
4668 6221 1074 TAD K0020
4669 6222 4455 LDMAN /READ DATA BUFFER
4670 6223 3171 DCA DAREG /SAVE RESULTS
4671
4672
4673 6224 1171 TAD DAREG
4674 6225 5600 JMP I R0AD /EXIT
4675

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4676 /SUBROUTINE TO READ DATA BUFFER TO AC
4677 /
4678 6226 0000 RDBF, 0
4679 6227 7330 CLA CLL CML RAR
4680 6230 4455 LDMAN /ENTER MAINTENANCE MODE
4681 6231 1074 TAD K0020
4682 6232 4455 LDMAN /LOAD MAINTENANCE
4683 6233 3167 DCA DBREG
4684 6234 1167 TAD DBREG
4685 6235 3173 DCA DTREG
4686 6236 1173 TAD DTREG
4687 6237 5626 JMP I RDBF /EXIT
4688
4689 /SUBROUTINE TO SHIFT COMMAND REGISTER TO
4690 /DATA BUFFER THEN READ DATA BUFFER
4691 /
4692 6240 0000 RDCM, 0
4693 6241 4445 ENMAN2 /ENTER MAINTENANCE MODE + DB4=1
4694 6242 1136 TAD M12
4695 6243 3155 DCA SBCNT1 /12 BIT SHIFT
4696 6244 1102 TAD K0400 /ENABLE BIT FOR SHIFT COMMAND
4697 6245 4455 LDMAN /LOAD AND GO
4698 6246 2155 ISZ SBCNT1
4699 6247 5245 JMP ,=2 /SHIFT 12
4700 6250 7300 CLA CLL
4701 6251 1074 TAD K0020 /ENABLE READ BUFFER
4702 6252 4455 LDMAN /LOAD AND GO
4703 6253 3170 DCA CMREG /SAVE IT
4704 6254 1170 TAD CMREG
4705 6255 5640 JMP I RDCM /EXIT
4706
4707 /ROUTINE TO ENTER MAINTENANCE MODE
4708 /
4709 6256 0000 MAIN1, 0
4710 6257 7330 CLA CLL CML RAR /ENABLE MAINTENANCE BIT
4711 6260 4455 LDMAN /ENTER MAINTENANCE MODE
4712 6261 7300 CLA CLL
4713 6262 5656 JMP I MAIN1
4714
4715 /
4716 /
4717 /
4718 /SUBROUTINE TO SHIFT CRC REGISTER TO DATA
4719 /BUFFER THEN READ IT.
4720 /
4721 6263 0000 RDCR, 0
4722 6264 4445 ENMAN2 /ENTER MAINTENANCE MODE + DB4=1
4723 6265 1136 TAD M12
4724 6266 3155 DCA SBCNT1 /12 SHIFTER
4725 6267 1103 TAD K1000 /ENABLE SHIFT CRC
4726 6270 4455 LDMAN /LOAD AND GO
4727 6271 2155 ISZ SBCNT1
4728 6272 5270 JMP ,=2 /12 BIT SHIFT
4729 6273 7300 CLA CLL
4730 6274 1074 TAD K0020 /ENABLE READ BUFFER

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4731 6275 4455 LDMAN
4732 6276 3165 DCA CRREG2
4733 6277 4445 ENMAN2 /SAVE IT
4734 6300 1136 TAD M12 /ENTER MAINTENANCE MODE + DB4=1
4735 6301 3155 DCA SBCNT1 /12 BIT SHIFTER
4736 6302 1103 TAD K1000 /ENABLE SHIFT CRC
4737 6303 4455 LDMAN /LOAD AND GO
4738 6304 2155 ISZ SBCNT1
4739 6305 5303 JMP .-2 /12 BIT SHIFT
4740
4741 6306 7300 CLA CLL
4742 6307 1074 TAD K0020 /ENABLE READ BUFFER
4743 6310 4455 LDMAN
4744 6311 0145 AND K0017
4745 6312 3164 DCA CRREG1 /SAVE OTHER HALF
4746 6313 5663 JMP I RDCR /EXIT
4747
4748 /
4749 /SUBROUTINE TO PRINT TWO OCTAL
4750 /
4751 6314 0000 TOCT, 0
4752 6315 3155 DCA SBCNT1 /SAVE AC
4753 6316 1155 TAD SBCNT1
4754 6317 7010 RAR
4755 6320 7012 RTR
4756 6321 0072 AND K0007
4757 6322 1063 TAD K0260
4758 6323 4434 TYPE /PRINT FIRST BYTE
4759 6324 1155 TAD SBCNT1
4760 6325 0072 AND K0007
4761 6326 1063 TAD K0260
4762 6327 4434 TYPE /PRINT SECOND BIT
4763 6330 5714 JMP I TOCT /EXIT
4764
4765 /
4766 /
4767 /ROUTINE TO DO CRLF
4768 /
4769 6331 0000 UPONE, 0
4770 6332 7300 CLA CLL
4771 6333 1146 TAD K0215
4772 6334 4434 TYPE
4773 6335 1147 TAD K0212
4774 6336 4434 TYPE
4775 6337 4434 TYPE /TYPE ONE NULL
4776 6340 5731 JMP I UPONE
4777 6400
4778 /
4779 /ROUTINE TO PRINT FOUR OCTAL
4780 /
4781 6400 0000 FROCT, 0
4782 6401 7006 RTL
4783 6402 7006 RTL
4784 6403 3777 DCA UPONE
4785 6404 1130 TAD K7774

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4786 6405 3776 DCA TOCT
4787 6406 1777 TAD UPONE
4788 6407 0072 AND K0007
4789 6410 1063 TAD K0260
4790 6411 4434 TYPE
4791 6412 1777 TAD UPONE
4792 6413 7006 RTL
4793 6414 7004 RAL
4794 6415 3777 DCA UPONE
4795 6416 2776 ISZ TOCT
4796 6417 5206 JMP .-11
4797 6420 1261 TAD K0240
4798 6421 4434 TYPE
4799 6422 5600 JMP I FROCT
4800
4801 /
4802 /SUBROUTINE TO PRINT TEXT
4803 /
4804 6423 0000 PRN, 0
4805 6424 7300 CLA CLL
4806 6425 1623 TAD I PRN /GET POINTER
4807 6426 2223 ISZ PRN
4808 6427 3200 DCA FROCT
4809 6430 1600 TAD I FROCT
4810 6431 0112 AND K7700
4811 6432 7450 SWA
4812 6433 5257 JMP EXIT
4813 6434 7500 SWA
4814 6435 7020 CML
4815 6436 7001 IAC
4816 6437 7012 RTR
4817 6440 7012 RTR
4818 6441 7012 RTR
4819 6442 4434 TYPE
4820 6443 1600 TAD I FROCT
4821 6444 0115 AND K0077
4822 6445 7450 SWA
4823 6446 5257 JMP EXIT
4824 6447 1262 TAD K3740
4825 6450 7500 SWA
4826 6451 1124 TAD K4100
4827 6452 1261 TAD K0240
4828 6453 4434 TYPE
4829 6454 2200 ISZ FROCT
4830 6455 7300 CLA CLL
4831 6456 5230 JMP PRN+5
4832 6457 7300 EXIT, CLA CLL
4833 6460 5623 JMP I PRN
4834
4835 6461 0240 K0240, 0240
4836 6462 3740 K3740, 3740
4837
4838 /
4839 /ROUTINE TO TYPE
4840 /
4840 6463 0000 PRINT, 0

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4841 6464 4486 CLASIC
4842 6465 4435 C8TYPE /CHECK FOR CLASSIC.
4843 6466 7410 SKP /ROUTINE TO EXECUTE.
4844 6467 5663 JMP I PRINT /INHIBIT TYPE.
4845 6470 6846 TUS
4846 6471 6841 T8F
4847 6472 5271 JMP *-1
4848 6473 6842 TCF
4849 6474 7200 CLA
4850 6475 5663 JMP I PRINT
4851
4852 /ROUTINE TO GET ALL REGISTERS AFTER "ERHLT9"
4853
4854 6476 8000 DUMP, 0
4855 6477 4484 LAS
4856 6500 8102 AND K0400 /MASK SWITCH 1
4857 6501 7650 SNA CLA /WAS IT GFT ALL
4858 6502 5676 JMP I DUMP /NO
4859 6503 4442 R0STAT /GET STATUS
4860 6504 4456 R0BUF /READ BUFFER
4861 6505 7300 CLA CLL
4862 6506 1136 TAD M12
4863 6507 3263 DCA PRINT /12 BIT COUNTER
4864 6510 1100 TAD K0200 /ENABLE SHIFT SECTOR AND SURFACE
4865 6511 4455 LDMAN /LOAD MAINTENANCE
4866 6512 2263 ISZ PRINT /12 BIT SHIFT
4867 6513 5311 JMP *-2
4868 6514 7300 CLA CLL
4869 6515 1874 TAD K0020 /ENABLE READ BUFFER
4870 6516 4455 LDMAN /LOAD MAINTENANCE
4871 6517 3171 DCA DAREG /SAVE SURFACE AND SECTOR
4872 6520 4454 R0CRC /READ CRC
4873 6521 4443 R0CMD /READ COMMAND
4874 6522 4462 CRLF
4875 6523 1125 TAD K7600
4876 6524 2276 ISZ DUMP
4877 6525 5676 JMP I DUMP /REPORT
4878
4879 6576 6314 PAGE
4880 6577 6331 /
4881 6600 6600 /SUBROUTINE FOR "ERRORS," SCOPE LOOPS, AND
4882 /ERROR TYPEOUTS.
4883
4884
4885 6600 8000 ERRO, 0
4886 6601 7300 CLA CLL
4887 6602 4425 AERRO
4888 6603 1600 TAD I ERRO /REPORT ERROR TO APT IF NEED BE.
4889 6604 3340 DCA SERRO /GET SCOPE LOOP POINTER
4890 6605 4404 LAS /SAVE FOR RETURN
4891 6606 7700 SNA CLA /GET SWR0
4892 6607 5217 JMP *-10 /IS IT SCOPE LOOP
4893 6610 4404 LAS /NO SCOPE
4894 6611 7006 RTL /GET SWITCH 2

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4895 6612 7710 SPA CLA /INHIBIT ERROR BELL
4896 6613 5740 JMP I SERRO /YES
4897 6614 1101 TAD K0207
4898 6615 4434 TYPE
4899 6616 5740 JMP I SERRO /NO
4900 6617 2200 ISZ ERRO
4901 6620 4462 CRLF
4902 6621 4462 CRLF
4903 6622 1600 TAD I ERRO /GET TEXT POINTER
4904 6623 8145 AND K0017 /MASK 8-11
4905 6624 1346 TAD HEDTAD /MAKE ERROR HEADER TAD
4906 6625 3226 DCA *-1
4907 6626 7402 HLT /MODIFIED HEADER TAD
4908 6627 3231 DCA *-2
4909 6630 4457 PRINTER /MODIFIED HEADER POINTER
4910 6631 7402 HLT
4911 6632 4462 CRLF
4912 6633 4457 PRINTER
4913 6634 7400 TEXTPC /PRINT PC:
4914 6635 7340 CLA CLL CMA
4915 6636 1200 TAD ERRO /GET PC POINTER
4916 6637 4460 OCTEL /PRINT PC STORED
4917 6640 1600 TAD I ERRO /GET TEXT POINTER
4918 6641 7104 CLL RAL
4919 6642 7420 SNL
4920 6643 5257 JMP NTGD /NOT GD: REGISTER
4921
4922
4923 6644 3200 DCA ERRO
4924 6645 4457 PRINTER /PRINT GD:
4925 6646 7402 TEXTGD
4926 6647 1200 TAD ERRO
4927 6650 7700 SNA CLA /WAS IT A 6 BIT OCTAL BYTE
4928 6651 5254 JMP *-3 /NO
4929 6652 1162 TAD GDREG1 /GET DATA
4930 6653 4461 TWOCT /PRINT TWO OCTAL
4931 6654 1163 TAD GDREG2 /PRINT FOUR OCTAL
4932 6655 4460 OCTEL
4933 6656 7610 SKP CLA
4934 6657 3200 DCA ERRO /PRINT FOUR OCTAL
4935 6660 1200 TAD EPRO
4936 6661 7104 CLL RAL /GET TEXT POINTER
4937 6662 7420 SNL
4938 6663 5274 JMP NTCRC
4939 6664 3200 DCA ERRO
4940 6665 4457 PRINTER /PRINT CP:
4941 6666 7404 TEXTCR
4942 6667 1164 TAD CWREG1
4943 6670 4461 TWOCT /PRINT
4944 6671 1165 TAD CRREG2
4945 6672 4460 OCTEL /PRINT FOUR OCTAL
4946 6673 7610 SKP CLA
4947 6674 3200 DCA ERRO
4948 6675 1342 TAD XTEXT
4949 6676 3345 DCA PCNTR2

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4950 6677 1343 TAD XREG
4951 6700 3010 DCA AUTO10
4952 6701 1131 TAD K7771
4953 6702 3344 DCA PCNTR1 /COUNTER FOR # OF HEADS
4954 6703 1200 STRAUT, TAD ERRO /GET TEXT POINTER
4955 6704 7500 SMA
4956 6705 5332 JMP NOTEX /NOT THIS ONE
4957 6706 7104 CLL RAL
4958 6707 3200 DCA ERRO
4959 6710 1345 TAD PCNTR2 /GET TEXT MESSAGE POINTER
4960 6711 2345 ISZ PCNTR2
4961 6712 2345 ISZ PCNTR2
4962 6713 3315 DCA +2 /STORE FOR PRINTER
4963 6714 4457 PRINTER /PRINT XX:
4964 6715 7402 HLT /MODIFIED TEXT POINTER
4965 6716 1410 TAD I AUTO10
4966 6717 4460 OCTEL /PRINT FOUR OCTAL
4967 6720 2344 BAKPNT, ISZ PCNTR1
4968 6721 5303 JMP STRAUT /CHECK FOR NEXT XX:
4969 6722 1007 TAD SAVEND /GET CONSTANT SAVED
4970 6723 3532 DCA I K7777 /REPLACE LAST LOCATION
4971 6724 4406 CLASIC /CHECK FOR CLASSIC.
4972 6725 4436 CRERR /ROUTINE TO EXECUTE!!!!
4973 6726 7402 ERHLT9, HLT /ALL RECOVERABLE ERROR HALTS
4974 6727 4741 JMS I XDUMP /CHECK FOR GET ALL REGISTERS
4975 6730 5740 JMP I SERRO /TRY SAME TEST AGAIN
4976 6731 5257 JMP NTGD /GET ALL REGISTERS
4977 6732 7104 NOTEX, CLL RAL
4978 6733 3200 DCA EPRO
4979 6734 2345 ISZ PCNTR2
4980 6735 2345 ISZ PCNTR2
4981 6736 2010 ISZ AUTO10
4982 6737 5320 JMP BAKPNT
4983
4984 6740 0000 SERRO, 0
4985 6741 6476 XDUMP, DUMP
4986 6742 7406 XTEXT, TEXST
4987 6743 0165 XREG, CREG2
4988 6744 0000 PCNTR1, 0
4989 6745 0000 PCNTR2, 0
4990 6746 1347 HEDTAD, TAD HEDLST
4991 6747 7424 HEDLST, ERTX1
4992 6750 7437 ERTX2
4993 6751 7453 ERTX3
4994 6752 7471 ERTX4
4995 6753 7502 ERTX5
4996 6754 7514 ERTX6
4997 6755 7526 ERTX7
4998 6756 7536 ERTX8
4999 6757 7551 ERTX9
5000
5001
5002 /ROUTINE TO ENTER MAINTENANCE MODE AND
5003 /SET DB4=1 TO ENABLE SHIFT TO LOWER SILO
5004 /

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5005 6760 0000 MAIN2, 0
5006 6761 7330 CLA CLL CML RAR /ENABLE SET MAINTENANCE MODE
5007 6762 4455 LDMAN /LOAD MAINTENANCE
5008 6763 7010 RAR /ENABLE SET DB4=1
5009 6764 4455 LDMAN /LOAD MAINTENANCE
5010 6765 7300 CLA CLL
5011 6766 5760 JMP I MAIN2
5012 7000
5013 PAGE
5014 /
5015 /SUBROUTINE FOR "NO ERRORS" AND SCOPE
5016 /LOOPS. UPDATE UP COUNTER "REG1" AND
5017 /DOWN COUNT "REG2" ON EVERY ENTRY.
5018 7000 0000 NERRO, 0
5019 7001 4406 CLASIC /CHECK FOR CLASSIC.
5020 7002 4440 CRCKPA /ROUTINE TO EXECUTE.
5021 7003 7000 NOP
5022 7004 4404 LAS /GET SWITCH 4
5023 7005 0100 AND /MASK
5024 7006 7650 SNA CLA /WAS IT SET
5025 7007 5215 JMP STPHLT +1 /NO DON'T HALT
5026 7010 1007 TAD SAVEND /GET BINARY END
5027 7011 3532 DCA I K7777 /REPLACE IT
5028 7012 4406 CLASIC /CHECK FOR CLASSIC.
5029 7013 4437 CRINQU /WAIT FOR OPERATOR.
5030 7014 7402 STPHLT, HLT /STOP PROGRAM HALT
5031 7015 2200 ISZ NERRO /UPDATE PC STORE
5032 7016 1600 TAD I NEPRO /GET SCOPE LOOP POINTER
5033 7017 3237 DCA SNERRO /STORE FOR RETURN
5034 7020 4404 LAS /GET SWITCH 0
5035 7021 7710 SPA CLA /ENTER SCOPE LOOP
5036 7022 5637 JMP I SNERRO /YES
5037 7023 2153 ISZ REG1 /UPDATE UPCOUNTER
5038 7024 7610 SKP CLA
5039 7025 5233 JMP NEXTST /END OF PARTICULAR TEST
5040 7026 1153 TAD REG1
5041 7027 7140 CLL CMA
5042 7030 3154 DCA REG2 /SETUP DOWN COUNTER
5043 7031 4424 NEXT, TICK /REPLACED WITH TIMING IF ON APT
5044 7032 5637 JMP I SNERRO /BACK TO SAME TEST
5045 7033 2700 NEXTST, ISZ NERRO /UPDATE PC STORE
5046 7034 2200 ISZ NERRO /UPDATE PC STORE
5047 7035 5600 JMP I NEPRO /TO NEXT SEQUENTIAL TEST
5048
5049 7036 0000 TOTST, 0
5050 7037 0000 SNERRO, 0
5051 /
5052 /SUBROUTINE TO SETUP FIELD #
5053 /
5054 7040 0000 SETUP, 0
5055 7041 1433 TAD I THSFLO /GET HOME DF
5056 7042 3752 DCA BAKFLD
5057 7043 1151 TAD KRMF /GET RMF FOR INT. RETURN
5058 7044 6701 CDF 0 /SWITCH FIELD #
5059 7045 3465 DCA I K0001

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5060 7046 1254 TAD K5403 /JMP I 3 FOR LOC. 2
5061 7047 3466 DCA I K0002
5062 7050 1031 TAD INTRO /GET ADDRESS RETURN
5063 7051 3467 DCA I K0003
5064 7052 7402 BAKFLD, HLT /HOME DF
5065 7053 5640 JMP I SETUP
5066 /
5067 7054 5403 K5403, 5403
5068 /
5069 /ROUTINE TO LOAD UPPER RUFFER
5070 /
5071 7055 0000 UPPER, 0
5072 7056 3236 DCA TOTST /SAVE DATA
5073 7057 7301 CLA CLL IAC
5074 7060 3237 DCA SNERRO /SETUP SHIFTER MASKER
5075 7061 1136 TAD M12

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5076 7062 3200 DCA NERRO /SETUP COUNTER
5077 7063 4444 ENMAN1 /ENTER MAINTENANCE MODE
5078 7064 1236 UPPI1, TAD TOTST /GET DATA
5079 7065 0237 AND SNERRO /MASK
5080 7066 7640 SZ CLA /A ONE OR ZERO????
5081 7067 1066 TAD K0002 /A ONE!!!!
5082 7070 1077 TAD K0100 /ENABLE SHIFT
5083 7071 4455 LDMAN /LOAD MAINTENANCE
5084 7072 7300 CLA CLL
5085 7073 1237 TAD SNERRO
5086 7074 7104 CLL RAL
5087 7075 3237 DCA SNERRO
5088 7076 2200 ISZ NERRO /COUNT BITS
5089 7077 5264 JMP UPPI1 /MORE TO GO
5090 7100 5655 JMP I UPPER /UPPER BUFFER LOADED
5091 /
5092 /ROUTINE TO CHANGE PROGRAM DEVICE CODES
5093 /
5094 7101 4406 CHANG, CLASIC /CHECK FOR CLASSIC.
5095 7102 4431 CBSWIT /ROUTINE TO EXECUTE.
5096 7103 7000 NOP
5097 7104 4404 LAS
5098 7105 0332 AND A0770
5099 7106 3236 DCA TOTST /SAVE DESIRED
5100 7107 1334 TAD CHNPOT
5101 7110 3255 DCA UPPER
5102 7111 1333 TAD CCNTP1
5103 7112 3237 DCA SNERRO /A FEW POINTERS
5104 7113 1655 CHANG, TAD I UPPER /GET ADDRESS POINTER
5105 7114 3240 DCA SETUP /SAVE IT
5106 7115 1640 TAD I SETUP /GET OLD IOT CODE
5107 7116 0331 AND A7007
5108 7117 1236 TAD TOTST /ADD IN DESIRED
5109 7120 3640 DCA I SETUP /CHANGE CODE
5110 7121 2255 ISZ UPPER /UPDATE POINTER
5111 7122 2237 ISZ SNERRO /UPDATE CHANGE COUNTER
5112 7123 5313 JMP CHANGR
5113 7124 4406 CLASIC /CHECK FOR CLASSIC.
5114 7125 4436 CREPR /ROUTINE TO EXECUTE.
5115 7126 7402 CHNHLT, HLT /DEVICE CODES CHANGED, PRESS
5116 7127 5730 JMP I XRGV /CONTINUE OR IF ON CONSOLE
5117 /
5118 /PACKAGE HIT CONTROL E.
5119 7130 0200 XBGN, BGN
5120 /
5121 7131 7007 A7007, 7007
5122 7132 0770 A0770, 0770
5123 7133 7771 CCNTR1, 7771
5124 7134 7135 CHNPOT, CHNPOT +1
5125 7135 6131 IOT1
5126 7136 6136 IOT2
5127 7137 6111 IOT3
5128 7140 6100 IOT4
5129 7141 6064 IOT5
5130 7142 6122 IOT6

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5131 7143 6145 IOT7
5132 /
5133 PAGE
5134 /THIS ROUTINE TEST FOR BEING ON THE APT OR ACT SYSTEMS.
5135 /IF ON APT CONSOLE PACKAGE AND SWITCH REGISTER FUNCTIONS
5136 /ARE NOP'S.
5137 /
5138 /
5139 7200 0000 APT8, 0
5140 7201 1022 TAD 22 /HARWARE CONFIGURATION
5141 7202 0106 AND K4000
5142 7203 7650 SNA CLA /SKIP IF ON ACT OR APT
5143 7204 5600 JMP I APT8 /RETURN TO MAIN PROGRAM
5144 7205 1022 TAD 22
5145 7206 0264 AND K7377 /MAKE SURE CONSOLE DISABLED
5146 7207 3022 DCA 22
5147 7210 1107 TAD K7000
5148 7211 3663 DCA I XMYLAS /NOP SWITCH REGISTER FUNCTIONS
5149 7212 1200 TAD APT8
5150 7213 1070 TAD K0004
5151 7214 3200 DCA APT8
5152 7215 1021 TAD 21 /GET MEMORY SIZE
5153 7216 7012 RTR /SET UP MEMORY SIZE
5154 7217 5600 JMP I APT8 /NOW ON APT, RETURN IS PLUS 4.
5155 /
5156 /THIS ROUTINE WILL GENERATE THE TIMING REQUIRED BY
5157 /APT OR ACT.
5158 /
5159 7220 0000 KTICK, 0
5160 7221 1022 TAD 22
5161 7222 0106 AND K4000 /SEE IF ON APT
5162 7223 7650 SNA CLA
5163 7224 5620 JMP I KTICK /NOT ON APT
5164 7225 2766 ISZ CLKCNT /INCREMENT COUNTER
5165 7226 5620 JMP I KTICK /NO
5166 7227 6002 IOF /DISABLE INTERRUPTS
5167 7230 6214 RDF /GET PRESENT DATA FIELD
5168 7231 1150 TAD KCDF
5169 7232 3233 DCA ,+1 /ESTABLISHES CURRENT DATA FIELD
5170 7233 7402 HLT /REPLACED WITH CURRENT DATA FIELD
5171 7234 6272 CIF 70 /FIELD 7, LOCATION OF UV PROM
5172 7235 4777 JMS I (6500
5173 7236 1376 TAD (-2777 /ABOUT 1.5 SEC ON MOST TESTS
5174 7237 3266 DCA CLKCNT
5175 7240 5620 JMP I KTICK
5176 /
5177 /THIS ROUTINE WILL NOTIFY APT OF AN ERROR AND SEND PC TO
5178 /APT SYSTEM
5179 /
5180 7241 0000 WAERRO, 0
5181 7242 1022 TAD 22
5182 7243 0106 AND K4000 /SEE IF ON APT
5183 7244 7650 SNA CLA
5184 7245 5641 JMP I WAERRO /NO
5185 7246 6002 IOF /DISABLE INTERRUPTS

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5186 7247 7200 CLA
5187 7250 1775 TAD I (ERRO /GET PC
5188 7251 3265 DCA SAVPC
5189 7252 6214 RDF /GET CURRENT DATA FIELD
5190 7253 1774 TAD I (KCDF
5191 7254 3256 DCA ,+2
5192 7255 1265 TAD SAVPC
5193 7256 7402 HLT
5194 7257 6272 CIF 70 /REPLACED WILL CURRENT DATA FIELD
5195 7260 5773 JMP I (6520 /FIELD OF UVPROM
5196 7261 7200 CLA /NOTIFIES APT OF ERROR
5197 7262 5641 JMP I WAERRO
5198 /
5199 7263 5767 XMYLAS, MYLAS+3
5200 7264 7377 K7377, 7377
5201 7265 0000 SAVPC, 0
5202 7266 5001 CLKCNT, -2777
5203 7373 6520
5204 7374 0150
5205 7375 6600
5206 7376 5001
5207 7377 6500
5208 7400 2003 PAGE
5209 7401 7200 TEXPC, TEXT "PC;"
5210 7402 0704 TEXGD, TEXT "GD;"
5211 7403 7200
5212 7404 0322 TEXCR, TEXT "CR;"
5213 7405 7200
5214 7406 2324 TEXST, TEXT "ST;"
5215 7407 7200
5216 7410 0402 TEXDB, TEXT "DB;"
5217 7411 7200
5218 7412 0315 TEXCM, TEXT "CM;"
5219 7413 7200
5220 7414 0401 TEXDA, TEXT "DA;"
5221 7415 7200
5222 7416 0104 TEXAD, TEXT "AD;"
5223 7417 7200
5224 7420 0424 TEXDT, TEXT "DT;"
5225 7421 7200
5226 7422 0103 TEXAC, TEXT "AC;"
5227 7423 7200
5228 /
5229 7424 2324 FRTX1, TEXT "STATUS REGISTER ERROR"
5230 7425 0124
5231 7426 2523
5232 7427 4022
5233 7430 0507
5234 7431 1123
5235 7432 2405
5236 7433 2246
5237 7434 0522
5238 7435 2217
5239 7436 2200

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5220 7437 0317 ERTX2, TEXT "COMMAND REGISTER ERROR"
      7440 1515
      7441 0116
      7442 0440
      7443 2205
      7444 0711
      7445 2324
      7446 0522
      7447 4005
      7450 2222
      7451 1722
      7452 0000
5221 7453 0411 ERTX3, TEXT "DISK ADDRESS REGISTER ERROR"
      7454 2313
      7455 4001
      7456 0404
      7457 2205
      7460 2323
      7461 4022
      7462 0507
      7463 1123
      7464 2405
      7465 2240
      7466 0522
      7467 2217
      7470 2200
5222 7471 0401 ERTX4, TEXT "DATA BREAK ERROR"
      7472 2401
      7473 4002
      7474 2205
      7475 0113
      7476 4005
      7477 2222
      7500 1722
      7501 0000
5223 7502 0322 ERTX5, TEXT "CRC REGISTER ERROR"
      7503 0340
      7504 2205
      7505 0711
      7506 2324
      7507 0522
      7510 4005
      7511 2222
      7512 1722
      7513 0000
5224 7514 0401 ERTX6, TEXT "DATA REGISTER ERROR"
      7515 2401
      7516 4022
      7517 0507
      7520 1123
      7521 2405
      7522 2240
      7523 0522
      7524 2217
      7525 2200

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5225 7526 0411 ERTX7, TEXT "DISK SKIP ERROR"
      7527 2313
      7530 4023
      7531 1311
      7532 2040
      7533 0522
      7534 2217
      7535 2200
5226 7536 0411 ERTX8, TEXT "DISK INTERRUPT ERROR"
      7537 2313
      7540 4011
      7541 1624
      7542 0522
      7543 2225
      7544 2024
      7545 4005
      7546 2222
      7547 1722
      7550 0000
5227 7551 0103 ERTX9, TEXT "AC REGISTER ERROR"
      7552 4022
      7553 0507
      7554 1123
      7555 2405
      7556 2240
      7557 0522
      7560 2217
      7561 2200
5228 /
5229 7562 2213 TEXEND, TEXT "PK0E DISKLESS PASS COMPLETE"
      7563 7005
      7564 4004
      7565 1123
      7566 1314
      7567 0523
      7570 2340
      7571 2001
      7572 2323
      7573 4003
      7574 1715
      7575 2014
      7576 0524
      7577 0500

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5230
5231

/ \$\$\$

A0770	7132	CRTTYI	4426	ENMAN2	4445	IOT4	6100
A7007	7131	C8TYPE	4435	ERHLT1	6031	IOT5	6064
ACCMPI	4440	CAF	6007	ERHLT2	6142	IOT6	6122
ACCMPI	4441	CCNTR1	7133	ERHLT3	6115	IOT7	6145
ACL	7701	CHANG	7101	ERHLT4	6104	IOTCHN	5426
ACREG	0174	CHANGR	7113	FRHLT5	6070	K0000	0064
ACSAVE	1345	CHKCLA	1200	ERHLT6	6126	K0001	0065
ADREG	0172	CHNHLT	7126	ERHLT7	6151	K0002	0066
AERRO	4425	CHNPOT	7134	ERHLT9	6720	K0003	0067
APT8	7200	CKCOUT	0232	ERR1	0736	K0004	0070
APT8A	4423	CLASIC	4406	ERRMES	1320	K0006	0071
AUTO10	0010	CLASIK	5732	ERR0	6600	K0007	0072
BAKFLD	7052	CLDR	6135	ERROR	4436	K0010	0073
BAKPNT	6720	CLKCNT	7266	ERTX1	7424	K0017	0145
BGN	0200	CLRAL	4453	ERTX2	7437	K0020	0074
BYRETR	0506	CLRTN	1315	ERTX3	7453	K0037	0075
CBBY1	0230	CMREG	0170	ERTX4	7471	K0040	0076
CBBY2	1300	CNTRLC	0551	ERTX5	7502	K0070	0114
CBBY3	1061	CNTRLO	0600	ERTX6	7514	K0077	0115
CBBY4	0515	CNTRLE	0545	ERTX7	7526	K0100	0077
CBBY5	1116	CNTRLL	0537	ERTX8	7536	K0177	0117
C8CHAR	1075	CNTRLQ	0500	ERTX9	7551	K0200	0100
C8CKP	1022	CNTRLR	0511	EXIT	6457	K0207	0101
C8CKPA	4440	CNTRLS	0521	EXITA	0440	K0212	0147
C8CKSW	4425	CNTVAL	0252	EXTFLD	5201	K0215	0146
C8CNTR	4427	COMP1	6033	F1OP1	0021	K0240	6461
C8CONT	1145	COMP2	6044	F1OP2	0022	K0260	0063
C8CRLF	4433	CONSOL	0000	F1SWR	0020	K0377	0116
C8DO1	0310	CRERR	6060	FILCNT	1040	K0400	0102
C8DO10	1262	CRLF	4462	FILLER	1037	K1000	0103
C8DO11	0607	CRREG1	0164	FLDMAX	0176	K2000	0104
C8DO2	1033	CRREG2	0165	FLSAVE	1347	K2525	0120
C8DO3	0350	DAREG	0171	FROCT	6400	K3737	0122
C8DO4	1006	DBREG	0167	GDREG1	0162	K3740	6462
C8DO7	0527	DCLF	6742	GDREG2	0163	K3777	0105
C8ECHO	4434	DLG	6743	GETCH1	0703	K4000	0106
C8ERP	4436	DLCA	6744	GETDAT	0456	K4100	0124
C8GET	0624	DLDC	6746	GOITA	0443	K5000	0126
C8HANG	1122	DMAN	6747	GOTOA	0454	K5252	0121
C8INQU	4437	DOCNT	0247	GTF	6004	K5403	7054
C8OCTA	4432	DONEA	0426	HEDLST	6747	K5777	0127
C8PASS	4424	DOPACK	0212	HEDTAD	6746	K7000	0107
C8PAUS	4441	DOSET	0251	HOMEMA	0175	K7377	7264
C8PRNT	4430	DRST	6745	INDEXA	0455	K7600	0125
C8RDP5	0666	DSKP	6741	INMODE	1076	K7700	0112
C8RETD	0614	DSKSKP	4447	INTADD	6011	K7717	0123
C8RETR	0536	DTRG	0173	INTRQ	0031	K7740	0113
C8SETD	0613	DUMP	6476	IONWAT	4437	K7771	0131
C8SET5	0535	ENDHLT	5716	IONWT	6000	K7774	0130
C8SWIT	4431	ENDIT	0742	IOT1	6131	K7775	0111
C8SWST	0745	ENDTST	5670	IOT2	6136	K7776	0110
C8TMP1	1021	ENMAN1	4444	IOT3	6111	K7777	0132

KCDF	0150	NTCLAS	1270	SETUP2	0225	T71E	3041
KRMF	0151	NTCRC	6674	SNERR0	7037	T72E	3115
KTICK	7220	NTGD	6657	STCON	0177	T72P	3060
LAS	4404	DCTEL	4460	STPHLT	7014	T73E	3266
LDAD	6106	OP1	0021	STRAUT	6703	T73R1	3204
LDADD	4452	OP2	0022	STREG	0166	T73R2	3210
LDBUF	4427	PASCNT	0250	SWR	0020	T73R3	3233
LDCA	6075	PCLF	6662	T101D	5256	T74E	3340
LDCM	6117	PCNTR1	6744	T101E	5257	T74R1	3302
LDCMD	4450	PCNTR2	6745	T101R	5223	T74R1A	3303
LDCUR	4451	PCOUNT	5771	T102D	5334	T74R2	3305
LDMAN	4455	PCSAVE	1344	T102E	5335	T74R3	3322
LDMN	6144	PNTBUF	1120	T102R	5301	T75E	3434
M12	0136	PRINT	6463	T103D	5452	T75R	3411
M120	0141	PPN	6423	T103E	5453	T76E	3475
M16	0137	PRNTER	4457	T103R	5416	T76R	3452
M191	0142	PRSFLO	0210	T104D	5531	T77E	3525
M255	0143	PSIE	6665	T104E	5532	T78E	3556
M300	0144	PSKE	6663	T104R	5475	T79E	3607
M4	0133	PSKF	6661	T105D	5664	T80E	3641
M40	0140	PSTB	6664	T105E	5665	T81E	3672
M5	0134	PTSTOR	0336	T105R	5610	T82E	3724
M7	0135	RDAD	6200	T37R	1355	T83E	3771
MAIN1	6256	RDADD	4446	T38R	1412	T84E	4033
MAIN2	6760	RDBF	6226	T39R	1444	T85E	4106
MANTST	0030	RDBUF	4456	T40R	1501	T85OK	4105
MANUAL	5430	RDCM	6240	T45E	1647	T85R1	4046
MANUL	5723	RDCMD	4443	T45R1	1623	T86E	4276
MESA	0747	RDCR	6263	T45R3	1636	T86R1	4204
MESAC	1333	RDCRC	4454	T46A1	1660	T86R2	4214
MESFL	1341	ROST	6063	T46A2	1703	T86R3	4236
MESHAN	1146	RPSTAT	4442	T46E	1716	T86R4	4260
MESMQ	1336	REALPC	1316	T47E	1742	T87E	4374
MESPAS	0253	REDOA	0415	T48E	1767	T87R1	4307
MESPC	1330	REG1	0153	T49E	2032	T87R2	4320
MOA	7501	REG2	0154	T50E	2074	T87R3	4340
MOI	7421	POUINS	1302	T51E	2114	T87R4	4356
MOSAVE	1346	ROUTMP	5762	T53E	2156	T92E	4641
MTS05	0152	RTFLD1	5645	T54F	2225	T92R1	4612
MYAC	1317	RTFLD2	5734	T55E	2252	T92R2	4630
MYLAS	5764	RTFLD3	5312	T57E	2305	T94E	4717
NERR0	7000	RTFLD4	5430	T58E	2320	T95E	4750
NERROR	4435	RTFLD5	5507	T59E	2333	T97E	5026
NEXFL1	5655	SAVAC	5763	T60E	2354	T98E	5060
NEXFL2	5247	SAVEND	0007	T61E	2420	T99E	5126
NEXFL3	5325	SAVPC	7265	T62E	2444	T99R1	5071
NEXFL4	5443	SRCNT1	0155	T63E	2504	T99R2	5106
NEXFL5	5522	SDKP	6130	T64F	2544	TABLA	0461
NEXT	7031	SERRO	6740	T65F	2633	TABLR	0471
NEXTST	7033	SFT	4405	T66E	2715	TCNTR1	0154
NOSET	0242	SETUP	7040	T69E	2750	TCNTR2	0157
NOTEX	6732	SETUP1	1233	T70E	2774	TCNTR3	0160

/	PAL10	V142A	7-MAR-77	13155	PAGE 11-9		SEQ 0130
	TCNTR4	0161	TST30	1142	TST78	3530	XCLAS 0006
	TEXAC	7422	TST31	1162	TST79	3561	XCLDR 0053
	TEXAD	7416	TST32	1203	TST8	0333	XCOMP1 0040
	TEXCM	7412	TST33	1217	TST80	3612	XCOMP2 0041
	TEXCR	7404	TST34	1233	TST81	3644	XCRLP 0062
	TEXDA	7414	TST35	1263	TST82	3675	XDOLPT 1112
	TEXDB	7410	TST36	1311	TST83	3727	XDOSW 0520
	TEXDT	7420	TST37	1343	TST84	3774	XDUMP 6741
	TEXEND	7562	TST38	1400	TST85	4036	XEND 0032
	TEXGD	7402	TST39	1430	TST86	4200	XERRO 0036
	TEXPC	7400	TST4	0266	TST87	4303	XFROCT 0060
	TEXST	7406	TST40	1470	TST88	4377	XIONWT 0037
	THSFLD	0033	TST41	1526	TST89	4426	XLAS 0004
	TICK	4424	TST42	1545	TST9	0344	XLDAD 0052
	TMPCNT	0746	TST43	1565	TST90	4457	XLDCA 0051
	TOCT	6314	TST44	1601	TST91	4507	XLDCM 0050
	TOFLD1	5621	TST45	1615	TST92	4600	XLDHN 0055
	TOFLD2	5232	TST46	1652	TST93	4646	XMAIN1 0044
	TOFLD3	5310	TST47	1722	TST94	4672	XMAIN2 0045
	TOFLD4	5426	TST48	1746	TST95	4722	XMYLAS 7263
	TOFLD5	5505	TST49	2000	TST97	5000	XNERR0 0035
	TOTST	7036	TST5	0302	TST98	5031	XPRINT 0034
	TST0	0236	TST50	2035	TST99	5063	XPRN 0057
	TST1	0245	TST51	2077	TSTCHA	0715	XRDAD 0046
	TST10	0353	TST52	2117	TSTLAS	5200	XRDBF 0056
	TST100	5131	TST53	2134	TTYLPT	1121	XRDCM 0043
	TST101	5205	TST54	2200	TWOCT	4461	XRDCR 0054
	TST102	5262	TST55	2230	TYPE	4434	XRDCST 0042
	TST103	5400	TST56	2255	UPAROW	0615	XREG 6743
	TST104	5456	TST57	2272	UPONE	6331	XSDKP 0047
	TST105	5600	TST58	2310	UPPER	7055	XSET 0005
	TST11	0375	TST59	2323	UPPRI	7064	XTABLA 0457
	TST12	0420	TST6	0315	WAERRO	7241	XTABLB 0460
	TST13	0434	TST60	2336	WATMES	0651	XTEXT 6742
	TST14	0452	TST61	2400	XAERRO	0025	XTICK 0024
	TST15	0464	TST62	2423	XAPTSa	0023	XTOCT 0061
	TST16	0517	TST63	2447	XBGH	7130	XUPPER 0027
	TST17	0547	TST64	2507	XCBCKP	1041	
	TST18	0571	TST65	2600	XCBCNT	0400	
	TST19	0614	TST66	2636	XCBCRL	1023	
	TST2	0252	TST67	2657	XCBECH	1063	
	TST20	0626	TST68	2677	XCBERR	1207	
	TST21	0643	TST69	2720	XCBIHQ	0635	
	TST22	0657	TST7	0324	XCBOCT	1000	
	TST23	0703	TST70	2753	XCBPAS	0200	
	TST24	0730	TST71	2777	XCBPAS	0337	
	TST25	0752	TST72	3044	XCBPNT	0303	
	TST26	0777	TST73	3200	XCPSW	0656	
	TST27	1040	TST74	3271	XCPSW	0262	
	TST28	1057	TST75	3400	XCSTTY	0272	
	TST29	1107	TST76	3437	XCSTYP	1077	
	TST3	0260	TST77	3500	XCHANG	0026	

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SEQ 0131

ERRORS DETECTED: 0
 LINKS GENERATED: 115
 RUN-TIME: 11 SECONDS
 3K CORE USED

[illegible]

DLAG	1063#	4598															
DLCA	1064#	4585															
DLDC	1066#	4611															
DMAN	1067#	4640															
DOCNT	170	172	177#														
DONEA	377	384#															
DOPACK	140	147#															
DOSBT	164	171	174	179#													
DRST	1065#	4570															
DSKP	1061#	4621															
DSKSKP	1089#	1299	1351	1800	1849	1879	2338	2495	2497	2500	2648	2650	2663	2666			
	2685	2715	2727	2732	2735	2740	2902	2909	2911	2992	3198	3207	4518				
DTREG	1235#	3399	3400	3434	3435	3738	3739	3770	3771	3799	3829	3830	3904	3905			
	3932	3933	3961	3962	3995	3996	4025	4026	4061	4062	4106	4394	4395	4685			
	4686																
DUMP	4854#	4858	4876	4877	4985												
ENDHLT	1057	4421	4435#														
ENDIT	656	661	679#														
ENDTST	1131	4126	4413#														
ENMAN1	1077#	1900	1920	2039	2078	2117	2150	2183	2431	2462	2491	2513	2530	2562			
	2700	2734	2757	2793	2834	2862	2883	2905	2922	2954	2976	3028	3079	3095			
	3140	3190	3226	3258	3289	3319	3350	3383	3416	3449	3469	3498	3538	3589			
	3615	3664	3848	4083	4144	4196	4250	4303	4366	4451	5077						
ENMAN2	1078#	1520	1549	1979	2008	4652	4693	4722	4733								
ERHLT1	1049	4533#															
ERHLT2	1050	4633#															
ERHLT3	1051	4602#															
ERHLT4	1052	4589#															
ERHLT5	1053	4574#															
ERHLT6	1054	4615#															
ERHLT7	1055	4644#															
ERHLT9	1056	4973#															
ERR1	665	669	675#														
ERRNES	972	1024#															
ERRO	1135	4885#	4888	4900	4903	4915	4917	4923	4926	4934	4935	4939	4947	4954			
	4958	4978	5187														
ERROR	1080#	1291	1301	1311	1324	1341	1355	1367	1378	1391	1402	1425	1449	1466			
	1484	1500	1532	1561	1586	1612	1629	1647	1664	1692	1720	1745	1773	1812			
	1831	1860	1892	1911	1932	1948	1964	1992	2019	2050	2091	2129	2168	2202			
	2223	2244	2262	2279	2312	2356	2381	2407	2445	2483	2502	2519	2546	2578			
	2603	2620	2638	2653	2668	2692	2718	2742	2778	2814	2853	2874	2894	2914			
	2944	2967	3008	3050	3123	3171	3210	3246	3278	3309	3339	3371	3403	3438			
	3482	3521	3570	3644	3714	3742	3774	3803	3833	3879	3908	3936	3965	3999			
	4029	4072	4110	4184	4237	4291	4345	4409									
ERTX1	4991	5219#															
ERTX2	4992	5220#															
ERTX3	4993	5221#															
ERTX4	4994	5222#															
ERTX5	4995	5223#															
ERTX6	4996	5224#															
ERTX7	4997	5225#															
ERTX8	4998	5226#															
ERTX9	4999	5227#															

SEQ 0134

EXIT	4812	4823	4832#														
EXITA	386	394#															
EXTFLD	4119	4127#															
F1OP1	638																
F1OP2	64#																
F1SWR	62#																
F1LCNT	763	766	770#														
F1LLER	761	769#															
FLDMAX	1238#	1259	1271	4114	4147	4199	4253	4306	4358								
FLSAVE	369	566	802	948	987	1032#											
PROCT	1153	4781#	4799	4808	4809	4820	4829										
GDREG1	1226#	1684	1685	1712	1713	1737	1738	1761	1762	1792	1793	2036	2075	2114			
	2145	2170	4553	4929													
GDREG2	1227#	1285	1320	1333	1349	1362	1416	1417	1420	1440	1441	1444	1460	1477			
	1492	1519	1546	1577	1578	1581	1603	1604	1607	1623	1630	1656	1682	1687			
	1710	1715	1735	1740	1759	1764	1790	1795	1821	1840	1871	1905	1922	1923			
	1943	1944	1959	1960	1974	2003	2033	2034	2072	2073	2111	2112	2142	2177			
	2217	2218	2238	2239	2256	2257	2273	2300	2307	2323	2326	2360	2394	2395			
	2422	2430	2440	2454	2477	2561	2573	2590	2597	2614	2752	2760	2773	2788			
	2796	2807	2829	2837	2847	2868	2887	2929	2939	2985	3004	3022	3052	3090			
	3111	3141	3266	3267	3295	3296	3324	3325	3356	3357	3385	3386	3419	3420			
	3451	3452	3475	3510	3517	3546	3547	3597	3614	3673	3688	3730	3731	3761			
	3764	3791	3792	3822	3823	3869	3874	3897	3898	3918	3919	3921	3946	3947			
	3949	3980	3981	3983	4009	4010	4012	4051	4067	4068	4104	4155	4162	4200			
	4215	4261	4269	4315	4323	4363	4377	4399	4542	4561	4931						
GFTCH1	647#	655															
GETDAT	374	375	382	408#													
GOITA	380	397#															
GOTOA	402	403	404	405	406#												
GTF	54#	368	801	947													
HEDLST	4990	4991#															
HEDTAD	4905	4990#															
HOMEMA	1237#	1253	1254	3259	3298	3331	3359	3389	3424	3456	3471	3500	3549	3590			
	3618	3666	3724	3755	3784	3813	3853	3893	3925	3953	3987	4016	4054	4088			
	4096																
INDEXA	372	381	401	407#													
INMODE	384	433	448	639	834	838	842#										
INTADD	1130	4517#															
INTRQ	1130#	5062															
IONWAT	1081#	1309	2516	2533	2538	2543	2632	2636	2689	2711	2957	2961	2964	3234			
	3243																
IONWT	1136	4508#	4516	4517	4520	4522	4523	4530									
IOI1	4621#	5125															
IOI2	4629#	5126															
IOI3	4598#	5127															
IOI4	4585#	5128															
IOI5	4570#	5129															
IOI6	4611#	5130															
IOI7	4640#	5131															
IOICHN	1075#	1251															
K0000	1157#	4164	4217														
K0001	1158#	5059															
K0002	1159#	2042	2082	2121	2154	2187	2613	5061	5081								

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SEQ 0136

K0003	1160#	5063															
K0004	1161#	2429	2476	2560	2806	292R	2983	5150									
K0006	1162#	2680	2713														
K0007	1163#	1269	2607	2704	4756	4760	478R										
K0010	1164#	4180	4233	4287	4341	4405											
K0017	1212#	2035	2074	2113	2144	4554	4744	4904									
K0020	1165#	1526	1555	1986	2002	2015	2346	4660	4681	4701	4730	4742	4869				
K0037	1166#	151R	1545														
K0040	1167#	3272	3304	3334	3366	3392	3427	3461	3476	3504	3552	3598	3620	3633			
	3674	3690	3703	3733	3766	3795	3825	3859	3900	3928	3957	3991	4021	4057			
K0070	1181#	4167	4220	4274	4328	4331	4381	4389									
K0077	1182#	4021				4376	4387										
K0100	1168#	2463	2472	2772	2845	2866	2885	3031	3042	3053	3080	3098	3112	3134			
	3145	3160	3193	3203	3229	3239	3665	4452	5082								
K0177	1184#																
K0200	1169#	1521	1550	3534	3536	4656	4864	5023									
K0207	1170#	4097															
K0212	1214#	4773															
K0215	1213#	4771															
K0240	4797	4027	4835#														
K0260	1156#	4757	4761	4789													
K0377	1183#																
K0400	1171#	1273	1980	2009	2511	2536	2629	2634	2682	2706	2952	3224	4128	4525			
	4696	4856															
K1000	1172#	2043	2083	2122	2155	2188	2432	2492	2514	2531	2541	2563	2709	2808			
	2930	2979	3754	3954	4010	4655	4663	4725	4736								
K2000	1173#	1824	3926	3955	3989	4019											
K2525	1105#	1430	1439	1601	1602	1707	1708	1787	1788	2110	2236	2237	3293	3294			
	3354	3355	3789	3790	3820	3821	4206	4207	4313	4314							
K3737	1187#	1942															
K3740	4024	4036#															
K3777	1174#	2335															
K4000	1175#	2005	2927	2984	3260	3332	3390	3457	3550	3591	3667	3854	3988	4017			
	4091	4168	4221	4275	4329	4377	4417	5141	5161	5182							
K4100	1189#	4026															
K5000	1191#	3299	3														

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KRMF	1216#	5057																		
KTICK	1125	5159#	5163	5165	5175															
LAS	1073#	1268	4429	4855	4890	4893	5022	5034	5097											
LDAD	1147	4595#	4599																	
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	1007#	1808	1853	1883	2219	2240	2258	2275	2293	2327	2370	2396	2996	3732						
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LDCA	1146	4582#	4586																	
LDCM	1145	4608#	4612																	
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	2630	2635	2683	2707	2869	2953	3135	3225	3261	3300	3333	3361	3391	3426						
	3458	3473	3501	3551	3592	3619	3668	3725	3756	3785	3814	3855	3894	3927						
LDCUP	3956	3990	4020	4055	4092	4097	4169	4222	4276	4330	4378	4388								
	1091#	1364	1804	1847	1877	2333	2848	2908	2990	3270	3271	3302	3303	3328						
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	3763	3794	3816	3856	3924	3952	3986	4015	4056	4085	4156	4209	4263	4317						
	4380																			
LDMAN	1094#	1522	1527	1551	1556	1945	1961	1981	1985	1987	2010	2016	2044	2084						
	2123	2156	2189	2347	2433	2464	2473	2493	2515	2532	2542	2564	2710	2809						
	2931	2980	3032	3043	3054	3081	3099	3113	3146	3161	3194	3204	3230	3240						
	3273	3305	3335	3367	3393	3428	3462	3477	3505	3553	3599	3621	3634	3675						
	3691	3704	3734	3767	3796	3826	3860	3901	3929	3958	3992	4022	4058	4094						
	4099	4171	4224	4278	4332	4382	4398	4453	4657	4664	4669	4680	4682	4697						
	4782	4711	4726	4731	4737	4743	4865	4870	5007	5009	5083									
LDMN	1150	4639#	4641																	
M12	1202#	1510	1542	1977	2006	3024	3029	3077	3091											

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SEQ 0139

T104D	4339	4344#		
T104E	4336	4345#		
T104R	4316#	4343		
T105D	4403	4408#		
T105E	4398	4409#		
T105R	4364#	4407		
T37R	2079#	2086		
T38R	2118#	2125		
T39R	2151#	2164		
T40R	2104#	2197		
T45E	2306	2312#		
T45R1	2292#	2298		
T45R3	2303#	2310		
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T72E	3039	3049	3058#	
T72R	3029#	3041		
T73E	3106	3119	3123#	
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	3541	3555	3584	3587
	4200	4229	4254	4283
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	3162	3189	3205	3223
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TCNTR3	1223#	2291	2297	2302
	3639	3699	3709	4042
TCNTR4	1224#	2289	2292	2295
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TEXCM	5213#			
TEXCR	4941	5210#		
TEXDA	5214#			
TEXDB	5212#			
TEXDT	5216#			
TEXEND	4428	5229#		
TEXGD	4925	5209#		

TEXPC	4913	5208#					
TEXST	4986	5211#					
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TOFLD2	4146	4157	4163#	4166	4179	4181	
TOFLD3	4198	4210	4216#	4219	4232	4234	
TOFLD4	4252	4264	4270#	4273	4286	4288	
TOFLD5	4305	4318	4324#	4327	4340	4342	
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TST103	4241	4240#	4292				
TST104	4301#	4346					
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SEQ 0142

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SEQ 0143

[illegible]

SEQ 0145

SEQ 0146

SEQ 0147

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.V7774	728	914#				

SEQ 0140