

IDENTIFICATION

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TABLE OF CONTENTS

- 1. ABSTRACT
- 2. REQUIREMENTS
 - 2.1 HARDWARE
 - 2.2 STORAGE
- 3. PRELIMINARY PROGRAMS
- 4. SWITCH REGISTER SETTINGS
- 5. OPERATOR AND/OR PROGRAM ACTION
 - 5.1 STANDARD TEST PROCEDURE
 - 5.2 RK05 DRIVE CARTRIDGE MOUNTING PROCEDURE
 - 5.3 DRIVE CONTROL TEST
 - 5.4 CHECK WRITE PROTECT (MANUAL)
 - 5.5 CHECK WRITE PROTECT (PROGRAM CONTROL)
 - 5.6 MANUAL FUNCTIONS (FOR TROUBLE SHOOTING ONLY)
 - 5.7 CHANGE PROGRAM IOT CODES
 - 5.8 SEEK FROM SWITCHES (FOR RK05 ALIGNMENT)
- 6. ERRORS
 - 6.1 USEFUL ERROR INFORMATION
 - 6.2 NON-RECOVERABLE ERROR HALTS
 - 6.3 RECOVERABLE ERROR HALT
 - 6.4 ERROR TYPEOUTS
 - 6.5 SCOPE LOOPS
 - 6.6 TYPICAL ERROR TYPEOUTS
- 7. RESTRICTIONS
- 8. TROUBLE SHOOTING INFORMATION
- 9. PROGRAM DESCRIPTION
- 10. CONSOLE PACKAGE ADDENDUM
- 11. APT-8 HOOKS
- 12. PROGRAM LISTING

1. ABSTRACT

THE RK8E DRIVE CONTROL TEST IS DESIGNED FOR THE PURPOSE OF CHECKOUT OF THE RK8E DISK CONTROL LOGIC REQUIRING THE USE OF THE DISK DRIVE(S).

IN GENERAL, THE TEST IS AN INSTRUCTION TEST TO VERIFY BASIC OPERATION OF THE SEEK ONLY, RESTORE, WRITE DATA, READ DATA, WRITE ALL, AND READ ALL FUNCTIONS WITH ALL DRIVES ON THE CONTROL. SIMPLE COMPLEMENT DATA PATTERNS OF 2525 + 5252, 5252 + 2525, AND 0000 + 7777 ARE USED TO VERIFY ADDRESSING AND DATA TRANSFERS TO AND FROM EACH INDIVIDUAL DRIVE.

A MANUAL INTERVENTION TEST IS ALSO INCLUDED (SEE SECTION 5.7), TO ALLOW THE OPERATOR TO SELECT DATA PATTERNS AND COMMAND FUNCTIONS VIA THE SWITCH REGISTER.

CONSIDERING NO ERROR CONDITIONS, THE DRIVES THAT HAVE RUN THIS TEST ARE FORMATTED, IF THE PROGRAM WAS STOPPED AT END OF PROGRAM PASS COMPLETION BY SWR9=1.

2. REQUIREMENTS

2.1 HARDWARE

- A. PDP-8/A, 8/E, 8/F, OR 8/M COMPUTER OR OTHER FAMILY OF 8 COMPATIBLE COMPUTER WITH NECESSARY DW8E BUS ADAPTER.
- B. AT LEAST 4K OF READ/WRITE MEMORY. AT LEAST 8K OF MEMORY IS NEEDED FOR OPERATION OF THE CONSOLE PACKAGE.
- C. ASR-33 TELETYPE OR EQUIVALENT
- D. RK8E DISK CONTROL
- E. RK05J OR RK05F DISK DRIVE(S)
- F. UNFORMATTED OR FORMATTED 2200 BPI-1600 SECTOR PACK(S)

2.2 STORAGE

THE PROGRAM OCCUPIES OR UTILIZES LOCATIONS 0000 TO LOCATION 7577 OF FIELD 0 AND LOCATIONS 0 TO 1377 OF FIELD 1.

3. PRELIMINARY PROGRAMS

ALL BASIC AND EXTENDED MEMORY DIAGNOSTICS AND THE RK8E DISKLESS CONTROL TEST SHOULD BE RUN PRIOR TO THIS TEST.

4. SWITCH REGISTER SETTINGS

SWR0=1 SCOPE LOOP ON ERROR, AFTER AN ERROR HALT AT LOCATION "ERHLT9" RAISING THIS SWITCH AND PRESSING KEY CONTINUE WILL RESULT IN A SCOPE LOOP ON THE CURRENT FAILING TEST IF THE TEST CONTINUES TO FAIL. THE ERROR TIMEOUT AND THE ERROR HALT AT LOCATION "ERHLT9" WILL BE INHIBITED. THE TTY BELL WILL RING INDICATING AN ERROR IF SWR2=0.

SWR1=1 SCOPE LOOP ON CURRENT NON-FAILING TEST. RAISING THIS SWITCH CAUSES THE PROGRAM TO LOOP ON THE CURRENT TEST IF THE TEST IS WORKING CORRECTLY. MAY BE USED IN CONJUNCTION WITH SWR0=1 FOR INTERMITTENT PROBLEMS.

SWR2=1 INHIBIT BELL ON SCOPE LOOP. WHEN IN A SCOPE LOOP DUE TO SWR0=1, RAISING THIS SWITCH INHIBITS THE SCOPE LOOP ERROR BELL.

SWR4=1 STOP PROGRAM OR HALT SWITCH. RAISING THIS SWITCH WILL RESULT IN A PROGRAM STOP UPON COMPLETION OF THE NEXT NON-FAILING TEST. IF POSSIBLE, THIS SWITCH SHOULD ALWAYS BE USED TO STOP THE PROGRAM.

SWR5=1 INHIBIT THE RECOVERABLE ERROR HALT AFTER A RECOVERABLE ERROR TIMEOUT. AFTER AN ERROR HALT AT LOCATION "ERHLT9", RAISING THIS SWITCH AND PRESSING KEY CONTINUE WILL INHIBIT ALL FUTURE RECOVERABLE ERROR HALTS. IF SWR1=0 THE PROGRAM WILL PROCEED TO NEXT TEST AFTER EACH ERROR TIMEOUT. IF SWR1=1 THE PROGRAM WILL PROCEED BACK TO THE SAME OR CURRENT FAILING TEST.

SWR6=1 RECALIBRATE IN SCOPE LOOPS. RAISING THIS SWITCH WILL RESULT IN A DISK RECALIBRATION WHEN IN A SCOPE LOOP DUE TO SWR0=1, SWR1=1, OR WHEN SWR5=1.

SWR7=1 PROGRAM WAIT LOOP FOR DISK IN SCOPE LOOPS. RAISING THIS SWITCH WILL RESULT IN A PROGRAM WAIT LOOP FOR APPROX. 500 MS WHEN IN A SCOPE LOOP DUE TO SWR0=1, SWR1=1, OR WHEN SWR5=1. IN SOME CASES, THIS MAY BE USEFUL FOR WAITING FOR THE DISK MOVEMENT TO COMPLETE IF CONTROL OR DRIVE ERRORS OCCUR, BEFORE REPEATING THE TEST AGAIN. IN SOME CASES, FAILURE TO WAIT, MAY CAUSE ADDITIONAL ERRORS.

SWR8=1 GET ALL REGISTERS AFTER THE RECOVERABLE ERROR HALT "ERHLT9". AFTER AN ERROR HALT AT LOCATION "ERHLT9", RAISING THIS SWITCH AND PRESSING KEY CONTINUE RESULTS IN AN ERROR TIMEOUT OF THE ACTUAL CONTENTS OF

THE CRC, STATUS, COMMAND, LOWER DATA, AND SURFACE AND SECTOR REGISTERS.

- SWR9=1 PROGRAM HALT OR STOP AT END OF PROGRAM PASS COMPLETION.
- SWR10-11 DISK DRIVE(S) TO TEST. WHEN RUNNING THE CHECK WRITE PROTECT TEST SECTION 5.4, THE CHECK WRITE PROTECT TEST SECTION 5.5, THE MANUAL FUNCTIONS SECTION 5.6, AND THE SEEK FROM SWITCHES SECTION 5.8, THESE SWITCHES INDICATE THE DRIVE NUMBER TO SELECT.

5. OPERATOR AND/OR PROGRAM ACTION

5.1 STANDARD TEST PROCEDURE

- A. START AS SPECIFIED THROUGH OUT THIS DOCUMENTATION IS KEY CLEAR AND THEN KEY CONTINUE ON PDP8/E, PDP8/M, AND PDP8/F COMPUTERS.
- 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 5.8.
- D. RUN THE DRIVE CONTROL TEST WITH ALL DRIVES ON THE DISK SYSTEM (SEE SECTION 5.3).
- E. THE PROGRAM EXECUTION TIME IS APROX. 30 MINUTES PER DISK DRIVE.
- F. RUN THE WRITE PROTECT CHECK TESTS ON ALL DRIVES ON THE DISK SYSTEM BY FOLLOWING THE PROCEDURES IN SECTIONS 5.5 AND 5.6.
- G. MANUAL FUNCTIONS, SECTION 5.7, MAY BE USED FOR TROUBLE SHOOTING, IF DESIRED.
- H. SEEK FROM SWITCHES, SECTION 5.9, MAY BE USED FOR TROUBLE SHOOTING, IF DESIRED.
- I. IF THE PROGRAM WAS STOPPED BY SWR4=1 OR BY "ERHLT9", ADDRESS 0210 CAN BE USED TO RESTART THE PROGRAM AT THE LAST SUBTEST EXECUTED. (NOTE: WATCH YOUR SWITCH SETTINGS.)

5.2 RK05 DRIVE CARTRIDGE MOUNTING PROCEDURE

THE FOLLOWING IS THE CORRECT CARTRIDGE MOUNTING PROCEDURE FOR THE RK05 DISK DRIVE. ANY DEVIATION ENCOUNTERED DURING THIS PROCEDURE WILL BE CONSIDERED AS AN ERROR CONDITION.

- A. SET SWITCH LABELED "RUN/LOAD" TO THE "LOAD" POSITION.
- B. TURN AC POWER TO DISK DRIVE ON.

- C. VERIFY THAT LIGHT LABELED "PWR" IS ON.
- D. WAIT FOR LIGHT LABELED "LOAD" TO COME ON.
- E. VERIFY THAT LIGHTS LABELED "RDY", "ON CYL", "FAULT", "WT", AND "RD" ARE OFF.
- F. OPEN ACCESS DOOR.
- G. INSERT CARTRIDGE.
- H. CLOSE ACCESS DOOR.
- I. SET SWITCH LABELED "RUN/LOAD" TO THE "RUN" POSITION.
- J. WAIT FOR THE LIGHTS LABELED "RDY" AND "ON CYL" TO COME ON.
- K. TOGGLE SWITCH LABELED "WT PROT" AND VERIFY THAT THE LIGHT LABELED "WT PROT" GOES ON AND OFF.
- L. TOGGLE SWITCH LABELED "WT PROT" UNTIL THE LIGHT LABELED "WT PROT" GOES OFF.
- M. VERIFY THAT LIGHTS LABELED "FAULT", "WT", "RD", AND "LOAD" ARE OFF.

5.3

DRIVE CONTROL TEST

- A. MAKE READY THE DISK DRIVE TO BE TESTED USING THE RK05 DRIVE CARTRIDGE MOUNTING PROCEDURE SECTION 5.2.
- B. SET SWITCH LABELED "RUN/LOAD" TO THE "LOAD" POSITION ON ALL DRIVES NOT BEING TESTED.
- C. VERIFY THAT AC POWER TO ALL DRIVES IS ON.
- D. SET THE SWITCH REGISTER TO 0200 AND PRESS LOAD ADDRESS.
- E. SET THE SWITCH REGISTER TO 0000.
- F. PRESS CLEAR AND THEN CONTINUE.
- G. THE TTY WILL RESPOND WITH THE FOLLOWING MESSAGE QUESTIONING THE OPERATOR ON THE DISK DRIVES TO TEST. THE RESPONSE SHOULD BE Y FOR YES OR N FOR NO:

 RK05 DRIVE CONTROL TEST
 TEST (Y=YES OR N=NO):
 DISK0? DISK1? DISK2? DISK3?

 AFTER THE QUESTIONS ARE ANSWERED THE PROGRAM WILL BEGIN TESTING THE DRIVES SPECIFIED.
- H. THE PROGRAM SHOULD PRINT THE FOLLOWING MESSAGE AT THE COMPLETION OF EACH PASS.

"RK05 DRIVE CONTROL TEST PASS COMPLETE"

- I. ALWAYS USE SWR4#1 FOR STOPPING THE TEST.

- J. IF IT IS DESIRED TO HAVE THE PROGRAM HALT OR STOP AT END OF PROGRAM PASS COMPLETION SET SWR9=1.
- K. ANY HALTS OR TYPEOUTS OTHER THAN THE PASS COMPLETE TYPEOUT OR END OF TEST HALT MENTIONED ABOVE WILL BE CONSIDERED AN ERROR CONDITION. IN ALL CASES ACCESS "ERRORS" SECTION 6 IN THIS DOCUMENTATION.
- L. FOR THE ABSOLUE LOCATIONS OF ALL KNOWN HALTS ACCESS PAGE 1-22 OF THE PROGRAM LISTING.

5.4 CHECK WRITE PROTECT (MANUAL)

- A. RUN THE DRIVE CONTROL TEST WITH ALL DRIVES ON THE CONTROL BEFORE RUNNING THIS "WRITE PROTECT" PORTION.
- B. MAKE READY A DRIVE TO TEST USING THE RK05 DRIVE CARTRIDGE MOUNTING PROCEDURE SECTION 5.2.
- C. SET SWITCH LABELED "RUN/LOAD" TO THE "LOAD" POSITION ON ALL OTHER DRIVES.
- D. VERIFY THAT AC POWER TO ALL DRIVES IS ON.
- E. VERIFY THAT THE LIGHT LABELED "WT PROT" IS "OFF" ON THE CURRENT DRIVE UNDER TEST.
- F. SET THE SWITCH REGISTER TO 0206 AND PRESS LOAD ADDRESS.
- G. SET THE SWITCH REGISTER TO 0000.
- H. SET SWR10-11 TO THE CURRENT DRIVE NUMBER UNDER TEST.
- I. PRESS START AND THE COMPUTER SHOULD HALT AT LOCATION "MPHLT1".
- J. PRESS SWITCH LABELED "WT PROT" TO TURN "WRITE PROTECT" AND THE LIGHT LABELED "WT PROT" ON.
- K. PRESS KEY CONTINUE AND THE COMPUTER SHOULD HALT AT LOCATION "MPHLT2" INDICATING A SUCCESSFUL TEST.
- M. IF ANY ERRORS ARE ENCOUNTERED OR IF IT IS DESIRED TO TRY THE TEST AGAIN, REPEAT STEPS A-K.
- N. FOR POSSIBLE ERROR TYPEOUTS ACCESS SECTION 6 IN THIS DOCUMENTATION. (NOTE: NO SCOPE LOOPS ARE AVAILABLE FOR THIS TEST.)
- O. THE "CHECK WRITE PROTECT PROCEDURE" AS DESCRIBED ABOVE SHOULD BE RUN TWICE WITH ALL DRIVES ON THE CONTROL.

5.5 CHECK WRITE PROTECT (PROGRAM CONTROL)

- A. RUN THE DRIVE CONTROL TEST WITH ALL DRIVES ON THE CONTROL BEFORE RUNNING THIS "WRITE PROTECT" PORTION.

- B. MAKE READY A DRIVE TO TEST USING THE RK05 DRIVE CARTRIDGE MOUNTING PROCEDURE SECTION 5.2.
- C. SET SWITCH LABELED "RUN/LOAD" TO THE "LOAD" POSITION ON ALL OTHER DRIVES.
- D. VERIFY THAT AC POWER TO ALL DRIVES IS ON.
- E. VERIFY THAT THE LIGHT LABELED "WT PROT" IS "OFF" ON THE CURRENT DRIVE UNDER TEST.
- F. SET THE SWITCH REGISTER TO 0207 AND PRESS LOAD ADDRESS.
- G. SET THE SWITCH REGISTER TO 0000.
- H. SET SWR10-11 TO THE CURRENT DRIVE NUMBER UNDER TEST.
- I. PRESS START AND THE COMPUTER SHOULD HALT AT LOCATION "APHLT1" INDICATING A SUCCESSFUL TEST.
- J. VERIFY THAT THE WRITE PROTECT LIGHT LABELED "WT PROT" IS ON, ON THE CURRENT DRIVE.
- L. IF ANY ERRORS ARE ENCOUNTERED OR IF IT IS DESIRED TO TRY THE TEST AGAIN, REPEAT STEPS A-J.
- M. FOR POSSIBLE ERROR TYPEDOUTS ACCESS SECTION 6 IN THIS DOCUMENTATION. (NOTE: NO SCOPE LOOPS ARE AVAILABLE FOR THIS TEST.)
- N. THE "CHECK WRITE PROTECT PROCEDURE" AS DESCRIBED ABOVE SHOULD BE RUN TWICE WITH ALL DRIVES ON THE CONTROL.

5.6 MANUAL FUNCTIONS (FOR TROUBLE SHOOTING ONLY)

THE MANUAL FUNCTIONS ENABLES THE OPERATOR TO SELECT FUNCTIONS, DISK ADDRESS, AND DATA PATTERNS VIA THE SWITCH REGISTER. THIS IS NOT PART OF THE STANDARD TEST PROCEDURE AND SHOULD ONLY BE USED FOR TROUBLE SHOOTING IF DESIRED.

- A. SET THE SWITCH REGISTER TO 0204 AND PRESS LOAD ADDRESS.
- B. SET THE SWITCH REGISTER TO THE DESIRED FUNCTION TO BE LOADED INTO THE COMMAND REGISTER. (SEE SECTION 8.) (NOTE: THE EXTENDED MEMORY BITS 6-8, THE ENABLE INTERRUPT BIT 3, AND THE ENABLE SET DONE BIT ON SEEK COMPLETE BIT 4, ARE NOT RECOGNIZED. THIS MANUAL PORTION IS ONLY FLAG DRIVEN AND ALL DATA TRANSFERS ARE TO THE CURRENT FIELD.)
- C. PRESS START AND THE COMPUTER SHOULD HALT.
- D. SET THE SWITCH REGISTER TO THE DESIRED DISK ADDRESS TO BE LOADED INTO THE CYLINDER, SURFACE, AND SECTOR REGISTER. (SEE SECTION 8.)
- E. PRESS START AND THE COMPUTER SHOULD HALT.

- F. SET THE SWITCH REGISTER TO THE COMPLEMENT TYPE DATA PATTERN TO BE WRITTEN ON OR READ FROM THE DISK DEPENDING ON THE FUNCTION PREVIOUSLY LOADED INTO THE COMMAND REGISTER. (NOTE: A SETTING OF 0000 WILL RESULTS IN A COMPLEMENT DATA PATTERN OF 0000 + 7777, A SETTING OF 2525 WILL RESULT IN A COMPLEMENT DATA PATTERN OF 2525 + 5252.)
- G. PRESS START AND THE COMPUTER SHOULD HALT.
- H. SET THE SWITCH REGISTER TO 0000, PRESS START, AND THE FUNCTION SELECTED WILL BE EXECUTED.
- I. IF POSSIBLE, ALWAYS USE SWR4=1 FOR STOPPING PROGRAM.
- J. IN CASE OF ERRORS OR DESIRED LOOPS, USE THE REGULAR SWITCH REGISTER SETTINGS (SECTION 4.)
- K. IF A WRITE ALL OR THE WRITE DATA FUNCTION WAS SELECTED, THE DATA PATTERN SELECTED WILL BE WRITTEN ON THE DISK ADDRESS SELECTED.
- L. IF A READ ALL OR READ DATA FUNCTION WAS SELECTED, THE DATA WILL BE READ OFF THE DISK ADDRESS SELECTED AND COMPARED AGAINST THE DATA PATTERN SELECTED.
- M. IF A SEEK ONLY FUNCTION WAS SELECTED, A SEEK ONLY WILL BE EXECUTED TO THE DISK ADDRESS SELECTED.
- N. IF A WRITE LOCK FUNCTION WAS THE SELECTED THE DISK DRIVE SELECTED WILL BE WRITE LOCKED.

5.7 CHANGE PROGRAM DEVICE IOT CODES

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

- 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 AT THIS TIME WILL RESULT IN A START OF THE PROGRAM AT LOCATION 0200 (SEE SECTIONS 5.3 OR 5.4 FOR OPERATION INSTRUCTIONS).

5.8 SEEK FROM SWITCHES (FOR RK05 ALIGNMENT)

THE FOLLOWING SURTEST WAS REQUESTED BY FIELD SERVICE TO AID IN RK05 ALIGNMENT, THE PROGRAM WILL SEEK ONLY BETWEEN ADDRESSES FROM SWITCH REGISTER.

- A. SET THE SWITCH REGISTER TO 4000 AND PRESS LOAD ADDRESS.
- B. SET THE SWITCH REGISTER TO 0000.

- C. SET SWR9-11 TO THE DRIVE NUMBER AND EXTENDED CYLINDER BIT OF THE FIRST SEEK ADDRESS (BITS 9-10 TO DRIVE NUMBER AND BIT 11 TO EXTENDED CYLINDER).
- D. SET SWR0-7 TO THE REMAINDER OF THE CYLINDER BITS AND THE SURFACE OF THE FIRST SEEK ADDRESS.
- E. PRESS START AND THE COMPUTER SHOULD HALT.
- F. SET THE SWITCH REGISTER TO 0000.
- G. SET SWR9-11 TO THE DRIVE NUMBER AND EXTENDED CYLINDER BIT OF THE SECOND SEEK ADDRESS (BITS 9-10 TO THE DRIVE NUMBER AND BIT 11 TO THE EXTENDED CYLINDER).
- H. SET SWR0-7 TO THE CYLINDER BITS AND SURFACE OF THE SECOND SEEK ADDRESS.
- I. PRESS START AND THE DRIVE SHOULD SEEK BETWEEN THE ADDRESSES SPECIFIED BY THE SWITCH REGISTER.
- J. THE SECOND SEEK ADDRESS CAN BE CHANGED AT ANY TIME BY SIMPLY CHANGING THE SWITCH REGISTER TO SELECT A NEW ADDRESS.
- K. CARE SHOULD BE TAKEN TO NOT SELECT A NON-EXISTENT DISK DRIVE OR NON-EXISTENT CYLINDER.
- L. NO ERROR CHECKING IS DONE DURING THIS SURTEST.
- M. IT IS POSSIBLE TO SEEK TO A CONSTANT ADDRESS BY MAKING THE FIRST AND SECOND ADDRESS EQUAL.

6. ERRORS

6.1 USEFUL ERROR INFORMATION

IN THE DRIVE CONTROL TEST, THE DISK SKIP IOT IS FIRST CHECKED AND TIMED-OUT USING AN "ISZ" TIME LOOP. IF THE SKIP IOT FAILS, AN ERROR TYPEOUT AND ERROR HALT SHOULD OCCUR. ONCE PROVEN TO WORK, THE IOT IS NOT TIMED-OUT. THE PROGRAM MAY HANG-UP IF THE SKIP IOT FAILS INTERMITTENTLY. (NOTE: THE MANUAL FUNCTIONS, SECTION 5.7, ALWAYS TIMES OUT THE SKIP IOT TO PREVENT HANGING UP.

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.

THE ABSOLUTE LOCATION OF ALL KNOWN HALTS CAN BE FOUND A COMPLEMENT TYPE DATA PATTERN (I.E. 2525 + 5252, 5252 + 2525, OR 0000 + 7777) IS ALWAYS USED IN THIS TEST WHEN DATA IS WRITTEN AND THEN CHECKED. IN SOME CASES, ALL 0'S IS USED IN CHECKING CRC AND STATUS REGISTERS, HOWEVER, THE DATA IS NOT CHECKED.

THE PROGRAM USES THE SAME PROGRAM BUFFER FOR WRITING AND READING DATA. THE BUFFER IS SETUP BEFORE A WRITE FUNCTION AND CLEARED BEFORE THE DATA IS READ AND CHECKED. THE BUFFER OCCUPIES THE CURRENT FIELD FROM THE END OF THE PROGRAM +400 LOCATIONS.

BEFORE DATA IS WRITTEN ON THE DISK, THE FIRST TWO WORDS OF THE BUFFER ARE SET TO THE ABSOLUTE DISK ADDRESS. THE FIRST WORD OF THE BUFFER (BITS 9-11) IS SET TO THE DRIVE NUMBER AND THE EXTENDED CYLINDER BIT, THE SECOND WORD TO THE 12 REMAINDER CYLINDER, SURFACE, AND SECTOR BITS, ALSO THE BUFFER +1 IS SET TO THE DATA WORD OF "1234". AFTER THE WRITE THEN READ, THE WORDS ARE CHECKED FOR CORRECT VALUES, INDICATING THAT THE INFORMATION WAS WRITTEN ON AND READ FROM THE SAME PLACE ON THE DISK AND THAT THE DATA BREAK STOPPED CORRECTLY. WHEN AN ERROR EXISTS WITH THE WORDS AS STATED PREVIOUS, THE OPERATOR SHOULD REALIZE THAT THE PROBLEM IS MOST LIKELY ADDRESSING AND SOMETIMES DATA ERRORS.

WHEN DATA IS BEING READ OFF THE DISK AND A CRC ERROR OCCURES THE PROGRAM WILL THEN CHECK THE DATA READ FOR DATA ERRORS. IF NO DATA ERRORS EXIST THE CRC ERROR FOUND WILL BE REPORTED AS A STATUS REGISTER ERROR. IF DATA ERRORS ARE FOUND THE DATA ERRORS WILL BE REPORTED AS DISK DATA ERRORS AND THE CRC STATUS ERROR INDICATED IN THE "ST:". (SEE SECTION 6.4 FOR ERROR HEADERS AND TYPEOUTS).

THE ABSOLUTE ADDRESS LOCATIONS OF THE DATA BUFFER

6.2 NON-RECOVERABLE ERROR HALTS

NON-RECOVERABLE ERROR HALTS FOR WHICH THERE ARE NO TYPEOUTS 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 LOCATION "ERHLT9".

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

6.4 ERROR TIMEOUTS

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

POSSIBLE "ERROR HEADERS" ARE AS FOLLOWS.

- STATUS REGISTER ERROR
- COMMAND REGISTER ERROR
- DISK ADDRESS REGISTER ERROR
- DISK DATA 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 TIMEOUTS 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 OR THE CYLINDER, SURFACE, AND SECTOR BITS.
- CA: CONTENTS OF THE INITIAL CURRENT ADDRESS
- AD: BREAK ADDRESS OF DATA BREAK IN COMPUTER.
- DT: DATA FOUND DURING DATA BREAK.

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

THE ERROR INFORMATION INDICATOR SUGGESTED 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 VALUE LOADED INTO THAT REGISTER PRIOR TO THE FAILURE.

TO TYPE THE ACTUAL CONTENTS OF THE REGISTERS, SET SWR0=1 AFTER AN ERROR HALT AT LOCATION "ERHLT9", AND PRESS KEY CONTINUE. THE CONTENTS OF THE CRC, STATUS, LOWER DATA, COMMAND, AND SURFACE AND SECTOR REGISTERS WILL THEN BE TYPED.

6.5 SCOPE LOOPS

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

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

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

SWR1=1 MAY HAVE TO BE USED IN SCOPE LOOPS IN CONJUNCTION WITH SWR0=1, IF THE CURRENT TEST IS WORKING INTERMITTENTLY.

6.6 TYPICAL ERROR TYPEOUTS

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:0267

THE FOLLOWING IS AN EXAMPLE OF AN "ERROR HEADER" AND ERROR TYPEOUT THAT COULD HAVE OCCURRED ON A DATA BREAK ERROR. (NOTE CRC IN THE STATUS INDICATOR "ST: ")

DISK DATA ERROR
PC:1161 GD:5252 ST:4010 CM:1000 DA:0001 CA:7000 AD:7010 DT:5250

THE FOLLOWING IS A TYPICAL ERROR THAT COULD HAVE OCCURED WHILE READING THE CRC REGISTER.

CRC REGISTER ERROR
PC:2246 GD:116047 CR:116046 CM:1000 DA:7777

THE FOLLOWING IS AN EXAMPLE OF AN ERROR TYPEOUT THAT COULD HAVE OCCURRED IF THE STATUS REGISTER FAILED. (NOTE: IN THIS CASE THE OPERATOR INDICATED TO THE PROGRAM TO TYPE THE ACTUAL CONTENTS OF THE REGISTERS BY SETTING SWR0=1

AFTER THE ERROR HALT AT LOCATION "ERHLT9" AND PRESSING
KEY CONTINUE).

SEQ 0014

STATUS REGISTER ERROR

PC:1100 GD:4000 ST:2000 CM:5002 DA:0000
CR:000000 ST:2000 DR:0000 CM:5002 DA:0000

7. RESTRICTIONS

ALL DISK DRIVES SHOULD BE SET TO THE LOAD POSITION
THAT ARE NOT BEING TESTED.

ALL ERRORS SHOULD BE CORRECTED BEFORE PROCEEDING ON IN
THE PROGRAM.

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 CLEARS 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
1
2
3
4
5
6
7
8
9
10
11

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

READ DATA
READ ALL
WRITE LOCK
SEEK ONLY
WRITE DATA
WRITE ALL
NOT USED
NOT USED
ENABLE INTERRUPT
ENABLE SET TRANSFER DONE ON SEEK DONE
HALF BLOCK 128 WORDS
EXTENDED MEMORY ADDRESS
EXTENDED MEMORY ADDRESS
EXTENDED MEMORY ADDRESS
UNIT SELECT
UNIT SELECT
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 DCLR "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 DRIVE CONTROL TEST VERIFIES BASIC FUNCTIONAL OPERATION OF THE RK8E CONTROL LOGIC WITH THE RK05 DISK DRIVE(S). THE PROGRAM IS COMPRISED OF MANY INDIVIDUAL SUBTESTS WHICH ARE AUTOMATICALLY RUN IN A SEQUENTIAL FLOW. ABOVE EACH SUBTEST, IN THE LISTING, IS A BRIEF DESCRIPTION OF EACH SUBTEST.

WHEN SINGLE DRIVE TESTING, ONE PASS THROUGH ALL SUBTESTS (TST0-TST45) RESULTS IN A PASS COMPLETION. WHEN MULTI-DRIVE TESTING, ONE PASS THROUGH ALL SUBTESTS(TST0-TST45) ON ALL DRIVES AND THE RUNNING OF THE OVERLAP SEEK TESTS(OVRLAP, GRONK, AND OVRRED) RESULTS IN A PASS COMPLETION.

CONSIDERING NO ERROR CONDITIONS, THE DRIVES THAT HAVE RUN THIS TEST ARE FORMATTED, IF THE PROGRAM WAS STOPPED AT END OF PROGRAM PASS COMPLETION BY SWR9#1.

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 10.6.

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 AVAILBLE 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 D, 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 FIELD 1 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
---	-----	-----	
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 INTERFACES ARE:

1. TIMING INTERFACE
2. ERROR INTERFACE

EACH WILL BE EXPLAINED IN DETAIL.

11.2 SETUP

ONLY HARDWARE CONFIGURATION WORD 2, ADDRESS 22, NEED BE ESTABLISHED. THE FOLLOWING INFORMATION MUST BE INDICATED:

1. SINGLE OR MULTIPLE DRIVE TESTING.
2. DRIVE OR DRIVES TO BE TESTED.
3. DIAGNOSTIC RUNNING UNDER APT-8.

IF SINGLE DRIVE TESTING BIT 5 OF ADDRESS 22 MUST BE SET TO A ONE (1) WITH BITS 6-11 CONTAINING THE DRIVE TO BE TESTED. IF MULTIPLE DRIVES ARE TO BE DONE BIT MUST BE SET TO A ZERO (0) AND BIT 6-11 CONTAINING THE HIGHEST NUMBER DRIVE TO BE TESTED. WHEN MULTIPLE DRIVE TESTING ONLY A SPECIFIC NUMBER OF DRIVES CAN BE INDICATED. THE PROGRAM ASSUMES THE DRIVES ARE TO BE DONE BEGINNING WITH DRIVE ZERO (0) AND FINISHING WITH THE HIGHEST DRIVE INDICATED. IF MULTIPLE DRIVES OTHER THAN CONSECUTIVELY NUMBERED DRIVES BEGINNING WITH DRIVE ZERO (0) ARE TO BE DONE, THEY MUST BE DONE AS SINGLE DRIVES AND TESTED INDEPENDANTLY.

THE PROGRAM ALLOWS ONLY DRIVES ZERO (0) THROUGH THREE (3) TO BE TESTED AT THIS TIME.

BIT ZERO OF ADDRESS 22 MUST BE SET TO A ONE TO INDICATE THAT THE PROGRAM WILL RUN UNDER APT-8.

NOTE: IT SHOULD BE NOTED AT THIS TIME THAT WHILE RUNNING UNDER APT-8 THE HARDWARE SWITCH REGISTER IS INOPERATIVE. ONLY THE HALT AND SINGLE STEP SWITCH WILL EFFECT THE PROGRAM RUN.

11.3 APT-8 INTERFACES

11.3.1. TIMING

APT-8 IS NOTIFIED OF PROGRAM RUN BETWEEN .2 SEC AND 2.0 SEC ON A 1.2 MICROSECOND MEMORY CYCLE. THIS WILL ALLOW THE DIAGNOSTIC TO RUN WITHOUT CAUSING AN APT-8 TIMEOUT ERROR IF THE DIAGNOSTIC IS TO BE RUN ON ON THE SLOWER MOS MEMORY.

11.3.2. ERRORS

ONLY THE ERROR PC IS REPORTED TO APT-8 SYSTEM. ERRORS WHICH CAUSE A PROGRAMMED HALT CAUSE A TIMEOUT ERROR. IF A PROGRAMMED HALT SHOULD OCCUR, THE ERROR PC WILL APPEAR IN THE AC ON THE DEVICE UNDER TEST. PROGRAMMED HALTS ARE EXPLAINED EARLIER IN THIS DOCUMENT.

11.4. LOADING PRECAUTIONS

THIS PROGRAM SHOULD BE LOADED IN SCRIPT MODE INDICATING TO APT THAT CROR CHECK SUMS ARE TO BE IGNORED.

```

1 /
2 /RAKE DRIVE CONTROL TEST
3 /
4 /MAINDEC-MA-DHAKR-B-L
5 /
6 /COPYRIGHT (C) 1972, 1976 DIGITAL EQUIP. CORP.
7 /
8 /MAYNARD, MASS. 01750
9 /
10 /
11 /
12 /CONSOL SRC -V2-R0-CONSOLE PACKAGE
13 /
14 /THE PROGRAM SHOULD CHECK FOR A CONTROL CHARACTER FROM THE TERMINAL
15 /EVERY FIVE(S) SECONDS OR SOONER.
16 /
17 /LOCATIONS THAT NEED TO BE SET UP FOR USING THE CONSOLE PACKAGE.
18 /
19 /CONVIL IN XCAPASS THIS LOCATION DETERMINES THE NUMBER OF
20 /PROGRAM COMPLETIONS THAT ARE NEEDED BEFORE THE PASS MESSAGE IS TYPED
21 /THE VALUE SHOULD PUT THE PASS MESSAGE OUT IN THE RANGE OF 1 TO 5 MINUTES.
22 /THIS SHOULD BE A POSITIVE NUMBER.
23 /
24 /PASTRT THIS IS FOUND IN CNTRL ROUTINE CONTROL R PART
25 /IT IS THE RETURN WHEN CONTROL R IS ENTERED (RESTART PROGRAM)
26 /THE RETURN JUMPS TO FROM WHICH CONTAINS CSTART SO PUT THE LABEL CSTART
27 /WHERE YOU WANT TO RESTART THE PROGRAM.
28 /
29 /
30 /
31 /SETUP1 IN XCBERR THIS IS THE MASK BIT FOR HALT ON ERROR
32 /PLACE THE CORRECT BIT IN THIS LOCATION FOR HALTING ON ERRORS.
33 /
34 /SETUP2 IN XCAPASS THIS IS THE MASK FOR HALT A END OF PASS.
35 /
36 /THE CALL TABLE IS A CONDITIONAL ASSEMBLY.
37 /TO ASSEMBLE THE CALL REMOVE THE / BEFORE CONSOL=0.
38 /IN COMBINING THE CONSOL PACKAGE TO A DIAGNOSTIC.
39 /THE CALL TABLE IS TO BE AT THE BEGINNING OF A PROGRAM.
40 /
41 /
42 /
43 /
44 /
45 /
46 /
47 /
48 /
49 /
50 /
51 /
52 /
53 /
54 /
55 /

```

```

41 0000 CONSOL=0
42 6661 PSKFR 6661
43 6662 PCLFR 6662
44 6663 PSKER 6663
45 6664 PSTGR 6664
46 6665 PSIR 6665
47 6004 GTF 6004
48 7701 ACLR 7701
49 6007 CAF 6007
50 7421 MGL 7421
51 7501 MQAR 7501
52
53 *20
54 /F1SWR, 0
55 0020 0000

```

```

56 0021 4000 F1OP1, 4000
57 0022 0000 F1OP2, 0
58
59 /FPOFF CONSOL <
60
61
62 *20
63 0024
64 4434 CBRASS JMS I
65 0020 XCAPAS .
66 4450 CCKSW JMS I
67 0025 0020 XCBOSW .
68 4420 CRTY1 JMS I
69 0026 0027 XCBATV .
70 4427 CBCNTR JMS I
71 0027 0000 XCBACNT .
72 4430 CBRPRT JMS I
73 0030 0303 XCBAPT .
74 4431 CBRWTA JMS I
75 0031 0636 XCAPSW .
76 4432 CROCTA JMS I
77 0032 1000 XCBDOCT .
78 4433 CACRLE JMS I
79 0033 1023 XCBACRL .
80 4434 COECHO JMS I
81 0034 1063 CATYPR JMS I
82 4435 CATYPR JMS I
83 0035 1077 CREPRR JMS I
84 4436 CREPRR JMS I
85 0036 1237 CAINQU JMS I
86 4437 CAINQU JMS I
87 0037 0635 CACKPR JMS I
88 0240 1241 CACKPR JMS I
89 4440 CAPAUS JMS I
90 0041 0337 XCAPAU .
91
92
93
94
95 /*****
96 /*20
97 /*****
98
99
100
101 /*21
102 /*****
103 /*22
104 /*****
105 /*23
106
107
108
109
110

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/*****
/*20
*****
/*21
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/*22
*****
/*23
*****
/RESERVED FOR FUTURE USE

```

```

126
127
128
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130
131
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141

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111 /
112 /*****
113 /CPASS
114 /THIS IS CALLED AT THE END OF EACH PROGRAM COMPLETION
115 /THE VALUE OF A COUNTER WILL BE DETERMINED BY THE TIME IT TAKES
116 /THE PROGRAM TO COMPLETE THIS MANY CPASS TO BE IN THE 1 TO A MINUTE
117 /RANGE
118 /CPASS/JMS XCOPAS
119 /EX. OF CALL /
120 / JMS XCOPAS
121 /MT
122 /MT START1
123 /HALT IF NON CONSL PACKAGE
124 /CONTINUE RUNNING THIS PROGRAM
125 /
126 /RETURN TO LOCATION CALL PLUS ONE WITH THE AC=0 IF NON CONSL PACKAGE AND HLT
127 /IF CONTINUE TO RUN THEN RETURN TO CALL PLUS AC=0
128 /THE LOCATION SETUP2 IS THE MASK BIT FOR THE HALT AT END OF PASS
129 /CHECK THAT IT IS CORRECT FOR THE CURRENT PROGRAM
130 /CALLS USED BY XCOPAS ARE CHKCLA=XCRCRLF=XCRCFTA=XCBSM=XCOPY=XC0ING=
131
132 XCOPAS, 0
133 CLA
134 JMS CHKCLA
135 JMS DOPACK
136 JMS D0E3 5212
137 JMS D204 4774*
138 JMS D205 4262
139 JMS D206 2375
140 JMS D207 7643
141 JMS D217 5600
142 JMS D218 5230
143 JMS D219 4232
144 JMS D214 5230
145 JMS D215 2250
146 JMS D216 4774*
147 JMS D217 4303
148 JMS D217 4293
149 JMS D220 1250
150 JMS D221 4773*
151 JMS D222 4774*
152 JMS D223 4774*
153 JMS D224 4262
154 JMS D225 4375
155 JMS D226 7643
156 JMS D227 4772*
157 JMS D228 2240
158 JMS D229 2240
159 JMS D231 0200
160 JMS D232 1200
161 JMS D233 7643
162 JMS D235 5242
163 JMS D236 1252
164 JMS D237 7643
165 JMS D240 3207

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PAL10 V1424 15-APR-76 1312d PAGE 1-3
166 D241 2251 ISZ D0SET /INDICATE VALUE SET UP
167 D242 2247 NOSET /COUNT THE NUMBER OF PASSES
168 D243 5230 NOSET, ISZ /EXIT FOR ANOTHER PASS
169 D244 3251 JMS CARRY1 /SET TO COPYNT CPASS
170 D245 2232 DCA D0SET /HMR RETURN FOR
171 D246 5632 ISZ /CPASS CATYPE OUT
172 D247 0000 JMP I CXCOUT
173 D251 0000 DOCNT, 0 /
174 D251 0000 PASCNT, 0
175 D252 0000 D0SET, 0
176 D253 4410 HESPAS, TEXT "DHRRKF PASS "

```

```

/*****
/CPASS
/THIS ROUTINE CAN BE USED INPLACE OF A READ THE SWITCHES LAS.
/ROUTINE THAT WILL CHECK WHERE TO READ THE
/CB SWITCHES FROM IE FROM PANEL OR PSEUDO SWITCH REGISTER
/THE SELECTION IS DETERMINED BY THE STATE OF BIT 0 IN LOCATION 21.
/CPACK* JMS XCBSM /READ THE CSWIT REGISTER
/EX. JMS XCBSM /RETURN WITH THE CONTENTS OF SWITCH REGISTER
/RETURN TO NEXT LOCATION FOLLOWING CALL WITH THE AC= TO VALUE OF CSWIT SETTING
/CALLS USED ARE=XCOPAS=

```

```

177 0242 0200 XCBSW, 0
178 0243 4771* JMS XCOPAS
179 0244 7000 NOP
180 0245 1021 JMS XCOPAS
181 0246 7710 SPA CLA /GET WD FOR INDICATOR
182 0247 7614 TAD T61 /CHECK IF FROM PANEL 4000
183 0248 7614 TAD T61 /ON LAS AND SKIP GET FROM PANEL WITH LAS
184 0249 7614 TAD T61 /PSEUDO SWITCH
185 0250 7614 TAD T61 /EXIT WITH STATUS BIT IN AC.
186 0251 5662 JMP I XCBSW
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/*****
/CPATTI
/THIS ROUTINE WILL LOOK FOR A INPUT FROM THE TERMINAL
/AND REMOVE ANY PARITY BITS, THEN MAKE IT A BIT ASCI.
/CPATTI* JMS XCATTI

```



```

215 P110 V1424 15-APR-76 13124 /READ CHAR FROM THE CONSOLE DEVICE
216 /EX. JMS XCBATTI /RETURN TO CALL PLUS ONE AC CONTAINS THE CHAR
217
218 /CALLS USED -NONE-OUT CACHAR IS OFF PAGE AND IN ROUTINE CALLED XCRECHO
219
220 /
221 /
222 /
223 XCBATT, 0
224 KSF --1 /LOOK FOR KEYBOARD FLAG
225 JMP --1
226 KRR /GET CHAR
227 AND (177 /MASK FOR 7 BITS
228 TAD (200 /AND THE EIGHT BIT
229 DCA CACHAR /STORE IT
230 TAD CACHAR
231 JMP I XCBATT /EXIT
232
233
234
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/*****
/CPBRT
/THIS ROUTINE WILL TYPE THE CONTENTS OF THE CA PRINT BUFFER. THE LOCATION
/OF THE BUFFER WILL BE IN THE ADDR3 FOLLOWING THE CALL. PRINTING OF THE BUFFER
/WILL STOP WHEN A 00 CHAR IS DETECTED. CHARACTERS ARE PACKED 2 PER WORD.
/
/ CPBRTS JMS XCAPRT
/
/EX. JMS XCAPRT /CPBRT THE CONTENTS OF THE FOLLOWING BUFFER
/ MESSAGE7 /LOCATION OF CPBRT BUFFER
/CPBRT WILL USE THE LOCATION FOLLOWING THE CALL AS THE POINTER FOR THE
/CPBRT ROUTINE. RETURN TO CALL PLUS TWO WITH AC 0
/CALLS USED ARE-XCBTYPE-XCAPRT

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```

256 XCAPRT, 0
257 CLA CLL
258 TAD I XCAPRT
259 DCA P1STOR /GET CPBRT BUFFERS STARTING LOCATION
260 P1STOR /STORE IN P1STOR
261 TAD XCAPRT /RUPP RETURN
262 AND (177 /GET DATA WORD
263 SNA (177M /MASK FOR LEFT BYTE
264 JMP I XCAPRT /CHECK IF 00 TERMINATE
265 SNA /EXIT
266 SNA /IS AC MINUS
267 TAD (200 /MAKE CHAR A 300 AFTER ROTATE
268 TAD (200 /MAKE CHAR A 200 AFTER ROTATE
269 TAD (200 /ROTATE
270 RTR

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```

270 P110 V1424 15-APR-76 13124 /PUT CHAR IN BITS 4-11 MAKE IT 8 BIT ASCII
271 RTR /CPBRT IN CONSOLE
272 JMS XCBTYPE /GET DATA WORD
273 TAD I P1STOR /MASK FOR RIGHT BYTE
274 AND (0077 /CHECK IF 00 TERMINATOR
275 SNA /EXIT
276 JMP I XCAPRT /AND FUDGE FACTOR TO DETERMINE IF 200
277 TAD (3740 /OR 300 IS TO BE ADD TO CHAR
278 SNA /AND 100
279 TAD (200 /AND 200
280 JMS XCBTYPE /GET ONLY BITS 4-11
281 TAD (200 /RUPP PRINTER FOR NEXT WORD
282 P1STOR /DO AGAIN
283 JMP C0001 /STOP FOR CPBRT BUFFER
284
285
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/CPAUS
/THIS ROUTINE WILL CHECK IF THE CONSOLE PACKAGE IS ACTIVE. IF ACTIVE
/IT WILL RETURN TO CALL PLUS ONE AC 0. AND DO THAT INSTRUCTION.
/IF THE CONSOLE PACKAGE IS NOT ACTIVE THE CALL WILL BE REPLACED
/WITH A 7002 HALT AND THEN RETURN TO THE HALT.
/
/ CPAUS= JMS XCAPAU
/
/EX. JMS XCAPAUS /CHECK IF ON ACTIVE CONSOLE IF NOT HALT HERE
/ ANYTHING /RETURN HERE IF ON ACTIVE CONSOLE
/
/ CALLS USED ARE -CHKCLA-

```

```

325 XCAPAU, 0
326 CLA CLL
327 JMS CHKCLA
328 DCA C0003
329 TAD XCAPAU /CHECK LOC 22 BIT 3 CONSOLE BIT
330 TAD (7002 /ON ON CONSOLE PART RETURN CALL+1
331 DCA XCAPAU /DEACTIVE CONSOLE PACKAGE PUT HLT IN CALL
332 TAD (7002 /GET CORRECT RETURN ADDR3
333 DCA I XCAPAU /SET UP RETURN
334 JMP I XCAPAU /GET CODE FOR HLT
335
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325 0357 0200
326 0370 0177
327 0371 1041
328 0372 0635
329 0373 1283
330 0374 1223
331 0375 0420
332 0376 0420
333 0377 1290
334 0400

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PAGE
/*****

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335 /*****
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379 0426 1772* NONEA, TAD INHND
380 0427 7640 SZA CLA
381 0430 5240 JMP EXITA
382 0431 1773* TAD GCHN
383 0432 4771* TAD XCBTYP
384 0433 1370 TAD (277
385 0434 4771* JMS XCBTYP
386 0435 4767* JMS XCBRLF
387 0436 2200 T9Z XCBNT
388 0437 5600 JMP I XCBNT
389 0440 2200 XCBNT 19Z XCBNT
390 0441 1773* EXITA, TAO GCHN
391 0442 5600 JMP I GCHN
392 0443 1773* GOITAA, TAO GCHN
393 0444 1366 TAO (189
394 0445 1366 TAO GCHN
395 0446 1260 DCA XTABL
396 0447 1255 TAD XTABL
397 0450 1254 TAD INDEXA
398 0451 1654 DCA GOTDA
399 0452 1254 TAO I GOTDA
400 0453 5654 JMP I GOTDA
401 0454 0000 GOTDA, 0000
402 0455 0000 INDEXA, 0000
403 0456 0000 GETOAT, 0000
404 0457 0461 XTALA, TABL
405 0460 0471 XTALA, TABL
406 0461 7575 TABLA, 7575
407 0462 7544 TABLA, 7544
408 0463 7557 TABLA, 7557
409 0464 7556 TABLA, 7556
410 0465 7555 TABLA, 7555
411 0466 7573 TABLA, 7573
412 0467 7574 TABLA, 7574
413 0470 0000 TABLA, 0000
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/CONTROL D
/START SENDING CHAR. TO THE DISPLAY
/THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
/THE CALL FOR CONTROL S.

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/CONTROL D
/START SENDING CHAR. TO THE DISPLAY
/THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
/THE CALL FOR CONTROL S.

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/CONTROL D
/START SENDING CHAR. TO THE DISPLAY
/THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
/THE CALL FOR CONTROL S.

```

```

/CONTROL D
/START SENDING CHAR. TO THE DISPLAY
/THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
/THE CALL FOR CONTROL S.

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0500 3772* INHND
0501 1335 CASETS
0502 7640 SZA CLA
0503 5306 JMP RABETA
0504 4765* JMP I XCBNTR
0505 5600

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/CONTROL D
/START SENDING CHAR. TO THE DISPLAY
/THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
/THE CALL FOR CONTROL S.

```

```

/CONTROL D
/START SENDING CHAR. TO THE DISPLAY
/THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
/THE CALL FOR CONTROL S.

```

```

/CONTROL D
/START SENDING CHAR. TO THE DISPLAY
/THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
/THE CALL FOR CONTROL S.

```

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/CONTROL D
/START SENDING CHAR. TO THE DISPLAY
/THIS WILL RETURN CONTROL TO CALL THAT WAS SET BY
/THE CALL FOR CONTROL S.

```

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PAL10 VI42A 15-APR-76 13:24 PAGE 1-8
430 0506 3335 RYRTR, DCA CASETS /CLEAR THE SOFT FLAG
431 0507 4765* JMS CAGET /RESTORE REGISTERS
436 0510 5736 JMP I CORETR /EXIT TO ADDRESS SET BY CONTROL 5
437
438
439
440
441 0511 3764* /CONTROL B
442 0512 3325 /GO TO THE QUESTION CASWIT
443 0513 3372* CNTRLR, DCA TTYLPT
444 0514 4763* DCA CASETS /CLEAR SOFT FLAG FOR CNTRL S
445 0515 3763* DCA TMSDE /PRINT THE " AND CCHAR
446 0516 4293* CARV, DCA UPARW /CLEAR FLAG FOR CNTRL D OR R
447 0517 5293 CDF CDF R CASWST /GO TO ADDR. OF CASWIT
448 0518 5290 JMP I XMSW /XMSW IS LABEL FOR CASWIT QUESTION
449
450
451
452 /CONTROL S
453 /STR SENING CHAR. TO DISPLAY UNTIL A "q" IS RECEIVED
454
455
456 0521 1335 CNTRL, TAO CASETS /IF1 NO NOT STORF IN CORETR
457 0522 7840 SZA CLA /DON'T SET UP CORETR
458 0523 5287 JMP CROD7 /MAKE RETURN CALL PLUS 2
459 0524 7901 TAO /GET RETURN FOR THIS CALL
460 0525 1206 TAO XCRCNT /STORE IT HERE FOR USE BE CONTROL 0
461 0526 3336 DCA CORETR /SET FLAG TO SAVE CALL
462 0527 2335 DCA CASETS /LOOK FOR THE INPUT
463 0528 4761* JMS XCRTYI /GET REGISTERS
464 0529 4290 JMS CGBCTR /CHECK FOR THE CONTROL CHAR
465 0530 5281 CLA /IF NOT A CNTRL Q R C REASK
466 0531 5281 JMS XCRS /CORETR, 0
467 0532 0000 CASETS, 0
468 0533 0000 CORETR, 0
469
470
471 /SWICH OUTPUT FROM ONE OUTPUT DEVICE TO ANOTHER -THE TWO OUTPUTS ARE THE
472 /CONSOLE AND THE PRINTER WITH DEVICE CODE 56.
473
474
475 0537 3764* /CONTROL E
476 0540 7900 /CONTINUE RUNNING FROM A INQUIRE OR ERROR
477 0541 3764* CNTRL, TAN TTYLPT /GET PRESENT CASWIT INDICATOR
478 0542 4763* DCA CHA /COMPLEMENT IT
479 0543 4763* DCA TTYLPT /STORE NEW CASWIT
480 0544 4763* JMS UPARW /CARRN "A" AND LETTER IN CHAR
481 0545 4765* JMS CAGET /RESTORE THE REGISTERS
482 0546 5600 JMP I XCRCNT /EXIT
483
484
485 0545 4763* /CONTROL F
486 0546 3762* CNTRL, JMS UPARW /PRINT THE CONTROL CHAR
487 0547 4765* DCA CASWST /CLEAR ENTRY FLAG.
488 0550 5600 JMP I XCRCNT /GET THE REGISTERS
/RETURN TO CALL PLUS ONE

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PAL10 VI42A 15-APR-76 13:24 PAGE 1-9
489
490
491
492 /CONTROL C
493 /RETURN TO MONITOR CONTROL C
494 0551 3764* /CLEAR THE LPT FLAG TO PRINT ON DISPLAY
495 0552 3762* CNTRLR, DCA TTYLPT /CLEAR ENTRY FLAG.
496 0553 4763* DCA CASWST /CARRN "A" AND LETTER IN CHAR
497 0554 6203 JMS UPARW /GO TO 0 FLD
498 0555 6007 CDF CDF /CLEAR THE WORL
499 0556 5760 CAF /GO TO DIAGNOSTIC MONITOR
500 *****
501
502
503 0560 7600 /*****
504 0561 0272 /*****
505 0562 0745 /*****
506 0563 0615 /*****
507 0564 1121 /*****
508 0565 0624 /*****
509 0566 0100 /*****
510 0567 1023 /*****
511 0570 0277 /*****
512 0571 1077 /*****
513 0572 1076 /*****
514 0573 1075 /*****
515 0574 1346 /*****
516 0575 1347 /*****
517 0576 1280 /*****
518 0577 1345 /*****
519 0600 PAGE
520
521
522 /CONTROL D
523 /CHANGE THE SWITCH REGISTER ANYTIME CNTRL 0 AND RETURN TO
524 /THE PROGRAM RUNNING.
525
526
527
528
529 0600 4215 UPARW
530 0601 7840 CASWST
531 0602 5297 JMP SZA CLA /CHECK IF THE RETURN ADDR. IS SAFE
532 0603 1777* JMP TAO /DON'T CHANGE THE RETURN ADDR.
533 0604 3214 TAO XCRCNT /GET THE RETURN ADDR. AND SAVE IT
534 0605 4296 DCA CORETR /SAVE THE RETURN HERE
535 0606 4296 DCA XCRS /INDICATE RETURN SAVED DON'T DESTROY
536 0610 3213 JMS XCRPSW /GO CHANGE THE SWITCH REGISTER
537 0612 5610 JMS CAGET /CLEAR THE FLAG
538 0613 0000 /RESTORE THE AC MQ LINK ETC
539 0614 0000 /RETURN TO THE PROGRAM
540
541
542

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649 0712 2306 19Z TWPNT /BUMP COUNT
650 0713 5303 JNP GETCH1 /JNP RACK+GET NEXT CHAR
651 0714 5342 JHP ENDT /END 4 CHAR CATYPEN IN
652 0715 0800 JHP ENDT
653 0716 7841 JHP ENDT
654 0717 1356 JNP SNA CLA /CPL CHAR IN AC
655 0720 7658 JHP ENDT /SWP IN NOT CR
656 0721 5342 JHP ENDT /WAS CARRIAGE RETURN
657 0722 1774 JHP ENDT /NET CR+GET CHAR
658 0723 1355 JHP SPA CLA /CHECK IF IT IS IN RANGE
659 0724 7710 JHP ENDT /IF NOT POSITIVE CHRER CHAR SMALLER TWPNT 260
660 0725 5336 JHP TAN /CERN+CHAR TOO SMALL
661 0726 1774 JHP TAN /GET CHAR
662 0727 1354 JHP SNA CLA /GET A -270+CHECK IF IT IS LARGER TWPNT 7
663 0728 7722 JHP TAN /SALO IF LESS THEN 7
664 0731 5336 JHP TAN /CHECK ON CHAR NOT IN RANGE
665 0732 1774 JHP TAN /GET CHAR
666 0733 2351 JHP AND /MASK FOR RIGHT BYTE
667 0734 3774 JHP DCA /STORE IN CHAR
668 0735 5715 JHP I TSTCMA /GET CHAR IN AC
669 0736 1352 JHP TAN /EXIT
670 0737 4774 JHP JMS YEATPPE /CPRWT
671 0740 4774 JHP JMS XCRCLF /
672 0741 5264 JHP CBRNPS /EXIT+ASK AGAIN
673 0742 4774 JHP JMS XCRCLF /ON A CR LF
674 0743 3345 JHP DCA XCRCLF /CLEAR THE PSW ENTRY FLAG
675 0744 5265 JHP I XCRNPS /EXIT ROUTINE
676 0746 0800 TWPNT, 0
677 0747 2322 MESS, TEXT "SR "
678 0750 3340
679 0751 0800

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681 0752 0277 /OCTAL TO ASCII CONVERSION
682 0753 0277 /THIS ROUTINE WILL TAKE TWP OCTAL NUMBER IN THE AC AND CONVERT IT TO ASCII
683 0754 0277 /THE RESULT WILL BE PRINTED ON THE CONSOLE TERMINAL
684 0755 7310 CROACTA JMS XCRCT
685 0756 0215 /
686 0757 7775 /
687 0758 1063 /
688 0759 1076 /
689 0760 0040 /
690 0761 1000 /
691 0762 0040 /
692 0763 1000 /
693 0764 0215 /
694 0765 0272 /
695 0766 0303 /
696 0767 1204 /
697 0770 1345 /
698 0771 1347 /
699 0772 1346 /
700 0773 1023 /
701 0774 1075 /

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/CROACTA

/CALLS USER ARE -XCATYPE-

```

702 1000 0200 XCRCT, 0
703 1001 7176 CLL RTL
704 1002 7806 RTL
705 1003 3221 DCA CATPPI
706 1004 1371 TAN (44
707 1005 3222 DCA CCRCP
708 1006 1241 TAN RTRWPI
709 1007 0316 AND (0007
710 1008 1375 TAN (260
711 1009 4277 JMS XCATYPE
712 1010 1281 TAN CATPPI
713 1011 7206 RTL
714 1012 7274 PHL
715 1013 3221 DCA CATPPI
716 1014 2222 TAN (197
717 1015 5206 JHP CCRCP
718 1016 6400 JHP CANOQ
719 1017 0200 JHP I XCRCT
720 1018 0200 CATPPI, 0
721 1019 0200 CCRCP, 0
722 1020 0200

```

/*****

/CROCLF /CARTYPE CR AND LF WITH FILLERS FOLLOWING EACH LF AND CR

/ CROCLF JMS XCRCL

/FX JMS XCRCLF

/CALLS USER ARE -XCATYPE-

```

723 1021 2000 XCRCLF, 0
724 1022 7320 CLA CLL (215
725 1023 1374 TAN /GET CONF FOR CP
726 1024 4777 JMS XCATYPE

```

```

PAL10 15-APR-76 13124 PAGE 1-14
756 1227 1237 TAB FILLER
757 1230 1240 CHA
758 1031 1240 DCA FILLER IN HEAP
759 1032 1373 /GET CORE FOR LF
760 1033 4277 CROD2, TAB ECHTYPE
761 1034 2240 /CHECK ON FILLER CHAR
762 1035 5233 /TYPE A NON PRINTING CHAR
763 1036 5083 JMP 1 /EXIT
764 1037 0084 FILLER, 0084 /FILLER SET FOR A CHAR
765 1038 0084 FILLCN, 0 /COUNTER FOR FILL
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//*****
//CACKRA
//THIS ROUTINE WILL CHECK IF A CHARACTER WAS ENTERED FROM THE
//TERMINAL. IF THE FLAG IS SET AND THE CONSOLE PACKAGE IS
//ACTIVE A CHECK IS MADE TO DETERMINE IF IT IS A CONTROL CHAR.
//IF IT WAS A CONTROL CHAR THEN ITS CONTROL FUNCTION IS PERFORMED.
//IF NOT A CONTROL CHARACTER OR A CONTROL E-o-L-o-IT WILL DO
//THE CONTROL FUNCTION AND RETURN TO CALL PLUS 2.
//A NO-CONTROL CHARACTER WILL BE PRINTED AND A "?" IT WILL RETURN TO
//CALL PLUS 2.
//IF NO FLAG IS SET OR THE CONSOLE IS NOT ACTIVE THE RETURN IS TO
//CALL PLUS 1.

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```

/
CACKRA JMS XCRCKP
/EX. JMS XCRCKPA /CALL TO CHECK IF CONTROL CHAR SFT
/ ANYTHING(SKIP) /RETURN IF NOT FLAG OR NOT CONSOLE ACTIVE
/ ANYTHING(JMP EXIT SKIP CHAIN) /RETURN IF NOT CONTROL OR CONTINUE CONTROL
/
/*****
/CALLS USED ARE -XCATTYI-XCACNTR-CAGET-

```

```

PAL10 15-APR-76 13124 PAGE 1-15
810 1042 0082 XCRCKP, 0
811 1043 3772 DCA ACSAVE /SAVE THE AC
812 1044 6260 GTF /SAVE THE FLAGS
813 1244 3771 DCA FLSAVE /SAVE THE FLAGS
814 1245 7501 M0A /PUT MO TN AC
815 1046 3772 DCA M0SAVE /SAVE THE MO
816 1047 6231 KSF /CHECK THE KEYPAD FLAG
817 1050 5241 JMP CARY3 /EXIT TO CALL PLUS 1 CONSOLE BIT
818 1051 4747 JMS CHKCLA /CHECK LOC 22 BIT 3 CONSOLE BIT
819 1052 5241 SFP CARY3 /ACTIVE CONSOLE PACKAGE
820 1053 4747 JMP XCATYI /EXIT TO CALL PLUS 1
821 1054 7418 SFP CARY3 /GET THE FLAGS
822 1055 5241 JMS CAGET /CHECK IF CONTROL CHAR-
823 1056 4766 JMS XCACNTR /RETURN IF A CONTINUE CHAR-
824 1057 7080 NOP /AUMP RETURN FOR CALL PLUS 2
825 1060 2241 ISZ XCRCKP /GET REGISTERS
826 1061 4765 CAGET

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PAL10 15-APR-76 13124 PAGE 1-16
827 1062 5641 JMP I XCRCKP /SAV GONN BY
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//*****
//CAGET
//THIS ROUTINE WILL LOOK FOR A CHAR FROM THE KEYPAD, STORE IT IN LOCATION CHAR
//CHECK IF IT WAS A CONTROL CHARACTER -SFT INMODE -PRINT CHARACTER
/EX. JMS XCRCKM JMS XCRCKH /LOOK FOR CONSOLE CHAR CAPENT IT
/ CACNTR = XCRCKM /RETURN CALL PLUS ONE AC = CHAR CATEDD IN
/CALLS USED ARE -XCATTYI-XCACNTR-CAGET-XRBECH-XCATYI
XCRCKH, 0
JMS XCATYI /WAIT FOR CHAR FROM KEYPAD
JMS CAGET /RESTORE THE REGISTERS
ISZ INMODE /SFT INMODE IDENTIFYING THIS AS A EXPECTED CHAR
JMS XCACNTR /GN CHECK IF IT IS A CONTROL CHAR
JMP I XCRCKH /WAS A CONTROL CHAR -CONTINUE RUNNING
JMS XCATYI /NOT A CONTROL CHAR CAPENT IT
DCA INMODE /CLEAR FLAG THAT CHAR EXPECTD
JMP I XCRCKM /GET CHAR IN AC
CACNTR, 0
INMODE, 0
/*****
//*****
//CATTYP
//THIS ROUTINE WILL CAPENT ON THE CONSOLE OR THE LPT WITH DEVICE CONF 64.
/
/ CATTYP JMS XCATYP
/EX. JMS XCATYDF /CAPENT THE CHAR IN THE AC
/ /RETURN CALL PLUS ONE AC #0000 /ON NOT CLEAR THE LINK IN THIS ROUTINE NEEDED AVECOCT
/ /CALLS USED ARE -CBHANG-XCACNTR-XCAPNT-XCGRLE-XCATINDU-

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```

866 1077 0000 XCATYP, 0
867 1100 3320 DCA PUTBUF
868 1101 1321 TAN TTYLPT /STORE CHAR
869 1102 7466 SZA CLA /CHECK BATTY 7777LPT
870 1103 5716 JMP TAD /ON OUT PUT ON LPT
871 1104 1320 TAD PNTBUF
872 1105 6446 TEB
873 1106 6241 TSB
874 1107 6241 JMP *-1
875 1108 5306 TCF *-1
876 1109 6042 JMP *-1
877 1110 5316 JMP *-1
878 1111 5316 JMP *-1
879 1112 1320 TAD PNTBUF
880 1113 1320 PCLF
881 1114 4666

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911	1240	4770*	JMS	XCACTA	13124	PA	PROGRAM
912	1245	4771*	JMS	XCBANT			/CONVERT & DIGIT PC TO ANCTI
913	1246	1333	MESAC				/PRINT THE AC MESS
914	1247	1345	TAN	ACSAVE			
915	1250	4770*	JMS	XCACTA			
916	1251	4771*	JMS	XCBANT			/PRINT MG
917	1252	1336	MESMG				
918	1253	1346	TAN	MOSAVE			
919	1254	4770*	JMS	XCACTA			
920	1255	4771*	JMS	XCBANT			/PRINT FL
921	1256	1341	MESFL				
922	1257	1347	TAN	FLSAVE			
923	1260	4770*	JMS	XCACTA			/GET REGISTERS.
924	1261	4772*	JMS	XCACTA			/CHECK SWITCH REGISTER
925	1262	4773*	JMS	XCACTA			/CHECK SWITCH REGISTER
926	1263	4774*	JMS	CACT			/SET UP ALT A SET
927	1264	4774*	JMS	XCBNT			/GO TO THE INQUIRE ROUTINE
928	1265	5320	SHP CL				/CHECK REGISTERS.
929	1266	4787*	JMS	XCBNT			/CHECK PSEUDO SWITCH REGISTER
930	1267	5320	JMS	CARBZ			/CHECK THE SWITCH REGISTER
931	1270	4775*	JMS	CACT			/SKIP TR MALT
932	1271	4776*	JMS	XCBNT			/CHECK THE SWITCH REGISTER
933	1272	7610	SHP CL				/EXIT TO CALL AND MALT
934	1273	5627	JMS I	XCBNT			/GET TWO REGISTERS
935	1274	1366	TAN	(CARZ)			
936	1275	1700	OCA I	PSAVE			/GO TO THE INQUIRE ROUTINE
937	1276	4775*	JMS	CARBZ			/LEAVE
938	1277	5780	JMS I	CARBZ			/CHECK THE SWITCH REGISTER
939	1278	4775*	JMS I	CACT			/CHECK THE SWITCH REGISTER
940	1279	4775*	JMS I	CACT			/CHECK THE SWITCH REGISTER
941	1281	5627	JMS I	XCBNT			/PRINT IN CALL LOC.
942	1302	7402	ROUTING, MLT				/RETURN TO FIELD 0.
943	1303	7400	ROUTING, MLO				
944	1304	7417	DCA	MVIC			/PUT INSTRUCTION TO EXECUTE HERE.
945	1305	4201	CDE				/SAVE AC
946	1306	1020	TAN	SUB			
947	1307	1785	OCA I	(SWR)			
948	1310	1776	OCA I	(CLASIX)			
949	1311	5315	OCA	CLTRN			
950	1312	1317	TAN	MVIC			
951	1313	4202	CIF				
952	1314	5715	JMS I	CLTRN			
953	1315	0200	CLTRN, M				
954	1316	0200	REALPC, M				
955	1317	0300	MVIC, M				
956	1320	0410	FORMES, TEXT				"CHKRAF FAILED"
957	1321	0213					
958	1322	0206					
959	1323	4000					
960	1324	0601					
961	1325	1114					

1220	1326	0500		13124	PA	PROGRAM
1221	1327	4020	MESPC, TEXT			"PC:"
1222	1331	0203				
1223	1332	4000	MESAC, TEXT			" AC:"
1224	1333	4000				
1225	1334	1103	MESMG, TEXT			" MGT"
1226	1335	0201				
1227	1337	1521	MESFL, TEXT			" FLI"
1228	1341	0200				
1229	1342	0610				
1230	1343	7200	PSAVE, 7777			
1231	1344	7777	ACSAVE, 7777			
1232	1345	7777	MOSAVE, 7777			
1233	1346	7777	FLSAVE, 7777			
1234	1347	7777				
1235	1365	0220				
1236	1366	7402				
1237	1367	0305				
1238	1371	1000				
1239	1371	0303				
1240	1372	1023				
1241	1373	0220				
1242	1374	0262				
1243	1375	0320				
1244	1376	5132				
1245	1377	2400				
1246	1377	2400				

FIELD 2

PAGE 1-19


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0000 00000000 00000000 11011111 11111111 10000000 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 11111111 11111111 11111111
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1200 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
1300 11111111 11111111 11111111 11111111 11111111 00000000 00000000 11111111
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1600
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2000 2000
2100 2100
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2300 2300
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2500 2500
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2700 2700
3000 3000
3100 3100
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4000 4000
4100 4100
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4400 4400
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6300 6300
6400 6400
6500 6500
6600 6600
6700 6700
7000 7000
7100 7100
7200 7200
7300 7300
7400 7400
7500 7500
7600 7600
7700 7700

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1242	1420	4761	FBPLT1	/	FBPLT1	/	UNDEFINED INTERRUPT
1243	1421	5576	FBPLT2	/	FBPLT2	/	SKIP TRAP FOR DCR
1044	1402	6173	FBPLT3	/	FBPLT3	/	SKIP TRAP FOR LAG
1045	1403	4276	FBPLT4	/	FBPLT4	/	SKIP TRAP FOR DLCA
1046	1404	5161	FBPLT5	/	FBPLT5	/	SKIP TRAP FOR CRST
1047	1405	6556	FBPLT6	/	FBPLT6	/	SKIP TRAP FOR CRST
1248	1406	4136	FBPLT7	/	FBPLT7	/	SKIP TRAP FOR DLNC
1249	1407	5130	FBPLT8	/	FBPLT8	/	PROGRAM STOP OR HALT FROM SWERR1
1250	1408	4417	FBPLT9	/	FBPLT9	/	PROGRAM STOP OR HALT FROM SWERR1
1051	1411	6435	FBPLT10	/	FBPLT10	/	INT CHANGE HALT
1052	1412	2730	FBPLT11	/	FBPLT11	/	HALT FOR "CHECK WRITE PROTECT"
1053	1413	2776	FBPLT12	/	FBPLT12	/	HALT FOR "CHECK WRITE PROTECT"
1054	1414	5273	FBPLT13	/	FBPLT13	/	HALT FOR "CHECK WRITE PROTECT"
1055	1415	4132	FBPLT14	/	FBPLT14	/	HALT FOR "CHECK WRITE PROTECT"
1056	1416	4321	FBPLT15	/	FBPLT15	/	END OF TEST HALT FROM SWERR1
1057	1417	4321	FBPLT16	/	FBPLT16	/	FROM ALIGNMENT SUAREST

/BUFFER LOCATION INFORMATION

1060	1417	7177	WKRUP	/	WKRUP	/	START OF PROGRAM DATA BUFFER
1061	1420	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1062	1421	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1063	1422	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1064	1423	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1065	1424	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1066	1425	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1067	1426	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1068	1427	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1069	1428	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1070	1429	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1071	1430	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1072	1431	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1073	1432	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1074	1433	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1075	1434	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1076	1435	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1077	1436	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1078	1437	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1079	1438	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1080	1439	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1081	1440	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
1082	1441	7176	FNBRP	/	FNBRP	/	END OF PROGRAM DATA BUFFER
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PA119 VI424 15-APR-76 13124 PAGE 1-25

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/ PAL10 VI424 15-APR-76 13124 PAGE 1-28
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/ PAL10 VI424 15-APR-76 13124 PAGE 1-27
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1372 PAL10 V1424 15-APR-76 13124 PAGE 1-26
1373 0324 0301 /SCOPE LOOP POINTER
1374 0325 0207 /TEXT POINTER
1375 /FORCE TIMING ERROR
1376 /VERIFY A "TIMING ERROR" DOES OCCUR IN STATUS REGISTER
1377 /IF A FLAG IS ISSUED WITH THE COMMAND REGISTER IS SET TO
1378 /A FUNCTION OF "N".
1379
1381 0326 1127 /
1382 0327 1136 TST3, TAN K2R06
1383 0328 1272 TAD MOFWA
1384 0331 4455 TAD DRIVN
1385 0332 1122 LCONO
1386 0333 1357 TAD K2R06
1387 0334 4452 DCA T3T
1388 0335 4432 LCONO
1389 0336 5156 SHPWAT
1390 0337 1164 TAN T3E
1391 0338 1187 TAN K33M
1392 0339 7133 DCA CLL CIL BAR
1393 0342 1213 TAD K2R06
1394 0343 4143 DCA K2R02
1395 0344 4143 DCA K2R02
1396 0345 4454 ROSTAT
1397 0346 7012 ACCM1
1398 0349 5235 SHP CLA
1399 0350 7012 JWP T3E
1400 0351 5183 DCAALL GOREN2
1401 0352 4454 ROSTAT
1402 0353 4454 ACCHM1
1403 0354 5183 DCAALL GOREN2
1404 0355 4457 ROSTAT
1405 0356 2326 ERROR
1406 0357 2326 T3T,
1407 0358 4761 JWP I ++1
1408 0359 4454 TST4
1409 /
1410 RNF, RNF
1411 0363 4743 INTAND
1412 0364 5403 K5A05,
1413 /
1414 0377 7160
1415 0371 7161
1416 0372 4280
1417 0373 7225
1418 0374 5900
1419 0375 2726
1420 0376 6600
1421 0377 4600
1422 PAGE 4400
1423 /
1424 /RESTORE TEST
1425 /

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1426 PAL10 V1424 15-APR-76 13124 PAGE 1-29
1427 /VERIFY THAT "RECALIBRATE" SETS TRANSFER
1428 /NONE THEN DRIVE READY ON SELECTED DRIVE.
1429
1430 0400 4425 TST4, RECAL
1431 0401 0406 TAD
1432 0403 5204 JWP TAD
1433 0404 4437 ERROR
1434 0405 4400 T3T4
1435 0406 0206 T3T,
1436 0407 5016 JWP I ++1
1437 0410 2411 T3T5
1438 /
1439 /HEAD MOTION AND STATUS TEST
1440 /
1441 /VERIFY THAT "SEEK ONLY" TRACK 312 SETS
1442 /TRANSFER NONE THEN DRIVE IS READY.
1443
1444 0411 7301 T3T5, CLA CLL IAC
1445 0412 3152 DCA CMREG
1446 0413 1866 TAD TRK212
1447 0414 4424 SEF
1448 0415 4422 T3T
1449 0416 5222 JWP TSE
1450 0417 4437 ERROR
1451 0418 4422 ERROR
1452 0421 2411 T3T5
1453 0422 2624 T3T,
1454 /
1455 /VERIFY RESTORE CLAPS ADDRESS BITS
1456 /
1457 /SOMETHING IS WORKING, NOW SEEK ONLY TRACK 312
1458 /THEN RECALIBRATE AND CHECK FOR NO ERRORS IN STATUS.
1459 /
1460 0423 7321 T3T4, CLA CLL IAC
1461 0424 3152 DCA CMREG
1462 0425 1866 TAD TRK212
1463 0426 4424 SEF
1464 0427 4437 T3T
1465 0428 5235 JWP T6E
1466 0429 4425 DCA CLL
1467 0430 4437 JWP T6E
1468 0431 4425 JWP T6E
1469 0432 5235 JWP T6E
1470 0433 5235 JWP T6E
1471 0434 4437 JWP T6E
1472 0435 4428 ERROR
1473 0436 7428 T3T4
1474 0437 7428 T3T,
1475 0438 5329
1476 /
1477 /VERIFY RESTORE CLEARS ADDRESS BITS.
1478 /
1479 /VERIFY A "RECALIBRATE" FROM CYLINDER,
1480 /SURFACE, AND SECTOR 07777.
1481 /

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1481 2400 3150          /
1482 0441 7300          /CLEAR EXTENDED BIT
1483 0442 4024          /SEEK ONLY
1484 0443 4024          /TEXT POINTER
1485 0444 0453          /ERR0R, SEEK ONLY
1486 0445 5251          /"RECALIBRATE"
1487 0446 0453          /TEXT POINTER
1488 0447 5251          /ERR0R, SKIP OR STATUS
1489 0450 4437          /O.K. TO NEXT TEST
1490 0451 4437          /ERR0R, STATUS TEST
1491 0452 0400          /SCOPE LOG POINTER
1492 0452 0400          /TEXT POINTER
1493 0453 5100          /
1494          /
1495          /FIN0 AND SELECT ALL ADDRESSES
1496          /
1497          /VERIFY A SEEK ONLY AND FIND ALL ADDRESSES
1498          /INCREMENTAL SEEK TEST, SEEK ON '1', '2', '3', ETC.
1499          /CHECK TIMING AND NO ERRORS IN STATUS.
1500          /
1501 0454 3130          /
1502 0455 3135          /SETUP EXTENDED BIT
1503 0456 1130          /NO, CONTINUE
1504 0457 1157          /YES
1505 0461 1135          /SETUP EXTENDED BIT
1506 0462 0424          /LOWER DISK ADDRESS BITS
1507 0462 0501          /TEXT POINTER
1508 0463 5277          /ERR0R, SKIP OR STATUS
1509 0464 2135          /UPDATE POINTER
1510 0465 7610          /
1511 0466 2130          /SET EXTENDED BIT
1512 0467 1130          /NO, CONTINUE
1513 0470 7657          /YES
1514 0471 5256          /AS IT LAST TRACK
1515 0472 1135          /O.K. TO NEXT TEST
1516 0473 1172          /ERR0R, STATUS TEST
1517 0474 7640          /SCORE LOOP POINTER
1518 0475 5256          /
1519 0476 4037          /ERR0R
1520 0477 4024          /SCORE LOOP POINTER
1521 0501 5300          /TEXT POINTER
1522          /
1523          /FIN0 AND SELECT ALL ADDRESSES
1524          /
1525          /VERIFY A SEEK ONLY AND FIND ALL ADDRESSES
1526          /SEEK ON '1', '2', '3', ETC. CHECK FOR
1527          /NO ERRORS IN STATUS REGISTER.
1528          /
1529 0502 1046          /
1530 0503 1117          /SETUP LOWER DISK ADDRESS POINT
1531 0504 1130          /NO, CONTINUE
1532 0505 3135          /YES
1533 0506 3135          /SETUP EXTENDED POINTER
1534 0507 1135          /

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1535          /
1536 0510 3150          /SETUP EXTENDED BIT
1537 0511 1130          /NO, CONTINUE
1538 0512 4424          /YES, TEST O.K.
1539 0513 0534          /CLEAR EXTENDED BIT
1540 0514 5332          /CONTINUE
1541 0515 7300          /O.K. TO NEXT TEST
1542 0516 1134          /ERR0R, SEEK ONLY
1543 0517 3130          /SCORE LOOP POINTER
1544 0520 7301          /TEXT POINTER
1545 0521 1134          /
1546 0522 7640          /FIRST TIME 0 YET
1547 0523 5307          /NO, CONTINUE
1548 0524 1135          /
1549 0525 7652          /PAST EXTENDED BIT
1550 0526 5331          /YES, TEST O.K.
1551 0527 3135          /CLEAR EXTENDER BIT
1552 0530 5307          /CONTINUE
1553 0531 4437          /O.K. TO NEXT TEST
1554 0532 4437          /ERR0R, SEEK ONLY
1555 0533 0532          /SCORE LOOP POINTER
1556 0534 5302          /TEXT POINTER
1557          /
1558          /VERIFY RESTORE CLFARS ADDRESS BITS.
1559          /
1560          /VERIFY RECALIBRATE FROM ALL
1561          /CYLINDERS, CHECK ALL CYLINDERS
1562          /RETR0R 0000-14500.
1563          /
1564 0535 1077          /NO
1565 0536 7001          /NO0RS
1566 0537 3771          /
1567 0540 3130          /INITIALIZES APT TIMING FOR A LONGER VALUE
1568 0541 3135          /
1569 0542 1134          /
1570 0543 1134          /
1571 0544 1135          /
1572 0545 1135          /
1573 0546 4024          /
1574 0546 2973          /
1575 0547 5371          /
1576 0548 4025          /
1577 0549 0425          /RECAL
1578 0551 0571          /TEXT POINTER
1579 0552 5371          /TYPE
1580 0553 7300          /
1581 0554 1135          /
1582 0555 1135          /
1583 0556 3135          /
1584 0557 7430          /
1585 0561 1134          /
1586 0562 7650          /
1587 0563 5342          /
1588 0564 1135          /
1589 0565 1170          /
1590 0566 7640          /
1591 0567 5342          /
1592          /
1593          /
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1600          /

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PAGE 1-31
15-APR-76 13124
1601 0567 5342          /
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1591 PAL10 V1424 15-APR-76 13124 PAGE 1-32
1592 0570 4437 ERROR
1593 0571 4440 T10E, ERROR
1594 0572 0540 T31M 5100
1595 0573 5300 T10T, 5100
1596 0574 5775 /
1597 0575 0600 JMP I *+1
1598 0577 7160 /
1599 0577 7160 PAGE
1600 0577 2600 /

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1601 /SINGLE DRIVE VIBRATION TEST!!
1602 /SEEK ONLY SEEMS TO BE WORKING. NOW DO
1603 /A FEW RANDOM SEKS TO REALLY SHAKE THE
1604 /DISK DRIVE UNDER TEST.
1605 /
1606 TST11,
1607 /
1608 /AMOUNT OF PASSES
1609 /SETUP COUNTER
1610 /GENERATE A RANDOM ADDRESS
1611 /SAVE IT
1612 /LINK IS EXTENDED BIT
1613 /SAVE IT
1614 /GENERATE A RANDOM ADDRESS
1615 /SAVE IT
1616 /LINK IS EXTENDED BIT
1617 /SET A RANDOM NUMBER
1618 /MAKE COUNT VALUE
1619 /MAKE COUNT VALUE
1620 /SETUP COUNTER
1621 /GET EXTENDED BIT
1622 /SETUP COMMAND REGISTER
1623 /SEEK ONLY
1624 /NEXT POINTER
1625 /ERROR, SKIP OR STATUS
1626 /GET EXTENDED BIT
1627 /SETUP COMMAND
1628 /
1629 /SEEK ONLY
1630 /TEXT POINTER
1631 /ERROR, SKIP OR STATUS
1632 /UPDATE COUNTER
1633 /SAME LOOP
1634 /UPDATE PASS COUNTER
1635 /MAKE NEW ADDRESS
1636 /O.K. TO NEXT
1637 /ERROR, SKIP OR STATUS
1638 /SCOPE LOOP POINTER
1639 /MODIFIED TEXT POINTER
1640 /
1641 T11T,
1642 /SELECT ERROR TEST
1643 /VERIFY A "NOT READY" ON ALL

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1644 PAL12 V1424 15-APR-76 13124 PAGE 1-33
1645 0642 4525 /DRIVES NOT ON THE CONTROL.
1646 0643 7000 JMS I XLOAD
1647 0644 7000 DCA REGO
1648 0645 7301 T8T12, CLA CLL IAC /SETUP FOR 4096 PASSES
1649 0646 4437 CLRALL /CLEAR CONTROL
1650 0647 1157 TAD STCN /EXPECTED STATUS
1651 0648 4437 DCA COREG /SETUP COMPARE
1652 0649 3143 TAD TCENT2 /NO START WITH DRIVE 0.
1653 0650 3143 M0 TAD /COUNTER FOR NO. OF DRIVES.
1654 0651 3145 TAD TCENT2 /GET DRIVE POINTER
1655 0652 1777. TAD TCENT2 /POINTER TO DISK BUFFER.
1656 0653 3130 DCA /SAVE POINTER TO DISK BUFFER.
1657 0654 1135 TAD TCENT2 /DISK ON THE SYSTEM
1658 0655 1172. TAD DSKON /NO UPDATE AND TRY NEXT DRIVE.
1659 0656 1172. TAD TCENT3 /SHIFT TO UNIT BITS
1660 0657 7206 TAD TCENT3 /ENABLE SET DONE
1661 0658 5213 TAD TCENT3 /LOAD COMMAND
1662 0659 5213 TAD TCENT3 /READ STATUS
1663 0660 5213 TAD TCENT3 /CHECK RESULTS
1664 0661 1135 TAD TCENT2 /O.K.*
1665 0662 1135 TAD TCENT2 /ERROR, STATUS
1666 0663 1205 TAD K0200 /CLEAR STATUS
1667 0664 4434 ACCHI1 /UPDATE DRIVE NO.
1668 0665 4434 ACCHI2 /WAS IT LAST DRIVE
1669 0666 4434 ACCHI3 /NO, MORE TO TEST
1670 0667 4434 ACCHI4 /O.K., 4096 LOOPS
1671 0668 4434 ACCHI5 /ERROR, STATUS
1672 0669 4434 ACCHI6 /SCOPE LOOP POINTER
1673 0670 4434 ACCHI7 /TEXT POINTER
1674 0671 5200 /SELECT ERROR TEST
1675 0672 5200 /VERIFY A DRIVE STATUS ERROR ON ALL DRIVES
1676 0673 5200 /NOT ON THE CONTROL. ACTUALLY A SELECT ERROR.
1677 0674 5200 /
1678 0675 7301 T8T13, CLA CLL IAC
1679 0676 4437 CLRALL /CLEAR CONTROL
1680 0677 4437 TAD TCENT2 /TO START WITH DRIVE 0.
1681 0678 3134 M0 TAD /COUNTER FOR NO. OF DRIVES.
1682 0679 3134 TAD TCENT2 /GET DRIVE POINTER
1683 0680 3134 TAD DSKON /POINTER TO DISK BUFFER.
1684 0681 1776. TAD TCENT3 /SAVE POINTER TO DISK BUFFER.
1685 0682 1536 TAD I TCENT3 /DISK ON THE SYSTEM
1686 0683 7640 SZA CLA /NO UPDATE AND TRY NEXT DRIVE.
1687 0684 5197 JMP K0002 /EXPECTED STATUS
1688 0685 5197 TAD STCN /SETUP COMPARE REGISTER
1689 0686 1157 TAD COREG /GET DRIVE NO.
1690 0687 1157 TAD TCENT2 /PUT IN UNIT BITS
1691 0688 1135 TAD TCENT2
1692 0689 1135 TAD TCENT2
1693 0690 1135 TAD TCENT2
1694 0691 1135 TAD TCENT2
1695 0692 1135 TAD TCENT2
1696 0693 1135 TAD TCENT2
1697 0694 1135 TAD TCENT2
1698 0695 1135 TAD TCENT2
1699 0696 1135 TAD TCENT2
1700 0697 1135 TAD TCENT2
1701 0698 1135 TAD TCENT2
1702 0699 1135 TAD TCENT2
1703 0700 1135 TAD TCENT2
1704 0701 1104 CLL BAL

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/ PAL10 V142A 15-APR-76 13124 PAGE 1-34
1700 0722 1815 TAD K0200
1701 0723 1814 TAD K3000
1702 0724 4450 LOCHD
1703 0725 4452 LOADN
1704 0726 4444 ROSTAT
1705 0727 4442 ACCMPT
1706 0730 7610 SKP CLA
1707 0731 5353 JMP T13E
1708 0732 4453 CLRALL
1709 0733 1157 TAD STCON
1710 0734 3143 DCA GOREG2
1711 0735 4444 ROSTAT
1712 0736 4442 ACCMPT
1713 0737 7610 SKP CLA
1714 0740 5353 JMP T13E
1715 0741 7301 CLA CLL IAC
1716 0742 4453 CLRALL
1717 0743 3143 DCA GOREG2
1718 0744 4444 ROSTAT
1719 0745 7500 SZJ CLA
1720 0746 5353 JMP T13E
1721 0749 2138 TCONTR2
1722 0750 2134 TCONTR1
1723 0751 5307 JMP T13R
1724 0752 4453 NERROR
1725 0753 4440 ERROR
1726 0754 0762 T3113
1727 0755 5300 S500
/
1728 0756 5757 JMP I *+1
1729 0757 1095 TST1AD, TST1A.3
1730
1731 NMSG1, TEXT "RAGE ONIVE CONTROL TEST"
/
/ 0760 2213
/ 0761 7095
/ 0762 4004
/ 0763 2211
/ 0764 2605
/ 0765 4003
/ 0766 1716
/ 0767 2422
/ 0770 1714
/ 0771 4024
/ 0772 0523
/ 0773 2400
/
1733 0776 4374
1734 0777 6110
1735 1000
/
1736
1737 /SUBROUTINE TO ISSUE DSKP RISK SKIP TOT
1738 SNKP, 0
1739 DSKP
1740 1001 6741 IOT1,
1741 1002 7410 SKP
1742 1003 2200 ISZ
/
/ 13124 PAGE 1-35
1743 1005 2131 197 REGD
1744 1745 1806 3249 DCA NLT775
1746 1747 1807 3777 DCA NLT775
1748 1748 1808 1066 TAD K0R20
1749 1749 1809 1066 TAD K0R20
1750 1750 1810 1066 TAD K0R20
1751 1751 1811 1012 TAD TCONTR1
1752 1752 1812 1134 TAD TCONTR1
1753 1753 1813 1134 TAD TCONTR1
1754 1754 1814 4453 CLA CLL IAC
1755 1755 1815 4453 CLA CLL IAC
1756 1756 1816 4453 CLA CLL IAC
1757 1757 1817 4453 CLA CLL IAC
1758 1758 1818 4453 CLA CLL IAC
1759 1759 1819 4453 CLA CLL IAC
1760 1760 1820 7301 DCA CLL IAC
1761 1761 1821 1104 TAD K3000
1762 1762 1072 TAD DRIVNO
1763 1763 1822 1072 TAD DRIVNO
1764 1764 1823 4450 LOCHD
1765 1765 1824 1134 TAD TCONTR1
1766 1766 1825 4452 LOANL
1767 1767 1826 4453 JMP SKPMAT
1768 1768 1827 5267 JMP T14E
1769 1769 1828 4444 ROSTAT
1770 1770 1829 4444 ACCMPT
1771 1771 1832 7610 SKP CLA
1772 1772 1833 5263 JMP CLA
1773 1773 1834 7301 CLA CLL IAC
1774 1774 1835 4453 CLA CLL IAC
1775 1775 1836 1150 TAD CMREG
1776 1776 1837 1015 TAD K0200
1777 1777 1040 4450 LOCHD
1778 1778 1841 4433 JMP SKPMAT
1779 1779 1842 5267 JMP T14E
1780 1780 1843 7330 CLA CLL CML RAR
1781 1781 1844 3143 DCA GOREG2
1782 1782 1845 4444 ROSTAT
1783 1783 1846 4442 ACCMPT
1784 1784 1847 7610 JMP T14E
1785 1785 1848 5265 JMP T14E
1786 1786 1851 1072 TAD DRIVNO
1787 1787 1852 4450 DCA GOREG2
1788 1788 1853 3143 DCA GOREG2
1789 1789 1854 4444 ROSTAT
1790 1790 1855 4442 ACCMPT
1791 1791 1856 7610 SKP CLA
1792 1792 1857 5263 JMP T14E
1793 1793 1860 2134 ISZ TCONTR1
1794 1794 1861 5213 JMP NERROR
1795 1802 0637 NERROR
1796 1805 4440 ERROR
1797 1804 1010 T3114

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/
/ PAL10 V142A 15-APR-76 13124 PAGE 1-35
1743 1005 2131 197 REGD
1744 1745 1806 3249 DCA NLT775
1746 1747 1807 3777 DCA NLT775
1748 1748 1808 1066 TAD K0R20
1749 1749 1809 1066 TAD K0R20
1750 1750 1810 1066 TAD K0R20
1751 1751 1811 1012 TAD TCONTR1
1752 1752 1812 1134 TAD TCONTR1
1753 1753 1813 1134 TAD TCONTR1
1754 1754 1814 4453 CLA CLL IAC
1755 1755 1815 4453 CLA CLL IAC
1756 1756 1816 4453 CLA CLL IAC
1757 1757 1817 4453 CLA CLL IAC
1758 1758 1818 4453 CLA CLL IAC
1759 1759 1819 4453 CLA CLL IAC
1760 1760 1820 7301 DCA CLL IAC
1761 1761 1821 1104 TAD K3000
1762 1762 1072 TAD DRIVNO
1763 1763 1822 1072 TAD DRIVNO
1764 1764 1823 4450 LOCHD
1765 1765 1824 1134 TAD TCONTR1
1766 1766 1825 4452 LOANL
1767 1767 1826 4453 JMP SKPMAT
1768 1768 1827 5267 JMP T14E
1769 1769 1828 4444 ROSTAT
1770 1770 1829 4444 ACCMPT
1771 1771 1832 7610 SKP CLA
1772 1772 1833 5263 JMP CLA
1773 1773 1834 7301 CLA CLL IAC
1774 1774 1835 4453 CLA CLL IAC
1775 1775 1836 1150 TAD CMREG
1776 1776 1837 1015 TAD K0200
1777 1777 1040 4450 LOCHD
1778 1778 1841 4433 JMP SKPMAT
1779 1779 1842 5267 JMP T14E
1780 1780 1843 7330 CLA CLL CML RAR
1781 1781 1844 3143 DCA GOREG2
1782 1782 1845 4444 ROSTAT
1783 1783 1846 4442 ACCMPT
1784 1784 1847 7610 JMP T14E
1785 1785 1848 5265 JMP T14E
1786 1786 1851 1072 TAD DRIVNO
1787 1787 1852 4450 DCA GOREG2
1788 1788 1853 3143 DCA GOREG2
1789 1789 1854 4444 ROSTAT
1790 1790 1855 4442 ACCMPT
1791 1791 1856 7610 SKP CLA
1792 1792 1857 5263 JMP T14E
1793 1793 1860 2134 ISZ TCONTR1
1794 1794 1861 5213 JMP NERROR
1795 1802 0637 NERROR
1796 1805 4440 ERROR
1797 1804 1010 T3114
/ENABLE SET DONE
/FUNCTION SEEK ONLY
/LOAD COMMAND
/LOAD AND GO
/READ STATUS
/ERROR, STATUS
/EXPECTED STATUS
/SETUP COMPARE
/READ STATUS
/CHECK RESULTS
/O.K.
/ERROR, STATUS
/CLEAR STATUS
/EXPECTED STATUS
/SETUP COMPARE
/READ STATUS
/CHECK RESULTS
/O.K.
/ERROR, STATUS
/CLEAR CONTROL
/SETUP COMPARE
/READ STATUS
/STATUS SHOULD BE #000
/ERROR, STATUS
/TRY NEXT DRIVE
/O.K. 4994 LOOPS
/ERROR, STATUS
/SCOPE LOOP POINTER
/TEXT POINTER
/TO NEXT TEST
/RETURN.
/DISK SKIP TOT
/NO FLAG1
/UPDATE NO FLAG POINTER.
/SETUP FOR ONE PAS
/33 CONSTANT
/ADDRESS POINTER
/ENABLE CLEAR CONTROL BIT
/CLEAR CONTROL
/EXPECTED STATUS
/SETUP COMPARE REGISTER
/EXTENDED TRACK BIT
/PUNCTION SEEK ONLY
/CURRENT DRIVE
/LOAD COMMAND
/LOAD AND GO
/WAIT FOR SKIP
/ERROR, NO SKIP
/READ STATUS
/CHECK RESULTS
/STATUS O.K.
/ENABLE CLEAR CONTROL BIT
/CLEAR CONTROL
/GET LAST COMMAND
/GET ENABLE SEEK ONE BIT
/LOAD COMMAND
/WAIT FOR DISK SKIP
/ERROR, SKIP
/EXPECTED STATUS
/READ STATUS
/CHECK RESULTS
/STATUS O.K.
/DOP
/O.K. TO NEXT TEST
/ERROR, DISK CAPACITY EXCEEDED
/SCOPE LOOP POINTER

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1796 1066 5300
1799 1066 5272 JMP
1800 1067 4440 T1AKE, ERROR
1801 1070 1010 T8716
1802 1071 0006 0006
1803
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1811 1072 4432
1812 1073 1115
1813 1074 3150
1814 1075 4426
1815 1076 1110
1816 1077 5376
1817 1078 1017
1818 1102 3150
1819 1102 4026
1820
1821 1102 1110
1822 1102 5376
1823 1102 4437
1824 1106 4440
1825 1107 1073
1826 1110 5306
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1835 1111 1115
1836 1112 1014
1837 1113 3150
1838 1114 4426
1839 1115 1130
1840 1116 5326
1841 1117 1017
1842 1121 3150
1843 1122 4426
1844 1123 1130
1845 1124 5326
1846 1125 4437
1847 1126 4440
1848 1127 1111
1849 1130 5300
1850
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1852

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15-APR-76 13124 PAGE 1-36

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5300
JMP
ERROR
T8716
0006
STATUS TEST
VERIFY THAT SKIP AND STATUS DOES OCCUR
AFTER 256 WRITE ALL AND READ ALL BREAKS.
THIS SHOULD WRITE ALL ZEROS ON AND
READ ALL ZEROS OFF THE DISK SECTOR 00000.
KILBUF
TAD
DCA
DISKGO
T15T
JMP
TAD
DCA
DISKGO
T15T
JMP
NEORR
ERROR
T8715
5300
STATUS TEST
VERIFY THAT SKIP AND STATUS DOES OCCUR AFTER
THIS SHOULD WRITE ALL ZEROS ON AND READ ALL
BREAKS. READ ALL
ALL ZEROS OFF THE DISK SECTOR 00000.
TAD
TAD
DCA
DISKGO
T16T
JMP
TAD
DCA
DISKGO
T16T
JMP
NEORR
ERROR
T8716
5300
VERIFY ALL SECTORS CAN BE ACCESSED.

```

```

/ADDED TEXT POINTER
/TO NEXT TEST
/ERROR, DISK SKIP
/SCOPE LOOP POINTER
/TEXT POINTER
/ZERO WRITE BUFFER
/WRITE ALL FUNCTION
/SETUP COMMAND
/DISK WRITE ALL
/TEXT POINTER
/ERROR, SKIP OR STATUS
/FUNCTION READ ALL
/SETUP COMMAND REGISTER
/DISK READ ALL
/TEXT POINTER
/ERROR, SKIP OR STATUS
/OK, TO NEXT TEST
/ERROR, WRITE ALL
/SCOPE LOOP POINTER
/MODIFIED TEXT POINTER

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15-APR-76 13124 PAGE 1-37

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1904
1905

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800 0039

```

/VERIFY A WRITE ALL TO ALL OF CYLINDER 0
/AND USE DATA PATTERN 5252-5252
/MAKE THE FIRST TWO WORDS IN THE BUFFER
/EQUAL THE DISK ADDRESS. CHECK THE DATA WITH
/READ ALL.
JMP I
TAD
TAD
DCA
DISKGO
T16T
JMP
NEORR
ERROR
T8716
5300
VERIFY ALL SECTORS CAN BE ACCESSED.

```

```

/WILL SET UP COUNTERS FOR NEXT TESTS
/SETUP SECTOR COUNTER
/FILL OUBOUND BUFFER
/FUNCTION WRITE ALL
/SETUP COMMAND
/MASK OFF SECTORS
/SETUP ADDRESS WORD IN BUFFER
/GET DRIVE NUMBER
/SETUP ADDRESS WORD IN BUFFER
/DISK WRITE ALL
/TEXT POINTER
/ERROR, SKIP OR STATUS
/WILL DATA BUFFER
/FUNCTION READ ALL
/SETUP COMMAND
/MASK OF SECTORS
/DISK READ ALL
/TEXT POINTER
/ERROR, STATUS OR SKIP
/WORD BY WORD COMPARE OF DATA
/THIS SECTOR O.K.
/ERROR, DATA
/UPDATE SECTOR COUNTER
/TRY NEXT SECTOR
/OK, TO NEXT TEST
/ERROR, READ ALL
/SCOPE LOOP POINTER
/TEXT POINTER
/TO NEXT TEST

```

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1131 4525
1132 7711
1133 1122
1134 3134
1135 1113
1136 4431
1137 1115
1138 1140
1139 3139
1140 1134
1141 1134
1142 9120
1143 3463
1144 1072
1145 3464
1146 1463
1147 4426
1148 1113
1149 1173
1150 1173
1151 5371
1152 4432
1153 1017
1154 3150
1155 1134
1156 0120
1157 4426
1158 1173
1159 5371
1160 1132
1161 7711
1162 1122
1163 3134
1164 1113
1165 4431
1166 7617
1167 1166 5371
1168 1166 2134
1169 1167 5335
1170 1170 4437
1171 1171 4440
1172 1172 1133
1173 1173 5373
1174 5775
1175 1202
1177 7160
1177 7160
1200
1201
1202
1203
1204
1205
1206

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PAGE

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/VERIFY ALL SECTORS CAN BE ACCESSED.
/VERIFY A WRITE DATA TO ALL OF CYLINDER 0
/AND USE DATA PATTERN 5252-5252
/MAKE THE FIRST TWO WORDS OF THE BUFFER
/EQUAL THE DISK ADDRESS. CHECK THE
/DATA WITH READ DATA.

```

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1907 1206 7808 /
1908 1291 7808 NOP
1909 1282 1132 T8T18, TAD K77A8
1910 1292 1132 TAD T8T21
1911 1292 1114 TAD K5252
1912 1205 4431 T18S, TAD K5252
1913 1205 4431 TAD K5252
1914 1206 1185 DCA K8A88
1915 1207 3138 DCA K8B88
1916 1210 1138 TAD T8T21
1917 1211 0128 AND K8T21
1918 1213 3485 DCA I K8T21
1919 1214 1464 TAD I K8T21
1920 1215 1464 DCA I K8T21
1921 1216 4426 TAD I K8T21
1922 1217 1291 DISKGO
1923 1217 1291 T18T
1924 1220 5237 JMP T18E
1925 1221 4435 DCA K8E88
1926 1222 5156 DCA K8E88
1927 1223 1134 TAD T8T21
1928 1224 4426 AND K8B37
1929 1225 4426 DISKGO
1930 1226 1291 T18T
1931 1227 5237 JMP T18E
1932 1230 1114 TAD K5252
1933 1231 4436 FIGURE
1934 1232 7616 SKP CLA
1935 1233 5237 JMP T18E
1936 1234 2134 IS2 T8T21
1937 1235 5264 JMP T18S
1938 1236 4437 ERROR
1939 1237 4440 ERROR
1940 1240 1282 T8T18
1941 1241 5373 T8T1, T8T18
1942 1241 5373 T8T1, T8T18
1943 1241 5373 T8T1, T8T18
1944 1241 5373 T8T1, T8T18
1945 1242 1113 T8T19, TAD K5252
1946 1243 4431 TAD K5252
1947 1244 1072 TAD ORI80
1948 1245 3466 DCA I X8T21
1949 1246 3466 DCA I X8T21
1950 1247 1115 TAD K5988
1951 1248 1014 TAD K8188
1952 1251 4426 DCA CM8E8
1953 1251 4426 DISKGO
1954 1251 4426 T19T
1955 1252 1113 T19E, TAD K5252
1956 1253 4431 TAD K5252
1957 1254 1115 T19E, TAD K5252
1958 1255 4426 T19T, TAD K5252
1959 1255 4426 DISKGO
1960 1255 4426 T19T, TAD K5252
1961 1255 4426 DISKGO
1962 1256 5667 JMP T19E
1963 1255 4433 CLRALL
1964 1256 4432 TAD K1088
1965 1257 1817 TAD CM8E8
1966 1280 3152 DCA CM8E8
1967 1281 4426 DCA CM8E8
1968 1282 1271 DISKGO
1969 1283 5667 JMP T19E
1970 1284 1113 TAD K5252
1971 1285 4427 TAD K5252
1972 1286 4437 T190K, ERROR
1973 1287 4440 T19E, ERROR
1974 1288 1242 T8T19
1975 1288 1242 T19T, T8T19
1976 1288 1242 T19T, T8T19
1977 1288 1242 T19T, T8T19
1978 1288 1242 T19T, T8T19
1979 1288 1242 T19T, T8T19
1980 1288 1242 T19T, T8T19
1981 1288 1242 T19T, T8T19
1982 1288 1242 T19T, T8T19
1983 1288 1242 T19T, T8T19
1984 1288 1242 T19T, T8T19
1985 1288 1242 T19T, T8T19
1986 1272 1114 T8T20, TAD K5252
1987 1273 4431 TAD K5252
1988 1274 1872 TAD ORI80
1989 1275 3464 DCA I X8T21
1990 1276 3464 DCA I X8T21
1991 1277 1115 TAD K5988
1992 1278 3152 DCA CM8E8
1993 1279 4426 DCA CM8E8
1994 1280 1321 DISKGO
1995 1281 5317 T20T
1996 1282 1321 JMP T20E
1997 1283 4435 CLRALL
1998 1284 4432 DCA CM8E8
1999 1285 1817 TAD K1088
1988 1286 1817 TAD K1088
2000 1310 5156 DCA CM8E8
2001 1311 4426 DCA CM8E8
2002 1312 1321 DISKGO
2003 1313 5317 JMP T20T
2004 1314 1114 JMP T20E
2005 1315 4427 TAD K5252
2006 1316 4437 T820K, ERROR
2007 1317 4440 T82E, ERROR
2008 1320 1272 T8T20, T8T20
2009 1321 5373 T8T1, T8T19
2010 1321 5373 T8T1, T8T19
2011 1321 5373 T8T1, T8T19
2012 1321 5373 T8T1, T8T19
2013 1321 5373 T8T1, T8T19
2014 1321 5373 T8T1, T8T19
2015 1321 5373 T8T1, T8T19
2016 1321 5373 T8T1, T8T19

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1962 1254 5667 JMP T19E
1963 1255 4433 CLRALL
1964 1256 4432 TAD K1088
1965 1257 1817 TAD CM8E8
1966 1280 3152 DCA CM8E8
1967 1281 4426 DCA CM8E8
1968 1282 1271 DISKGO
1969 1283 5667 JMP T19E
1970 1284 1113 TAD K5252
1971 1285 4427 TAD K5252
1972 1286 4437 T190K, ERROR
1973 1287 4440 T19E, ERROR
1974 1288 1242 T8T19
1975 1288 1242 T19T, T8T19
1976 1288 1242 T19T, T8T19
1977 1288 1242 T19T, T8T19
1978 1288 1242 T19T, T8T19
1979 1288 1242 T19T, T8T19
1980 1288 1242 T19T, T8T19
1981 1288 1242 T19T, T8T19
1982 1288 1242 T19T, T8T19
1983 1288 1242 T19T, T8T19
1984 1288 1242 T19T, T8T19
1985 1288 1242 T19T, T8T19
1986 1272 1114 T8T20, TAD K5252
1987 1273 4431 TAD K5252
1988 1274 1872 TAD ORI80
1989 1275 3464 DCA I X8T21
1990 1276 3464 DCA I X8T21
1991 1277 1115 TAD K5988
1992 1278 3152 DCA CM8E8
1993 1279 4426 DCA CM8E8
1994 1280 1321 DISKGO
1995 1281 5317 T20T
1996 1282 1321 JMP T20E
1997 1283 4435 CLRALL
1998 1284 4432 DCA CM8E8
1999 1285 1817 TAD K1088
1988 1286 1817 TAD K1088
2000 1310 5156 DCA CM8E8
2001 1311 4426 DCA CM8E8
2002 1312 1321 DISKGO
2003 1313 5317 JMP T20T
2004 1314 1114 JMP T20E
2005 1315 4427 TAD K5252
2006 1316 4437 T820K, ERROR
2007 1317 4440 T82E, ERROR
2008 1320 1272 T8T20, T8T20
2009 1321 5373 T8T1, T8T19
2010 1321 5373 T8T1, T8T19
2011 1321 5373 T8T1, T8T19
2012 1321 5373 T8T1, T8T19
2013 1321 5373 T8T1, T8T19
2014 1321 5373 T8T1, T8T19
2015 1321 5373 T8T1, T8T19
2016 1321 5373 T8T1, T8T19

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2017 1322 1113 /TSTP1, TAO K2525 /FILL BUFFER WITH DATA
2018 1323 4031 TAO NOVNO /MAKE DISK ADDRESS WORD
2019 1320 1472 TAO M1TRK /MAKE DISK ADDRESS WORD
2020 1325 3443 DCA I XLOTRK /FUNCTION WRITE ALL
2021 1326 3443 DCA I K2525 /FUNCTION WRITE ALL
2022 1327 1115 TAO K2525 /HALF BIT
2023 1328 1474 TAO K2525 /SETUP COMMAND
2024 1331 3152 DCA /TEXT WRITE ALL
2025 1332 4426 DCA /TEXT POINTER
2026 1333 1352 TPT /ERROR, SKIP OR STATUS
2027 1334 4427 JMB K2525 /CLEAR STATUS
2028 1335 4427 JMB /ERROR, SKIP OR STATUS
2029 1336 4427 CLRALL /FUNCTION READ ALL
2030 1337 1474 TAO K2525 /HALF BIT
2031 1341 3152 TAO K2525 /SETUP COMMAND
2032 1342 4426 TPT /TEXT POINTER
2033 1343 1352 TPT /ERROR, SKIP OR STATUS
2034 1344 4427 JMB K2525 /CLEAR STATUS
2035 1345 4427 JMB /ERROR, SKIP OR STATUS
2036 1346 4427 TPT /TEXT POINTER
2037 1347 1474 TAO K2525 /HALF BIT
2038 1348 4427 TPT /TEXT POINTER
2039 1350 4427 TPT /ERROR, SKIP OR STATUS
2040 1351 1352 TPT /FUNCTION READ ALL
2041 1352 5373 TPT /TEXT POINTER
2042 /
2043 /
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/*ILL LUN0 THE PROPER COUNTS FOR TEST 17 & 18

```

2058 1355 2222 /DANCT, 0 /GET VALUE
2059 1356 1745 TAO I LOADCT /STORE FOR FUTURE USE
2060 1357 1366 DCA CONST1
2061 1358 1366 TAO CONST1
2062 1359 1366 DCA CONST1
2063 1361 1777 DCA CONST1
2064 1362 1366 TAO CONST1
2065 1363 1776 DCA CONST1
2066 1364 1776 DCA CONST1
2067 1365 1776 DCA CONST1
2068 1366 1776 DCA CONST1
2069 1367 1776 DCA CONST1
2070 1368 1776 DCA CONST1
2071 1369 1776 DCA CONST1
2072 1370 1776 DCA CONST1
2073 1371 1776 DCA CONST1
2074 1372 1776 DCA CONST1
2075 1373 1776 DCA CONST1
2076 1374 1776 DCA CONST1
2077 1375 1776 DCA CONST1
2078 1376 1776 DCA CONST1
2079 1377 1776 DCA CONST1
2080 1378 1776 DCA CONST1
2081 1379 1776 DCA CONST1
2082 1380 1776 DCA CONST1
2083 1381 1776 DCA CONST1
2084 1382 1776 DCA CONST1
2085 1383 1776 DCA CONST1
2086 1384 1776 DCA CONST1
2087 1385 1776 DCA CONST1
2088 1386 1776 DCA CONST1
2089 1387 1776 DCA CONST1
2090 1388 1776 DCA CONST1
2091 1389 1776 DCA CONST1
2092 1390 1776 DCA CONST1
2093 1391 1776 DCA CONST1
2094 1392 1776 DCA CONST1
2095 1393 1776 DCA CONST1
2096 1394 1776 DCA CONST1
2097 1395 1776 DCA CONST1
2098 1396 1776 DCA CONST1
2099 1397 1776 DCA CONST1
2100 1398 1776 DCA CONST1
2101 1399 1776 DCA CONST1
2102 1400 1776 DCA CONST1
2103 1401 1776 DCA CONST1
2104 1402 1776 DCA CONST1
2105 1403 1776 DCA CONST1
2106 1404 1776 DCA CONST1
2107 1405 1776 DCA CONST1
2108 1406 1776 DCA CONST1
2109 1407 1776 DCA CONST1
2110 1408 1776 DCA CONST1
2111 1409 1776 DCA CONST1
2112 1410 1776 DCA CONST1
2113 1411 1776 DCA CONST1
2114 1412 1776 DCA CONST1
2115 1413 1776 DCA CONST1
2116 1414 1776 DCA CONST1
2117 1415 1776 DCA CONST1
2118 1416 1776 DCA CONST1
2119 1417 1776 DCA CONST1
2120 1418 1776 DCA CONST1
2121 1419 1776 DCA CONST1
2122 1420 1776 DCA CONST1
2123 1421 1776 DCA CONST1
2124 1422 1776 DCA CONST1
2125 1423 1776 DCA CONST1

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/*ILL LUN0 THE PROPER COUNTS FOR TEST 17 & 18

```

2071 1400 1122 /FOUL TO ADDRESS OF SECTOR.
2072 1401 3153 /TST2, TAO K2525 /SETUP SECTOR COUNTER
2073 1402 1113 DCA TAO K2525 /FILL BUFFER WITH DATA
2074 1403 4431 TAO K2525 /MASK SECTOR BITS
2075 1404 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2076 1405 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2077 1406 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2078 1407 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2079 1408 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2080 1409 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2081 1410 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2082 1411 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2083 1412 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2084 1413 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2085 1414 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2086 1415 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2087 1416 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2088 1417 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2089 1418 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2090 1419 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2091 1420 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2092 1421 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2093 1422 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2094 1423 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2095 1424 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2096 1425 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2097 1426 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2098 1427 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2099 1428 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2100 1429 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2101 1430 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2102 1431 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2103 1432 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2104 1433 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2105 1434 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2106 1435 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2107 1436 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2108 1437 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2109 1438 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2110 1439 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2111 1440 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2112 1441 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2113 1442 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2114 1443 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2115 1444 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2116 1445 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2117 1446 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2118 1447 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2119 1448 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2120 1449 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2121 1450 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2122 1451 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2123 1452 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2124 1453 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER
2125 1454 1122 T22R1, TAO K2525 /SETUP ADDRESS WORD IN BUFFER

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2126 1450 4431 P100P /FILL BUFFER WITH DATA
2127 1451 1134 T23R1, /MASK SECTOR BITS
2128 1452 0128 AND K0837 /SETUP ADDRESS WORD IN BUFFER
2129 1453 3463 OCA I DRIWNO /GET DRIVE NUMBER
2130 1454 1072 TAD I /SETUP ADDRESS WORD IN BUFFER
2131 1455 3464 DCA I K0837 /FUNCTION WRITE DATA
2132 1456 1105 TAD I K0800 /SETUP COMMAND
2133 1457 3156 OCA CMBEG /SECTOR TO LOAD
2134 1458 1114 TAD I XLOTRK /DISK WRITE ALL
2135 1461 4426 OTRSGO /TEXT POINTER
2136 1462 1510 T23T /ERROR, STATUS OR SKIP
2137 1463 5306 JMP T23E /UPDATE SECTOR COUNTER
2138 1464 2134 ISZ T23R1 /MORE SECTORS TO GO
2139 1465 5251 JMP T23R1 /TEXT POINTER

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```

2140 /VERIFY THAT THE DATA WRITTEN ABOVE
2141 /ON CYLINDER N WAS O.K., CHECK WITH READ DATA.
2142
2143 1466 1122 TAD K7748 /COUNTER FOR 37 SECTORS
2144 1467 3134 DCA TCMTR1 /CLEAR DATA BUFFER
2145 1470 4432 T23R2, /SETUP COMMAND
2146 1471 3158 DCA CMBEG
2147 1472 1134 TAD TCMTR1
2148 1473 0128 AND K0837
2149 1474 4426 DISKGO /DISK READ DATA
2150 1475 1510 T23T /TEXT POINTER
2151 1476 5306 JMP T23E /ERROR, STATUS OR SKIP
2152 1477 1114 TAD K5252 /WORD BY WORD COMPARE OF DATA
2153 1500 4439 FIGURE /DATA O.K.
2154 1501 7610 JMP SKP CLA /ERROR, DATA
2155 1502 5306 ISZ T23E /UPDATE SECTOR COUNTER
2156 1503 2134 JMP T23R2 /MORE SECTORS TO CHECK
2157 1504 5270 NBRRO /O.K. TO NEXT TEST
2158 1505 4437 ERROR, WRITE ALL /ERROR, WRITE ALL
2159 1506 4440 T23T, /SCORE LOOP POINTER
2160 1507 4445 T23T, /TEXT POINTER
2161 1510 5373 SKP CLA

```

```

2162 /VERIFY ALL SECTORS CAN BE ACCESSED
2163
2164 /VERIFY A WRITE ALL TO ALL OF CYLINDER 1450
2165 /AND USE DATA PATTERN 5252, K5252
2166 /THE FIRST TWO WORDS OF THE SECTOR SHOULD
2167 /EQUAL THE DISK ADDRESS, CHECK THE DATA
2168
2169 /WITH READ ALL.
2170
2171 1511 1122 T23R2, TAD K7748 /SETUP SECTOR COUNTER
2172 1512 3134 DCA TCMTR1 /ERROR, SKIP OR STATUS
2173 1513 1114 T24R, TAD K5252 /FILL OUTROUND BUFFER
2174 1514 4431 FIGURE /TEXT POINTER
2175 1515 7391 CLA CLL IAC /FUNCTION WRITE ALL
2176 1516 1272 TAD I DRIWNO /GET DRIVE NUMBER
2177 1517 3464 DCA I XLOTRK /SETUP ADDRESS WORD IN BUFFER
2178 1520 7391 CLA CLL IAC /EXTENDED BIT
2179 1521 1115 TAD K5800 /FUNCTION WRITE ALL

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2181 1522 3156 OCA CMBEG /SETUP COMMAND
2182 1523 1134 TAD TCMTR1 /SECTOR COUNTER
2183 1524 0128 AND K0837 /MASK OFF SECTOR BITS
2184 1525 1065 TAD I CYL450 /LOAD IN CYLINDER
2185 1526 3463 DCA I XLOTRK /SETUP ADDRESS WORD IN BUFFER
2186 1527 1463 TAD I XLOTRK
2187 1530 4426 DISKGO /DISK WRITE ALL
2188 1531 1556 T24T /TEXT POINTER
2189 1532 5354 JMP T24E /ERROR, SKIP OR STATUS
2190 1533 4432 T24E, TAD K5252 /CLEAR DATA BUFFER
2191 1534 7391 CLA CLL IAC /EXTENDER BIT
2192 1535 1017 TAD K1800 /FUNCTION READ ALL
2193 1536 3156 DCA CMBEG /SETUP COMMAND
2194 1537 1134 TAD TCMTR1 /SECTOR COUNTER
2195 1540 0128 AND K0837 /O.K. TO NEXT TEST
2196 1541 1429 TAD K0837 /ERROR, READ ALL
2197 1542 4253 CYL450 /SCORE LOOP POINTER
2198 1543 1556 OTRSGO /DISK READ ALL
2199 1544 5354 T24T, TAD K5252 /TEXT POINTER
2200 1545 1113 T24E, TAD K5252 /ERROR, STATUS OR SKIP
2201 1546 4432 FIGURE /WORD BY WORD COMPARE OF DATA
2202 1547 7610 JMP SKP CLA /TEXT POINTER
2203 1548 4439 FIGURE /THIS SECTOR O.K.
2204 1550 5354 JMP T24E /ERROR, DATA
2205 1551 2134 ISZ TCMTR1 /UPDATE SECTOR COUNTER
2206 1552 5315 JMP T24S /TRY NEXT SECTOR
2207 1553 4437 NBRRO /O.K. TO NEXT TEST
2208 1554 4440 ERROR, READ ALL /ERROR, READ ALL
2209 1555 5315 T24T, /SCORE LOOP POINTER
2210 1556 5373 SKP CLA /TEXT POINTER
2211 1557 5760 JMP I **1 /TO NEXT TEST
2212 1560 1600 T24T,

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2213 1561 0000 /DISKGO
2214 1562 0000 /DISK I
2215 1563 0000 /DISK I
2216 1564 0000 /DISK I
2217 1565 0000 /DISK I
2218 1566 0000 /DISK I
2219 1566 0000 /DISK I
2220 1567 0000 /DISK I
2221 1570 0000 /DISK I
2222
2223 /PAGE
2224 1600
2225 /VERIFY ALL SECTORS CAN BE ACCESSED
2226
2227 /VERIFY A WRITE DATA TO ALL OF CYLINDER 1450
2228 /AND USE DATA PATTERN 5252, K5252
2229 /THE FIRST TWO WORDS OF THE SECTOR SHOULD
2230 /EQUAL THE DISK ADDRESS, CHECK THE DATA
2231 /WITH READ DATA.
2232
2233 /PAGE
2234 1600 1122 TAD K7748 /SETUP SECTOR COUNTER
2235 1601 3134 DCA TCMTR1
2236 1602 1114 T23E, TAD K5252

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2236 1603 4431          /FILL OUTROUND BUFFER
2237 1604 7381          /GET DRIVE NUMBER
2238 1605 1072          /SETUP ADDRESS WORD IN BUFFER
2239 1606 3464          /EXTENDED BIT
2240 1607 7381          /FUNCTION WRITE DATA
2241 1610 1175          /SETUP COMMAND
2242 1611 3150          /SECTOR COUNTER
2243 1612 1134          /MASK OFF SECTOR BITS
2244 1613 0122          /ADD IN CYLINDER
2245 1614 1865          /SETUP ADDRESS WORD IN BUFFER
2246 1615 3463          /DISK WRITE DATA
2247 1616 1463          /TEXT POINTER
2248 1617 4426          /ERROR, SKIP OR STATUS
2249 1621 5242          /CLEAR DATA BUFFER
2250 1622 4432          /EXTEND DATA BUFFER
2251 1623 7301          /SETUP COMMAND
2252 1624 3152          /SECTOR COUNTER
2253 1625 1134          /MASK OFF SECTORS
2254 1626 7122          /DISK READ DATA
2255 1627 1065          /TEXT POINTER
2256 1630 4426          /ERROR, STATUS OR SKIP
2257 1631 1644          /WORD BY WORD COMPARE OF DATA
2258 1632 5242          /THIS SECTOR O.K.
2259 1633 1114          /ERROR, DATA
2260 1634 4438          /UPDATE SECTOR COUNTER
2261 1635 7618          /TRY NEXT SECTOR
2262 1636 5242          /O.K. TO NEXT TEST
2263 1637 2134          /ERROR, DATA BREAK
2264 1638 2134          /SCOPE LOOP POINTER
2265 1642 5282          /TEXT POINTER
2266 1641 4437          /SETUP DRIVE NUMBER
2267 1642 4426          /SETUP ADDRESS WORD IN BUFFER
2268 1643 1606          /EXTENDED BIT
2269 1644 5373          /EXTENDED BIT
2270 1644 1122          /FUNCTION WRITE ALL
2271 1645 3150          /SETUP COMMAND
2272 1646 4431          /GET MASK AND SECTOR
2273 1647 1114          /DISK WRITE ALL
2274 1648 4431          /TEXT POINTER
2275 1651 1134          /ERROR, STATUS OR SKIP
2276 1652 2132          /UPDATE SECTOR COUNTER
2277 1653 1065          /MORE SECTORS TO GO
2278 1654 4463          /FUNCTION WRITE ALL
2279 1655 7301          /SETUP COMMAND
2280 1656 1072          /DISK READ ALL
2281 1657 3464          /TEXT POINTER
2282 1658 4431          /ERROR, STATUS OR SKIP
2283 1659 1134          /WORD BY WORD COMPARE OF DATA
2284 1662 2132          /THIS SECTOR O.K.
2285 1663 1065          /ERROR, DATA
2286 1664 4463          /UPDATE SECTOR COUNTER
2287 1665 7301          /TRY NEXT SECTOR
2288 1666 1072          /O.K. TO NEXT TEST
2289 1667 3464          /ERROR, DATA BREAK
2290 1668 1072          /SCOPE LOOP POINTER
2291 1669 7391          /TEXT POINTER
    
```

```

2291 1661 1115          /FUNCTION WRITE ALL
2292 1662 3150          /SETUP COMMAND
2293 1663 1463          /GET MASK AND SECTOR
2294 1664 4426          /DISK WRITE ALL
2295 1665 1716          /TEXT POINTER
2296 1666 5314          /ERROR, STATUS OR SKIP
2297 1667 2134          /UPDATE SECTOR COUNTER
2298 1668 5281          /MORE SECTORS TO GO
2299 1670 5281          /FUNCTION WRITE ALL
2300 1671 1122          /SETUP COMMAND
2301 1672 3150          /GET MASK AND SECTOR
2302 1673 4432          /DISK READ ALL
2303 1674 4432          /TEXT POINTER
2304 1675 7381          /ERROR, STATUS OR SKIP
2305 1676 1017          /WORD BY WORD COMPARE OF DATA
2306 1677 3152          /THIS SECTOR O.K.
2307 1678 1134          /ERROR, DATA
2308 1679 0122          /UPDATE SECTOR COUNTER
2309 1680 1134          /MORE SECTORS TO CHECK
2310 1681 1134          /O.K. TO NEXT TEST
2311 1682 1765          /ERROR, STATUS
2312 1683 4426          /SCOPE LOOP POINTER
2313 1684 1716          /TEXT POINTER
2314 1685 5314          /ERROR, STATUS
2315 1686 1114          /WORD BY WORD COMPARE OF DATA
2316 1687 4438          /THIS SECTOR O.K.
2317 1688 7618          /ERROR, DATA
2318 1689 5314          /UPDATE SECTOR COUNTER
2319 1690 1134          /MORE SECTORS TO CHECK
2320 1691 2134          /O.K. TO NEXT TEST
2321 1692 5273          /ERROR, STATUS
2322 1693 4437          /SCOPE LOOP POINTER
2323 1694 4426          /TEXT POINTER
2324 1695 1716          /ERROR, STATUS
2325 1696 5373          /SCOPE LOOP POINTER
2326 1697 1122          /TEXT POINTER
2327 1698 3134          /ERROR, STATUS
2328 1699 1113          /WORD BY WORD COMPARE OF DATA
2329 1702 4431          /THIS SECTOR O.K.
2330 1703 1134          /ERROR, DATA
2331 1704 1122          /UPDATE SECTOR COUNTER
2332 1705 1134          /MORE SECTORS TO CHECK
2333 1706 0122          /O.K. TO NEXT TEST
2334 1707 3463          /ERROR, STATUS
2335 1708 1072          /SCOPE LOOP POINTER
2336 1709 3464          /TEXT POINTER
2337 1710 7381          /FUNCTION WRITE DATA
2338 1711 1122          /SETUP COMMAND
2339 1712 3150          /SECTOR COUNTER
2340 1713 0122          /MASK OFF SECTORS
2341 1714 4426          /DISK READ DATA
2342 1715 3464          /TEXT POINTER
2343 1716 1072          /ERROR, STATUS
2344 1717 3464          /SCOPE LOOP POINTER
2345 1718 7381          /TEXT POINTER
    
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2346 1735 1195 /FUNCTION WRITE DATA
2347 1734 3150 /SETUP COMMAND
2348 1735 1463 /SECTOR TO LOAD
2349 1736 4426 /DISK WRITE ALL
2350 1737 1767 /TEXT POINTER
2351 1740 5365 /ERROR, STATUS OR SKIP
2352 1741 2134 /UPDATE SECTOR COUNTER
2353 1742 5323 /MORE SECTORS TO GO
2354
2355
2356
2357 /VERIFY THAT THE DATA WRITTEN ABOVE
/ON CYLINDER 145H WAS O.K., CHECK WITH READ DATA.
2358 1743 1122 /COUNTER FOR 37 SECTORS
2359 1744 3134 /CLEAR DATA BUFFER
2360 1745 4432 /FUNCTION READ DATA
2361 1747 7301 /SETUP COMMAND
2362 1749 3150 /FUNCTION READ DATA
2363 1750 1134 /SETUP COMMAND
2364 1751 8129 /FUNCTION READ DATA
2365 1752 1065 /FUNCTION READ DATA
2366 1753 4426 /DISK READ DATA
2367 1754 1767 /TEXT POINTER
2368 1755 5365 /ERROR, STATUS OR SKIP
2369 1756 1113 /UPDATE SECTOR COUNTER
2370 1757 4430 /MORE SECTORS TO CHECK
2371 1760 7610 /FUNCTION READ DATA
2372 1761 5365 /FUNCTION READ DATA
2373 1762 2134 /FUNCTION READ DATA
2374 1766 5305 /FUNCTION READ DATA
2375 1766 4437 /FUNCTION READ DATA
2376 1765 4440 /FUNCTION READ DATA
2377 1766 1717 /TEXT POINTER
2378 1767 5373 /TEXT POINTER
2379
2380
2381
2382 /SECTOR TIMING TEST, VERIFY CONSECUTIVE SECTORS.
2383 /VERIFY THAT WRITE AND READ ARE ACTUALLY DOING CONSECUTIVE
/SECTORS. WHEN DOING CONSECUTIVE SECTORS IN WRITE OR READ
/ALL MODE, SECTOR TRANSFERS SHOULD OCCUR EVERY 2.5 MILLI-
/SECONDS. THE PROGRAM WILL REPORT A STATUS ERROR OF
/NO ONE FLAG IF THIS DOES NOT OCCUR.
2384
2385
2386
2387 /SAVE FIELD*WRITE
2388 1770 1156 /SETUP SECTOR COUNTER
2389 1771 1472 /FUNCTION WRITE ALL
2390 1772 4238 /SETUP COMMAND
2391 1773 7295 /SETUP COMMAND
2392 1774 7295 /SETUP COMMAND
2393 1775 1130 /FUNCTION WRITE ALL
2394 1776 1130 /FUNCTION WRITE ALL
2395 1777 1115 /FUNCTION WRITE ALL
2396 1777 1115 /FUNCTION WRITE ALL
2397 1777 1115 /FUNCTION WRITE ALL
2398 1777 1115 /FUNCTION WRITE ALL
2399 1777 1115 /FUNCTION WRITE ALL
2400 1777 1115 /FUNCTION WRITE ALL
2401 1777 1115 /FUNCTION WRITE ALL
2402 1777 1115 /FUNCTION WRITE ALL
2403 1777 1115 /FUNCTION WRITE ALL
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2405 1777 1115 /FUNCTION WRITE ALL
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2455 1777 1115 /FUNCTION WRITE ALL

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2401 2006 1166 /FUNCTION WRITE DATA
2402 2007 3297 /SETUP COMMAND
2403 2010 1134 /SECTOR TO LOAD
2404 2011 4426 /DISK WRITE ALL
2405 2012 1712 /TEXT POINTER
2406 2013 1917 /ERROR, STATUS OR SKIP
2407 2014 1136 /UPDATE SECTOR COUNTER
2408 2015 4746 /MORE SECTORS TO GO
2409 2017 4746 /TEXT POINTER
2410 2020 1134 /FUNCTION WRITE ALL
2411 2020 1134 /FUNCTION WRITE ALL
2412 2021 4729 /FUNCTION WRITE ALL
2413 2022 1173 /FUNCTION WRITE ALL
2414 2023 1173 /FUNCTION WRITE ALL
2415 2024 1173 /FUNCTION WRITE ALL
2416 2025 1173 /FUNCTION WRITE ALL
2417 2026 1173 /FUNCTION WRITE ALL
2418 2027 1173 /FUNCTION WRITE ALL
2419 2028 1173 /FUNCTION WRITE ALL
2420 2029 1173 /FUNCTION WRITE ALL
2421 2030 1173 /FUNCTION WRITE ALL
2422 2031 1173 /FUNCTION WRITE ALL
2423 2032 1173 /FUNCTION WRITE ALL
2424 2033 1173 /FUNCTION WRITE ALL
2425 2034 1173 /FUNCTION WRITE ALL
2426 2035 1173 /FUNCTION WRITE ALL
2427 2036 1173 /FUNCTION WRITE ALL
2428 2037 1173 /FUNCTION WRITE ALL
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2431 2040 1173 /FUNCTION WRITE ALL
2432 2041 1173 /FUNCTION WRITE ALL
2433 2042 1173 /FUNCTION WRITE ALL
2434 2043 1173 /FUNCTION WRITE ALL
2435 2044 1173 /FUNCTION WRITE ALL
2436 2045 1173 /FUNCTION WRITE ALL
2437 2046 1173 /FUNCTION WRITE ALL
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2445 2054 1173 /FUNCTION WRITE ALL
2446 2055 1173 /FUNCTION WRITE ALL
2447 2056 1173 /FUNCTION WRITE ALL
2448 2057 1173 /FUNCTION WRITE ALL
2449 2058 1173 /FUNCTION WRITE ALL
2450 2059 1173 /FUNCTION WRITE ALL
2451 2060 4525 /FUNCTION WRITE DATA
2452 2061 7775 /SETUP COMMAND
2453 2062 1122 /SECTOR TO LOAD
2454 2063 3134 /FUNCTION WRITE DATA
2455 2064 1122 /FUNCTION WRITE DATA
2456 2065 1122 /FUNCTION WRITE DATA
2457 2066 1122 /FUNCTION WRITE DATA
2458 2067 1122 /FUNCTION WRITE DATA
2459 2068 1122 /FUNCTION WRITE DATA
2460 2069 1122 /FUNCTION WRITE DATA
2461 2070 1122 /FUNCTION WRITE DATA
2462 2071 1122 /FUNCTION WRITE DATA
2463 2072 1122 /FUNCTION WRITE DATA
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2465 2074 1122 /FUNCTION WRITE DATA
2466 2075 1122 /FUNCTION WRITE DATA
2467 2076 1122 /FUNCTION WRITE DATA
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2490 2099 1122 /FUNCTION WRITE DATA
2491 2100 1122 /FUNCTION WRITE DATA
2492 2101 1122 /FUNCTION WRITE DATA
2493 2102 1122 /FUNCTION WRITE DATA
2494 2103 1122 /FUNCTION WRITE DATA
2495 2104 1122 /FUNCTION WRITE DATA
2496 2105 1122 /FUNCTION WRITE DATA
2497 2106 1122 /FUNCTION WRITE DATA
2498 2107 1122 /FUNCTION WRITE DATA
2499 2108 1122 /FUNCTION WRITE DATA
2500 2109 1122 /FUNCTION WRITE DATA

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PAL10 VI42A
2401 2006 1166 /FUNCTION WRITE DATA
2402 2007 3297 /SETUP COMMAND
2403 2010 1134 /SECTOR TO LOAD
2404 2011 4426 /DISK WRITE ALL
2405 2012 1712 /TEXT POINTER
2406 2013 1917 /ERROR, STATUS OR SKIP
2407 2014 1136 /UPDATE SECTOR COUNTER
2408 2015 4746 /MORE SECTORS TO GO
2409 2017 4746 /TEXT POINTER
2410 2020 1134 /FUNCTION WRITE ALL
2411 2020 1134 /FUNCTION WRITE ALL
2412 2021 4729 /FUNCTION WRITE ALL
2413 2022 1173 /FUNCTION WRITE ALL
2414 2023 1173 /FUNCTION WRITE ALL
2415 2024 1173 /FUNCTION WRITE ALL
2416 2025 1173 /FUNCTION WRITE ALL
2417 2026 1173 /FUNCTION WRITE ALL
2418 2027 1173 /FUNCTION WRITE ALL
2419 2028 1173 /FUNCTION WRITE ALL
2420 2029 1173 /FUNCTION WRITE ALL
2421 2030 1173 /FUNCTION WRITE ALL
2422 2031 1173 /FUNCTION WRITE ALL
2423 2032 1173 /FUNCTION WRITE ALL
2424 2033 1173 /FUNCTION WRITE ALL
2425 2034 1173 /FUNCTION WRITE ALL
2426 2035 1173 /FUNCTION WRITE ALL
2427 2036 1173 /FUNCTION WRITE ALL
2428 2037 1173 /FUNCTION WRITE ALL
2429 2038 1173 /FUNCTION WRITE ALL
2430 2039 1173 /FUNCTION WRITE ALL
2431 2040 1173 /FUNCTION WRITE ALL
2432 2041 1173 /FUNCTION WRITE ALL
2433 2042 1173 /FUNCTION WRITE ALL
2434 2043 1173 /FUNCTION WRITE ALL
2435 2044 1173 /FUNCTION WRITE ALL
2436 2045 1173 /FUNCTION WRITE ALL
2437 2046 1173 /FUNCTION WRITE ALL
2438 2047 1173 /FUNCTION WRITE ALL
2439 2048 1173 /FUNCTION WRITE ALL
2440 2049 1173 /FUNCTION WRITE ALL
2441 2050 1173 /FUNCTION WRITE ALL
2442 2051 1173 /FUNCTION WRITE ALL
2443 2052 1173 /FUNCTION WRITE ALL
2444 2053 1173 /FUNCTION WRITE ALL
2445 2054 1173 /FUNCTION WRITE ALL
2446 2055 1173 /FUNCTION WRITE ALL
2447 2056 1173 /FUNCTION WRITE ALL
2448 2057 1173 /FUNCTION WRITE ALL
2449 2058 1173 /FUNCTION WRITE ALL
2450 2059 1173 /FUNCTION WRITE ALL
2451 2060 4525 /FUNCTION WRITE DATA
2452 2061 7775 /SETUP COMMAND
2453 2062 1122 /SECTOR TO LOAD
2454 2063 3134 /FUNCTION WRITE DATA
2455 2064 1122 /FUNCTION WRITE DATA
2456 2065 1122 /FUNCTION WRITE DATA
2457 2066 1122 /FUNCTION WRITE DATA
2458 2067 1122 /FUNCTION WRITE DATA
2459 2068 1122 /FUNCTION WRITE DATA
2460 2069 1122 /FUNCTION WRITE DATA
2461 2070 1122 /FUNCTION WRITE DATA
2462 2071 1122 /FUNCTION WRITE DATA
2463 2072 1122 /FUNCTION WRITE DATA
2464 2073 1122 /FUNCTION WRITE DATA
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2472 2081 1122 /FUNCTION WRITE DATA
2473 2082 1122 /FUNCTION WRITE DATA
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2477 2086 1122 /FUNCTION WRITE DATA
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2481 2090 1122 /FUNCTION WRITE DATA
2482 2091 1122 /FUNCTION WRITE DATA
2483 2092 1122 /FUNCTION WRITE DATA
2484 2093 1122 /FUNCTION WRITE DATA
2485 2094 1122 /FUNCTION WRITE DATA
2486 2095 1122 /FUNCTION WRITE DATA
2487 2096 1122 /FUNCTION WRITE DATA
2488 2097 1122 /FUNCTION WRITE DATA
2489 2098 1122 /FUNCTION WRITE DATA
2490 2099 1122 /FUNCTION WRITE DATA
2491 2100 1122 /FUNCTION WRITE DATA
2492 2101 1122 /FUNCTION WRITE DATA
2493 2102 1122 /FUNCTION WRITE DATA
2494 2103 1122 /FUNCTION WRITE DATA
2495 2104 1122 /FUNCTION WRITE DATA
2496 2105 1122 /FUNCTION WRITE DATA
2497 2106 1122 /FUNCTION WRITE DATA
2498 2107 1122 /FUNCTION WRITE DATA
2499 2108 1122 /FUNCTION WRITE DATA
2500 2109 1122 /FUNCTION WRITE DATA

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PAGE 1-40
PAL12 VI42A 15-APR-76 13124
2454 2454 2064 3150 DCA CHREG
2457 2065 1122 TAD K0037
2458 2066 4426 D18KCN
2459 2267 2137 T207
2460 2270 5335 JMP T20E
2461 2271 1166 TAD K030A
2462 2272 3137 DCA T207
2463 2273 3107 DCA GREGG2
2464 2274 1174 TAD T207A1
2465 2378 0473 AND K2091
2466 2379 1112 TAD T207A3
2467 2380 1126 TAD T207A1
2468 2179 6246 T207DA, D10C
2469 2181 1267 T207DA, TAD
2470 2183 1134 T207DA, T207A1
2471 2184 1134 T207DA, T207A1
2472 2185 6128 T207DA, K0037
2473 2186 0428 T207DA, JLAG
2474 2187 1124 TAD K11FE
2475 2188 1124 TAD T207A2
2476 2189 1124 TAD T207A2
2477 2190 1124 TAD T207A2
2478 2191 1124 TAD T207A2
2479 2192 1124 TAD T207A2
2480 2193 3146 DCA T207A1
2481 2194 1134 AND K0291
2482 2195 2073 AND K0291
2483 2196 7412 CLL PTR
2484 2197 3152 DCA CHREG
2485 2198 1067 TAD GNRBUF
2486 2199 3152 DCA CARR
2487 2200 1134 TAD T207A1
2488 2201 0124 AND K0017
2489 2202 4451 DCA D18KCN
2490 2203 4451 JMP T20E
2491 2204 2175 TAD T207A2
2492 2205 5337 JMP T207DA
2493 2206 4447 DSKSKP
2494 2207 5337 JMP *-1
2495 2208 2132 T207A1, IZ
2496 2209 5274 T207A1, T207
2497 2210 4437 HEREEND
2498 2211 4447 HEREEND
2499 2212 2062 T207A1, T207
2500 2213 5302 T207A1, T207
2501 /CRC TEST
2502 /
2503 /DATA TRANSFER IS WORKING, NOW CHECK CRC WORD IN
2504 /THE CRC REGISTER AFTER A READ ALL. THE CRC SHOULD BE
2505 /ALL ZEROS FOR ALL 9'S DATA PATTERN.
2506 /
2507 2140 1117 T3T0, TAD K7760
2508 2141 3134 T3T0, DCA T207A1
2509 2142 7321 T3T0, CLA CLL IAC
2510 2143 4451 T3T0, CLRALL

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PAL12 VI42A 15-APR-76 13124 PAGE 1-40

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2511 2144 4432 K1LBUF
2512 2145 1115 TAD K5P00
2513 2146 3152 DCA CHREG
2514 2147 1134 TAD T207A1
2515 2152 0117 AND K0017
2516 2151 4426 D18KCN
2517 2152 2211 T307
2518 2153 5777* JMP T30E
2519 2154 1417 TAD K1060
2520 2155 3152 DCA CHREG
2521 2156 1134 TAD T207A1
2522 2157 0117 AND K0017
2523 2160 4426 D18KCN
2524 2161 2211 T307
2525 2162 5777* JMP T30E
2526 2163 1167 TAD K6304
2527 2164 3776* DCA CLA CLL IAC
2528 2165 7301 CLRALL
2529 2166 4451 DCA GREGG1
2530 2167 5142 DCA GREGG2
2531 2177 5143 JMP T+1
2532 2171 5772 JMP T+1
2533 2172 2201 T300
2534 2176 2201 T300
2535 2177 2207 T300
2536 2207 2207 PAGE
2537 2207 4454 T300, BRPBC
2538 2208 7612 ACCMP2
2539 2209 5237 JMP CLA
2540 2210 5237 JMP T30E
2541 2211 5237 JMP T207A1
2542 2212 5177* JMP T300
2543 2213 4437 JLAG
2544 2214 0446 T30E, T307A1
2545 2215 6304 T307, B300
2546 /CRC TEST
2547 /
2548 /VERIFY THAT THE CRC WORD WRITTEN
2549 /ON DISK IS CORRECT. COMPARE IT TO
2550 /KNOWN VALUE IN CORE. ON A READ OF THE
2551 /CRC WORD FROM DISK IS LEFT IN THE CRC REGISTER.
2552 /THE CRC SHOULD BE 114047 FOR DATA 2535+2522.
2553 /
2554 /READ CRC REGISTER
2555 /CHECK RESULTS
2556 /O.K.
2557 /ERROR, CRC
2558 /UPDATE SECTOR COUNTER
2559 /MORE SECTORS TO TEST
2560 /O.K. TO NEXT TEST
2561 /ERROR, CRC
2562 /SCOPE LOOP POINTER
2563 /TEXT POINTER
2564 /
2565 /CLEAR BUFFER AREA
2566 /FUNCTION WRITE ALL
2567 /SETUP COMMAND
2568 /
2569 /MASK SECTOR BITS
2570 /DISK WRITE ALL
2571 /TEXT POINTER
2572 /ERROR, STATUS OR SKIP
2573 /SETUP COMMAND
2574 /
2575 /MASK SECTOR BITS
2576 /DISK READ ALL
2577 /TEXT POINTER
2578 /ERROR, STATUS OR SKIP
2579 /
2580 /MONIFY TEXT POINTER
2581 /ENABLE CLEAR CONTROL
2582 /SWN CLEAR CONTROL FLUP
2583 /SWN CLEAR CONTROL FLUP
2584 /STORE IN COMPARE REGISTER
2585 /STORE IN COMPARE REGISTER
2586 /
2587 /READ CRC REGISTER
2588 /CHECK RESULTS
2589 /O.K.
2590 /ERROR, CRC
2591 /UPDATE SECTOR COUNTER
2592 /MORE SECTORS TO TEST
2593 /O.K. TO NEXT TEST
2594 /ERROR, CRC
2595 /SCOPE LOOP POINTER
2596 /TEXT POINTER
2597 /
2598 /SETUP SECTOR COUNTER
2599 /CLEAR CONTROL
2600 /
2601 /FILL DATA BUFFER
2602 /FUNCTION WRITE ALL
2603 /SETUP COMMAND
2604 /MASK SECTOR BITS

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2565 2224 1128 TAD K7760 /DISK WRITE ALL
2566 2225 4426 DISKGD /TEXT POINTER
2567 2226 2261 T31T /ERROR, STATUS OR SKIP
2568 2227 2257 JMP T31E /FUNCTION READ ALL
2569 2230 1017 TAD K1000 /SETUP COMMAND
2570 2231 3158 DCA CMREG
2571 2232 1134 TAD TCENTR1 /MASK SECTOR BITS
2572 2233 0117 AND K0017
2573 2234 1119 TAD K7760
2574 2235 4426 DISKGD /DISK READ ALL
2575 2236 2261 T31T /TEXT POINTER
2576 2237 5257 JMP T31E /ERROR, STATUS OR SKIP
2577 2238 1167 TAN K6384
2578 2241 7301 T31T /MODIFY TEXT POINTER
2579 2242 4453 CLA CLL IAC /ENABLE CLEAR CONTROL AND
2580 2243 1160 TAN /CLEAR BRK FENABLE FLOP,
2581 2244 1160 TAN /GET GOOD CRC
2582 2245 3142 DCA CMREG1 /STORE IN COMPARE REGISTER
2583 2246 1161 TAN CMREG2 /GET GOOD CRC
2584 2247 1143 DCA GPREG2 /STORE IN COMPARE REGISTER
2585 2251 4454 DCCRC /READ CRC REGISTER
2586 2252 4454 ACDCMP2 /CHECK RESULTS
2587 2253 7410 JMP SKP CLA /O.K.
2588 2254 5257 JMP T31E /ERROR, CRC
2589 2255 2134 /UPDATE SECTOR COUNTER
2590 2256 2134 TCENTR1 /MORE SECTORS TO TEST
2591 2257 2134 JMP T31P /O.K. TO NEXT TEST
2592 2258 4440 JMP SKP CLA /SCOPE LDRD ONLY*F8
2593 2259 2132 T31T /TEXT POINTER
2594 2261 4394 TAD K594

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/VERIFY HEAD MOTION AND CAPABILITY
/IF SELECTING TWO TRACKS INDIVIDUALLY,

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```

/VERIFY A WRITE ALL TO ALL OF CYLINDER 1450
/AND THEN CYLINDER 2, USE DATA PATTERN 5252-2525 ON
/CYLINDER 1450, 2525-2525 ON CYLINDER 0.
/CHECK FOR NO ERRORS IN STATUS SECTOR
/MAKE FIRST TAG ERRORS IN EVERY SECTOR
/EQUAL TO ADDRESS OF SECTOR.

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2604 2235 4426 /FIRST WRITE CYLINDER 1450
2605 2236 4426 /FIRST WRITE CYLINDER 1450
2606 2237 4426 /FIRST WRITE CYLINDER 1450
2607 2238 4426 /FIRST WRITE CYLINDER 1450
2608 2262 1122 T31T2 TAD K7740 /SETUP SECTOR COUNTER
2609 2263 3134 DCA TCENTR1 /TEXT POINTER
2610 2264 1114 TAN K5252 /FILL BUFFER WITH DATA
2611 2266 4431 FILBUF
2612 2266 7301 CLA CLL IAC /GET DRIVE NUMBER
2613 2267 1792 TAD K0037 /SETUP ADDRESS WORD IN BUFFER
2614 2271 1134 DCA I XLOTRK
2615 2272 0128 TAN TCENTR1
2616 2273 1245 AND K0033 /MASK SECTOR BITS
2617 2274 1245 TAN CVALDS /LOWER CYLINDER
2618 2274 1463 DCA I XLOTRK /SETUP WORD IN BUFFER
2619 2275 7301 CLA CLL IAC

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2620 2276 3157 TAD K5900 /FUNCTION WRITE ALL
2621 2277 3157 DCA CMREG /SETUP COMMAND
2622 2280 4463 TAD I XLOTRK /SECTOR TO GO
2623 2281 4463 DISKGD /DISK WRITE ALL
2624 2282 2376 T32T /TEXT POINTER
2625 2283 5372 /ERROR, STATUS OR SKIP
2626 2284 2134 TCENTR1 /UPDATE SECTOR COUNTER
2627 2285 2134 ISZ TCENTR1 /MORE SECTORS TO GO
2628 2286 5271 JMP T32R1
2629 2287 5271 /WRITE ALL TO ALL OF CYLINDER 0
2630 2288 5271 /WRITE ALL TO ALL OF CYLINDER 0
2631 2289 5271 /WRITE ALL TO ALL OF CYLINDER 0
2632 2296 1122 TAD K7740 /SETUP SECTOR COUNTER
2633 2297 3134 DCA TCENTR1 /TEXT POINTER
2634 2310 1115 TAN K5252 /FILL BUFFER WITH DATA
2635 2311 4431 FILBUF
2636 2312 1134 TCENTR1 /MASK SECTOR BITS
2637 2313 0128 AND K0037 /SETUP ADDRESS WORD IN BUFFER
2638 2314 3463 DCA I XLOTRK /SETUP ADDRESS WORD IN BUFFER
2639 2315 1072 DCA I XLOTRK /FUNCTION WRITE ALL
2640 2316 3464 TAN K5900 /SETUP COMMAND
2641 2317 1115 TAN I XLOTRK /SECTOR TO LOAD
2642 2321 3158 TAD I /TEXT POINTER
2643 2322 4426 DCA CMREG /ERROR, SKIP OR STATUS
2644 2323 2374 T32T /UPDATE SECTOR COUNTER
2645 2324 5372 ISZ TCENTR1 /MORE SECTORS TO GO
2646 2325 2134 JMP T32R2
2647 2326 5312

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/VERIFY THAT THE DATA WRITTEN ABOVE
/ON CYLINDER 1450 WAS O.K. CHECK WITH READ ALL.

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2651 2327 1122 TAD K7740 /COUNT FOR 37 SECTORS
2652 2328 3134 DCA TCENTR1 /CLEAR DATA BUFFER
2653 2331 4432 T32R3, /READ ALL FUNCTION
2654 2332 7301 CLA CLL IAC /SETUP COMMAND
2655 2333 1017 TAD K1000
2656 2334 3158 DCA CMREG
2657 2335 1017 TAN TCENTR1
2658 2336 1134 AND K0037
2659 2337 0128 TAN CVALDS
2660 2337 1065 TAN /ADD IN CYLINDER
2661 2338 4426 DISKGD /DISK READ ALL
2662 2341 2374 T32T /TEXT POINTER
2663 2342 5372 JMP T32E /ERROR, STATUS OR SKIP
2664 2343 1114 TAN K5252
2665 2344 4430 FIGURE /WORD AND COMPARE OF DATA
2666 2345 7410 JMP SKP CLA /DATA O.K.
2667 2346 5372 JMP T32E /ERROR, DATA
2668 2347 2134 ISZ TCENTR1 /UPDATE SECTOR COUNTER
2669 2348 2134 JMP T32R3 /MORE SECTORS TO CHECK

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2672 2351 1122 TAD K7740 /VERIFY THAT THE DATA WRITTEN ABOVE
2673 2351 1122 /ON CYLINDER 0 WAS O.K. CHECK WITH READ ALL.
2674 2351 1122 TAD K7740

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2675 2352 3134          DCA          TCONTR1
2676 2355 4432          T33R4,  KILBUF
2677 2354 1817          TAD          K1000
2678 2355 3158          DCA          CMREG
2679 2356 1134          TAD          TCONTR1
2680 2357 0128          AND          K0037
2681 2360 4426          DISKGO
2682 2361 2374          T32T
2683 2362 5172          JMP          T32E
2684 2363 1117          TAD          K2529
2685 2364 4413          TAD          K2529
2686 2364 5312          FIGURE
2687 2364 5312          SKP CLA
2688 2369 5333          JMP I32E
2689 2370 5333          I32          TCONTR1
2690 2371 4437          J32          T32R4
2691 2372 4446          ERROR
2692 2373 2662          T3132
2693 2374 5373          T32T,
2694 2375 5776          JMP I          *+1
2695 2376 2400          T3133
2696 2377 2142          /
2697 2377 2400          PAGE
2698 2377 2400          /
2699          /
2700          /VERIFY HEAD MOTION AND CAPABILITY
2701          /OF SELECTING TWO TRACKS INDIVIDUALLY.
2702          /
2703          /
2704          /VERIFY A WRITE DATA TO ALL OF CYLINDER 8
2705          /WHEN CYLINDER 1450. USE DATA PATTERN 2525+4522 ON
2706          /CYLINDER 1450 AND 5252+2525 ON CYLINDER 8.
2707          /CHECK FOR NO ERRORS IN STATUS.
2708          /MAKE FIRST TWO WORDS OF EVERY SECTOR
2709          /EQUAL TO ADDRESS OF SECTOR.
2710          /
2711          /FIRST WRITE DATA TO CYLINDER 8.
2712          /
2713          /T3133,  TAD          K7748
2714          /DCA          TCONTR1
2715          /TAD          K5252
2716          /FILL BUFFER WITH DATA
2717          /
2718          /
2719          /MASK OFF SECTOR BITS
2720          /SETUP ADDRESS WORD IN BUFFER
2721          /GET DRIVE NUMBER
2722          /SETUP ADDRESS WORD IN BUFFER
2723          /FUNCTION WRITE DATA
2724          /
2725          /SETUP COMMAND
2726          /SECTOR TO LOAD
2727          /DISK WRITE DATA
2728          /TEXT POINTER
2729          /ERROR, STATUS OR SKIP
2730          /UPDATE SECTOR COUNTER
2731          /
2732          /T3132
2733          /JMP          TCONTR1
2734          /
2735          /
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2754          /
2755          /VERIFY THAT THE DATA WRITTEN ABOVE
2756          /ON CYLINDER 0 WAS O.K. CHECK WITH READ DATA.
2757          /
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2804 2475 4426 /DISK READ DATA
2805 2476 2511 /NEXT POINTER
2806 2477 5307 /ERROR, STATUS OR SKIP
2807 2508 1113 TAD K2925
2808 2509 4436 /WORD BY WORD COMPARE OF DATA
2809 2502 7610 JMP SKP CLA /DATA O.K.
2810 2503 5307 JMP ISZ /ERROR, DATA
2811 2504 2134 JMP TCTRL1 /UPDATE SECTOR COUNTER
2812 2505 5267 JMP T33R4 /MORE SECTORS TO CHECK
2813 2506 4437 /O.K. TO NEXT TEST
2814 2507 4447 /ERROR, WRITE DATA
2815 2508 2400 /SCOPE LOOP POINTER
2816 2509 5373 /TEXT POINTER
2817 2511 5373
2818 2512 4525 /FORCE CYLINDER ADDRESS ERROR
2819 2513 0001
2820 2514 7301 /VERIFY A CYLINDER ADDRESS ERROR IN
2821 2515 4453 /STATUS REGISTER, CAN BE CAUSED BY ISSUING
2822 2516 4424 /MAINTENANCE SHIFT CRC AFTER DISK
2823 2517 2550 /HAS ACCEPTED THE ADDRESS.
2824 2518 5346 JMS I XLOAD
2825 2519 0001
2826 2520 4453 /CLEAR CONTROL
2827 2521 2550 /SEEK ONLY TRACK N
2828 2522 2550 /TEXT POINTER
2829 2523 5346 /ERROR, SKIP OR STATUS
2830 2524 7301 T34E
2831 2525 1156 CLA CLL IAC
2832 2526 1072 TAD HOMEWA
2833 2527 4452 TAD DRIVNO
2834 2528 4452 TAD K400A
2835 2529 1105 LDCND
2836 2530 7301 CLA CLL IAC
2837 2531 1066 DCA K400A
2838 2532 4452 DCA GDRG2
2839 2533 1066 TAD YR212
2840 2534 4452 LDANL
2841 2535 7330 CLA CLL CML PAR
2842 2536 4455 LDANL
2843 2537 7010 RAR
2844 2538 4455 LMAN
2845 2539 7010 RAR
2846 2540 4455 LMAN
2847 2541 4447 DSKSKP
2848 2542 5341 HDSTAT *-1
2849 2543 4444 ACCP41
2850 2544 4442 MBROR
2851 2545 4037 NBROR
2852 2546 4040 ERROR
2853 2547 2514 T33Z4
2854 2548 5300 T34T, 530?
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PAL10 V1424 15-APR-76 13124 PAGE 1-55

SEC 0877

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/VERIFY A CRC ERROR BY ENTERING MAINTENANCE
/AND SHIFTING CRC IN WRITE ALL MODE.
/
2899 2551 7301 T335, CLA CLL IAC
2900 2552 4453 /CLEAR CONTROL
2901 2553 4432 /CLEAR BUFFER AREA
2902 2554 1067 TAD RGNRUF /LOAD CURRENT ADDRESS
2903 2555 4451 TAD LOCUR
2904 2556 1156 TAD HOMEWA
2905 2557 1072 TAD DRIVNO
2906 2558 1115 TAD K500A
2907 2559 4450 LDCND
2908 2560 4452 LDCND
2909 2561 7330 CLA CLL CHL PAR
2910 2562 4455 LDANL
2911 2563 7010 RAR
2912 2564 4455 LMAN
2913 2565 7010 RAR
2914 2566 4455 LMAN
2915 2567 1070 TAD K000?
2916 2568 1070 LDMAN
2917 2569 4455 DSKSKP
2918 2570 4447 JMP *-2
2919 2571 5371 /SKIP ON ERROR FLAG1
2920 2572 7301 /KEEP SHIFTING CRC TILL ERROR
2921 2573 4451 /CLEAR CONTROL
2922 2574 4451
2923 2575 4451
2924 2576 7330 /EXPECTED STATUS REGISTER
2925 2577 1070 /LOAD COMMAND REGISTER
2926 2578 3141 /LOAD AND GO READ ALL
2927 2579 1067 TAD BGNRUF /WAIT AND SKIP ON CRC ERROR1
2928 2580 4451 TAD LOCUR
2929 2581 1156 TAD HOMEWA
2930 2582 1072 TAD DRIVNO
2931 2583 1115 TAD K100A
2932 2584 4450 LDCND
2933 2585 4452 LDCND
2934 2586 7010 RAR
2935 2587 4455 LMAN
2936 2588 7010 RAR
2937 2589 4455 LMAN
2938 2590 1070 TAD K001?
2939 2591 1070 LDMAN
2940 2592 4455 DSKSKP
2941 2593 4447 JMP *-1
2942 2594 5307 /READ STATUS REGISTER
2943 2595 4451 /CHECK RESULTS
2944 2596 4451 /O.K. TO NEXT TEST
2945 2597 4451 /ERROR, CRC ERROR
2946 2598 2551 /SCOPE POINTER
2947 2599 5300 /TEXT POINTER
2948 2600
2949 2601
2950 2602 4525 /BIG ADDRESSING TEST
2951 2603 7700 /FORMAT THE COMPLETE DISK SURFACE WITH
2952 2604 7301 /WRITE ALL. USE DATA PATTERN 2528+5552
2953 2605 4453 /MAKE FIRST TWO WORDS OF EVERY SECTOR
2954 2606 2551 /EQUAL TO ABSOLUTE ADDRESS OF SECTOR.
2955 2607
2956 2608 JMS I XLOAD
2957 2609 7700
2958 2610 7301
2959 2611 4453
2960 2612 4453
2961 2613 7301
2962 2614 4453
2963 2615 4444
2964 2616 4444
2965 2617 4444
2966 2618 4444
2967 2619 4444
2968 2620 4444
2969 2621 4444
2970 2622 4444
2971 2623 4444
2972 2624 4444
2973 2625 4444
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2975 2627 4444
2976 2628 4444
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2983 2635 4444
2984 2636 4444
2985 2637 4444
2986 2638 4444
2987 2639 4444
2988 2640 4444
2989 2641 4444
2990 2642 4444
2991 2643 4444
2992 2644 4444
2993 2645 4444
2994 2646 4444
2995 2647 4444
2996 2648 4444
2997 2649 4444
2998 2650 4444
2999 2651 4444
3000 2652 4444

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SEC 0877

2894	2625	4431	FLRUF
2895	2626	3483	DOA I
2896	2627	1872	TAD DRVNO
2897	2628	3464	DOA I
2898	2631	1872	TAD DRVNO
2899	2633	1156	TAD HOMEVA
2900	2633	1156	TAD HOMEVA
2901	2633	1156	TAD HOMEVA
2902	2633	1156	TAD HOMEVA
2903	2633	1156	TAD HOMEVA
2904	2633	1156	TAD HOMEVA
2905	2640	7337	T3NR,
2906	2641	3193	DOA
2907	2642	1267	DOA
2908	2643	6794	DOA
2909	2644	1150	DOA
2910	2645	6796	DOA
2911	2646	1463	DOA
2912	2647	6793	DOA
2913	2650	6791	DOA
2914	2651	5259	DOA
2915	2652	6795	DOA
2916	2653	1195	DOA
2917	2654	7490	DOA
2918	2655	5273	DOA
2919	2656	2463	DOA
2920	2657	5292	DOA
2921	2660	2150	DOA
2922	2661	2464	DOA
2923	2662	1464	DOA
2924	2663	7119	DOA
2925	2664	7620	DOA
2926	2665	5237	DOA
2927	2666	1463	DOA
2928	2667	1172	DOA
2929	2670	7620	DOA
2930	2671	5237	DOA
2931	2672	5192	DOA
2932	2673	1195	DOA
2933	2674	1195	DOA
2934	2675	3146	DOA
2935	2676	1463	DOA
2936	2677	3151	DOA
2937	2677	7470	DOA
2938	2700	4837	DOA
2939	2701	4837	DOA
2940	2702	4837	DOA
2941	2702	4837	DOA
2942	2702	4837	DOA
2943	2705	3060	DOA

/THE FOLLOWING IS A ROUTINE TO CHECK THE WRITE PROTECT
 /FUNCTION WHICH IT IS MANUALLY SET BY THE OPERATOR.
 /NOTE: NO SCOPE LOOPS ARE AVAILABLE FOR THIS TEST.
 HANPRO, CLASSIC
 2786 4405

2944	2787	4431	CSA:WIT
2950	2788	7024	NOB
2951	2789	4608	LAS
2952	2790	7104	LAS
2953	2791	7104	LAS
2954	2792	0190	DOA
2955	2793	1072	DOA
2956	2794	1131	DOA
2957	2795	1131	DOA
2958	2796	1131	DOA
2959	2797	1131	DOA
2960	2798	1131	DOA
2961	2799	1131	DOA
2962	2800	1131	DOA
2963	2801	1131	DOA
2964	2802	1131	DOA
2965	2803	1131	DOA
2966	2804	1131	DOA
2967	2805	1131	DOA
2968	2806	1131	DOA
2969	2807	1131	DOA
2970	2808	1131	DOA
2971	2809	1131	DOA
2972	2810	1131	DOA
2973	2811	1131	DOA
2974	2812	1131	DOA
2975	2813	1131	DOA
2976	2814	1131	DOA
2977	2815	1131	DOA
2978	2816	1131	DOA
2979	2817	1131	DOA
2980	2818	1131	DOA
2981	2819	1131	DOA
2982	2820	1131	DOA
2983	2821	1131	DOA
2984	2822	1131	DOA
2985	2823	1131	DOA
2986	2824	1131	DOA
2987	2825	1131	DOA
2988	2826	1131	DOA
2989	2827	1131	DOA
2990	2828	1131	DOA
2991	2829	1131	DOA
2992	2830	1131	DOA
2993	2831	1131	DOA
2994	2832	1131	DOA
2995	2833	1131	DOA
2996	2834	1131	DOA
2997	2835	1131	DOA
2998	2836	1131	DOA
2999	2837	1131	DOA
3000	2838	1131	DOA
3001	2839	1131	DOA
3002	2840	1131	DOA
3003	2841	1131	DOA

/MAKE EXPECTED STATUS COMPARE
 /START OF BUFFER
 /LOAD CURRENT ADDRESS
 /LAST COMMAND REGISTER
 /LOAD COMMAND REGISTER
 /SECTOR TO LOAD
 /LOAD AND GO
 /OISK SKIP IOT
 /WAIT FOR FLAG
 /READ STATUS
 /AND IN FUDGE FACTOR
 /STATUS O.K.????
 /NO, STATUS ERROR
 /DON'T SET EXTENDED TRACK
 /YES, SET IT
 /SETUP BUFFER ALSO
 /GET TRACK WORD
 /GET EXTENDED BIT TO LINK
 /AND IT SET
 /NO, CONTINUE
 /GET LOWER TRACK WORD
 /AND IN FUDGE FACTOR
 /AND, MORE TO GO
 /NO, MORE TO GO
 /DONE
 /RESET STATUS
 /SAVE FOR ERROR PRINTER
 /GET ADDRESS
 /FOR ERROR PRINTER
 /REPORT ERROR TEST
 /O.K., TO NEXT TEST
 /ERROR, STATUS
 /SCOPE LOOP POINTER
 /TEXT POINTER
 /CHECK FOR CLASSIC.
 HANPRO, CLASSIC
 2786 4405

PAL10 V102A 15-APR-76 13120 PAGE 1-56

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3094 2772 2735 MPR1
3095 2773 0000 TMRPT, 0000 /TEXT PRINTER
3096 2774 4005 CLASSIC
3097 2775 4036 CARRR
3098 2776 7002 MPH12, HLT /SUCCESSFUL WRITE PROTECT
3099 / / /T0 REPEAT TEST IF ON
3100 / / /CLASSIC CONSOLE PAGE
3101 / / /INIT CONTROL & IF NOT THEN
3102 / / /PRESS KEY CONTINUE.
3103 2777 5306 JMP MANDRO /REPEAT
3104 3000 PAGE
/ /BIG ADDRESSING CHECK!
/ /IF A DATA ERROR SHOULD HAPPEN TO OCCUR
/ /WITH THE FIRST TWO WORDS OF THE BUFFER, YOU
/ /SHOULD REALIZE THAT THE PROBLEM COULD BE
/ /ADDRESSING.
/ /
/ /VERIFY THAT THE DATA ON DISK IS CORRECT.
/ /CHECK THE COMPLETE SECTOR SHOULD BE 2525+5252.
/ /THE DATA ON THE COMPLETE DISK SHOULD BE 2525+5252.
/ /HOWEVER, THE TWO FIRST WORDS OF EVERY SECTOR
/ /SHOULD EQUAL THE ABSOLUTE DISK ADDRESS.
/ /
JMS I XLOAD
7792
TS737, DCA TCNTR1
/ /FUNCTION READ ALL
1001 TAD K1000 /CURRENT FIELD
1002 TAD MOREMA /CURRENT FIELD
1003 TAD DRIVNO /CURRENT DRIVE
1004 DCA CMREG /SETUP COMMAND
1005 TAD *+2 /GET TEXT POINTER
1006 SNO SNO
1007 SNO SNO
1008 DCA SVPCT /SAVE FOR CRC ERROR
1009 TAD RGRBUF /GET START OF BUFFER
1010 DCA CAREG /SAVE FOR ERROR PRINTER
1011 TAD *+2 /APT TIMING
1012 SNO SNO
1013 DCA SOERRR /SETUP CRC ERROR POINTER
1014 DCA K1000 /CLEAR DATA BUFFER
1015 TAD TCNTR1 /LOWER DISK ADDRESS
1016 TAD DAREG /SAVE FOR PRINTER
1017 TAD BGRBUF /GET START OF BUFFER
1018 DCA CMREG /LOAD CURRENT ADDRESS
1019 TAD *+4 /GET COMMAND
1020 TAD TCNTR1 /LOAD COMMAND REGISTER
1021 TAD *+4 /GET DISK ADDRESS
1022 TAD DAREG /LOAD DISK ADDRESS AND GO
1023 TAD *+1 /DISK SKIP IOT
1024 TAD *+1 /WAIT FOR DISK SKIP
1025 TAD *+1 /READ STATUS
1026 DCA STREG /SAVE FOR ERROR PRINTER
1027 TAD STREG
1028
3059 3036 1105 TAD K0000 /ADD IN FUDGE FACTOR
3060 3037 7250 JMP /STATUS O.K.
3061 3040 5250 /NO STATUS ERRORS
3062 3041 7330 DCA CLL DCL MAR /EXPECTED STATUS
3063 3042 3143 DCA GOREG2 /SETUP COMPARE REGISTER
3064 3043 1144 TAD STREG /GET STATUS READ
3065 3044 0011 AND K0010 /MASK FOR CRC
3066 3045 7640 SZA CLA /WAS IT CRC ERROR
3067 3046 5252 JNE *+4 /YES CRC ERROR
3068 3047 1150 TAD K5300 /YES TEXT POINTER
3069 3048 3150 DCA 137T /SAVE IT
3070 3049 3790 JMP 137T /STATUS ERROR NOT CRC
3071 3052 3151 DCA S0PERR /SET CRC ERROR POINTER
3072 3053 5256 JMP *+3 /DON'T CLEAR CONTROL
3073 3054 5256 JMP *+3 /ENABLE CLEAR CONTROL
3074 3055 6742 TS74, CLA CLL IAC /CLEAR CONTROL
3075 3056 1185 TAD K5373 /SETUP TEXT POINTER
3076 3057 3382 TAD 137T /GET EXPECTED DATA
3077 3058 1135 TAD K2525 /CHECK DATA READ
3078 3059 7630 JMP /THIS ONE O.K.
3079 3062 7630 SNO CLA /ERROR, DATA
3080 3063 5300 JMP 137E /UPDATE LOWER DISK ADDRESS
3081 3064 2134 ISZ TCNTR1 /SET EXTENDED BIT
3082 3065 7610 SNO CLA /IS EXTENDED SET
3083 3066 1150 ISZ CMREG /NO, CONTINUE
3084 3067 1150 TAD CMREG /NO, CONTINUE
3085 3068 0073 AND K0001 /ADD IN FUDGE FACTOR
3086 3071 7650 JMP 737R /DONE WITH DISK
3087 3072 5215 JMP TCNTR1 /NO, MORE TO GO
3088 3073 1134 TAD ENDRK /D.K. TO NEXT TEST
3089 3074 7640 TAD 737R /ERROR, STATUS TEST
3090 3075 5215 JMP 737E /SCOPE LOOP POINTER
3091 3076 4037 JNE 737R
3092 3077 4037 NERROR
3093 3100 4040 ERROR
3094 3101 3002 TS737
3095 3102 5306 T377, 5300
/
/ /BIG ADDRESSING CHECK!
/ /IF A DATA ERROR SHOULD HAPPEN TO OCCUR
/ /WITH THE FIRST TWO WORDS OF THE BUFFER, YOU
/ /SHOULD REALIZE THAT THE PROBLEM COULD BE
/ /ADDRESSING.
/ /
/ /READ ALL SECTORS ON THE DISK AND CHECK
/ /THE STATUS. IF STATUS ERROR OCCURS THEN CHECK THE DATA.
/ /THE DATA ON THE COMPLETE DISK SHOULD BE 2525+5252.
/ /HOWEVER, THE TWO FIRST WORDS OF EVERY SECTOR
/ /SHOULD EQUAL THE ABSOLUTE DISK ADDRESS.
/ /
JMS I XLOAD
7790
TS730, DCA CLL CHA
OCA S0PERR
/SETUP CRC ERROR PRINTER

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PAL10 V102A 15-APR-76 13120 PAGE 1-59

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3059 3036 1105 TAD K0000 /ADD IN FUDGE FACTOR
3060 3037 7250 JMP /STATUS O.K.
3061 3040 5250 /NO STATUS ERRORS
3062 3041 7330 DCA CLL DCL MAR /EXPECTED STATUS
3063 3042 3143 DCA GOREG2 /SETUP COMPARE REGISTER
3064 3043 1144 TAD STREG /GET STATUS READ
3065 3044 0011 AND K0010 /MASK FOR CRC
3066 3045 7640 SZA CLA /WAS IT CRC ERROR
3067 3046 5252 JNE *+4 /YES CRC ERROR
3068 3047 1150 TAD K5300 /YES TEXT POINTER
3069 3048 3150 DCA 137T /SAVE IT
3070 3049 3790 JMP 137T /STATUS ERROR NOT CRC
3071 3052 3151 DCA S0PERR /SET CRC ERROR POINTER
3072 3053 5256 JMP *+3 /DON'T CLEAR CONTROL
3073 3054 5256 JMP *+3 /ENABLE CLEAR CONTROL
3074 3055 6742 TS74, CLA CLL IAC /CLEAR CONTROL
3075 3056 1185 TAD K5373 /SETUP TEXT POINTER
3076 3057 3382 TAD 137T /GET EXPECTED DATA
3077 3058 1135 TAD K2525 /CHECK DATA READ
3078 3059 7630 JMP /THIS ONE O.K.
3079 3062 7630 SNO CLA /ERROR, DATA
3080 3063 5300 JMP 137E /UPDATE LOWER DISK ADDRESS
3081 3064 2134 ISZ TCNTR1 /SET EXTENDED BIT
3082 3065 7610 SNO CLA /IS EXTENDED SET
3083 3066 1150 ISZ CMREG /NO, CONTINUE
3084 3067 1150 TAD CMREG /NO, CONTINUE
3085 3068 0073 AND K0001 /ADD IN FUDGE FACTOR
3086 3071 7650 JMP 737R /DONE WITH DISK
3087 3072 5215 JMP TCNTR1 /NO, MORE TO GO
3088 3073 1134 TAD ENDRK /D.K. TO NEXT TEST
3089 3074 7640 TAD 737R /ERROR, STATUS TEST
3090 3075 5215 JMP 737E /SCOPE LOOP POINTER
3091 3076 4037 JNE 737R
3092 3077 4037 NERROR
3093 3100 4040 ERROR
3094 3101 3002 TS737
3095 3102 5306 T377, 5300
/
/ /BIG ADDRESSING CHECK!
/ /IF A DATA ERROR SHOULD HAPPEN TO OCCUR
/ /WITH THE FIRST TWO WORDS OF THE BUFFER, YOU
/ /SHOULD REALIZE THAT THE PROBLEM COULD BE
/ /ADDRESSING.
/ /
/ /READ ALL SECTORS ON THE DISK AND CHECK
/ /THE STATUS. IF STATUS ERROR OCCURS THEN CHECK THE DATA.
/ /THE DATA ON THE COMPLETE DISK SHOULD BE 2525+5252.
/ /HOWEVER, THE TWO FIRST WORDS OF EVERY SECTOR
/ /SHOULD EQUAL THE ABSOLUTE DISK ADDRESS.
/ /
JMS I XLOAD
7790
TS730, DCA CLL CHA
OCA S0PERR
/SETUP CRC ERROR PRINTER

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3114 3107 3134 DCA TCNTR1 /SETUP LOWER ADDRESS
3115 3110 3135 DCA TCNTR2 /SETUP EXTENDED
3116 3111 1017 TAD TAD /FUNCTION READ ALL
3117 3112 1072 TAD DRIVN /CURRENT DRIVE
3118 3113 1156 TAD HOME#A /CURRENT FIELD
3119 3114 3150 DCA CHREG /SETUP COMMAND
3120 3115 4510 TAD CHREG /APT TIMING
3121 3116 1067 TAD RGNBUP /START OF BUFFER
3122 3117 4451 TAD LOCUR /LOAD CURRENT
3123 3120 1170 TAD CHREG /LAST COMMAND ISSUED
3124 3121 4475 TAD LOCND /LOAD COMMAND
3125 3122 1110 TAD TCNTR1 /LOWER ADDRESS
3126 3123 4475 DSKSKP /LOAD AND GO
3127 3124 4475 DSKSKP /DISK SKIP IOT
3128 3125 5324 JMS *-1 /MANG IF NO SKIP
3129 3126 0424 JMS POSTAT /READ STATUS
3130 3127 1495 JMS K4000 /SHOULD ONLY BE DONE
3131 3128 1495 JMS SZA CLA /JUST ONE FLAG ?
3132 3129 5346 JMS TCNTR1 /STATUS ERROR
3133 3130 2134 JMS *-3 /UPDATE ADDRESS
3134 3131 5336 JMS CHREG /DON'T SET EXTENDED TRACK
3135 3132 2134 JMS *-4 /YES, SET IT
3136 3133 192 TCNTR2
3137 3134 1135 TAD SNA CLA
3138 3135 7650 JMS TCNTR2
3139 3136 5315 JMS SNA CLA
3140 3137 5315 JMS T39R
3141 3138 1134 TAD TCNTR1
3142 3139 1170 TAD ENDTRK
3143 3140 7640 SZA CLA
3144 3141 5315 JMS T39R
3145 3142 5315 JMS T360K
3146 3143 1113 TAD K2525
3147 3144 4430 TAD FIGURE
3148 3145 5353 JMS *-3 /WORD BY WORD COMPARE OF DATA
3149 3146 1185 TAD K5373 /ERROR, JUST THE STATUS
3150 3147 7410 SXP /TEXT POINTER
3151 3148 1186 TAD K530R /DATA ERROR
3152 3149 1186 TAD K530R /STATUS TEXT POINTER
3153 3150 7610 SXP CLA /SETUP
3154 3151 3361 DCA T30T /STATUS ERROR
3155 3152 7610 SXP CLA /O.K. TO NEXT TEST
3156 3153 4437 T39DE, ERROR /ERROR, READ DATA
3157 3154 4440 T313A /SCOPE LOOP POINTER
3158 3155 3105 T30T, 5300 /TEXT POINTER
3159 3156 5300 /
3160 3157 /
3161 3158 /
3162 3159 /BIG ADDRESSING CHECK!
3163 3160 /IF A DATA ERROR SHOULD HAPPEN TO OCCUR
3164 3161 /WITH THE FIRST TWO WORDS OF THE BUFFER, YOU
3165 3162 /SHOULD REALIZE THAT THE PROBLEM COULD BE
3166 3163 /ADDRESSING.
3167 3164 /
3168 3165 /CHECK DISK HEADER WORD WITH READ DATA.
3169 3166 /IF STATUS ERROR OCCURS THEN CHECK DATA.
3170 3167 /THE DATA ON THE COMPLETE DISK SHOULD BE
3171 3168 /HOWEVER, THE TWO FIRST WORDS OF EVERY SECTOR
3172 3169 /
3173 3170 /
3174 3171 /
3175 3172 /
3176 3173 /
3177 3174 /
3178 3175 /
3179 3176 /
3180 3177 /
3181 3178 /
3182 3179 /
3183 3180 /
3184 3181 /
3185 3182 /
3186 3183 /
3187 3184 /
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3201 3198 /
3202 3199 /
3203 3200 /
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3205 3202 /
3206 3203 /
3207 3204 /
3208 3205 /
3209 3206 /
3210 3207 /
3211 3208 /
3212 3209 /
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3223 3220 /

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PAL10 V142A 15-APR-76 13124 PAGE 1-61

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3162 4525 JMS I XLOAD /SHOULD EQUAL THE ABSOLUTE DISK ADDRESS.
3163 7776 T3T39, CLA CLL CMA
3164 7340 DCA SOPER /NO SOFT ERRORS
3165 3171 DCA TCNTR1 /SETUP LOWER ADDRESS
3166 3134 DCA TCNTR2 /STATUS EXTENDED
3167 3135 TAD DRIVN /CURRENT DRIVE
3168 1072 TAD HOME#A /CURRENT FIELD
3169 1156 TAD CHREG /SETUP COMMAND
3170 4440 DCA CHREG /APT TIMING
3171 4440 JMS *-1 /MANG IF NO SKIP
3172 4440 JMS POSTAT /READ STATUS
3173 4440 JMS SZA CLA /SHOULD ONLY BE DONE
3174 4440 JMS TCNTR1 /JUST ONE FLAG ?
3175 4440 JMS CHREG /STATUS ERROR
3176 4440 JMS *-3 /UPDATE ADDRESS
3177 4440 JMS *-4 /DON'T SET EXTENDED TRACK
3178 4440 JMS CHREG /YES, SET IT
3179 4440 TAD SNA CLA
3180 4440 JMS TCNTR2
3181 4440 JMS SNA CLA
3182 4440 JMS T39R
3183 4440 TAD TCNTR1
3184 4440 TAD ENDTRK
3185 4440 SZA CLA
3186 4440 JMS T39R
3187 4440 JMS T360K
3188 4440 TAD K2525
3189 4440 TAD FIGURE
3190 4440 JMS *-3 /WORD BY WORD COMPARE OF DATA
3191 4440 JMS *-4 /ERROR, JUST STATUS
3192 4440 JMS K5373 /TEXT POINTER
3193 4440 JMS K530R /STATUS TEXT POINTER
3194 4440 JMS K530R /SETUP
3195 4440 JMS *-3 /O.K. TO NEXT TEST
3196 4440 JMS *-4 /ERROR, READ DATA
3197 4440 JMS *-5 /SCOPE LOOP POINTER
3198 4440 JMS *-6 /TEXT POINTER
3199 4440 /
3200 4440 /
3201 4440 /
3202 4440 /
3203 4440 /
3204 4440 /
3205 4440 /
3206 4440 /
3207 4440 /
3208 4440 /
3209 4440 /
3210 4440 /
3211 4440 /
3212 4440 /
3213 4440 /
3214 4440 /
3215 4440 /
3216 4440 /
3217 4440 /
3218 4440 /
3219 4440 /
3220 4440 /
3221 4440 /
3222 4440 /
3223 4440 /

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PAL10 V142A 15-APR-76 13124 PAGE 1-61

3224	3241	3140	DCA	TCNTR5	/LENGTH OF TIME FOR THIS TEST	
3225	3242	4423	RANVDO	TCNTR3	/GET AN ADDRESS FOR SEEK/READ	
3226	3243	3136	RAL	TCNTR4	/LINK IS EXTENDED	
3227	3244	7804	OCA	TCNTR4	/SAVE IT	
3228	3245	3137	TAD	CMREG	/SETUP COMMAND	
3229	3246	1137	OCA	TCNTR5	/DISK READ DATA	
3230	3247	3150	TAD	TCNTR3	/TEXT POINTER	
3231	3250	1136	O18XGO	T40T	/ERROR, SKIP OR STATUS	
3232	3251	4426	T40T	T40T	/TEXT POINTER	
3233	3252	3265	JMP	T40T	/DISK READ DATA	
3234	3253	5263	JMP	K2525	/TEXT POINTER	
3235	3254	1113	TAD	K2525	/ERROR, SKIP OR STATUS	
3236	3255	4430	SKIP	SKP CLA	/WORD BY WORD COMPARE OF DATA	
3237	3256	7610	SKIP	SKP CLA	/DATA O.K.	
3238	3257	5263	JMP	TCNTR5	/DATA ERROR	
3239	3260	2140	JMP	T40R	/LOOP	
3240	3261	5242	JMP	T40R	/O.K. TO NEXT TEST	
3241	3262	4437	ERRRR	ERRRR	/ERROR, READ	
3242	3263	4440	ERRRR	ERRRR	/SCOPE LOOP POINTER	
3243	3264	3240	TST40	TST40	/TEXT POINTER	
3244	3265	8000	0000	0000		
3245	/RANDOM SEEK THEN WRITE THEN SEEK THEN READ TEST					
3246	/THE DATA WRITTEN IS 2525+252 AND THE TWO					
3247	/FIRST WORDS OF THE SECTOR ARE SET TO THE DISK ADDRESS.					
3248	/					
3249	JMS I	XLOAD				
3250	/					
3251	3267	3777	TST41	TAD	K7708	/PASS COUNTER
3252	3271	3145	OCA	TCNTR5	/GENERATE RANDOM NUMBER	
3253	3272	4423	RANVDO			
3254	3273	0117	AND			
3255	3273	0117	TAD	K0017	/SAVE COUNTER	
3256	3274	1113	OCA	TCNTR6	/RANDOM SEEK DISK ADDRESS	
3257	3275	1141	OCA	TCNTR6	/SAVE	
3258	3276	4421	RANVDO			
3259	3277	3130	RAL	TCNTR1	/LINK IS EXTENDED BIT	
3260	3278	7004	OCA	TCNTR2	/SAVE	
3261	3279	1335	OCA	TCNTR2	/RANDOM SEEK/WRITE DISK ADDRESS	
3262	3282	4423	OCA	TCNTR3	/SAVE	
3263	3283	7136	OCA	TCNTR3	/LINK IS EXTENDED BIT	
3264	3284	7004	RAL	TCNTR4	/SAVE	
3265	3285	3137	OCA	TCNTR4	/LINK IS EXTENDED BIT	
3266	3286	1133	TAD	K2525	/SAVE IT	
3267	3287	4431	FILBUF			
3268	3310	1137	TAD	TCNTR4	/FILL BUFFER	
3269	3311	1872	TAD	DRVNO	/GET EXTENDED BIT	
3270	3312	3494	OIA I	TCNTR4	/GET DRIVE NUMBER	
3271	3313	1336	TAD	TCNTR5	/DISK ADDRESS	
3272	3314	3463	OCA I	TCNTR5	/USER ADDRESS ADDRESS	
3273	3315	1135	TAD	TCNTR2	/DISK ADDRESS WORD IN BUFFER	
3274	3316	3130	OCA	CMREG	/GET EXTENDED BIT	
3275	3317	1134	OCA	TCNTR1	/SETUP COMMAND	
3276	3318	4424	SEBK	TAD	/DISK ADDRESS	
3277	3321	3261	T40T	T40T	/SEEK ADDRESS	
3278	3322	5371	JMP	T40T	/TEXT POINTER	
					/ERROR SKIP OR STATUS	

3279	3323	1137	TAD	TCNTR4	/EXTENDED BIT	
3280	3324	1105	TAD	K4000	/FUNCTION WRITE DATA	
3281	3325	3150	OCA	CMREG	/SETUP COMMAND	
3282	3329	4426	O18XGO	TCNTR3	/DISK ADDRESS	
3283	3330	1136	TAD	TCNTR3	/DISK WRITE DATA	
3284	3331	5357	JMP	T40T	/TEXT POINTER	
3285	3332	1135	OCA	TCNTR2	/ERROR SKIP OR STATUS	
3286	3333	1130	TAD	CMREG	/GET EXTENDED BIT	
3287	3334	4424	SEBK	TAD	/SETUP COMMAND REGISTER	
3288	3335	3261	T40T	T40T	/GET DISK ADDRESS	
3289	3336	3281	JMP	T40T	/O.K. TO NEXT TEST	
3290	3337	5357	TAD	TCNTR4	/ERROR, SEEK SKIP OR STATUS	
3291	3338	1137	TAD	TCNTR4	/GET EXTENDED BIT	
3292	3339	1137	OCA	CMREG	/SETUP REPAIR DATA COMMAND	
3293	3341	3130	OCA	TCNTR3	/DISK ADDRESS	
3294	3342	1136	TAD	TCNTR3	/DISK ADDRESS DATA	
3295	3343	4426	O18XGO	T40T	/TEXT POINTER	
3296	3344	3361	JMP	T40T	/TEXT POINTER	
3297	3345	5357	JMP	T40T	/TEXT POINTER	
3298	3346	1113	ERRRR	K2525	/ERROR, SEEK OR STATUS	
3299	3347	4430	ERRRR	K2525	/TEXT POINTER	
3300	3350	7610	SKIP	SKP CLA	/WORD BY WORD COMPARE OF DATA	
3301	3351	5357	JMP	SKP CLA	/DATA O.K.	
3302	3352	2141	IS2	TCNTR6	/DATA ERROR	
3303	3353	5306	JMP	TCNTR6	/COUNT TO SAME TRACKS	
3304	3354	2140	IS2	TCNTR5	/REPEAT	
3305	3355	5272	JMP	TCNTR5	/PASS COUNTER	
3306	3356	4437	JMP	T40R	/LOOP TO NEXT TEST	
3307	3357	4440	ERRRR	ERRRR	/O.K. TO NEXT TEST	
3308	3358	3270	ERRRR	ERRRR	/ERROR, READ	
3309	3361	5373	T40T	T40T	/SCOPE LOOP POINTER	
3310	3362	5763	JMP I	JMP I	/TEXT POINTER	
3311	3363	3400	TST42	TAD		
3312	/					
3313	/VERIFY A RECALIBRATE THEN A RANDOM WRITE DATA.					
3314	/THEN A RECALIBRATE THEN RANDOM READ DATA.					
3315	/THE DATA PATTERN WRITTEN IS 2525+2522 AND					
3316	/THE FIRST TWO WORDS OF EVERY SECTOR					
3317	/SHOULD EQUAL THE ABSOLUTE DISK ADDRESS.					
3318	/					
3319	/					
3320	/					
3321	3377	3173	PAGE			
3322	3400	3400	TST42	TAD	K7708	/PASS COUNTER
3323	3401	3140	OCA	TCNTR5	/GENERATE RANDOM NUMBER	
3324	3402	4423	T40R,	RANVDO	/SAVE COUNTER	
3325	3403	3136	OCA	TCNTR1	/RANDOM SEEK DISK ADDRESS	
3326	3405	3136	RAL	TCNTR4	/SAVE	
3327	3407	7004	OCA	TCNTR4	/LINK IS EXTENDED BIT	
3328	3408	3137	TAD	CMREG	/SAVE	
3329	3409	1137	OCA	TCNTR3	/RANDOM SEEK/WRITE DISK ADDRESS	
3330	3411	1137	TAD	TCNTR3	/SAVE	
3331	3412	1141	OCA	TCNTR6	/LINK IS EXTENDED BIT	
3332	3413	4421	RANVDO			
3333	3414	3130	RAL	TCNTR1	/SAVE	
3334	3415	7004	OCA	TCNTR2	/RANDOM SEEK/WRITE DISK ADDRESS	
3335	3416	1335	OCA	TCNTR2	/SAVE	
3336	3417	1134	OCA	TCNTR3	/LINK IS EXTENDED BIT	
3337	3418	4424	SEBK	TAD	/SAVE	
3338	3419	3261	T40T	T40T	/TEXT POINTER	
3339	3421	3261	JMP	T40T	/TEXT POINTER	
3340	/ERROR SKIP OR STATUS					
3341	/					
3342	/					
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3382	/					

3331	3412	T484	DCA I	XMITR	/DISK ADDRESS WORD IN BUFFER
3334	3413	1134	TAD	TCNTR1	/LOWER DISK ADDRESS
3335	3414	T485	DCA I	XLOTRK	/DISK ADDRESS WORD IN BUFFER
3336	3415	4425	RECAL		/RESTORE DRIVE
3337	3416	T485	T487		/TEXT POINTER
3338	3417	5247	JMP		/ERROR SKIP OR STATUS
3339	3420	1135	TAD	TCNTR2	/EXTENFDN BIT
3340	3421	1135	TAD	K488G	/FUNCTION WRITE DATA
3341	3422	1135	DCA	CHREG	/SETUP COMMAND
3342	3423	1134	TAD	TCNTR1	/DISK ADDRESS
3343	3424	T486	T487		/TEXT POINTER
3344	3425	5247	JMP		/ERROR SKIP OR STATUS
3345	3426	5247	JMP		/RESTORE DRIVE
3346	3427	4425	RECAL		/TEXT POINTER
3347	3428	4425	JMP		/ERROR SKIP OR STATUS
3348	3431	4425	JMP		/TEXT POINTER
3349	3433	1135	TAD	TCNTR2	/EXT EXTENDED BIT
3350	3433	1134	DCA	CHREG	/SETUP READ DATA COMMAND
3351	3434	1134	TAD	TCNTR1	/DISK ADDRESS
3352	3435	4426	DISKGO		/TEXT POINTER
3353	3436	4426	T487		/TEXT POINTER
3354	3437	5247	JMP		/ERROR, SKIP OR STATUS
3355	3441	1133	JMP		/WORD BY WORD COMPARE OF DATA
3356	3442	1133	FIGURE		/DATA O.K.
3357	3442	T610	JMP		/DATA ERROR
3358	3443	5247	JMP		/PASS COUNTER
3359	3444	2140	JMP		/PASS COUNTER
3360	3445	5202	T488		/LOAD
3361	3446	4427	JMP		/D.O.K. TO NEXT TEST
3362	3447	4426	NEROR		/ERROR LOOP POINTER
3363	3452	3490	NEROR	TSY42	/SCDPE POINTER
3364	3451	5373	T487,	5373	/TEXT POINTER
3365					/
3366					/SINGLE DRIVE VIBRATION TEST
3367					/
3368					/TRY TO CAUSE CYLINDER ADDRESS ERRORS BY
3369					/ADDING A FEW RANDOM SEEMS THEN A READ DATA.
3370					/
3371	3452	1341	TSY43,	TAD	TCNTR1
3372	3453	3140	DCA	TCNTR5	/SETUP PASS COUNTER
3373	3454	4423	KILRUF		/CLEAR BUFFER
3374	3455	4423	RAVAD		/GET RANDOM NUMBR
3375	3456	0120	AND	K4037	
3376	3457	1122	TAD	K770R	/LOAD AND GO READ DATA
3377	3460	1137	DCA	TCNTR4	/TEXT POINTER
3378	3461	4423	RAVAD		/ERROR SKIP OR STATUS
3379	3462	3136	DCA	TCNTR3	/SETUP COUNTER FOR SEEMS
3380	3463	70R4	RAL		/GET RANDOM SEEK ADDRESS
3381	3464	3135	DCA	TCNTR2	/SAVE IT
3382	3465	1135	TAD	TCNTR2	/LINK IS EXTENDED BIT
3383	3466	3150	DCA	CHREG	/SAVE IT
3384	3467	1136	TAD	TCNTR3	/SETUP COMMAND
3385	3472	4424	SEK		/SEEK ONLY A RANDOM TRACK
3386	3471	3514	T487		/TEXT POINTER
3387	3472	5312	JMP		/ERROR, SKIP OR STATUS

3388	3473	2137	ISZ	TCNTR4	/COUNT NUMBER TO DO
3389	3474	5261	JMP	T4382	
3390	3475	1135	TAD	TCNTR2	/SETUP FOR READ DATA
3391	3476	3150	DCA	CHREG	/LOAD AND GO READ DATA
3392	3477	1136	TAD	TCNTR3	/TEXT POINTER
3393	3500	4426	DISKGO		/ERROR SKIP OR STATUS
3394	3501	3514	T487		/CHECK DATA READ
3395	3502	5312	JMP		/ALL O.K.
3396	3503	1113	JMP	K2535	/MORE TO TEST
3397	3504	4430	TAD		/P.K. TO NEXT TEST
3398	3505	T610	FIGURE		/ERROR, SKIP, STATUS, OR DATA
3399	3506	5312	JMP	TCNTR5	/SCDPE LOOP POINTER
3400	3510	5854	JMP		/TEXT POINTER
3401	3511	4437	NEROR	T4381	
3402	3512	4437	NEROR	TSY3	
3403	3513	3452	TSY3		
3404	3513	3452	T487,	0000	
3405	3514	0000	T487,	0000	
3406					/
3407					/CHECK DISK HEADER WORDS WITH READ DATA
3408					/IF STATUS ERROR OCCURES THEN CHECK DATA.
3409					/THE DATA ON THE COMPLETE DISK SHOULD BE 2525+5252.
3410					/HOWEVER, THE TWO FIRST WORDS OF EVERY SECTOR
3411					/SHOULD EQUAL THE ABSOLUTE DISK ADDRESS.
3412					/
3413	3515	4825	JMS I	XLOAD	
3414	3516	7775			
3415	3517	7443	TSY44,	CLA	CLL
3416	3521	3171	DCA	TCNTR1	/SETUP CRC ERROR POINTER
3417	3521	3171	DCA	TCNTR1	/SETUP LOWER ADDRESS
3418	3522	3135	DCA	TCNTR2	/SETUP EXTENDED
3419	3522	1072	TAD	DRIND	/CURRENT DRIVE
3420	3523	1156	TAD	HOWEMA	/CURRENT FIELD
3421	3524	1156	DCA	CHREG	/SETUP COMMAND
3422	3526	3530	T488,	TICK	
3423	3527	1067	TAD	AGNUP	/START OF BUFFER
3424	3530	4931	LDCLP		/LOAD CURRENT ADDRESS
3425	3531	1150	TAD	CHREG	/LAST COMMAND ISSUED
3426	3532	4050	LDCLD		/LOAD COMMAND
3427	3533	1134	TAD	TCNTR1	/LOWER ADDRESS
3428	3534	4426	LOADD		/LOAD AND GO
3429	3535	4427	OSKSKP		/LOAD AND GO
3430	3536	5335	JMP		/MANG SKIP TOT
3431	3537	4444	RSTSTAT		/MANG IF NO SKIP
3432	3541	1105	TAD	K4880	/READ STATUS
3433	3541	6448	JMP		/SHOULD ONLY BE DONE
3434	3542	5357	ISZ	TCNTR1	/JUST DONE FLAG ?
3435	3543	2134	ISZ	TCNTR1	/STATUS ERROR
3436	3544	5347	JMP		/UPDATE ADDRESS
3437	3545	2150	CHREG	+3	/DON'T SET EXTENDED TRACK
3438	3546	2155	ISZ	TCNTR2	/YES, SET IT
3439	3547	1135	TAD	TCNTR2	
3440	3550	6550	SVA	CLA	
3441	3551	5326	JMP	T488	
3442	3552	1134	TAD	TCNTR1	

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3443 13833 1170 TAD ENDTRK /ADD IN FUDGE FACTOR
3444 13834 1440 SZA CLA /DONE WITH DISK
3445 13835 5248 TADR /NO, MORE TO GO
3446 13836 5361 JMP T440K /ALL O.K.
3447 13837 1115 TAD K2525
3448 13838 4430 PICTURE /WORD BY WORD COMPARE OF DATA
3449 13839 5344 JMP **3 /ERROR, JUST STATUS
3450 13840 1165 TAO K3573 /TEXT POINTER
3451 13841 1166 SRA K3508 /STATUS ERROR POINTER
3452 13842 1166 DCA T447 /SETUP
3453 13843 5372 SRA CLA /O.K., TO NEXT TEST
3454 13844 7610 SRA K3508 /ERROR, READ DATA
3455 13845 4437 TADR /SCODE LOOP POINTER
3456 13846 4440 ERROR /TEXT POINTER
3457 13847 5317 TAO 18744
3458 13848 5372 T447,
3459 JMP I **1
3460 5373 5774 PAGE /NEXT TEST
3461 3574 3616 PAGE
3462 3617 3608 /ROUTINE TO COMPARE CREG1 AND CREG2 TO
3463 /CDBREG1 AND CDBREG2,
3464 /
3465 COMP2,
3466 0
3467 SRA CLL
3468 TAO GDBREG1
3469 AND K0817
3470 CTA
3471 TAN CREG1
3472 SZA CLA
3473 SRA CLL
3474 JMP CREG1
3475 SRA CLL
3476 TAN CREG2
3477 CTA
3478 TAO GDBREG2
3479 SZA CLL
3480 ISZ COMP2
3481 JMP I COMP2
3482 /ERROR, NOT THE SAME
3483 /
3484 /VERIFY THAT WRITING ON A TRACK DOES NOT AFFECT
3485 /AN ADJACENT TRACK. THE TEST SEQUENCE IS AS FOLLOWS:
3486 /WRITE TRACKS 0000-0100-0100-0100 THEN READ AND CHECK
3487 /TRACKS 0000-0000-0100-0100. WRITE TRACKS 00020-0010-00000
3488 /THEN READ AND CHECK TRACKS 0000-0000-0100-0100, ETC.
3489 /THE CENTER TRACK IS SET TO A DATA PATTERN OF
3490 /2525-2525. THE LOWER AND UPPER TRACKS ARE SET TO
3491 /SET TO A DATA PATTERN OF 0000-0000. THE FIRST TWO
3492 /WORDS OF EVERY SECTOR ARE SET TO THE ABSOLUTE
3493 /DISK ADDRESS.
3494 CLL CMA CMA RTL
3495 KCTR
3496 DCA I XLOTR
3497 JMP I XLOTR
3498 /ESTABLISH PROPER COUNT
3499 7750
3500
3501

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3498 13822 1012 T47A5, TAO /GET STARTING POINTER
3499 13823 1134 DCA K0020 /SAVE IT
3500 13824 1372 TAN K7156
3501 13825 1140 DCA TCMTR5 /COUNTER FOR TRACKS TO DO
3502 13826 7346 T4583C, CMA CMA RTL /THREE TRACK COUNTER POINTER
3503 13827 1137 DCA TCMTR4
3504 13828 1134 TAO TCMTR4 /WRITE CENTER TRACK FIRST
3505 13829 1134 DCA TCMTR5 /DATA PATTERN FOR CENTER TRACK
3506 13830 5244 JMP K2525 /SO WRITE CENTER TRACK
3507 13831 1137 JMP T45A1 /GET POINTER
3508 13832 1137 CMA RAR
3509 13833 7110 CLL RAR
3510 13834 7630 SZA CLA /WRITE UPPER OR LOWER????
3511 13835 1122 TAO K7740 /NO LOWER
3512 13836 1012 TAO K0020 /REDUCE OR UPDATE
3513 13837 1130 TAO TCMTR1 /SAVE TRACK TO DO
3514 13838 1136 DCA TCMTR1 /USE COMPLEMENT OF CENTER TRACK
3515 13839 1136 TAO TCMTR1 /FILL BUFFER WITH DATA
3516 13840 1110 TAO TCMTR1 /SET SECTOR COUNTER POINTER
3517 13841 1110 TAO K5252 /START WITH 0
3518 13842 1141 DCA TCMTR6 /SET SECTOR POINTER
3519 13843 1141 TAO TCMTR6 /SET SECTOR POINTER
3520 13844 1141 TAO TCMTR6 /MASK SECTORS
3521 13845 1110 AND /SETUP ADDRESS WORD IN BUFFER
3522 13846 1110 TAO I XLOTR9 /PUT EXTENDED BIT IN LINK
3523 13847 1141 T4582, AND
3524 13848 0110 DCA I XLOTR9
3525 13849 1140 TAO I XLOTR9 /ADD IN SECTORS
3526 13850 7630 SZA CMA CMA RTL /SETUP ADDRESS WORD IN BUFFER
3527 13851 7630 SZA CMA CMA CMA /SET EXTENDED BIT????
3528 13852 1072 TAO K7156 /YES!!!
3529 13853 1464 DCA I XLOTR /ADD IN CURRENT DRIVE
3530 13854 1464 TAO I XLOTR /SETUP ADDRESS WORD IN BUFFER
3531 13855 1105 TAO I XLOTR /GET EXTENDED BIT
3532 13856 1105 DCA K4000 /FUNCTION WRITE DATA
3533 13857 1463 TAO CDBREG /SETUP COMMAND REGISTER POINTER
3534 13858 1463 TAO I XLOTR /GET CYL., SURFACE, AND SECTOR
3535 13859 4426 DIOKGO /WRITE ALL
3536 13860 4426 JMP T457 /TEXT POINTER
3537 13861 5365 TAO T45E /ERROR, WRITE SKIP OR STATUS
3538 13862 1141 TAO TCMTR6 /UPDATE SECTOR POINTER
3539 13863 1141 TAO K0003 /UPDATE SECTOR COUNTER
3540 13864 1464 DCA TCMTR6 /DO REST OF TRACK
3541 13865 1141 TAO TCMTR2 /UPDATE TRACK COUNTER
3542 13866 1135 TAO T45R2 /DO OTHERS
3543 13867 5250 JMP T45N1
3544 13868 2137 TCMTR4
3545 13869 2137 JMP
3546 13870 5254
3547 13871 7348 CMA CMA
3548 13872 7348 CREG1 /SETUP FIRST TIME POINTER
3549 13873 7348 DCA CMA RTL /TRACK COUNTER POINTER
3550 13874 7348 DCA TCMTR4
3551 13875 1134 TAO TCMTR1 /SETUP FOR READ CENTER FIRST
3552 13876 1134 DCA TCMTR5

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15-APR-76          13124          PAGE 1-68
PAL10  V1424          15-APR-76          13124          PAGE 1-68
3551          3710          5320          JMP          T45A2
3552          3711          1117          T45A2
3553          3712          7110          T45A3, T4D
3554          3713          7630          CLL RAR
3555          3714          1012          SZL CLA
3556          3715          1012          T4D
3557          3716          1134          T4D
3558          3717          5136          T4D
3559          3720          5135          T4D
3560          3721          5135          T4D
3561          3722          5141          DCA
3562          3723          1136          T45A2, T4D
3563          3724          7124          T45A4, T4D
3564          3725          5110          CLL RAL
3565          3726          5145          AND
3566          3727          7630          DCA
3567          3728          7630          DCA
3568          3729          7630          SZL CLA
3569          3730          7630          SZL CLA
3570          3731          5152          T4D
3571          3732          5141          T4D
3572          3733          5117          T4D
3573          3734          1145          AND
3574          3735          4226          T4D
3575          3736          3767          DISKGO
3576          3737          5365          T45T
3577          3738          1144          JMP
3578          3739          7658          T45E
3579          3740          1113          T4D
3580          3741          1113          SNA CLA
3581          3742          4430          T4D
3582          3743          7610          T4D
3583          3744          5365          FIGURE
3584          3747          1141          SHP CLA
3585          3750          1277          JMP
3586          3751          5141          T4D
3587          3752          2135          T4D
3588          3753          5123          DCA
3589          3754          5144          DCA
3590          3755          2137          JMP
3591          3756          5111          DCA
3592          3757          1114          T4D
3593          3758          1471          T4D
3594          3759          2104          DCA
3595          3760          5226          T45T
3596          3761          4837          T45E
3597          3762          5126          T45E
3598          3763          4444          T45E
3599          3764          3632          T45E
3600          3765          3632          T45E
3601          3766          2227          T45T,
3602          3767          2227          0000
3603          3770          5771          JMP I
3604          3771          4262          ENOBT
3605          3772          7156          *+1
3606          3606          4000          /
3607          3607          4000          PAGE
3608          3607          4000          PAGE

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PAL10  V1424          15-APR-76          13124          PAGE 1-69

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3609          4022          4405          RESEK,
3610          4023          4431          CLASSIC
3611          4024          4431          CASMIT
3612          4025          7070          NOP
3613          4026          4404          LAS
3614          4027          5135          DCA
3615          4028          1135          T4D
3616          4029          1135          T4D
3617          4030          0101          AND
3618          4031          1104          T4D
3619          4032          4452          LDCM
3620          4033          1135          T4D
3621          4034          0110          AND
3622          4035          4452          LDCM
3623          4036          4447          DCA
3624          4037          5236          DSKSKP
3625          4038          4447          DSKSKP
3626          4039          4447          DSKSKP
3627          4040          4447          DSKSKP
3628          4041          4447          DSKSKP
3629          4042          7640          T4D
3630          4043          5240          JMP
3631          4044          1134          *+1
3632          4045          0191          T4D
3633          4046          1194          T4D
3634          4047          4450          AND
3635          4048          1194          T4D
3636          4049          4450          AND
3637          4050          1134          T4D
3638          4051          4450          AND
3639          4052          1134          T4D
3640          4053          4450          AND
3641          4054          1134          T4D
3642          4055          4450          AND
3643          4056          1134          T4D
3644          4057          4450          AND
3645          4058          1134          T4D
3646          4059          4450          AND
3647          4060          1134          T4D
3648          4061          4450          AND
3649          4062          1134          T4D
3650          4063          4450          AND
3651          4064          1134          T4D
3652          4065          4450          AND
3653          4066          1134          T4D
3654          4067          4450          AND
3655          4068          1134          T4D
3656          4069          4450          AND
3657          4070          1134          T4D
3658          4071          4450          AND
3659          4072          1134          T4D
3660          4073          4450          AND
3661          4074          1134          T4D
3662          4075          1134          T4D

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3063 4051 0110 AND K7760 /MASK OFF CYLINDER AND SURFACE
3064 4052 4452 LDDDD /LOAD AND GO SEEK
3065 4053 4447 DRRXKP /WAIT FOR DONE
3066 4054 5251 JMP *-1 /CLEAR STATUS
3067 4055 4453 CLRALL /READ STATUS
3068 4056 4440 RDSTLT /DRIVE DONE?
3069 4057 7640 S2Z CLA /NO, WAIT
3070 4058 5255 JMP /CHECK FOR NEW ADDRESS
3071 4061 5225 JMP RESEK*3
3072 3073 /
3073 3074 /TFM- RUN OVERLAP SEEMS AND OVERLAP SEEMS, WRITES,
3074 3075 /AND SENDS ON FTL DRIVERS SELECTOR. ALSO CHECK FOR MALT AT PASS
3075 3076 /COMPLETE ON AFTER OVERLAP TESTS START AT FIRST
3076 3077 /DISK DRIVE ON SYSTEM.
3077 3078 /
3078 3079 /
3079 3080 /
3080 4062 4777 FNDRST, JMS T (GETDRV /GET NEXT DRIVE.
3081 4063 2271 ISZ DRCNT /UPDATE NO. OF DRIVES COUNTER.
3082 4064 5321 JMP NEXDOK /FRESH NEXT DRIVE.
3083 4065 1273 TAO DRYHAY /
3084 4066 3071 TAO DRYCNT /
3085 4067 4743 TSTSEK, JMS I XLP /SETUP NO. OF DRIVES COUNTER.
3086 4068 4744 JMS I XDRRD /PERFORM OVERLAP SEKS
3087 4069 4745 DCA DCNT2 /OVERLAP SEKS*WRITES*READS
3088 4070 4746 DCA DCNT2 /START OVER AT 0.
3089 4071 4747 JMS T (GETDRV /SELECT FIRST DRIVE.
3090 4072 4776 RANDOK, CLASSIC /CHECK FOR CLASSIC ACTIVE
3091 4073 7610 XSR CLA /PASS COMPLETE
3092 4074 4424 JMP CLA *-4 /
3093 4075 5302 AND K20RR /SFE IF ON APT
3094 4077 1022 TAO 22 /APRT?
3095 4101 0105 AND *-5 /NO
3096 4102 5307 SNA CLA /CLEAR APT TIMING COUNTER
3097 4103 5775 NCA I (CLKCNT /
3098 4104 7340 CLL CLA CNA /
3099 4105 5175 DCA KCNT /LOOP PROGRAM
3100 4106 5125 JMP NEXDOK /PRINT PASS COMPLETE
3101 4107 4482 CRLF /
3102 4108 4487 PRNTR /
3103 4111 0760 NRESI /
3104 4112 4457 PRNTR /
3105 4113 7315 TFXEND /
3106 4114 4454 LAS /
3107 4115 0076 AND K2004 /SWITCH 0 SFT?
3108 4116 7652 JMP *-4 /
3109 4120 4485 CLASSIC /YES, STOP PROGRAM
3110 4121 4437 CAINBU /DCLR
3111 4122 7402 ENDHLT, MLT /
3112 4123 7361 NFXDOK, CLA CLL IAC /
3113 4124 4453 DCA /
3114 4125 3131 REGO /
3115 4126 3132 DCA REG1 /
3116 4127 5730 JMP I *-1 /LOOP ON PROGRAM
3117 4130 0200 ST0 /

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3718 4131 0000 /SUBROUTINE TO ISSUE "DMAN" MAINTENANCE IOT
3719 4132 6747 LDNN, 0 /
3720 4133 5731 IOT77, JMP I LDNN /"DMAN" MAINTENANCE IOT
3721 4134 4005 CLASSIC /EXIT
3722 4135 4036 CERRR /
3723 4136 7402 FRML77, MLT /SKIP TRAP ERROR
3724 4137 5334 JMP *-3 /
3725 3726 /
3726 3727 /
3727 3728 /SUBROUTINE TO SHIFT, THEN READ DISK ADDRESS
3728 3729 /INTO DATA BUFFER, 12 SHIFTS
3729 3730 /
3730 3731 /
3731 3732 /
3732 3733 /ROAD, 0 /
3733 3734 CLA CLL /
3734 3735 TAD M12 /
3735 3736 DCA SRCNT1 /
3736 3737 CLA CLL CML PAR /SET MAIN(1) ENABLE BIT
3737 3738 LDMM /LOAD MAINTENANCE
3738 3739 RAR /
3739 3740 LDMM /LOAD MAINTENANCE
3740 3741 CLA CLL K200 /LOAD MAINTENANCE
3741 3742 TAD K200 /SHIFT TRACK ADDRESS BIT
3742 3743 LDMM /LOAD MAINTENANCE IOT
3743 3744 JMP SRCNT1 /SHIFT 12 BITS
3744 3745 LDMM *-2 /
3745 3746 CLA CLL K0020 /
3746 3747 TAD K0020 /
3747 3748 LDMM /READ DATA BUFFER
3748 3749 DCA DAREG /SAVE RESULTS
3749 3750 TAD DAREG /
3750 3751 JMP I RND /EXIT
3751 3752 /KLP, OVERLAP
3752 3753 /KWRD, OVERED /
3753 3754 /MRES3, TEXT "DISK" /
3754 4165 0411 /
3755 4166 2313 /
3756 4167 0000 /
3757 4175 7162 /PAGE
3758 4176 4371 /
3759 4177 4343 /
3760 4200 0000 /ROUTINE TO NO OVERLAP SEKS ON EXISTING DRIVES
3761 4201 1105 /AFTER ALL HAVE RUN THE COMPLETE DIAGNOSTIC
3762 4202 3140 /
3763 4203 1070 /
3764 4204 3137 /OVERLAP, 0 /
3765 4205 K200 /PASS COUNTER
3766 4206 TAD /SET COUNTER FOR NO. OF DRIVES.
3767 4207 DCA TCMR5 /
3768 4208 TAD /
3769 4209 DCA TCMR4 /

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3712 4205 3371 DCA DCNT2 /START WITH DRIVE 0
3711 4206 4777 OVRB2, JMS I (GETRV /GET NEXT DRIVE.
3710 4207 1072 TAD DRIVNO /GET DRIVE NO.
3709 4210 1110 CLL BAR /SELECT A RANDOM ADDRESS
3708 4211 4423 RAAKD /CLEAR STATUS
3707 4212 4406 NSAD017 /UPDATE DISK COUNTER
3706 4213 4453 CLCALL /CLR ALL EXISTING DISKS
3705 4214 2137 TSZ /AND. OF DRIVES.
3704 4215 5206 JMS DCNT2 /SETUP COUNTER.
3703 4216 3371 DCA DCNT2 /CLEAR FOR 0
3702 4217 1072 TAD DRVHAV /SETUP COUNTER.
3701 4220 3137 OVRB3, JMS I (GETRV /GET NEXT DRIVES.
3700 4221 4777 OVRB3, JMS I (GETRV /GET SELECTED DRIVE.
3705 4222 1072 TAD DRIVNO /CHECK FOR DRIVE DONE
3706 4223 7110 CLL RAN /DRIVE NOT DONE
3707 4224 4407 JMS OVRK /DRIVE DONE AND NO ERRORS
3708 4225 5230 JMS OVRK /DRIVE ERRORS AND NO ERRORS
3709 4226 5233 JMS OVRB2 /UPDATE NO. OF DRIVE COUNTER.
3710 4227 5254 HNTD0V, TSZ /NO. OF DRIVES.
3711 4230 2137 JMS OVRB2 /NO. OF DRIVES.
3712 4231 5221 JMS OVRB3 /NO. OF DRIVES.
3713 4232 5217 JMS OVRB3 /NO. OF DRIVES.
3714 4233 7300 OVRBK, JMS I OVRB2-2 /NO. OF DRIVES.
3715 4234 3137 DCA CLL CHA /NO. OF DRIVES.
3716 4235 3137 DCA TSZ /NO. OF DRIVES.
3717 4236 2142 JMS DCNT2 /NO. OF DRIVES.
3718 4237 5227 JMS DCNT2 /NO. OF DRIVES.
3719 4238 1371 DCA DCNT2 /NO. OF DRIVES.
3720 4239 1373 TAD DRVHAV /NO. OF DRIVES.
3721 4240 1072 DCA DCNT2 /NO. OF DRIVES.
3722 4241 3137 OVRBK, JMS I (GETRV /NO. OF DRIVES.
3723 4242 4777 ALLBK, JMS I (GETRV /NO. OF DRIVES.
3724 4243 1072 TAD DRIVNO /NO. OF DRIVES.
3725 4244 7110 CLL RAN /NO. OF DRIVES.
3726 4245 4407 JMS DSKIN /NO. OF DRIVES.
3727 4246 5242 JMS ALLBK /NO. OF DRIVES.
3728 4247 5242 JMS ALLBK /NO. OF DRIVES.
3729 4248 7616 JMS OVRB2 /NO. OF DRIVES.
3730 4249 5284 JMS OVRB2 /NO. OF DRIVES.
3731 4250 5284 JMS OVRB2 /NO. OF DRIVES.
3732 4251 2137 TSZ /NO. OF DRIVES.
3733 4252 5202 JMS ALLBK /NO. OF DRIVES.
3734 4253 4407 JMS OVRB2 /NO. OF DRIVES.
3735 4254 4400 JMS OVRB2 /NO. OF DRIVES.
3736 4255 4291 JMS OVRB2 /NO. OF DRIVES.
3737 4256 5200 JMS OVRB2 /NO. OF DRIVES.
3738 4257 5600 JMS I OVRB2 /NO. OF DRIVES.
3739 4258 5600 JMS I OVRB2 /NO. OF DRIVES.
3740 4259 5600 JMS I OVRB2 /NO. OF DRIVES.
3741 4260 5600 JMS I OVRB2 /NO. OF DRIVES.
3742 4261 5600 JMS I OVRB2 /NO. OF DRIVES.
3743 4262 5600 JMS I OVRB2 /NO. OF DRIVES.
3744 4263 5600 JMS I OVRB2 /NO. OF DRIVES.
3745 4264 5600 JMS I OVRB2 /NO. OF DRIVES.
3746 4265 5600 JMS I OVRB2 /NO. OF DRIVES.
3747 4266 5600 JMS I OVRB2 /NO. OF DRIVES.
3748 4267 5600 JMS I OVRB2 /NO. OF DRIVES.
3749 4268 5600 JMS I OVRB2 /NO. OF DRIVES.
3750 4269 5600 JMS I OVRB2 /NO. OF DRIVES.
3751 4270 5600 JMS I OVRB2 /NO. OF DRIVES.

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3025 4271 1776* TAD NO /NO. OF POSSIBLE DRIVES.
3026 4272 3371 DCA DCNT2 /NO. OF POSSIBLE DRIVES.
3027 4273 4462 OVRB2, JMS I (GETRV /NO. OF POSSIBLE DRIVES.
3028 4274 4462 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3029 4275 4165 OVRB2, JMS I (GETRV /NO. OF POSSIBLE DRIVES.
3030 4276 1370 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3031 4277 1370 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3032 4278 1372 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3033 4279 1376 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3034 4280 1360 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3035 4281 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3036 4282 1366 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3037 4283 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
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3053 4299 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
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3064 4310 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3065 4311 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
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3075 4321 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
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3077 4323 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
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3079 4325 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3080 4326 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
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3085 4331 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3086 4332 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
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3094 4340 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3095 4341 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3096 4342 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3097 4343 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3098 4344 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3099 4345 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3100 4346 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3101 4347 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3102 4348 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3103 4349 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.
3104 4350 4034 TAD DRIVNO /NO. OF POSSIBLE DRIVES.

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3080 DCA          DRVNO          /SETUP DRIVE NO.
3081 ISZ          DCNT2          /UPDATE TO NEXT DRIVE.
3082 NOP          /GET BUFFER FLAG.
3083 TAD I        DCNT1          /DISK ON SYSTEM?
3084 GETOVL      JMP CLA        /YES, USE DRVNO.
3085 GETOVL+1    JMP GETOVL+1   /SELECT NEXT.
3086
3087 K260, R260
3088 K231, 2311
3089 K277, 2777
3090 K0177, 0177
3091 K0177, 0177
3092 DCNT1, 0
3093 DCNT2, 0
3094 DCNT3, 0
3095 DCNT4, 0
3096 RSKON, DISK#
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PAGE
/ROUTINE TO PERFORM RANDOM OVERLAP SEFS, WRITES AND,
/REAS ON ALL EXISTING DRIVES AFTER THEY HAVE RUN THE
/COMPLETE DIAGNOSTIC.

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/YES, RESET
/COMPUTER WAY TO BUFFER.
/GET DISK ADDRESS
/SAVE IT
/GET POINTER
/ADD IN FUDGE FACTOR
/MAKE ADDRESS
/GET DATA PATTERN TO USE
/GET EXTENDED BIT
/SET IN DRIVE NUMBER
/SET ADDRESS WORD IN BUFFER
/SET C.L.L. SURFACE, AND SECTOR
/SET ADDRESS WORD IN BUFFER
/GET EXTENDED BIT
/AND IN WRITE FUNCTION
/SETUP COMMAND POINTER
/GET ADDRESS
/OISX WRITE DATA
/TEXT POINTER
/ERROR
/WORD BY WORD COMPARE DATA
/DATA O.K., CONTINUE
/GET DRIVE NO., SELECTED
/GENERATE RANDOM ADDRESS
/SEND DRIVE BACK OUT
/UPDATE PASS COUNTER, DONE ?
/CHECK FOR NEXT DRIVE
/SET FOR 0
/GET NO. OF DRIVES ON SYSTEM.
/SELECT DRIVE
/GET DRIVE SELECTED.
/CHECK THIS DRIVE
/WAIT FOR DRIVE
/CHECK FOR NEXT
/ERROR
/LEAST DRIVE HOME YET
/WAIT FOR ALL
/NO. TO NEXT
/OVERLAP SEFS=READ DATA

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/ 15-APR-76 13124
3909 4523 4401 OVRRED*1 /SCOPE LOOP POINTER
3990 4524 5300 TOVRDT, JMP I OVRRED /LEFT POINTER
3991 4525 5600 /RIGHT POINTER
3992 4526 0000 /NO
3994 4527 6366 DSKPOT, DSK0A /NO NEXT TEST
3995
3996 /ROUTINE TO CHECK DRIVE IN AC
3997
3998 4530 0000 /NO
3999 4531 7100 /FIRST SELECT DRIVE
4000 4532 6450 /ENABLE SET DONE BIT
4001 4533 1100 TAO CREG /LOAD COMMAND
4002 4534 1015 TAO K020R /MAYBE EXPECTED STATUS
4003 4535 9950 L0CMD /SETUP COMPARE REGISTER
4004 4536 7332 CLA CLL CML RTR /READ STATUS
4005 4537 5103 DCA CLL GREG2 /CHECK FOR SKIP
4006 4538 4400 /CHECK FOR NOT DONE
4007 4539 4400 /EXPECTED STATUS
4008 4540 9335 /SETUP COMPARE REGISTER
4009 4541 9407 /READ STATUS
4010 4542 9335 NOIN /ADD IN FUDGE FACTOR
4011 4543 4400 /O.K.????
4012 4544 1105 SZA CLA /ERROR!!!!
4013 4547 7600 ISZ DIN /EXIT
4014 4550 2350 ISZ DIN
4015 4551 2350 ISZ DIN
4016 4552 7332 JMP I DIN /SKIP IF NO ERROR
4017 4553 1106 NOIN, TAO K0000 /ERROR EXIT
4018 4554 7600 TAO CLA
4019 4555 5350 JMP I DIN /EXIT
4020 4556 5730
4021
4022 /ROUTINE TO COMPARE AC TO RREG2
4023
4024 4557 0000 COMPI, R
4025 4560 3155 DCA ACREG
4026 4561 1155 TAO ACREG /SAVE AC
4027 4562 7001 CIA /SKIP IF O.K.
4028 4563 1103 TAO GORER2 /ERROR, DON'T COMPARE
4029 4564 7600 SZA CLA
4030 4565 2357 ISZ COMPI
4031 4566 5757 JMP I COMPI
4032
4033 /
4034 4576 4305 /
4035 4577 4371 /
4036 4578 0600 PAGE
4037 4037 /MANUAL FUNCTION TEST
4038 4038 /LOAD ADDRESS 0201 OR "MANUAL".
4039 4039 /SET SWITCHES TO FUNCTION
4040 4040 /PRESS START
4041 4041 /MACHINE SHOULD HALT
4042 4042 /SET SWITCHES TO DISK ADDRESS

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/ PAL10 V1424 15-APR-76 13124 PAGE 1-77
4043 4043 /PRESS START
4044 4044 /MACHINE SHOULD HALT
4045 4045 /SET SWITCHES TO COMPLEMENT DATA PATTRN
4046 4046 /PRESS START
4047 4047 /MACHINE SHOULD HALT
4048 4048 /SET SWITCHES TO 0000
4049 4049 /PRESS START
4050 4050 /INCREASE OR FAILURES USE NORMAL SCORE SWITCHES
4051 4051 /IF LOOP IS DESIRED USE NORMAL SCORE SWITCHES
4052 4052 /
4053 4053 /MANUAL, CLASSIC
4054 4054 4600 4405 /CHECK FOR CLASSIC.
4055 4055 4601 4431 /ROUTINE TO EXECUTE.
4056 4056 4602 7000 NOP /ROUTINE TO EXECUTE.
4057 4057 4603 4400 LAS /SAVE FUNCTION
4058 4058 4604 0306 AND K7707 /SETUP FOR ONE PASS
4059 4059 4605 3130 DCA CLA CLL CHA /USE CURRENT FIELD
4060 4606 7300 REG0 /ACTUAL FUNCTION
4061 4610 6220 RIF /MASK DISK DRIVE
4062 4611 1130 TAO TCNTR1 /ACTUAL DRIVE
4063 4612 3130 DCA TCNTR1 /CHECK FOR CLASSIC.
4064 4613 1130 TAO TCNTR1 /ROUTINE TO EXECUTE.
4065 4614 0100 AND K0006 /WAIT FOR DISK ADDR. IN SWITCHES.
4066 4615 3072 DCA DRIVNO /IF ON CLASSIC CONSOLE PACKAGE
4067 4616 4405 DCA /HIT CONTROL E. IF NOT THEN
4068 4617 4436 CLASSIC /PRESS KEY CONTINUE.
4069 4618 7002 CAERN /CHECK FOR CLASSIC.
4070 4619 /ROUTINE TO EXECUTE.
4071 4621
4072 4621 4405 /SAVE DISK ADDRESS
4073 4622 4431 /CHECK FOR CLASSIC.
4074 4623 7000 CAERMIT /ROUTINE TO EXECUTE.
4075 4624 4400 LAS /WAIT FOR COMPLEMENT DATA.
4076 4625 3135 DCA TCNTR2 /IF ON CLASSIC CONSOLE PACKAGE
4077 4626 4405 DCA /HIT CONTROL E. IF NOT THEN
4078 4627 4436 CLASSIC /PRESS KEY CONTINUE.
4079 4628 7002 CAERN /CHECK FOR CLASSIC.
4080 4629 /ROUTINE TO EXECUTE.
4081 4631
4082 4631 4405 /SAVE IT
4083 4632 4431 /CHECK FOR CLASSIC.
4084 4633 7000 NOP /ROUTINE TO EXECUTE.
4085 4634 4400 DCA TCNTR3 /WAIT FOR OPERATOR TO CONTINUE
4086 4635 3136 /IF ON CLASSIC CONSOLE PACKAGE
4087 4636 4405 DCA /HIT CONTROL E. IF NOT THEN
4088 4637 4436 CLASSIC /PRESS KEY CONTINUE.
4089 4638 7002 CAERN /CHECK FOR CLASSIC.
4090 4639 /ROUTINE TO EXECUTE.
4091 4641
4092 4641 1136 /FILL BUFFER WITH DATA
4093 4642 4431 TRANS,
4094 4643 7300 CLA CLL
4095

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/
PAL10  V142A  15-APR-76  13124  PAGE 1-7A
4098  0666  1134  TAD  TCONTR1  /SET FUNCTION
4099  0665  0107  AND  K7000  /MASK
4100  0664  1106  TAD  K6000
4101  0667  7630  S2L CLA  CMA  /HAS IT A READ
4102  0650  7300  CLA  CLL  CMA  /NO, SET A FLAG
4103  0651  3137  DCA  TCONTR4  /READ FLAG
4104  0652  1130  TAD  TCONTR1  /GET FUNCTION
4105  0653  0107  AND  K2000  /MASK
4106  0654  1115  TAD  K5000
4107  0655  7400  S2A CLA  /HAS IT A SFEK
4108  0656  6360  JMP  N15EX  /NO, A SFEK
4109  0657  1130  TAD  TCONTR1  /YES
4110  0658  3130  DCA  CARRG  /SETUP COMMAND
4111  0661  1135  TAD  TCONTR2  /DISK ADDRESS
4112  0662  4224  SFEK  /SFEK ONLY
4113  0663  4224  TCONTR2  /TEXT POINTER
4114  0664  5321  JMP  TCONTR1  /ERROR, SKIP OR STATUS
4115  0665  5321  JMP  TCONTR1  /TO HANDLER
4116  0666  1134  AND  N15EX,  /GET FUNCTION
4117  0667  1121  AND  I  /MASK
4118  0670  7400  TAD  KATRK  /SETUP ADDRESS WORD IN BUFFER
4119  0671  1134  TAD  TCONTR1  /FUNCTION
4120  0672  3136  DCA  CARRG  /DISK COMMAND
4121  0673  1135  TAD  TCONTR2  /DISK ADDRESS
4122  0674  3463  DCA  I  /SETUP ADDRESS WORD IN BUFFER
4123  0675  1137  TAD  TCONTR4  /SETUP FLAG
4124  0676  7650  SVA CLA  /HAS IT A READ
4125  0677  4932  TAD  KILBUP  /YES, CLEAR BUFFER
4126  0678  1135  AND  N15EX  /GET DISK ADDRESS
4127  0679  4226  DISK  GOT  /TEXT POINTER
4128  0680  4724  TAD  TCONTR2  /TEXT POINTER
4129  0681  4522  JMP  TCONTR4  /ERROR
4130  0682  1137  TAD  TCONTR4  /GET BEAN FLAG
4131  0683  7600  S2A CLA  /HAS IT A READ
4132  0684  5351  JMP  TCONTR4  /HAS IT A WRITE, TO HANDLER
4133  0685  1150  TAD  CARRG  /GET LAST COMMAND
4134  0686  0010  AND  K0100  /MASK OUT HALF BIT
4135  0687  0010  AND  K0100  /HAS IT HALF BLOCK TRANSFERS
4136  0688  5317  JMP  TCONTR3  /NO, COMPARE WHOLE BLOCK
4137  0689  5317  JMP  TCONTR3  /GET GOOD WORD POINTER
4138  0690  4227  HAFCHK  /CHECK FOR HALF BLOCK
4139  0691  5351  JMP  TCONTR3  /D.K. NO ERRORS
4140  0692  5352  JMP  TCONTR3  /DATA ERROR
4141  0693  1136  TAD  TCONTR3  /HAS A READ
4142  0694  4227  AND  N15EX  /WORD BY WORD COMPARE OF DATA
4143  0695  4237  TAD  TCONTR2  /NO ERRORS
4144  0696  4222  TAD  TCONTR2  /ERROR IN FUNCTION SELECTED
4145  0697  4643  TAD  TCONTR2  /SCOPE LOOP POINTER
4146  0698  5373  TAD  TCONTR2  /TEXT POINTER
4147  0699  5373  JMP  TCONTR2  /LOOP
4148  0700  5243  JMP  TCONTR2
4149  0701  7707  JMP  TCONTR2
4150  0702  7707  JMP  TCONTR2
4151  0703  7707  JMP  TCONTR2
4152  0704  7707  JMP  TCONTR2

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/
PAL10  V142A  15-APR-76  13124  PAGE 1-7B
4153  0705  0000  /IF INTERRUPT OCCURS GO BACK+1
4154  0706  0000  /IF INTERRUPT OCCURS GO BACK+1
4155  0707  0000  /IF INTERRUPT OCCURS GO BACK+1
4156  0708  0000  /IF INTERRUPT OCCURS GO BACK+1
4157  0709  0000  /IF INTERRUPT OCCURS GO BACK+1
4158  0710  0000  /IF INTERRUPT OCCURS GO BACK+1
4159  0711  0000  /IF INTERRUPT OCCURS GO BACK+1
4160  0712  0000  /IF INTERRUPT OCCURS GO BACK+1
4161  0713  0000  /IF INTERRUPT OCCURS GO BACK+1
4162  0714  0000  /IF INTERRUPT OCCURS GO BACK+1
4163  0715  0000  /IF INTERRUPT OCCURS GO BACK+1
4164  0716  0000  /IF INTERRUPT OCCURS GO BACK+1
4165  0717  0000  /IF INTERRUPT OCCURS GO BACK+1
4166  0718  0000  /IF INTERRUPT OCCURS GO BACK+1
4167  0719  0000  /IF INTERRUPT OCCURS GO BACK+1
4168  0720  0000  /IF INTERRUPT OCCURS GO BACK+1
4169  0721  0000  /IF INTERRUPT OCCURS GO BACK+1
4170  0722  0000  /IF INTERRUPT OCCURS GO BACK+1
4171  0723  0000  /IF INTERRUPT OCCURS GO BACK+1
4172  0724  0000  /IF INTERRUPT OCCURS GO BACK+1
4173  0725  0000  /IF INTERRUPT OCCURS GO BACK+1
4174  0726  0000  /IF INTERRUPT OCCURS GO BACK+1
4175  0727  0000  /IF INTERRUPT OCCURS GO BACK+1
4176  0728  0000  /IF INTERRUPT OCCURS GO BACK+1
4177  0729  0000  /IF INTERRUPT OCCURS GO BACK+1
4178  0730  0000  /IF INTERRUPT OCCURS GO BACK+1
4179  0731  0000  /IF INTERRUPT OCCURS GO BACK+1
4180  0732  0000  /IF INTERRUPT OCCURS GO BACK+1
4181  0733  0000  /IF INTERRUPT OCCURS GO BACK+1
4182  0734  0000  /IF INTERRUPT OCCURS GO BACK+1
4183  0735  0000  /IF INTERRUPT OCCURS GO BACK+1
4184  0736  0000  /IF INTERRUPT OCCURS GO BACK+1
4185  0737  0000  /IF INTERRUPT OCCURS GO BACK+1
4186  0738  0000  /IF INTERRUPT OCCURS GO BACK+1
4187  0739  0000  /IF INTERRUPT OCCURS GO BACK+1
4188  0740  0000  /IF INTERRUPT OCCURS GO BACK+1
4189  0741  0000  /IF INTERRUPT OCCURS GO BACK+1
4190  0742  0000  /IF INTERRUPT OCCURS GO BACK+1
4191  0743  0000  /IF INTERRUPT OCCURS GO BACK+1
4192  0744  0000  /IF INTERRUPT OCCURS GO BACK+1
4193  0745  0000  /IF INTERRUPT OCCURS GO BACK+1
4194  0746  0000  /IF INTERRUPT OCCURS GO BACK+1
4195  0747  0000  /IF INTERRUPT OCCURS GO BACK+1
4196  0748  0000  /IF INTERRUPT OCCURS GO BACK+1
4197  0749  0000  /IF INTERRUPT OCCURS GO BACK+1
4198  0750  0000  /IF INTERRUPT OCCURS GO BACK+1
4199  0751  0000  /IF INTERRUPT OCCURS GO BACK+1
4200  0752  0000  /IF INTERRUPT OCCURS GO BACK+1
4201  0753  0000  /IF INTERRUPT OCCURS GO BACK+1
4202  0754  0000  /IF INTERRUPT OCCURS GO BACK+1
4203  0755  0000  /IF INTERRUPT OCCURS GO BACK+1
4204  0756  0000  /IF INTERRUPT OCCURS GO BACK+1
4205  0757  0000  /IF INTERRUPT OCCURS GO BACK+1
4206  0758  0000  /IF INTERRUPT OCCURS GO BACK+1
4207  0759  0000  /IF INTERRUPT OCCURS GO BACK+1

```

```

/SET FUNCTION
/MASK
/HAS IT A READ
/NO, SET A FLAG
/READ FLAG
/GET FUNCTION
/MASK
/HAS IT A SFEK
/NO, A SFEK
/YES
/SETUP COMMAND
/DISK ADDRESS
/SFEK ONLY
/TEXT POINTER
/ERROR, SKIP OR STATUS
/TO HANDLER
/GET FUNCTION
/MASK
/SETUP ADDRESS WORD IN BUFFER
/FUNCTION
/DISK COMMAND
/DISK ADDRESS
/SETUP ADDRESS WORD IN BUFFER
/HAS IT A READ
/YES, CLEAR BUFFER
/GET DISK ADDRESS
/TEXT POINTER
/ERROR
/GET BEAN FLAG
/HAS IT A WRITE, TO HANDLER
/GET LAST COMMAND
/MASK OUT HALF BIT
/HAS IT HALF BLOCK TRANSFERS
/NO, COMPARE WHOLE BLOCK
/GET GOOD WORD POINTER
/CHECK FOR HALF BLOCK
/D.K. NO ERRORS
/DATA ERROR
/HAS A READ
/WORD BY WORD COMPARE OF DATA
/NO ERRORS
/ERROR IN FUNCTION SELECTED
/SCOPE LOOP POINTER
/TEXT POINTER
/LOOP

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```

4208 5201 0431 CASWT
4209 5202 7200 NOP
4210 5203 4424 LAS
4211 5204 7124 AND BAL
4212 5205 6100 AND BAL
4213 5206 3702 DCA
4214 5207 7346 DCA
4215 5010 3132 DCA CLL
4216 5011 3131 DCA
4217 5012 4113 DCA
4218 5013 4131 DCA
4219 5014 1272 DCA
4220 5015 3464 DCA I
4221 5016 3463 DCA I
4222 5017 1115 DCA I
4223 5022 4150 DCA
4224 5021 4426 DCA
4225 5022 5072 DCA
4226 5023 5206 DCA
4227 5024 1193 DCA
4228 5025 1422 DCA
4229 5026 4450 DCA
4230 5027 4452 DCA
4231 5028 4444 DCA
4232 5031 7644 DCA
4233 5032 5245 DCA
4234 5033 4432 DCA
4235 5034 1272 DCA
4236 5035 7444 DCA
4237 5036 1115 DCA
4238 5037 3152 DCA
4239 5040 4426 DCA
4240 5041 5072 DCA
4241 5042 7300 DCA
4242 5043 3526 DCA
4243 5044 1012 DCA
4244 5045 3143 DCA
4245 5046 1166 DCA
4246 5047 3270 DCA
4247 5048 1146 DCA
4248 5051 4442 DCA
4249 5052 7610 DCA
4250 5053 4266 DCA
4251 5054 7301 DCA
4252 5055 4453 DCA
4253 5056 1417 DCA
4254 5057 3150 DCA
4255 5060 4426 DCA
4256 5061 5074 DCA
4257 5062 4266 DCA
4258 5063 1113 DCA
4259 5064 4430 DCA
4260 5065 4437 DCA
4261 5066 4442 DCA
4262 5067 5202 DCA

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4263 5071 2000 TAPROT,
4264 5071 4425 CLASSIC
4265 5072 4436 CRRR
4266 5073 7402 APLT1,
4267 HLT
4268
4269 JMP
4270 5074 5200 JMP
4271
4272 /ROUTINE TO GET SWITCHES
4273
4274 HYLAS,
4275 5275 2000 CLASSIC
4276 5076 4405 CRRCSW
4277 5277 4425 CRRS
4278 5120 7604 TAD
4279 5121 5675 JMP
4280
4281 /THIS ROUTINE WILL BE A SKIP INSTRUCTION WITHOUT
4282 /TN FIELD AND THEN SKIP THE INSTRUCTION AFTER THAT ONE.
4283
4284 CLASSIC,
4285 5122 2000 DCA
4286 5124 1742 TAD T
4287 5125 3333 DCA
4288 5126 2302 DCA
4289 5127 1022 ISZ
4290 5130 0377 TAD
4291 5111 7644 AND
4292 5112 5315 SZA CLA
4293 5113 1332 JMP
4294 5114 5722 TAD
4295 5115 2322 JMP T
4296 5116 6211 ISZ
4297 5117 1023 CLASIK
4298 5120 1776 TAD
4299 5121 1023 SWP
4300 5122 1775 DCA I
4301 5123 1775 DCA I
4302 5124 1776 DCA I
4303 5125 1333 DCA I
4304 5126 1773 DCA I
4305 5127 1332 DCA I
4306 5128 4212 TAD
4307 5131 5773 CLP I
4308
4309 /SAVAC,
4310 /ROUTINE TO
4311
4312 /ROUTINE TO WAIT FOR DISK SKIPS
4313
4314 SKAT,
4315 5134 2000 CLA CLL
4316 5135 7300 TICR
4317 5136 4530 TAD
4318 5137 1122 TAD

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/TEXT POINTER
/SUCCESSFUL WRITE PROTECT, TO
/REPEAT: IF ON CLASSIC CONSOLE
/PACKAGE HIT CONTROL E, IF NOT
/PRESS KEY CONTINUE.
/NO CLASSIC, GET SWITCHES
/CHECK IF CLASSIC
/GET SWITCHES
/NO CLASSIC, GET SWITCHES
/NO RETURN TO PROGRAM
/CHANGE TO FIELD 1
/NOVE POINTERS TO FIELD 1
/SAVE ROUTINE IN FIELD 1
/GO TO FIELD 1

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/
PAL10 15-APR-76 13124 PAGE 1-82
4318 9148 3275 DCA WYLAB
4319 9141 3392 DCA CLASSK
4320 9142 4447 09SKP /OSKP "NISK SKIP TOT"
4321 9143 7610 SKP CLA /NO SKIP OCCURRED YET
4322 9145 5352 ISZ CLASSK /GO* THE SKIP
4323 9145 2392 JMB **6
4324 9146 5342 ISZ **4
4325 9147 2275 ISZ WYLAB
4326 9151 5342 JMB **6
4327 9151 7610 SKP CLA /NO SKIP OCCURREN
4328 9152 2334 ISZ SKWAY
4329 9153 5734 JMB I SKWAY
/EXIT
4330
4331
4332 /SUBROUTINE TO READ STATUS REGISTER
4333
4334 PRST, R
4335 5154 0900 /READ STATUS IOT
4336 5155 6745 IOT5, DRST
4337 5156 5363 JMB **5
4338 CLASSIC
4339 5157 4495 CAERPE
4340 5160 4436 CAERPE
4341 5161 7482 JMB
4342 5162 5357 JMB
4343 5163 3146 DCA STRG
4344 5164 3146 DCA STRG
4345 5174 0923 YAD STRG
4346 5175 0924 YAD STRG
4347 5177 2480 JMB I RST
/EXIT
PAGE
4348
4349 /SUBROUTINE FOR "ERRORS," SCOPE LOOPS, AND
4350 /ERROR TYPEDEUTS.
4351
4352 ERR0, R
4353 5200 0800 JMB I XERR0
4354 5201 4927 JMB I XERR0
4355 5202 1600 TAD I ERR0
4356 5203 3173 DCA RSTRY
4357 5204 4404 LAS
4358 5205 7700 SHA CLA
4359 5206 5217 JMB FERR1
4360 5207 4480 LAS
4361 5210 7886 RYL SPA CLA
4362 5211 7710 JMB **3
4363 5212 5215 JMB K0207
4364 5213 1356 TAD
4365 5214 4436 TAD K0207
4366 5215 1600 TYPE
4367 5216 5757 JMB I ERR0
4368 5217 1600 JMB I ESCOPE
4369 5220 3363 DCA FERR1
4370 5221 2200 ISZ RETRN2
4371 5222 7391 CLA CLL IAC
4372 5223 1200 TAD ERR0
/NEXT TEXT POINTER

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/
PAL10 15-APR-76 13124 PAGE 1-83
4372 5224 3361 DCA INHIRT
4373 5225 4462 DCA
4374 5226 4462 CRLF
4375 5227 1600 TAD I ERR0
4376 5228 0101 AND K0807
4377 5231 1361 TAD MEDIAN
4378 5232 3283 DCA **1
4379 5233 3286 DCA **2
4380 5234 3286 DCA
4381 5235 4957 JMB PRNTR
4382 5236 7802 ALT
4383 5237 4402 CRLF
4384 5240 4957 PRNTR
4385 5241 3150 CLA CLL CMA
4386 5242 7346 TAD ERR0
4387 5243 1200 TAD OCTEL
4388 5244 4460 TAD I ERR0
4389 5245 1600 TAD I ERR0
4390 5246 7104 CLL RAL
4391 5247 7820 JMB
4392 5250 5264 JMB NTGN
/NOT GO: REGISTER
4393
4394
4395 5251 3200 DCA ERR0
4396 5252 4457 PRNTR
4397 5253 5752 TEXG0
4398 5254 1200 TAD ERR0
4399 5255 7700 JMB
4400 5256 5261 JMB SHA CLA
4401 5257 1142 TAD **3
4402 5260 4461 TAD GOREG1
4403 5261 1143 TAD GOREG2
4404 5262 4460 OCTEL
4405 5263 7610 SKP CLA
4406 5264 3200 DCA
4407 5265 1200 TAD ERR0
4408 5266 7104 CLL RAL
4409 5267 7420 JMB
4410 5270 5301 JMB NTCRC
4411 5271 3200 DCA ERR0
4412 5272 4457 PRNTR
4413 5273 5754 TEXCR
4414 5274 1144 TAD CRRFG1
4415 5275 4461 TAD TWOC7
4416 5276 1145 TAD CRRFG2
4417 5277 4460 OCTEL
4418 5278 7610 SKP CLA
4419 5301 3200 DCA ERR0
4420 5302 1363 DCA XTEXT
4421 5303 3364 DCA PCPTR2
4422 5304 3364 DCA XCRG
4423 5305 3010 DCA AUT010
4424 5306 1110 DAD K1771
4425 5307 3125 PCPTR1
4426 5310 1200 DCA ERR0
/COUNTER FOR # OF HEADS
/GET TEXT POINTER

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4027      5311 7500      SMA
4028      5312 5350      JMP      NOTEY
4029      5313 7194      CLL BAL
4030      5314 1200      DCA
4031      5315 1366      TAN
4032      5316 2366      TAN
4033      5317 2366      ISZ
4034      5320 3322      PCPTR2
4035      5321 4457      DCA
4036      5322 7422      *2
4037      5323 1418      MTP
4038      5324 4660      MTP I
4039      5325 2366      DCFPL
4040      5326 2866      PCPTR1
4041      5327 4474      JMP
4042      5331 7224      LAN
4043      5331 2214      MTL
4044      5332 7462      AND
4045      5332 5292      K0000
4046      5333 5292      MTL
4047      5334 7232      SWA CLA
4048      5335 5292      JMP
4049      5336 5292      CNTRR
4050      5337 5292      S2L CLA
4051      5338 5292      *3
4052      5339 1201      MTP
4053      5340 5292      JMP I
4054      5341 1200      ESCAPE
4055      5342 1200      TAN
4056      5343 4094      RETURN2
4057      5344 4094      ESCAPE
4058      5345 4094      JMP I
4059      5346 4094      ESCAPE
4060      5347 5264      CNTRR
4061      5350 7104      MTP
4062      5351 3200      DCA
4063      5352 2666      PCPTR2
4064      5353 2666      ISZ
4065      5354 2010      PCPTR2
4066      5355 5325      ISZ
4067      5355 5325      MTP
4068      5356 0207      AGAIN
4069      5357 5470      K0007, R007
4070      5358 5470      FSCOPE, SCOPE
4071      5359 0000      RETURN2, R
4072      5361 0002      INHIBIT, 0
4073      5362 5292      K0REG, GREG
4074      5363 5156      XTEXT, TEXT
4075      5364 0145      XREG, COREG2
4076      5365 0000      PCPTR1, R
4077      5366 0002      PCPTR2, R
4078      5367 1370      MENTAD, TAN
4079      5368 6671      MFLST, ERTY1
4080      5371 6704      ERTY2
4081      5372 6720      ERTY3
4082      5373 6736      ERTY4
4083      5374 6746      ERTY5
4084      5375 6760      ERTY6
4085      5376 6772      ERTY7

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PAGE 15-APR-76 13124 PAGE 1-85

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4087      5377 7202      ERTY8
4088      5400      JMP
4089      5400      DCA
4090      5401 7330      CLS
4091      5402 4455      LMAN
4092      5403 1012      TAN
4093      5404 4095      LMAN
4094      5405 5147      DREG
4095      5406 1147      TAN
4096      5407 5154      DCA
4097      5408 1154      DREG
4098      5411 5000      JMP I
4099      5412 0200      R007, R
4100      5413 7330      TAN
4101      5414 1126      TAN
4102      5415 3133      DCA
4103      5416 7330      CLS
4104      5417 4455      LMAN
4105      5418 7010      RAR
4106      5421 4455      LMAN
4107      5422 7366      CLS
4108      5423 1216      TAN
4109      5424 4495      LMAN
4110      5425 2133      ISZ
4111      5426 5224      JMP
4112      5427 7320      *2
4113      5428 1012      CLS
4114      5429 4455      TAN
4115      5430 3157      LMAN
4116      5431 1150      DCA
4117      5432 5012      DREG
4118      5433 5012      JMP I
4119      5434 5012      R007, R

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```

/ROUTINE TO ZERO WORK BUFFER
KLAUF, 0
CLA CLL CMA
TAD RGNUP
TAD AUTO10
TAD K7400
OCA DACTN
OCA I
ISZ AUTO10
NCA I
NATCNT
JMP I
KLAUF
/ROUTINE TO FILL THE WORK BUFFER WITH

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```

4537 5447 0000          /FLBUF, 0
4538 5450 3103          CLA CLL CHA
4539 5451 7300          TAD RBNBUF
4540 5452 1047          DCA AUTOIN
4541 5453 3210          TAD K7600
4542 5454 1184          DCA DATCNT
4543 5455 1103          TAD SAVDAT
4544 5456 3102          DCA I AUTOIN
4545 5457 7410          TAD SAVPAT
4546 5458 1103          CHA
4547 5459 7040          DCA I AUTOIN
4548 5460 3410          ISZ DATCNT
4549 5461 5206          JMD LBDAT
4550 5462 1102          TAD K1210
4551 5463 3410          DCA I AUTOIN
4552 5464 5607          JMP I FLBUF
4553 5465 5607          /MAKE WORD IN BUFFER*1
4554 5466 5607          /BUFFER FULL
4555 5467 5607          /ROUTINE TO CHECK FOR WAIT AND RECALIBRATE
4556 5470 3326          /SCOPE, DCA TOTST
4557 5471 4400          AND LBS
4558 5472 0920          AND K0920
4559 5473 7600          STA CLA
4560 5474 4030          WAITZ
4561 5475 4000          LBS
4562 5476 0013          AND
4563 5477 7650          SWA CLA NOCLR
4564 5478 5332          JMP K0000
4565 5479 7701          CLA CLL TIC
4566 5480 4103          CALLL
4567 5481 1130          TAD CHREG
4568 5482 0205          TAD
4569 5483 4920          AND K7577
4570 5484 0205          LOCND
4571 5485 7206          LOAD COMMAND
4572 5486 4033          CRRAL
4573 5487 4033          SRRPAT
4574 5488 4033          NOP
4575 5489 7000          LAST COMMAND
4576 5490 1150          CHREG
4577 5491 1015          TAD K0200
4578 5492 4030          LOCND
4579 5493 4033          SRRPAT
4580 5494 7000          NOP
4581 5495 1150          CHREG
4582 5496 1150          TAD
4583 5497 0205          AND K7577
4584 5498 3150          DCA CLL IAC
4585 5499 7501          NOCLR,
4590 5500 4033          CRRAL
4591 5501 5726          JMP I TOTST
4592 5502 7577          /K7577, 7577
4593 5503 0000          /TOTST, 0
4594 5504 0000          /
4595 5505 0000          /
4596 5506 0000          /
4597 5507 0000          /
4598 5508 0000          /
4599 5509 0000          /
4600 5510 0000          /
4601 5511 0000          /
4602 5512 0000          /
4603 5513 0000          /
4604 5514 0000          /
4605 5515 0000          /
4606 5516 0000          /
4607 5517 0000          /
4608 5518 0000          /
4609 5519 0000          /
4610 5520 0000          /
4611 5521 0000          /
4612 5522 0000          /
4613 5523 0000          /
4614 5524 0000          /
4615 5525 0000          /
4616 5526 0000          /
4617 5527 0000          /
4618 5528 0000          /
4619 5529 0000          /
4620 5530 0000          /
4621 5531 0000          /
4622 5532 0000          /
4623 5533 0000          /
4624 5534 0000          /
4625 5535 0000          /
4626 5536 0000          /
4627 5537 0000          /
4628 5538 0000          /
4629 5539 0000          /
4630 5540 0000          /
4631 5541 0000          /
4632 5542 0000          /
4633 5543 0000          /
4634 5544 0000          /
4635 5545 0000          /
4636 5546 0000          /
4637 5547 0000          /
4638 5548 0000          /
4639 5549 0000          /
4640 5550 0000          /
4641 5551 0000          /
4642 5552 0000          /
4643 5553 0000          /
4644 5554 0000          /
4645 5555 0000          /
4646 5556 0000          /
4647 5557 0000          /
4648 5558 0000          /
4649 5559 0000          /
4650 5560 0000          /
4651 5561 0000          /
4652 5562 0000          /
4653 5563 0000          /
4654 5564 0000          /
4655 5565 0000          /
4656 5566 0000          /
4657 5567 0000          /
4658 5568 0000          /
4659 5569 0000          /
4660 5570 0000          /
4661 5571 0000          /
4662 5572 0000          /
4663 5573 0000          /
4664 5574 0000          /
4665 5575 0000          /
4666 5576 0000          /
4667 5577 0000          /
4668 5578 0000          /
4669 5579 0000          /
4670 5580 0000          /
4671 5581 0000          /
4672 5582 0000          /
4673 5583 0000          /
4674 5584 0000          /
4675 5585 0000          /
4676 5586 0000          /
4677 5587 0000          /
4678 5588 0000          /
4679 5589 0000          /
4680 5590 0000          /
4681 5591 0000          /
4682 5592 0000          /
4683 5593 0000          /
4684 5594 0000          /
4685 5595 0000          /
4686 5596 0000          /
4687 5597 0000          /
4688 5598 0000          /
4689 5599 0000          /
4690 5600 0000          /
4691 5601 0000          /
4692 5602 0000          /
4693 5603 0000          /
4694 5604 0000          /
4695 5605 0000          /
4696 5606 0000          /
4697 5607 0000          /
4698 5608 0000          /
4699 5609 0000          /
4700 5610 0000          /

```

```

4599 5531 0011          /ROUTINE TO GET ALL REGISTERS
4600 5532 7650          /NOTE: THIS ROUTINE WILL CAUSE ONE MAINTENANCE
4601 5533 5207          /DATA BREAK TO LOCATION 0 IF THE LAST PREVIOUS
4602 5534 2057          /FUNCTION EXECUTED WAS A READ DATA BREAK.)
4603 5535 4030          /
4604 5536 4033          /
4605 5537 0000          /
4606 5538 0000          /
4607 5539 0000          /
4608 5540 0000          /
4609 5541 0000          /
4610 5542 0000          /
4611 5543 0000          /
4612 5544 0000          /
4613 5545 0000          /
4614 5546 0000          /
4615 5547 0000          /
4616 5548 0000          /
4617 5549 0000          /
4618 5550 0000          /
4619 5551 0000          /
4620 5552 0000          /
4621 5553 0000          /
4622 5554 0000          /
4623 5555 0000          /
4624 5556 0000          /
4625 5557 0000          /
4626 5558 0000          /
4627 5559 0000          /
4628 5560 0000          /
4629 5561 0000          /
4630 5562 0000          /
4631 5563 0000          /
4632 5564 0000          /
4633 5565 0000          /
4634 5566 0000          /
4635 5567 0000          /
4636 5568 0000          /
4637 5569 0000          /
4638 5570 0000          /
4639 5571 0000          /
4640 5572 0000          /
4641 5573 0000          /
4642 5574 0000          /
4643 5575 0000          /
4644 5576 0000          /
4645 5577 0000          /
4646 5578 0000          /
4647 5579 0000          /
4648 5580 0000          /
4649 5581 0000          /
4650 5582 0000          /
4651 5583 0000          /
4652 5584 0000          /
4653 5585 0000          /
4654 5586 0000          /
4655 5587 0000          /
4656 5588 0000          /
4657 5589 0000          /
4658 5590 0000          /
4659 5591 0000          /
4660 5592 0000          /
4661 5593 0000          /
4662 5594 0000          /
4663 5595 0000          /
4664 5596 0000          /
4665 5597 0000          /
4666 5598 0000          /
4667 5599 0000          /
4668 5600 0000          /
4669 5601 0000          /
4670 5602 0000          /
4671 5603 0000          /
4672 5604 0000          /
4673 5605 0000          /
4674 5606 0000          /
4675 5607 0000          /
4676 5608 0000          /
4677 5609 0000          /
4678 5610 0000          /
4679 5611 0000          /
4680 5612 0000          /
4681 5613 0000          /
4682 5614 0000          /
4683 5615 0000          /
4684 5616 0000          /
4685 5617 0000          /
4686 5618 0000          /
4687 5619 0000          /
4688 5620 0000          /
4689 5621 0000          /
4690 5622 0000          /
4691 5623 0000          /
4692 5624 0000          /
4693 5625 0000          /
4694 5626 0000          /
4695 5627 0000          /
4696 5628 0000          /
4697 5629 0000          /
4698 5630 0000          /
4699 5631 0000          /
4700 5632 0000          /

```

PALL10 VI42A 15-APR-76 13:24 PAGE 1-88

```

4647 /ROUTINE TO READ OR WRITE ON DISK
4648 /RETURN+1 SKIP DR STATUS ERROR
4649 /RETURN+2 O.K.
4650
4651 5690 0000
4652 5691 3354
4653 5692 7348
4654 5693 3171
4655 5694 1600
4656 5695 3172
4657 5696 2207
4658 5697 1150
4659 5611 1156
4661 5612 1372
4662 5613 4450
4663 5614 1267
4664 5615 4451
4665 5616 1254
4666 5617 4452
4667 5620 4433
4668 5621 5234
4669 5622 7330
4670 5623 3143
4671 5624 4444
4672 5625 1175
4673 5626 7649
4674 5627 5236
4675 5630 1165
4676 5631 2206
4677 5632 3572
4678 5633 6506
4679 5634 1164
4682 5635 5232
4681 5636 1140
4682 5637 0019
4683 5641 7651
4684 5641 5252
4685 5642 7552
4686 5643 7550
4687 5643 1150
4688 5645 0187
4689 5646 1638
4690 5647 5252
4691 5650 3171
4692 5651 5230
4693 5652 1156
4694 5653 5232
4695
4696
4697 5654 0000
4698 5654 7501
4699
4700
4701

```

```

/SAVE TRACK ADDRESS
/SET CRC ERROR FLAG
/GET TEXT POINTER
/SAVE TEXT POINTER
/UPDATE POINTER
/SET COMMAND
/MASK OFF
/CURRENT FIELD
/CURRENT DRIVE
/LOAD COMMAND
/GET BEGINNING OF BUFFER
/LOAD CURRENT ADDRESS
/GET TRACK+SECTOR
/LOAD AND GO
/WAIT FOR DISK SKIP
/ERROR, NO SKIP
/EXPECTED STATUS
/SETUP COMPARE REGISTER
/READ STATUS
/MAS STATUS 4000
/ERROR, STATUS
/TEXT POINTER
/UPDATE FOR GOOD RETURN
/STORE IN TEXT POINTER
/EXIT
/SKIP TEXT POINTER
/GET STATUS JUST READ
/MASK OUT CRC ERRORS
/NO, OTHERS
/GET LAST COMMAND
/MASK FUNCTION
/ADD IN FUNC FACTOR
/MAS IT A READ ALL DP READ
/NO, MUST BE A WRITE
/SET CRC ERROR FLAG
/GO CHECK DATA ON RETURN
/EXIT

```

PALL10 VI42A 15-APR-76 13:24 PAGE 1-89

```

4702 5656 0000
4703 5657 3143
4704 5660 1067
4705 5661 3153
4706 5662 1150
4707 5663 0101
4708 5664 7041
4709 5665 1553
4710 5666 7550
4711 5667 5273
4712 5670 1150
4713 5671 0101
4714 5672 5343
4715 5673 2153
4716 5674 1553
4717 5675 7041
4718 5676 1151
4719 5677 7550
4720 5700 5703
4721 5701 1151
4722 5702 5343
4723 5703 7326
4724 5704 1123
4725 5705 3162
4726 5706 2153
4727 5707 1553
4728 5710 7041
4729 5711 1143
4730 5712 7640
4731 5713 5344
4732 5714 1143
4733 5715 7040
4734 5716 3143
4735 5717 2162
4736 5720 5306
4737 5721 2153
4738 5722 1102
4739 5723 7041
4740 5724 1553
4741 5725 7650
4742 5726 5731
4743 5727 1102
4744 5730 5743
4745 5731 7130
4746 5732 1143
4747 5733 1171
4748 5734 7141
4749 5735 5656
4750 5736 7350
4751 5737 3171
4752 5740 1166
4753 5741 5772
4754 5742 7330
4755 5743 1143
4756 5744 1553

```

```

/ROUTINE TO COMPARE WORDS IN BUFFER TO
/KNOWN DATA PATTERN IN THE AC.
/SAVE FOR ERROR PRINTER
/GET START OF BUFFER
/SAVE FOR ERROR PRINTER
/GET DISK NO. AND EXT., BIT
/MASK THEM
/DATA ERROR
/UPDATE ADDRESS
/GET SECOND WORD
/MAS IT O.K.?
/YES, CHECK NEXT TRACK WORD
/GET DISK NO. AND EXT., BIT
/MASK THEM
/UPDATE ADDRESS
/GET SECOND WORD
/COMPARE TO ADDRESS
/MAS SECOND TRACK WORD O.K.
/YES, NOW CHECK DATA
/GET GOOD INFO
/DATA ERROR
/SETUP COUNTER
/UPDATE ADDRESS
/GET DATA WORD
/COMPARE TO GOOD ONE
/MAS WORD O.K.?
/GET GOOD DATA
/IT IS A COMPLEMENT DATA PATTERN
/UPDATE BUFFER COUNTER
/MORE TO CHECK
/UPDATE ADDRESS
/GET WORD IN BUFFER+1
/MAS IT O.K.
/YES ALL DATA O.K.
/WORD LOST IN BUFFER+1
/EXPECTED STATUS
/SETUP COMPARE REGISTER
/GET CRC ERROR FLAG
/MAS IT SET
/NO THE BUFFER IS O.K.
/RESET CRC FLAG
/SETUP CRC FLAG
/TEXT MESS
/SETUP TEXT POINTER
/EXPECTED STATUS
/SETUP COMPARE
/GET MAD WORD

```

Address	Hex	Hex	Label	Page
4757	5725	3154	DCA	13124
4758	5726	2596	JMP	FIGURE
4759	5727	5056	JMP I	FIGURE
4760				
4761	5728	2003	TEXPC, TEXT	"PCI"
4762	5729	7600	TEXGD, TEXT	"GDI"
4763	572A	7600	TEXCR, TEXT	"CRI"
4764	572B	7600	TEXST, TEXT	"STI"
4765	572C	7600	TEXB, TEXT	"BBI"
4766	572D	7600	TEXC, TEXT	"CBI"
4767	572E	7600	TEXA, TEXT	"ABI"
4768	572F	7600	TEXCA, TEXT	"CAI"
4769	5720	7600	TEXAD, TEXT	"ADI"
4770	5721	7600	TEXD, TEXT	"DI"
4771	5722	7600	TEXD, TEXT	"DI"
4772				
4773				
4774				
4775				
4776				
4777	6000	0200	RNCR, R	
4778	6001	7390	CLA CLL	
4779	6002	1126	TAD	M12
4780	6003	3133	DCA	SRCNT1
4781	6004	7330	CLA CLL	CHL RAR
4782	6005	4055	LOMAN	
4783	6006	7012	RAR	
4784	6007	4055	LOMAN	
4785	6010	7010	RAR	
4786	6011	4055	LOMAN	
4787	6012	2133	ISZ	SRCNT1
4788	6013	5211	JMP	"*2"
4789	6014	7390	TAD	CLA CLL
4790	6015	1912	DCA	K0260
4791	6016	4055	LOMAN	
4792	6017	3105	DCA	CORCG2
4793	6020	1126	TAD	M12
4794	6021	3133	DCA	SRCNT1
4795	6022	7332	CLA CLL	CHL RTR
4796	6023	4055	LOMAN	
4797	6024	7012	RAR	
4798	6025	4055	LOMAN	
4799	6026	2133	ISZ	SRCNT1
4800	6027	5235	JMP	"*2"
4801				

PAL10 V142A 15-APR-76 13:20 PAGE 1-91

Address	Hex	Hex	Label	Page
4802	6030	7390	CLA CLL	
4803	6031	1012	TAD	K0260
4804	6032	4055	LOMAN	
4805	6033	0117	AND	K0212
4806	6034	3144	DCA	CORFG1
4807			JMP I	R0CR
4808	6035	5600		
4809				
4810				
4811				
4812	6036	0200	TOCT, R	
4813	6037	3133	DCA	SRCNT1
4814	6040	1133	TAD	SRCNT1
4815	6041	7010	RAR	
4816	6042	7012	RTR	
4817	6043	0101	AND	K0207
4818	6044	1777	TAD	K0260
4819	6045	4056	TYPE	
4820	6046	1133	TAD	SRCNT1
4821	6047	0101	AND	K0207
4822	6050	1777	TAD	K0260
4823	6051	4056	TYPE	
4824	6052	5636	JMP I	TOCT
4825				
4826				
4827				
4828				
4829				
4830				
4831	6053	0200	IPONE, R	
4832	6054	7390	CLA CLL	
4833	6055	1262	TAD	K0215
4834	6056	4056	TYPE	
4835	6057	1263	TAD	K0212
4836	6060	5456	TYPE	
4837	6261	5635	JMP I	UPONE
4838				
4839	6062	0215	K0215, 0215	
4840	6063	0212	K0212, 0212	
4841	6064	0200	K0200, 0200	
4842				
4843				
4844				
4845	6065	0200	FROCT, R	
4846	6066	7006	RTL	
4847	6067	7006	RTL	
4848	6070	3253	DCA	UPONE
4849	6071	1310	TAD	H4
4850	6072	3256	TOCT	
4851	6073	1253	DCA	UPONE
4852	6074	0101	TAD	K0207
4853	6075	1777	TAD	K0260
4854	6076	4056	TYPE	
4855	6077	1253	TAD	UPONE
4856	6100	7006	RTL	
4857	6101	7006	RTL	

ROUTINE TO PRINT FOUR OCTAL

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4857 6102 3253 OCA UPONE
4858 6103 2236 TST TOCT
4859 6104 5273 JMP *-11
4860 6105 1264 TAD K0240
4861 6106 4936 TAD TYPE
4862 6107 5665 JMP I PROCT
4863 6110 7774 PA, 7774
4864 PROCT
4865 /SUBROUTINE TO PRINT TEXT
4866 /PRN,
4867 R
4868 CLA CLL
4869 TAD I PRN
4870 /GET POINTER
4871
4872 6114 2311 ISZ PRN
4873 6115 3245 DCA PROCT
4874 6116 1065 TAD I PROCT
4875 6117 1111 AND K7760
4876 6118 1111 SNA
4877 6119 5295 JMP EXIT
4878 6120 5295 SNA
4879 6121 7350 JMP EXIT
4880 6122 7024 CML
4881 6123 7024 IAC
4882 6124 7024 RTR
4883 6125 7012 RTR
4884 6126 7012 RTR
4885 6130 4936 TYPE
4886 6131 1665 TAD I PROCT
4887 6132 0112 AND K0877
4888 6133 7450 SNA
4889 6134 5345 JMP EXIT
4890 6135 1350 TAD K3740
4891 6136 7500 SNA
4892 6137 1347 TAD K4100
4893 6140 1264 TAD K0200
4894 6141 4936 TYPE
4895 6142 2265 ISZ PROCT
4896 6143 7300 CLA CLL
4897 6144 5316 JMP PRN+5
4898 6145 7300 CLA CLL
4899 6146 5711 JMP I PRN
4900
4901 6147 4100 /K4100, 4100
4902 6150 3740 /K3740, 3740
4903 /ROUTINE TO TYPE
4904
4905 PRINT,
4906 /PRINT,
4907 CLASSIC
4908 CBTYP
4909 SKP
4910 JMP I PRINT
4911 TLS

```

P4110 V1424 15-APR-76 13:24 PAGE 1-93

```

4912 6157 6041 TSF
4913 6160 5357 JMP *-1
4914 6161 6042 TCF
4915 6162 7200 CLA
4916 6163 5751 JMP I PRINT
4917
4918 /SUBROUTINE TO LOAD TRACK ADDRESS REGISTER
4919 LOAD,
4920 R
4921 DCA DAREG
4922 TAB DAREG
4923 IOT3, DLEG
4924 JMP I LOAD
4925 6170 5764 OCA ONLY
4926 6171 4405 CLASSIC
4927 6172 4436 COERR
4928 6173 7002 ERHLT3, MLY
4929 6174 5371 JMP *-3
4930
4931 6177 4364 PAGE
4932 6200 0000
4933 /ROUTINE TO RECALIBRATE SELECTED DRIVE OR
4934 /SEEK ONLY POSITION IN AC ON SELECTED DRIVE.
4935
4936 6201 7300 RESTOR, R
4937 6202 1600 CLA CLL
4938 6203 3316 TAD I RESTOR
4939 6204 2200 DCA SAVPC
4940 6205 1200 ISZ RESTOR
4941 6206 3215 OCA ONLY
4942 6207 1372 TAD RESTOR
4943 6210 1156 TAD ONLY
4944 6211 4450 /SAVE FOR END OF SEEK ROUTINE
4945 6212 7326 TAD DRIVED
4946 6213 4453 TAD HOMEH
4947 6214 5232 TAD HOMEH
4948
4949 /LOAD COMMAND
4950 6215 0000 CLA CLL
4951 6216 3317 TAD I RESTOR
4952 6217 1615 DCA SAVPC
4953 6220 3316 ISZ RESTOR
4954 6221 3215 OCA ONLY
4955 6222 1150 TAD CHREG
4956 6223 0073 AND
4957 6224 1152 TAD K0001
4958 6225 1072 TAD HOMEH
4959 6226 1104 TAD HOMEH
4960 6227 4950 TAD K3000
4961 6228 1317 TAD K3000
4962 6229 4952 TAD SAVTO
4963 6231 4452 /LOAD AND GO
4964 6232 4453 /WAIT FOR FIRST DONE FLAG
4965 6233 5314 /ERRON, NO SKIP
4966 6234 7330 /EXPECTED STATUS
4967 6235 5143 /SETUP COMPARE REGISTER

```

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/
PAL10      VI42A      15-APR-76      13124      PAGE 1-95

4966      6230      1122      TAD      K7740
4967      6231      1321      DCA      RNAD
4968      6240      4444      ROSTAT
4969      6241      1195      TAD      K400R
4970      6242      7450      SNA CLA
4971      6243      5252      JMB
4972      6245      1106      *AT
4973      6246      3163      DCA      GOREF2
4974      6247      1103      TAD      SREG
4975      6248      1105      TAD      K200R
4976      6249      1103      SZA CLA
4977      6251      5311      JMB      SEKER2
4978      6251      1715      JMB      K600P
4979      6252      1129      TAD      CMERG
4980      6254      4430      LFNCHD
4981      6255      3332      CML 9TR
4982      6256      3133      DCA      GOREF2
4983      6257      4535          /EXPECTED STATUS
4984      6260      4444      ROSTAT
4985      6261      4447      DSKSKP
4986      6262      7410      SKP
4987      6263      5274      JMB      K400R
4988      6264      1106      TAD
4989      6265      7640      SZA CLA
4990      6266      5311      SEKER2
4991      6267      2365      IS2      RNRWD
4992      6270      5257      JMB      CMKSKP
4993      6271      2321      RNaN
4994      6272      5257      IS2      JMB
4995      6273      5314      JMB      CMKSKP
4996      6274      7330      SEKER1
4997      6275      3143      JMB      SEKER1
4998      6276      4444      CLC 4
4999      6277      1105      ROSTAT
5000      6300      7640      TAD      K400R
5001      6301      5311      SZA CLA
5002      6302      1150      SEKER2
5003      6303      0320      CMERG
5004      6304      4450      AND
5005      6305      3143      LFNCHD
5006      6306      4444      DCA      GOREF2
5007      6307      7670      ROSTAT
5008      6310      2215      SNA CLA
5009      6311      1166      IS2      ONLY
5010      6312      3716      SEKER2, TAD      K5300
5011      6313      5615      DCA I      SAVPC
5012      6314      1164      JMB I      ONLY
5013      6315      5312      SEKER1, JMB      K4306
5014          GBRK
5015      6316      0000      /
5016      6317      0000      SAVPC, 0
5017      6320      7577      SAVTO, 0
5018          A7577, 7577
5019      /ROUTINE TO GET A RANDOM DISK ADDRESS
5020
/

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/
PAL10 VI42A 15-APR-76 13124 PAGE 1-95

```

5021      6321      0000      RNAD, 0
5022      6322      3361      OCA      SAVPOT
5023      6323      7191      CLC IAC
5024      6324      1363      TAD      RNRWD1
5025      6325      1364      TAD      RNRWD2
5026      6326      7196      CLC RTL
5027      6327      3363      TAD      RNRWD1
5028      6330      1364      OCA      RNRWD2
5029      6331      7012      PTR
5030      6332      1363      TAD      RNRWD1
5031      6333      3364      OCA      RNRWD2
5032      6334      1364      TAD      RNRWD2
5033      6335      5342      SML
5034      6336      7420      JMB      GOTADN
5035      6337      1170      TAD      ENTRK
5036      6340      7200      CLC
5037      6341      1364      TAD      RNRWD2
5038      6342      3365      OCA      RNRWD4
5039      6343      1362      TAD      DSKSAV
5040      6344      1361      TAD      SAVPOT
5041      6345      3361      OCA      SAVPOT
5042      6346      1365      TAD      SAVPOT
5043      6347      3761      DCA I
5044      6350      1361      TAD      SAVPOT
5045      6351      1076      TAD      K6004
5046      6352      3361      OCA      SAVPOT
5047      6353      7094      RAL
5048      6354      3761      DCA I      SAVPOT
5049      6355      1761      TAD I
5050      6356      7110      CLC BAR
5051      6357      1365      TAD      RNRWD4
5052      6360      5721      JMB I      RNAD
5053
/
5054      6361      0200      SAVPOT, 0
5055      6362      6366      DSKSAV, DSKNA
5056      6363      1234      RNRWD1, 1234
5057      6364      2145      RNRWD2, 2145
5058      6365      0000      RNRWD3, 0
5059      6366      0000      RNRWD4, 0
5060      6367      0000      DSKNA, 0
5061      6370      0000      DSK1A, 0
5062      6371      0000      DSK2A, 0
5063      6372      0000      DSK3A, 0
5064      6373      0000      DSK08, 0
5065      6374      0000      DSK18, 0
5066      6375      0000      DSK28, 0
5067      6376      0000      DSK38, 0
5068      6377      0000      DSK58, 0
5069      6378      0000      DSK59, 0
5070      6400      0000      /PAGE
5071      6401      2200      /SAURROUTINE FOR "NO ERRORS" AND SCORE
5072      6402      7300      /LDRPS. UPDATE UP COUNTER "REGI" ON EVERY ENTRY.
5073      NFRWD, 0
5074      CLC 4
5075      NFRWD, 197
5076      NFRWD

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```

5076 4403 4570 TICK
5077 4404 1620 TAO I NERR0
5078 4405 1173 DCA RSTRT
5079 4406 4405 CLASSIC
5080 4407 4407 CCRCPA
5081 4410 7320 NNP
5082 4411 4404 LAS
5083 4412 0415 AND K0200
5084 4413 7650 SNA CLA
5085 4414 4223 JMP
5086 4415 4405 CLASSIC
5087 4416 4437 CRINQU
5088 4417 7042 SYMPLT, MLY
5089 4420 4024 RAL
5090 4421 7020 RAL
5091 4422 7720 RWA CLA
5092 4423 5226 **I
5093 4424 1920 TAO I NERR0
5094 4425 5640 JMP I NERR0
5095 4426 1131 TAO I NERR0
5096 4427 7640 RFG0
5097 4430 5233 SZA CLA
5098 4431 2133 NEXTST
5099 4432 5573 REG1
5100 4433 7301 JMP I RSTRT
5101 4434 4453 CLCALL
5102 4435 2224 NERR0
5103 4436 2220 TSY
5104 4437 5600 JMP I NERR0
5105 4440 5470 NERR0
5106 4440 5470 NERR0
5107 4440 5470 NERR0
5108 4440 5470 NERR0
5109 4440 5470 NERR0
5110 4441 0200 NERR0
5111 4442 3143 NERR0
5112 4443 1207 TAO RGRNUP
5113 4444 3153 NCA
5114 4445 1150 TAO CBERG
5115 4446 0101 ANN K0007
5116 4447 7241 CIA
5117 4451 1553 TAO I ADREG
5118 4451 7650 SNA CLA
5119 4452 5256 **4
5120 4453 1150 JMP CBERG
5121 4454 0101 AND K0007
5122 4455 5337 JMP HERR0
5123 4456 2153 ISZ ADREG
5124 4457 1553 TAO I ADREG
5125 4460 7241 CIA
5126 4461 1151 TAO DAREG
5127 4462 7650 SNA CLA
5128 4463 5246 JMP **3
5129 4464 1151 TAO DAREG
5130 4465 5337 JMP HERR0

```

```

/SCOPE, SCOPE
/ROUTINE TO DO HALF LOCK DATA CHECKS
HFCBK, 0
NCA GOREG2
TAN RGRNUP
NCA CBERG
TAN CBERG
ANN K0007
CIA
TAO I ADREG
SNA CLA
**4
JMP CBERG
AND K0007
JMP HERR0
ISZ ADREG
TAO I ADREG
CIA
TAO DAREG
SNA CLA
**3
JMP DAREG
TAN DAREG
HERR0

```

```

5131 4466 2153 197 ADREG
5132 4467 7326 CLA CLL CML RYL
5133 4470 1124 TAN K7600
5134 4471 3162 NCA DATCNT
5135 4472 1553 HERR1, TAO I ADREG
5136 4473 7241 CIA
5137 4474 1143 TAO
5138 4475 7640 SZA CLA
5139 4476 5300 HERR0+1
5140 4477 2153 ISZ ADREG
5141 4500 1143 TAN GOREG2
5142 4501 7240 CMA
5143 4502 3143 DCA GOREG2
5144 4503 2142 ISZ DATCNT
5145 4504 5272 HERR1
5146 4505 1124 TAN K7600
5147 4506 3162 DCA DATCNT
5148 4507 3143 NCA GOREG2
5149 4510 1553 TAO I ADREG
5150 4511 7640 JMP SZA CLA
5151 4512 5337 JMP HERR0
5152 4513 2153 ISZ ADREG
5153 4514 2162 TSY DATCNT
5154 4515 5310 JMP HERR1
5155 4516 1553 TAO I ADREG
5156 4517 7241 JMP TAN I ADREG
5157 4520 1102 SZA CLA
5158 4521 7650 SNA CLA
5159 4522 5226 **3
5160 4523 1132 TAO K1230
5161 4524 5337 TAO HERR1
5162 4525 7330 TAO HERR1
5163 4526 3143 CLA CLL CML RAR
5164 4527 1171 TAO GOREG2
5165 4528 7400 SOPERR
5166 4531 5641 JMP I HFCBK
5167 4531 5641 JMP I HFCBK
5168 4532 3171 CIA CLL CMA
5169 4533 3171 DCA SOPERR
5170 4534 1166 TAN K5300
5171 4535 3172 DCA T SAVCCT
5172 4536 7330 CIA CLL CML RAR
5173 4537 3143 NCA GOREG2
5174 4538 1553 TAN I ADREG
5175 4539 3154 DCA OTREG
5176 4541 2041 TSY HFCBK
5177 4541 5641 JMP I HFCBK
5178 4541 5641 JMP I HFCBK
5179 4541 5641 JMP I HFCBK
5180 6544 0200 NERR0
5181 6545 3150 NCA CBERG
5182 6546 4405 CLASSIC
5183 6547 4400 CCRCPA
5184 6550 7020 NOP
5185 6551 1150 TAN CBERG

```

```

/UPDATE ADDRESS
/SETUP COUNTER FOR FIRST HALF
/COMPARE TO GOOD VALUE
/ARE THEY THE SAME
/UPDATE ADDRESS POINTER
/NEXT WORD IS COMPLEMENT
/WORD TO TEST IN FIRST HALF
/SETUP COUNTER
/TEST OF BUFFER SHOULD RE 0000
/WAS IT 0
/ERROR
/WORD TO CHECK
/GET WORD IN BUFFER+1
/WAS IT O.K.?
/YES
/ERROR, BUFFER+1
/EXPECTED STATUS
/SETUP COMPARE REGISTER
/GET CRC ERROR FLAG
/WAS IT SET
/NO ERRORS
/RESET CRC ERROR FLAG
/TEXT
/SET UP POINTER
/EXPECTED STATUS
/SETUP COMPARE REGISTER
/SETUP COMPARE
/GET BAD WORD
/SAVE FOR PRINTER
/SUBROUTINE TO LOAD COMMAND REGISTER
LNCH, 0
NCA CBERG
CLASSIC
CCRCPA
NOP
TAN CBERG

```

5186	6552	6746	15-APR-76	13124	PAGE 1-99	/LOAD COMMAND REGISTER
5187	6553	6747				/TEXT
5188	6554	6748				/CHECK FOR CLASSIC
5189	6555	6749				/ROUTINE TO EXECUTE.
5190	6556	7482				/ROUTINE TO EXECUTE.
5191	6557	5358				/SNIP TRAP ERROR.
5192						
5193	6560	2405				/MESSAGE, TEXT "TEST (VALUES OR NANO)!"
	6561	2324				
	6562	6750				
	6563	3175				
	6564	3105				
	6565	2346				
	6566	1722				
	6567	4916				
	6570	7516				
	6571	1751				
	6572	7202				

5194						/PAGE
5195	6602	4405				/ROUTINE TO CHANGE PROGRAM DEVICE CODES
5196	6601	4431				CHANG, CLASSIC
5197	6602	7400				CRSMTT
5198	6603	4404				NOP
5203	6604	6227				LAS
5204	6605	7631				AND K0770
5205	6606	1235				OCA I K0770
5206	6607	3632				YAD I CNTR1
5207	6610	1236				TAN I K0770
5208	6611	7233				OCA I K0770
5209	6612	1633				TAN I CNTR1
5210	6613	1900				OCA I CNTR1
5211	6614	1900				OCA I CNTR1
5212	6615	6234				TAN I 0
5213	6616	1631				AND K7007
5214	6617	3400				TAD I K0770
5215	6620	2233				OCA I 0
5216	6621	2632				ISZ I CNTR1
5217	6622	5212				ISZ I K0770
5218	6623	4405				JMP CHANG
5219	6624	4436				CLASSIC
5220	6625	7402				CRERR
5221	6626	5630				CHNLTL, MLT
5222						JMP I RSTR
5223						
5224	6627	3770				K0770, 0770
5225						
5226	6630	2020				/BSTOP, RGN
5227	6631	6441				K0770, 0770
5228						K0770, 0770
5229	6632	4400				K0770, 0770
5230						

/DEVICE CODES CHANGED
/TO START PROGRAM AT
/LOCATION 0200: IF ON CLASSIC
/CONSOLE PACKAGE HIT CONTROL
/E. IF NOT PRESS KEY CONTINUE.

5231	6633	7407	15-APR-76	13124	PAGE 1-99	/STATUS REGISTER ERROR"
5232	6634	7407				
5233	6635	7746				
5234	6636	6637				CHNLTL, CHNLTL*1
5235	6637	1701				TOT1
5236	6640	5772				TOT2
5237	6641	4167				TOT3
5238	6642	4772				TOT4
5239	6643	5155				TOT5
5240	6644	6552				TOT6
5241	6645	4132				TOT7
5242	6646	2650				TOT1A1
5243	6647	2647				TOT1A1
5244	6650	2643				TOT1A1
5245	6651	2652				TOT1A1
5246	6652	2645				TOT1A1
5247	6653	3731				TOT1A2
5248	6654	3255				TOT1A2
5249	6655	3030				TOT1A2
5250	6656	3024				TOT1A2
5251	6657	3033				TOT1A2
5252	6660	3226				TOT1A2
5253	6661	3226				TOT1A2
5254	6662	2017				TOT1A2
5255	6663	2322				TOT1A2
5256	6664	2325				TOT1A2
5257	6665	2102				TOT1A2
5258	6666	2102				TOT1A2
5259	6667	2105				TOT1A2
5260	6670	2110				TOT1A2
5261						
5262	6671	2324				FRTX1, TEXT
	6672	2124				
	6673	2323				
	6674	4222				
	6675	0507				
	6676	1123				
	6677	2405				
	6700	2240				
	6701	0522				
	6702	2217				
	6703	2200				
	6704	0517				
	6705	1515				
	6706	0116				
	6707	0440				
	6710	2205				
	6711	0711				
	6712	2324				
	6713	0522				
	6714	4005				
	6715	2222				
	6716	1722				
	6717	0000				
	6720	0411				

5263	6703	2200				"COMMAND REGISTER ERROR"
	6704	0517				
	6705	1515				
	6706	0116				
	6707	0440				
	6710	2205				
	6711	0711				
	6712	2324				
	6713	0522				
	6714	4005				
	6715	2222				
	6716	1722				
	6717	0000				
	6720	0411				
5264						FRTX3, TEXT
						"DISK ADDRESS REGISTER ERROR"


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PAL10 V1424 15-APR-76 13124

6721 2113
6722 4081
6723 6090
6724 6205
6725 2323
6726 4022
6727 0507
6730 1123
6731 2405
6732 2740
6733 3522
6734 2017
6735 2200
6736 4111
6737 2113
6740 4004
6741 0124
6743 0140
6743 2522
6744 2217
6745 2200
6746 0322
6747 3400
6750 2205
6751 7111
6752 2324
6753 2522
6754 4005
6755 2222
6756 1722
6757 0000
6760 0001
6761 2401
6762 4022
6763 0507
6764 1123
6765 2400
6766 2240
6767 0522
6770 2217
6771 2220
6772 0011
6773 2113
6774 4023
6775 1311
6776 2000
6777 0522
7200 2217
7201 2200
7202 0011
7203 2113
7204 4011
7205 1624
7206 0522
7227 2225

5269 7202 0011 FRTX8, FRTX "DISK INTERRUPT ERROR"
      7203 2113
      7204 4011
      7205 1624
      7206 0522
      7227 2225

5268 6772 0011 FRTX7, FRTX "DISK SKIP ERROR"
      6773 2113
      6774 4023
      6775 1311
      6776 2000
      6777 0522
      7200 2217
      7201 2200
      7202 0011
      7203 2113
      7204 4011
      7205 1624
      7206 0522
      7227 2225
    
```

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PAL10 V1424 15-APR-76 13124

7010 2024
7011 4005
7012 2222
7013 1722
7014 0000

5270 7015 4020 / FRIEND, TEXT "PASS COMPLETE"
5271 7016 0123
      7017 2340
      7020 0317
      7021 1520
      7022 1405
      7023 2405
      7024 0000

5272
5273
5274
5275
5276
5277
5278
5279
5280

7025 0000 / APT0, 0
7026 1022 AND K000
7027 0100 AND K000
7028 7650 SNA CLA
7029 5025 AND I APT0
7030 1925 AND 22
7031 1925 AND 22
7032 0300 AND 2377
7033 7022 NCA I 47000
7034 1001 NCA I 47000
7035 1001 NCA I 47000
7036 3001 NCA I 47000
7037 3002 NCA I 47000
7041 1022 NCA AND K0003
7041 1022 NCA AND K0003
7042 0075 NCA AERR0
7043 3303 NCA AERR0
7044 1303 NCA AERR0
7045 7040 CMA
7046 5071 NCA ORVCNT
7047 1071 NCA ORVCNT
7048 3300 NCA ORVCNT
7051 1022 NCA KTRICK
7051 1022 NCA 22
7052 0010 AND K0100
7053 7650 SNA CLA
7054 4264 JMP *+10
7055 7240 CLA CMA
7056 5071 NCA ORVCNT
7057 1303 NCA ORVCNT
7058 7104 NCA AERR0
7059 7080 CLL RAL
7061 1072 DCA DRIVNO
7062 1303 DCA AERR0
7063 7010 DCA SKP
7064 1362 DCA CLKCNT

/ THIS ROUTINE WILL TEST FOR THE AVAILABILITY OF THE
/ APT BA TEST SYSTEM AND NOP ANY CONSOLE PACKAGE WHICH
/ MIGHT HAVE BEEN SET UP.

/ TEST FOR APT SYSTEM
/ ON APT ?
/ AND
/ NOP CONSOLE PACKAGE
/ NOP SWITCH REGISTER ROUTINE
/ NOP SWITCHES
/ START WITH DRIVE 0.
/ # OF DRIVES
/ SET COUNTER FOR NO. OF DRIVES.
/ SETUP COUNTER.
/ SINGLE DRIVE TEST?
/ NO!!!
/ COUNT OF 1.
/ TEST ONLY THIS DRIVE.
/ TEST THIS DRIVE
    
```

```

5313 7065 1677 15-APR-76 13124 /SET ACTIVE INDICATOR.
5314 7066 7327 DCA XONON
5315 7067 7240 CLA CMA PCSAV
5316 7077 1722 NCA I
5317 7077 2332 182 CLCNT
5318 7077 2336 182 KTKCK
5319 7077 2251 182 APRR
5320 7074 1071 TAN DRXCNT
5321 7075 1976 NCA I
5322 7076 5702 JMP I
5323
5324 /XONON, XONON
5325 7077 4374 K377, 7377
5326 7100 5777 WPLAS, WPLAS*3
5327 7101 5700 TSTOP, TSTOP*5
5328 7102 9233
5329
5330 /THIS ROUTINE WILL REPORT ERRORS TO THE APT SYSTEM IF REQUIRED.
5331 /IT FIRST TEST FOR APT THEN ESCAPES THE ERROR FOLDING.
5332
5333 AFRPO, 0
5334 CLA
5335 TAN 22
5336 AND KQ00
5337 SNA CLA
5338 JMP T AFRPO
5339 CLL CLA CMA
5340 TAN T AFRPO
5341 NCA PCSAV
5342 TCF
5343 WIF
5344 MIP
5345 TAN KCOF
5346 7116 1121 OCA *42
5347 TAN PCSAV
5348 7121 4402 CTF 70
5349 7123 5726 JMP I AFRPO
5350
5351 /GET ERROR ADDRESS
5352 /REPLACD WITH ERROR DATA FIELD
5353 /REPORT ERROR
5354 /RETURN TO THE NORMAL REPORTING
5355
5356 /POINTER TO PC IN ERROR
5357 /POINTER TO UV PROM ADDRESS
5358 /PLACE WHERE ERROR PC IS STORED
5359 PCSAV, P
5360
5361 /THIS ROUTINE IS A NOP IF NOT BEING USED ON THE APT LINE.
5362 /IF APT IS ENABLED A TIMING PULSE IS GENERATED AT
5363 /APPROXIMATELY 1.5 SECOND INTERVALS
5364
5365 KTKCK, 0
5366 TAN 22
5367 AND KQ00
5368 SNA CLA
5369 JMP I KTKCK
5370 ISZ CLCNT
5371 JMP I KTKCK
5372 TAN COUNT
5373
5374 /GET MARKWARE CONFIGURATION
5375 /TEST FOR APT FACH TIME
5376
5377 /NO TIMING REGENERATD
5378 /SEE IF TIMING NEEDS TO BE DONE
5379 /NO. RETURN TO MAIN FLOW
5380 /INIT FIRST CLOCK
5381 7137 1361 TAN COUNT

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5382 7140 3162 NCA CLCNT
5383 7141 2175 ISZ KCNT
5384 7142 5730 JMP I KTKCK
5385 7143 6224 BIF
5386 7144 1121 TAN KCOF
5387 7145 3307 NCA *42
5388
5389 TOP
5390 MLT
5391 CIF 70
5392 JMS I KAS00
5393 CLL CLA
5394 TAN COUNT
5395 TAN CLNT
5396 NCA CLCNT
5397 DCA KCNT
5398 JMP I KTKCK
5399
5400 /POINTS TO UV PROM
5401 $$$

```


CARPNT	724	673	539*	536*	468*	467*	407*	4085*	4288	5288	4053	4067	4073
CARPNS	628*	536	539*	536*	468*	467*	407*	4085*	4288	5288	4053	4067	4073
CAREID	436	532	530	530*	468*	467*	407*	4085*	4288	5288	4053	4067	4073
CARETD	429	430	442	455	455	3641	4054	4074	4085*	4288	5288	4053	4073
CASSTT	704	1291	2849	3638	3641	4054	4074	4085*	4288	5288	4053	4067	4073
CASWIT	445	486	494	624	427	734*	677*	4085*	4288	5288	4053	4067	4073
CATMPT	722	725	729	732	734*	734*	677*	4085*	4288	5288	4053	4067	4073
CATYVI	824	488	2983	3041	4192	4192	919*	924	926	954	3724	4068	4073
CAF	1243*	2437	2485	2983	3041	4192	919*	924	926	954	3724	4068	4073
CAREG	5285	5213*	5213*	5199*	521*	521*	428*	429*	431*	432*	433*	434*	435*
CENRRI	1268	5199*	5217	5217	5217	5217	5217	5217	5217	5217	5217	5217	5217
CHANGR	5282*	5217	5217	5217	5217	5217	5217	5217	5217	5217	5217	5217	5217
CHECK	4947	4962*	4962*	4962*	4962*	4962*	4962*	4962*	4962*	4962*	4962*	4962*	4962*
CHKCLA	134	307	359	588	622	882	919*	924	926	954	3724	4068	4073
CHKERA	4445	4452*	4452*	4452*	4452*	4452*	4452*	4452*	4452*	4452*	4452*	4452*	4452*
CHKSKP	3927	3932*	3974	3974	3974	3974	3974	3974	3974	3974	3974	3974	3974
CHKSKP	4983*	4992	4992	4992	4992	4992	4992	4992	4992	4992	4992	4992	4992
CHMLT	1858	5224*	5224*	5224*	5224*	5224*	5224*	5224*	5224*	5224*	5224*	5224*	5224*
CHNPOT	5287	5234	5234	5234	5234	5234	5234	5234	5234	5234	5234	5234	5234
CHXCOUT	1154	1154	178	171	308*	329*	334*	334*	334*	334*	334*	334*	334*
CLASSIC	4074	4074	4074	4074	4074	4074	4074	4074	4074	4074	4074	4074	4074
CLASIK	951	1010	1127	4284*	4284*	4284*	4284*	4284*	4284*	4284*	4284*	4284*	4284*
CLDR	1173	4637*	4639	5112	5317	5365	5365	5382*	5382*	5382*	5382*	5382*	5382*
CLKCNT	2056	2094	2094	2094	2094	2094	2094	2094	2094	2094	2094	2094	2094
CLRL	1126*	1116	1338	1368	1451	1451	1451	1451	1451	1451	1451	1451	1451
CLRLL	2029	2029	2029	2029	2029	2029	2029	2029	2029	2029	2029	2029	2029
CLRTN	1011	1011	1016*	1016*	1016*	1016*	1016*	1016*	1016*	1016*	1016*	1016*	1016*
CLRTRN	1241*	1046	1463	1482	1584	1536	1578	1482	1482	1482	1482	1482	1482
CLREG	1866	1866	1915	1926	1950	1956	1956	1956	1956	1956	1956	1956	1956
CMSAV	1539	1539	1539	1539	1539	1539	1539	1539	1539	1539	1539	1539	1539
CNT	415	415	415	415	415	415	415	415	415	415	415	415	415
CNTALC	421	421	421	421	421	421	421	421	421	421	421	421	421
CNTALD	429	429	429	429	429	429	429	429	429	429	429	429	429
CNTALL	416	416	416	416	416	416	416	416	416	416	416	416	416
CNTALS	418	418	418	418	418	418	418	418	418	418	418	418	418
CNTALS	419	419	419	419	419	419	419	419	419	419	419	419	419
CNTVAL	163	177*	466	466	466	466	466	466	466	466	466	466	466
CNVAL	163	177*	466	466	466	466	466	466	466	466	466	466	466
CNVAL	164	4828	4838	4831	4831	4831	4831	4831	4831	4831	4831	4831	4831

COMP2	1165	3467*	3479	3488	3488	3488	3488	3488	3488	3488	3488	3488	3488
CONSQL	2092	2053	2055	2068*	2068*	2068*	2068*	2068*	2068*	2068*	2068*	2068*	2068*
CONST1	1339	2054	5367	5379	5386*	5386*	5386*	5386*	5386*	5386*	5386*	5386*	5386*
COUNT	3474	3474	3474	3474	3474	3474	3474	3474	3474	3474	3474	3474	3474
CREPR	1114*	1246	3700	3817	3822*	3822*	3822*	3822*	3822*	3822*	3822*	3822*	3822*
CRFL	1237*	3472	3548	3577	3589	4014	4887	4887	4887	4887	4887	4887	4887
CRREG1	1238*	3475	3567	3573	4016	4071	4792	4792	4792	4792	4792	4792	4792
CRREG2	1240*	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581
CRMR1	1240*	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581
CRMR2	1250*	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581	3581
CYLA80	1183*	2184	2196	2245	2256	2285	2311	2300	2365	2617	2668	2742	2783
DAREG	1242*	2233	2488	2935	3047	3748	3748	4718	4721	4921	4922	4922	4922
DATCNT	1251*	4830	4832	4845	4851	4725	4735	5134	5144	5187	5153	5153	5153
DREG	1240*	4894	4895	4895	4895	4895	4895	4895	4895	4895	4895	4895	4895
DCLR	1874*	3974	4638	4638	4638	4638	4638	4638	4638	4638	4638	4638	4638
DNNT1	3823	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT2	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT3	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT4	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT5	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT6	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT7	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT8	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT9	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT0	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT1	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT2	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT3	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT4	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT5	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT6	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT7	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT8	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT9	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT0	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT1	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT2	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT3	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT4	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT5	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT6	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT7	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT8	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT9	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT0	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT1	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT2	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT3	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT4	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT5	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT6	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT7	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT8	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT9	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT0	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT1	3826	3830	3833	3857	3876	3883	3883	3883	3883	3883	3883	3883	3883
DNNT2	3826	3830	3833	3857	3876	3883	3883	3883	388				

03K08	5063#	1919	3901	3903	3906	3909	3908	3908	3901	3903	3907	3908	3909	3912	3917	3920	3925	3930	3935	3940	3945	3950	3955	3960	3965	3970	3975	3980	3985	3990	3993	3998		
03K10	5064#	1936	3928	3928	3931	3934	3936	3938	3941	3944	3947	3950	3953	3956	3959	3962	3965	3968	3971	3974	3977	3980	3983	3986	3989	3992	3995	3998	4001	4004	4007	4010		
03K12	5065#	1953	3945	3945	3948	3951	3954	3957	3960	3963	3966	3969	3972	3975	3978	3981	3984	3987	3990	3993	3996	3999	4002	4005	4008	4011	4014	4017	4020	4023	4026	4029		
03K14	5066#	1970	3962	3962	3965	3968	3971	3974	3977	3980	3983	3986	3989	3992	3995	3998	4001	4004	4007	4010	4013	4016	4019	4022	4025	4028	4031	4034	4037	4040	4043	4046		
03K16	5067#	1987	3979	3979	3982	3985	3988	3991	3994	3997	4000	4003	4006	4009	4012	4015	4018	4021	4024	4027	4030	4033	4036	4039	4042	4045	4048	4051	4054	4057	4060	4063		
03K18	5068#	2004	3996	3996	3999	4002	4005	4008	4011	4014	4017	4020	4023	4026	4029	4032	4035	4038	4041	4044	4047	4050	4053	4056	4059	4062	4065	4068	4071	4074	4077	4080		
03K20	5069#	2021	4013	4013	4016	4019	4022	4025	4028	4031	4034	4037	4040	4043	4046	4049	4052	4055	4058	4061	4064	4067	4070	4073	4076	4079	4082	4085	4088	4091	4094	4097	4100	
03K22	5070#	2038	4030	4030	4033	4036	4039	4042	4045	4048	4051	4054	4057	4060	4063	4066	4069	4072	4075	4078	4081	4084	4087	4090	4093	4096	4099	4102	4105	4108	4111	4114	4117	
03K24	5071#	2055	4047	4047	4050	4053	4056	4059	4062	4065	4068	4071	4074	4077	4080	4083	4086	4089	4092	4095	4098	4101	4104	4107	4110	4113	4116	4119	4122	4125	4128	4131	4134	
03K26	5072#	2072	4064	4064	4067	4070	4073	4076	4079	4082	4085	4088	4091	4094	4097	4100	4103	4106	4109	4112	4115	4118	4121	4124	4127	4130	4133	4136	4139	4142	4145	4148	4151	
03K28	5073#	2089	4081	4081	4084	4087	4090	4093	4096	4099	4102	4105	4108	4111	4114	4117	4120	4123	4126	4129	4132	4135	4138	4141	4144	4147	4150	4153	4156	4159	4162	4165	4168	
03K30	5074#	2106	4098	4098	4101	4104	4107	4110	4113	4116	4119	4122	4125	4128	4131	4134	4137	4140	4143	4146	4149	4152	4155	4158	4161	4164	4167	4170	4173	4176	4179	4182	4185	
03K32	5075#	2123	4115	4115	4118	4121	4124	4127	4130	4133	4136	4139	4142	4145	4148	4151	4154	4157	4160	4163	4166	4169	4172	4175	4178	4181	4184	4187	4190	4193	4196	4199	4202	
03K34	5076#	2140	4132	4132	4135	4138	4141	4144	4147	4150	4153	4156	4159	4162	4165	4168	4171	4174	4177	4180	4183	4186	4189	4192	4195	4198	4201	4204	4207	4210	4213	4216	4219	
03K36	5077#	2157	4149	4149	4152	4155	4158	4161	4164	4167	4170	4173	4176	4179	4182	4185	4188	4191	4194	4197	4200	4203	4206	4209	4212	4215	4218	4221	4224	4227	4230	4233	4236	
03K38	5078#	2174	4166	4166	4169	4172	4175	4178	4181	4184	4187	4190	4193	4196	4199	4202	4205	4208	4211	4214	4217	4220	4223	4226	4229	4232	4235	4238	4241	4244	4247	4250	4253	
03K40	5079#	2191	4183	4183	4186	4189	4192	4195	4198	4201	4204	4207	4210	4213	4216	4219	4222	4225	4228	4231	4234	4237	4240	4243	4246	4249	4252	4255	4258	4261	4264	4267	4270	
03K42	5080#	2208	4200	4200	4203	4206	4209	4212	4215	4218	4221	4224	4227	4230	4233	4236	4239	4242	4245	4248	4251	4254	4257	4260	4263	4266	4269	4272	4275	4278	4281	4284	4287	
03K44	5081#	2225	4217	4217	4220	4223	4226	4229	4232	4235	4238	4241	4244	4247	4250	4253	4256	4259	4262	4265	4268	4271	4274	4277	4280	4283	4286	4289	4292	4295	4298	4301	4304	
03K46	5082#	2242	4234	4234	4237	4240	4243	4246	4249	4252	4255	4258	4261	4264	4267	4270	4273	4276	4279	4282	4285	4288	4291	4294	4297	4300	4303	4306	4309	4312	4315	4318	4321	
03K48	5083#	2259	4251	4251	4254	4257	4260	4263	4266	4269	4272	4275	4278	4281	4284	4287	4290	4293	4296	4299	4302	4305	4308	4311	4314	4317	4320	4323	4326	4329	4332	4335	4338	
03K50	5084#	2276	4268	4268	4271	4274	4277	4280	4283	4286	4289	4292	4295	4298	4301	4304	4307	4310	4313	4316	4319	4322	4325	4328	4331	4334	4337	4340	4343	4346	4349	4352	4355	4358
03K52	5085#	2293	4285	4285	4288	4291	4294	4297	4300	4303	4306	4309	4312	4315	4318	4321	4324	4327	4330	4333	4336	4339	4342	4345	4348	4351	4354	4357	4360	4363	4366	4369	4372	4375
03K54	5086#	2310	4302	4302	4305	4308	4311	4314	4317	4320	4323	4326	4329	4332	4335	4338	4341	4344	4347	4350	4353	4356	4359	4362	4365	4368	4371	4374	4377	4380	4383	4386	4389	4392
03K56	5087#	2327	4319	4319	4322	4325	4328	4331	4334	4337	4340	4343	4346	4349	4352	4355	4358	4361	4364	4367	4370	4373	4376	4379	4382	4385	4388	4391	4394	4397	4400	4403	4406	4409
03K58	5088#	2344	4336	4336	4339	4342	4345	4348	4351	4354	4357	4360	4363	4366	4369	4372	4375	4378	4381	4384	4387	4390	4393	4396	4399	4402	4405	4408	4411	4414	4417	4420	4423	4426
03K60	5089#	2361	4353	4353	4356	4359	4362	4365	4368	4371	4374	4377	4380	4383	4386	4389	4392	4395	4398	4401	4404	4407	4410	4413	4416	4419	4422	4425	4428	4431	4434	4437	4440	4443
03K62	5090#	2378	4370	4370	4373	4376	4379	4382	4385	4388	4391	4394	4397	4400	4403	4406	4409	4412	4415	4418	4421	4424	4427	4430	4433	4436	4439	4442	4445	4448	4451	4454	4457	4460
03K64	5091#	2395	4387	4387	4390	4393	4396	4399	4402	4405	4408	4411	4414	4417	4420	4423	4426	4429	4432	4435	4438	4441	4444	4447	4450	4453	4456	4459	4462	4465	4468	4471	4474	4477
03K66	5092#	2412	4404	4404	4407	4410	4413	4416	4419	4422	4425	4428	4431	4434	4437	4440	4443	4446	4449	4452	4455	4458	4461	4464	4467	4470	4473	4476	4479	4482	4485	4488	4491	4494
03K68	5093#	2429	4421	4421	4424	4427	4430	4433	4436	4439	4442	4445	4448	4451	4454	4457	4460	4463	4466	4469	4472	4475	4478	4481	4484	4487	4490	4493	4496	4499	4502	4505	4508	4511
03K70	5094#	2446	4438	4438	4441	4444	4447	4450	4453	4456	4459	4462	4465	4468	4471	4474	4477	4480	4483	4486	4489	4492	4495	4498	4501	4504	4507	4510	4513	4516	4519	4522	4525	4528
03K72	5095#	2463	4455	4455	4458	4461	4464	4467	4470	4473	4476	4479	4482	4485	4488	4491	4494	4497	4500	4503	4506	4509	4512	4515	4518	4521	4524	4527	4530	4533	4536	4539	4542	4545
03K74	5096#	2480	4472	4472	4475	4478	4481	4484	4487	4490	4493	4496	4499	4502	4505	4508	4511	4514	4517	4520	4523	4526	4529	4532	4535	4538	4541	4544	4547	4550	4553	4556	4559	4562
03K76	5097#	2497	4489	4489	4492	4495	4498	4501	4504	4507	4510	4513	4516	4519	4522	4525	4528	4531	4534	4537	4540	4543	4546	4549	4552	4555	4558	4561	4564	4567	4570	4573	4576	4579
03K78	5098#	2514	4506	4506	4509	4512	4515	4518	4521	4524	4527	4530	4533	4536	4539	4542	4545	4548	4551	4554	4557	4560	4563	4566	4569	4572	4575	4578	4581	4584	4587	4590	4593	4596
03K80	5099#	2531	4523	4523	4526	4529	4532	4535	4538	4541	4544	4547	4550	4553	4556	4559	4562	4565	4568	4571	4574	4577	4580	4583	4586	4589	4592	4595	4598	4601	4604	4607	4610	4613
03K82	5100#	2548	4540	4540	4543	4546	4549	4552	4555	4558	4561	4564	4567	4570	4573	4576	4579	4582	4585	4588	4591	4594	4597	4600	4603	4606	4609	4612	4615	4618	4621	4624	4627	4630
03K84	5101#	2565	4557	4557	4560	4563	4566	4569	4572	4575	4578	4581	4584	4587	4590	4593	4596	4599	4602	4605	4608	4611	4614	4617	4620	4623	4626	4629	4632	4635	4638	4641	4644	

•V3102	951	1010	1040#		
•V6004	3055	3090#			
•V6110	1655	1687	1735#	3025	3090#
•V6600	1260	1420#			
•V7025	1285	1417#			
•V7160	1335	1414#	1506	1590#	1752
•V7161	1329	1415#	2654	2633#	1090#
•V7182	2056	2082#	3696	3777#	
•V7482	312	317#	906	1032#	
•V7510	642	665#			
•V7520	650	666#			
•V7600	490	503#			
•V7700	262	233#			
•V7774	723	090#			