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IDENTIFICATION

PRODUCT CODE:	MAINDEC-08-QHRKA-B-D
PRODUCT NAME:	RKBE DISKLESS CONTROL TEST
DATE CREATED:	APRIL 19, 1973
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	JOHN VROHEL

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1, ABSTRACT

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

2, REQUIREMENTS

2,1 HARDWARE

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

AT LEAST 4K OF READ/WRITE MEMORY
 ASR-33 TELETYPE OR EQUIVALENT
 RKBE DISK CONTROL
 RK05 DISK DRIVE

2,2 SPECIAL

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

THE DISKLESS TEST CAN ALSO BE RUN WITH THE CABLES TO THE DRIVES DISCONNECTED FROM THE RKBE CONTROL,

2,3 STORAGE

THE PROGRAM UTILIZES OR OCCUPIES LOCATIONS 0000 TO 7577 OF THE CURRENT FIELD, IF THE CURRENT FIELD IS AN EXTENDED MEMORY FIELD, LOCATIONS 0000 TO 0003 OF FIELD 0 WILL ALSO BE USED FOR INTERRUPT SERVICE,

THE PROGRAM WILL ALSO TEST DATA BREAK TRANSFER TO ALL EXISTING EXTENDED FIELDS AS INDICATED BY SWR9-11,

3, PRELIMINARY PROGRAMS

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

4, SWITCH REGISTER SETTINGS

SWR9=1 ENTER SCOPE LOOP, AFTER AN ERROR HALT AT LOCATION "ERRHLT0" RAISING THIS SWITCH AND PRESSING KEY CONTINUE WILL CAUSE A SCOPE LOOP ON THE CURRENT TEST. AT SWR9=0 AND THE TEST IS STILL FAILING, THE ERROR BELL SHOULD RING INDICATING AN ERROR.

SWR10=1 INHIBIT END OF TEST HALT. AT THE COMPLETION OF THE TEST THE PROGRAM SHOULD HALT AT LOCATION "ENDHLT0", RAISING THIS SWITCH WILL INHIBIT THE END OF TEST HALT.

SWR2=1 INHIBIT ERROR BELL ON SCOPE LOOP,

SWR3=1 GET ALL REGISTERS AFTER "ERRHLT0", AFTER AN ERROR HALT AT LOCATION "ERRHLT0", RAISING THIS SWITCH AND PRESSING KEY CONTINUE WILL RESULT IN THE TYPEOUT OF THE ABSOLUTE CONTENTS OF THE STATUS, COMMAND, CRC, LOWER DATA, AND SURFACE AND SECTOR REGISTERS.

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

SWR5=11 AMOUNT OF EXTENDED BANKS OF MEMORY; AT INITIAL START OF THE PROGRAM, SWR5=11 INDICATES THE AMOUNT OF EXISTING EXTENDED MEMORY FIELDS AVAILABLE TO TEST.

5, OPERATOR AND/OR PROGRAM ACTION

5,1 STANDARD TEST PROCEDURE

A. START AS SPECIFIED THROUGHOUT THIS DOCUMENTATION IS KEY CLEAR AND THEN KEY CONTINUE ON A PDP8/E, PDP8/F, OR PDP8/M COMPUTER.

B. LOAD THE PROGRAM INTO ANY 2-M MEMORY BANK USING THE STANDARD BINARY LOADER TECHNIQUE.

- C, IF IT IS DESIRED TO CHANGE THE IOT CODES WITHIN THE PROGRAM, FOLLOW THE PROCEDURE IN SECTION 5,4,
- D, RUN THE DISKLESS CONTROL TEST PORTION BY FOLLOWING THE PROCEDURE IN SECTION 5,2,
- E, RUN THE MANUAL SCOPE TEST BY FOLLOWING THE PROCEDURE IN SECTION 5,3,

5,2

DISKLESS CONTROL TEST

- A, SET THE SWITCH LABELED "RUN/LOAD" TO THE "LOAD" POSITION ON ALL DRIVES, OR DISCONNECT DRIVES FROM RK8E CONTROL,
- B, IF DRIVES ARE CABLED TO THE RK8E CONTROL, VERIFY AC POWER IN THE DRIVE(S) IS ON,
- C, SET THE SWITCH REGISTER TO 0200 AND PRESS LOAD ADDRESS,
- D, SET THE SWITCH REGISTER TO 0000,
- E, SET SW9-11 TO THE AMOUNT OF AVAILABLE EXTENDED R/W MEMORY BANKS AND START THE COMPUTER RUNNING,
- F, SET SW1-1 IF THE OPERATOR DESIRES TO INHIBIT THE END OF TEST HALT AT LOCATION "ENDHLT",
- G, SW4=1 SHOULD ALWAYS BE USED TO STOP THE PROGRAM,
- H, THE PROGRAM SHOULD PRINT THE FOLLOWING MESSAGE AT THE COMPLETION OF EACH SUCCESSFUL PASS APROX, EVERY 3,5 MINUTES,

"RK8E DISKLESS PASS COMPLETE"
- I, ANY HALTS OR TYPEOUTS OTHER THAN THE PASS COMPLETE TYPEOUT AND THE END OF TEST HALT MENTIONED ABOVE WILL BE CONSIDERED AN ERROR CONDITION, IN ALL CASES ACCESS "ERRORS" SECTION 6 IN THIS DOCUMENTATION,
- J, FOR ABSOLUTE LOCATIONS OF ALL KNOWN HALTS ACCESS PAGE 3 OF THE PROGRAM LISTING,

5,3

MANUAL SCOPE TEST FOR 16 BIT COUNTER

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

- A, RUN THE DISKLESS CONTROL TEST PORTION PRIOR TO THIS MANUAL TEST,
- B, SET THE SWITCH REGISTER TO 0201 AND PRESS LOAD ADDRESS,

- C. SET THE SWITCH REGISTER TO 0K00 AND PRESS START,
- D. SCOPE THE 16TH CARRY OUTPUT, TEST POINT 1 (T1), ON THE 47106 MODULE IN THE MKBE CONTROL LOGIC, FOR A POSITIVE GOING SIGNAL,
- E. THE APPROX. SIGNAL SHOULD BE A GROUND TO + 3 VOLT PULSE, 9 MICRO-SECONDS WIDE, OCCURRING AT A 140 MICRO*SECOND RATE,
- F. ALL THAT THE PROGRAM DOES IN THIS SCOPE TEST IS TO CONTINUOUSLY ISSUE HI MAIN SHIFT PULSES TO THE 16 BIT COUNTER ON THE 47106 MODULE,

5.4 CHANGE PROGRAM DEVICE IOT CODES

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

- A. SET THE SWITCH REGISTER TO 0202 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. THE OTHER TESTS CAN THEN BE RUN (SEE SECTIONS 5.2 + 5.3),

6. ERRORS

6.1 USEFUL ERROR INFORMATION

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

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

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

6,2 NON-RECOVERABLE ERROR HALTS

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

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

6,3 RECOVERABLE ERROR HALT

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

ERHLT9 RECOVERABLE ERROR HALT; READ INFORMATION
 TIMEOUT ON ITY AND ACCESS LISTING;

6,4 ERROR TIMEOUTS

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

POSSIBLE "ERROR HEADERS" ARE AS FOLLOWS:

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

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

POI PROGRAM LOCATION OF THE ACTUAL FAILURE,
 GOI REFERS TO THE DATA EXPECTED IN THE REGISTER OR TYPE OF TEST SPECIFIED IN THE "ERROR HEADER",
 CRI CONTENTS OF THE CRC REGISTER,
 STI CONTENTS OF THE STATUS REGISTER,
 DBI CONTENTS OF THE LOWER DATA REGISTER,
 CMI CONTENTS OF THE COMMAND REGISTER,
 DAI CONTENTS OF THE DISK ADDRESS REGISTER OR THE CYLINDER, SURFACE, AND SECTOR BITS,
 ADI BREAK ADDRESS OF DATA BREAK,
 DII DATA FOUND DURING DATA BREAK,
 ACI CONTENTS OF THE AC REGISTER.

THE "GOI" INFORMATION TYPED OUT POINTS TO THE DATA EXPECTED IN THE REGISTER IN ERROR OR TYPE OF ERROR TYPED OUT IN THE "ERROR HEADER",

THE ERROR INFORMATION INDICATOR SUGGESTED BY THE "ERROR HEADER" (I.E., DAI FOR DISK ADDRESS ERROR, CMI FOR COMMAND REGISTER ERROR, CRI FOR CRC REGISTER ERROR, ETC.), IS THE ACTUAL CONTENTS OF THAT PARTICULAR REGISTER. ERROR INFORMATION OTHER THAN THAT SUGGESTED BY THE "ERROR HEADER" IS THE SOFTWARE INFORMATION LOADED INTO THAT REGISTER PRIOR TO THE FAILURE. (NOTE: "STI" STATUS ALWAYS INDICATES THE ACTUAL CONTENTS.)

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

6.5 SCOPE LOOPS -----

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

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

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

6.6 TYPICAL ERROR TYPEOUTS -----

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

AC REGISTER ERROR
PC11541 GD10200 AC10100

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

COMMAND REGISTER ERROR
PC12100 GD10222 CM10200

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
PC13332

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

DATA BREAK ERROR
PC14453 GD15252 CM14000 AD17777 DT15250

7. RESTRICTIONS -----

IF THE DRIVES ARE CABLED TO THE RK06 CONTROL LOGIC, THE AC POWER TO THE DRIVES MUST BE ON AND THE DRIVES MUST BE SET TO THE LOAD POSITION.

8, TROUBLE SHOOTING INFORMATION

IOT		FUNCTION
---		-----
6741	DSKP	"SKIP" SKIP IF TRANSFER DONE FLAG OR ERROR FLAG IS SET,
6742	DCLR	"CLEAR" FUNCTION IS REGULATED BY AC BITS 10 AND 11, THE AC IS THEN CLEARED,
AC10	AC11	
----	----	
3	3	CLEAR THE AC AND STATUS REGISTER,
0	1	CLEAR THE AC, CONTROL, AND MAJOR REGISTERS; THIS INSTRUCTION WILL STOP THE CONTROL EVEN IF IT IS WRITING A HEADER, THIS IS THE ONLY INSTRUCTION THAT WILL CLEAR MAINTENANCE MODE,
1	3	CLEAR AC, RECALIBRATE DISK DRIVE, AND CLEAR STATUS REGISTER,
6743	DLAG	"LOAD DISK ADDRESS AND GO" LOAD THE DISK CYLINDER, SURFACE, AND SECTOR FROM THE AC, CLEAR THE AC, AND DO THE COMMAND IN THE COMMAND REGISTER,
AC		
--		
0-6		CYLINDER
7		SURFACE (1= UPPER) (0= LOWER)
8-11		SECTOR
6744	DLCA	"LOAD CURRENT ADDRESS" LOAD THE CURRENT ADDRESS FROM AC, THE AC IS THEN CLEARED,
AC		
--		
0-11		CURRENT ADDRESS
6745	DRST	"READ STATUS" CLEAR THE AC AND READ THE CONTENTS OF THE STATUS REGISTER INTO THE AC,

AC

-*

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

6746 DLDC

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

AC

-*

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

6747 DMAN

"MAINTENANCE IOT" LOAD THE MAINTENANCE REGISTER FROM THE AC, THE FUNCTION IS REGULATED BY THE AC BITS, MAINTENANCE MODE CAN ONLY BE CLEARED BY 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 SILD WHEN FULL,
6	ONE SINGLE CYCLE BREAK REQUEST, DIRECTION IS REGULATED BY FUNCTION IN THE COMMAND REGISTER,
7	CLEAR AC THEN READ THE LOWER DATA BUFFER TO THE AC,
8	NOT USED,
9	NOT USED,
10	USED AS DATA WITH OTHER BITS IN THE MAINTENANCE MODE,
11	NOT USED,

9. PROGRAM DESCRIPTION

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

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

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

A. SETUP

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

B. TST0-TST3

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

C. TST4

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

D. TST5

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

E. TST6-TST9

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

F. TST10-TST14

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

G. TST15-TST28

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

H. TST29-TST30

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

I, TST31

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

J, TST32-TST33

VERIFY "D_{MAN} MAINTENANCE ID_T" DOES NOT EFFECT AC REGISTER.

K, TST34-TST35

VERIFY MAINTENANCE MODE CAN BE SET AND CLEARED CORRECTLY.

L, TST36-TST40

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

M, TST41-TST48

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

N, TST49-TST76

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

O, TST77-TST100

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

P, TST101-TST105

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

Q, TYPE PASS COMPLETE AND LOOP TO TST4;

10,

PROGRAM LISTING

```

/
XAPL DIKALNS CONTROL TEST
/
XALL XAPL PLTS
/
0000 4403 00000000 XNDEIND 00000000
0001 4404 00000000 XSKIP TRAP FOR DCF
0002 4405 00000000 XSKIP TRAP FOR DLAC
0003 4406 00000000 XSKIP TRAP FOR DLCC
0004 4407 00000000 XSKIP TRAP FOR DOST
0005 4408 00000000 XSKIP TRAP FOR DDCG
0006 4409 00000000 XSKIP TRAP FOR DMAN
0007 4410 00000000 XRECOVERABLE ERROR -HALT
0008 4411 00000000 XEND OF TEST HALT
0009 4412 00000000 XHALT FROM XNDEIND
0010 4413 00000000 XICL CHANGE HALT
/
4741 00000000 XSKIP ON TRANSFER DONE OR ERROR
4742 00000000 XLEAH DISK CONTROL LOGIC
4743 00000000 XLOAD ADDRESS AND GO
4744 00000000 XLOAD CURRENT ADDRESS
4745 00000000 XLOAD STATUS REGISTER
4746 00000000 XLOAD COMMAND REGISTER
4747 00000000 XLOAD HALTCOMMAND
/
4820 10000000 XCHANGE
4821 10000000 XCHANGE
4822 10000000 XCHANGE
4823 10000000 XCHANGE
4824 10000000 XCHANGE
4825 10000000 XCHANGE
4826 10000000 XCHANGE
4827 10000000 XCHANGE
4828 10000000 XCHANGE
4829 10000000 XCHANGE
4830 10000000 XCHANGE
4831 10000000 XCHANGE
4832 10000000 XCHANGE
4833 10000000 XCHANGE
4834 10000000 XCHANGE
4835 10000000 XCHANGE
4836 10000000 XCHANGE
4837 10000000 XCHANGE
4838 10000000 XCHANGE
4839 10000000 XCHANGE
4840 10000000 XCHANGE
4841 10000000 XCHANGE
4842 10000000 XCHANGE
4843 10000000 XCHANGE
4844 10000000 XCHANGE
4845 10000000 XCHANGE
4846 10000000 XCHANGE
4847 10000000 XCHANGE
4848 10000000 XCHANGE
4849 10000000 XCHANGE
4850 10000000 XCHANGE
4851 10000000 XCHANGE
4852 10000000 XCHANGE
4853 10000000 XCHANGE
4854 10000000 XCHANGE
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0002 0000
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0000 0000
0001 0001
0002 0002
0003 0003
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0010 0000
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0020 0000
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0030 0000
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0040 0000
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0050 0000
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0060 0000
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0070 0000
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0080 0000
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0090 0000
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0100 0000
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0110 0000
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0120 0000
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0130 0000
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0160 0000
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0170 0000
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0180 0000
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0190 0000
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0200 0000
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0210 0000
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0220 0000
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0230 0000
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0240 0000
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0250 0000
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0260 0000
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0270 0000
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0280 0000
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0290 0000
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0300 0000
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0310 0000
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0350 0000
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0360 0000
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0370 0000
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0380 0000
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0390 0000
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0400 0000
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0410 0000
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0450 0000
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0470 0000
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0660 0000
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0670 0000
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0680 0000
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0690 0000
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0700 0000
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0710 0000
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0720 0000
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0760 0000
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0770 0000
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0780 0000
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0790 0000
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0870 0000
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0880 0000
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0890 0000
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0900 0000
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0910 0000
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0920 0000
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0930 0000
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0940 0000
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0950 0000
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0960 0000
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0970 0000
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0980 0000
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0990 0000
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1000 0000
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```

0274 0217 <0000, 0207
0275 0470 <0000, 0400
0276 1700 <1000, 1000
0277 7000 <2000, 0000
0100 1777 <1777, 1777
0101 0000 <0000, 0000
0102 7000 <7000, 7000
0103 1776 <1776, 1776
0104 7775 <7775, 7775
0105 1700 <1700, 1700
0106 7740 <7740, 7740
0107 0070 <0070, 0070
0110 1077 <1077, 1077
0111 1077 <1077, 1077
0112 1177 <1177, 1177
0113 0525 <0525, 0525
0114 0202 <0202, 0202
0115 1740 <1740, 1740
0116 1717 <1717, 1717
0117 7717 <7717, 7717
0120 4100 <4100, 4100
0121 7000 <7000, 7000
0122 0000 <0000, 0000
0123 0077 <0077, 0077
0124 7774 <7774, 7774
0125 7771 <7771, 7771
0126 7777 <7777, 7777

REGI'VAL

0127 7774 <0, -4
0130 7720 <0, -5
0131 7731 <0, -7
0132 7754 <0, -12
0133 7750 <0, -16
0134 7720 <0, -40
0135 7000 <0, -100
0136 7000 <0, -101
0137 7000 <0, -200
0140 7000 <0, -300

DATA

0141 0017 <0017, 0017
0142 0010 <0010, 0010
0143 0010 <0010, 0010
0144 0001 <0001, 0001
0145 0000 <0000, 0000
0146 0400 <0400, 0400
0147 1776 <1776, 1776
0150 0000 <0000, 0
0151 0000 <0000, 0
0152 0000 <0000, 0
0153 0000 <0000, 0
0154 0000 <0000, 0

0155 0000 <0000, 0
0156 0000 <0000, 0
0157 0070 <0070, 0
0160 0070 <0070, 0
0161 0000 <0000, 0
0162 0000 <0000, 0
0163 0000 <0000, 0
0164 0000 <0000, 0
0165 0000 <0000, 0
0166 0000 <0000, 0
0167 0000 <0000, 0
0170 0000 <0000, 0
0171 0000 <0000, 0
0172 0000 <0000, 0
0173 0000 <0000, 0
0174 0000 <0000, 0
0175 0000 <0000, 0
0176 0000 <0000, 0

0200

/*SETUP PRINTERS FOR AMOUNT OF EXTENDED
/*BLOCKS OF MEMORY, INTERRUPT SERVICE, AND CURRENT
/*FIELD 1

0202 0000 <0000, 0
0203 0000 <0000, 0
0204 0000 <0000, 0
0205 0000 <0000, 0
0206 0000 <0000, 0
0207 0000 <0000, 0
0210 0000 <0000, 0
0211 0000 <0000, 0
0212 0000 <0000, 0
0213 0000 <0000, 0
0214 0000 <0000, 0
0215 0000 <0000, 0
0216 0000 <0000, 0
0217 0000 <0000, 0
0220 0000 <0000, 0
0221 0000 <0000, 0
0222 0000 <0000, 0

/*VERIFY THAT THE DISK MOTOR IS OFF, THE
/*STATUS REGISTER SHOULD ONLY CONTAIN NOT READY TO
/*SEEK, HEAD, OR WRITE AND NOT DISK FILE READY,
/*INITIALISE SHOULD HAVE CLEARED ALL OTHER BITS

0223 0000 <0000, 0
0224 0000 <0000, 0
0225 0000 <0000, 0

/*TO REGULAR DIAGNOSTIC
/*TO MANUAL SCOPE YES
/*TO THE CHANGE ROUTINE
/*MAKE HOMEY
/*MAKE DEBIT
/*SET P FIELD 2
/*SET FIRST PASS POINTER
/*IS IT FIRST PASS
/*NO, MUST BE A RESTART
/*GET LAST LOCATION
/*SAVE IT FOR A RESTORE
/*ASK 9-11
/*SAVE AMOUNT OF EXTENDED MEMORY

/*GET EXPECTED STATUS
/*SETUP IT'S HANDLER

```

/
2206 4430      TEST  TA0  REG01          /GET AC VALUE
2207 4431      ADDR01          /CHECK RESULTS REGISTER
2208 4432      ADDR01          /CHECK RESULTS
2209 4433      ADDR01          /AD CLK, 4096 LOOPS
2210 4434      ADDR01          /ERROR, "INITIALIZE" CLEAR STATUS
2211 4435      ADDR01          /REGISTER FAILED
2212 4436      ADDR01          /SCOPE LOOP POINTER
2213 4437      ADDR01          /TEXT POINTER
/
/VERIFY THAT SKIP CONDITIONS WERE CLEARED
/TRY "INITIALIZE" ON START OF TEST,
/
2235 4440      TEST0  CSKSKP          /ISSUE "SKSKP" IDT
2236 4441      ADDR01          /CHECK CLK, 4096 LOOPS
2237 4442      ADDR01          /ERROR, "INITIALIZE" CLEAR
2238 4443      ADDR01          /SKIP CONDITIONS
2239 4444      ADDR01          /SCOPE LOOP POINTER
2240 4445      ADDR01          /TEXT POINTER
/
/VERIFY THAT INTERRUPT REQUESTS WERE
/RELEASE BY "INITIALIZE" AT START OF TEST
/
2242 4447      TEST0  INT001          /GET AC VALUE
2243 4448      ADDR01          /AD CLK, 4096 LOOPS
2244 4449      ADDR01          /ERROR, "INITIALIZE" CLEAR
2245 4450      ADDR01          /INT, CONDITION
2246 4451      ADDR01          /SCOPE LOOP POINTER
2247 4452      ADDR01          /TEXT POINTER
/
/VERIFY THAT COMMAND REGISTER WAS CLEARED
/TRY "INITIALIZE" AT START OF TEST, READ COMMAND
/REGISTER WITH ROMANT (MAINTENANCE 17)
/
2247 4453      TEST0  CLR 000000          /SETUP COMPARE REGISTER
2248 4454      ADDR01          /READ COMMAND REGISTER
2249 4455      ADDR01          /AD SHOULD BE 0
2250 4456      ADDR01          /AD CLK, 4096 LOOPS
2251 4457      ADDR01          /ERROR, "INITIALIZE" CLEAR
2252 4458      ADDR01          /COMMAND REGISTER
2253 4459      ADDR01          /SCOPE LOOP POINTER
2254 4460      ADDR01          /TEXT POINTER
2255 4461      ADDR01          /
/
/VERIFY THAT ALL DRIVES ON CONTROL ARE OFF,
/FILE STATUS SHOULD BE 22ND WHEN DRIVES ARE SELECTED,
/
2259 4464      TEST0  TA0  STOP          /REGISTER STATUS
2260 4465      ADDR01          /SETUP COMPARE REGISTER
2261 4466      ADDR01          /CLEAR "CLR ALL"
2262 4467      ADDR01          /GET AC VALUE
2263 4468      ADDR01          /READ COMMAND
2264 4469      ADDR01          /READ STATUS
2265 4470      ADDR01          /CHECK RESULTS
2266 4471      ADDR01          /CLK, 4096 LOOPS
/

```

```

/
2267 4472      ADDR01          /ERROR STATUS
2268 4473      ADDR01          /SCOPE LOOP POINTER
2269 4474      ADDR01          /TEXT POINTER
/
/VERIFY THAT "OT "SKSKP" DOES NOT AFFECT
/AC REGISTER, TRY ALL COMBINATIONS IN AC,
/
2270 4475      TEST0  TA0  REG01          /GET AC VALUE
2271 4476      ADDR01          /SETUP COMPARE REGISTER
2272 4477      ADDR01          /AD CLK, 4096 LOOPS
2273 4478      ADDR01          /CHECK AC, COMPARE TO 0000
2274 4479      ADDR01          /AD CLK, 4096 LOOPS
2275 4480      ADDR01          /ERROR, "SKSKP" CHANGED AC,
2276 4481      ADDR01          /SCOPE LOOP POINTER
2277 4482      ADDR01          /TEXT POINTER
/
/VERIFY THAT "OLCAN" LOAD CURRENT ADDRESS
/REGISTER CLEARS THE AC, TRY ALL COMBINATIONS IN AC
/
2284 4485      TEST0  CLR 000000          /SETUP COMPARE REGISTER
2285 4486      ADDR01          /GET AC VALUE
2286 4487      ADDR01          /READ CURRENT ADDRESS "OLCAN"
2287 4488      ADDR01          /CHECK AC, COMPARE TO 0000
2288 4489      ADDR01          /AD CLK, 4096 LOOPS
2289 4490      ADDR01          /ERROR, "CLR" CLEAR AC
2290 4491      ADDR01          /SCOPE LOOP POINTER
2291 4492      ADDR01          /TEXT POINTER
/
/VERIFY THAT "OLCAN" LOAD COMMAND REGISTER
/RELEASES THE AC, TRY ALL COMBINATIONS IN AC,
/
2314 4495      TEST0  TA0  REG01          /GET AC VALUE
2315 4496      ADDR01          /READ "OLCAN" COMMAND REGISTER
2316 4497      ADDR01          /CHECK AC, COMPARE TO 0000
2317 4498      ADDR01          /AD CLK, 4096 LOOPS
2318 4499      ADDR01          /ERROR, "CLR" CLEAR AC
2319 4500      ADDR01          /SCOPE LOOP POINTER
2320 4501      ADDR01          /TEXT POINTER
/
/VERIFY THAT "OLCAN" CLEARS THE AC REGISTER,
/TRY ALL COMBINATIONS IN AC,
/
2323 4504      TEST0  CLR 000000          /CLEAR CONTROL
2324 4505      ADDR01          /GET AC VALUE
2325 4506      ADDR01          /LOAD "OLCAN" ADDRESS
2326 4507      ADDR01          /CHECK RESULTS
2327 4508      ADDR01          /AD CLK, 4096 LOOPS
2328 4509      ADDR01          /ERROR, "CLR" CLEAR AC
2329 4510      ADDR01          /SCOPE LOOP POINTER
2330 4511      ADDR01          /TEXT POINTER
/
/VERIFY THAT "CLR" CLEARS THE AC,
/

```

VERIFY ALL COMBINATIONS OF 40

0334	1150	TST10	TA0	REG1	/TEXT POINTER
0335	4445	CLRAL			/CLEAR "CLR ALL"
0336	4432	ADDP1			/READ COMMAND REGISTER
0337	4427	NERHOR			/CHECK AN, COMPARE TO ADDRESS
0340	4432	ERROR			/ERRR, LOAD OF HEAD
0341	4334	TST10			/CHECK LOOP POINTER
0342	4201	4201			/TEXT POINTER

VERIFY THAT THE COMMAND REGISTER CAN BE LOADED AND SHIFTED INTO THE LOWER DATA BUFFER WITH THE MAINTENANCE INT, USE DATA PATTERN 0200 + 7777

0343	7371	TST10	CLA	CLA	
0344	4445	CLRAL			/CLEAR "CLR ALL"
0345	1150	TA0			/TEXT POINTER
0346	7212	TA0	MAP		/DATA 0200 IF LINK IS SET
0347	7639	CLA	CLA		
0350	7242	CLA	TH0		
0351	1160	CCA	CCREG2		/SETUP COMPARE REGISTER
0352	1162	TA0	CCREG2		
0353	7247	CCA			
0354	4442	LD0M0			/SET COMMAND TO 020010
0355	1160	TA0	CCREG2		
0356	4442	LD0M0			/SET COMMAND TO VALUE EXPECTED
0357	4435	R0M0			/READ COMMAND REGISTER
0358	4432	ADDP1			/CHECK RESULTS
0359	4427	NERHOR			/CHK, 4206 LOOPS
0360	4432	ERROR			/ERRR, COMMAND REGISTER
0363	4343	TST10			/CHECK LOOP POINTER
0364	4201	4201			/TEXT POINTER

VERIFY THAT THE COMMAND REGISTER CAN BE LOADED AND SHIFTED INTO THE LOWER DATA BUFFER WITH THE MAINTENANCE INT, USE DATA PATTERN 0200 + 5555

0365	7301	TST11	CLA	CLA	
0366	4445	CLRAL			/CLEAR "CLR ALL"
0367	4150	TA0			/TEXT POINTER
0370	7112	TA0	MAP		/DATA 0200 IF LINK IS SET
0371	7070	CLA	CLA		
0372	1145	TA0	CCREG2		
0373	1143	TA0	CCREG2		
0374	3150	CCA	CCREG2		/SETUP COMPARE REGISTER
0375	1162	TA0	CCREG2		
0376	7247	CCA			
0377	4442	LD0M0			/SET COMMAND TO 020010
0378	1162	TA0	CCREG2		
0381	4442	LD0M0			/SET COMMAND TO VALUE EXPECTED
0382	4435	R0M0			/READ COMMAND REGISTER
0383	4432	ADDP1			/CHECK RESULTS
0384	4427	NERHOR			/CHK, 4206 LOOPS
0385	4432	ERROR			/ERRR, COMMAND REGISTER
0386	4343	TST10			/CHECK LOOP POINTER
0387	4201	4201			/TEXT POINTER

0427 4201 /TEXT POINTER

VERIFY THAT THE COMMAND REGISTER IS LOADED AND THEN SHIFTED INTO THE LOWER DATA BUFFER, TRY ALL COMBINATIONS.

0410	1151	TST12	TA0	REG2	/SET AN VALUE
0411	4442	LD0M0			/LOAD COMMAND REGISTER
0412	1150	TA0			/TEXT POINTER
0413	3162	CCA	CCREG2		/SETUP COMPARE REGISTER
0414	1152	TA0	REG1		
0415	4442	LD0M0			/LOAD COMMAND REGISTER
0416	4435	R0M0			/READ COMMAND REGISTER
0417	4432	ADDP1			/CHECK AN, COMPARE TO ADDRESS
0422	4427	NERHOR			/ERRR, LOAD OF HEAD
0421	4437	ERROR			/COMMAND REGISTER
0422	4412	TST10			/CHECK LOOP POINTER
0423	4201	4201			/TEXT POINTER

VERIFY THAT CLR DOES NOT CLEAR COMMAND REGISTER WHEN 40100 AND 40101

0424	1152	TST13	TA0	REG1	/LOAD COMMAND REGISTER
0425	4442	LD0M0			
0426	1150	TA0			/TEXT POINTER
0427	3152	CCA	CCREG2		/SETUP COMPARE REGISTER
0430	1151	TA0	REG2		
0431	4442	LD0M0			/LOAD COMMAND REGISTER
0432	4445	CLRAL			/CLEAR "CLR ALL"
0433	4435	R0M0			/READ COMMAND REGISTER
0434	4432	ADDP1			/CHECK AN, COMPARE TO ADDRESS
0435	4427	NERHOR			/ERRR, LOAD OF HEAD
0436	4437	ERROR			/COMMAND REGISTER
0437	4424	TST13			/CHECK LOOP POINTER
0440	4201	4201			/TEXT POINTER

VERIFY THAT CLR DOES CLEAR COMMAND REGISTER WHEN 40100 AND 40101

0441	1160	CCA	CCREG2		/SETUP COMPARE REGISTER
0442	1152	TST14	TA0	REG1	
0443	4442	LD0M0			/LOAD COMMAND REGISTER
0444	7301	CLA	CLA	CLA	/ENABLE CLEAR CONTROL
0445	4445	CLRAL			/CLEAR "CLR ALL"
0446	4435	R0M0			/READ COMMAND REGISTER
0447	7639	CLA	CLA		/CHECK AN, 3-D LD EQUAL 0
0450	4427	NERHOR			/ERRR, CLR CLEAR 4206
0451	4432	ERROR			/ERRR, CLR CLEAR COMMAND REGISTER WHEN 40100+40101
0452	4442	TST10			/CHECK LOOP POINTER
0453	4201	4201			/TEXT POINTER

VERIFY THAT CLR DOES LOAD THE SURFACE AND SECTOR

VERIFY THAT THE DISK ADDRESS REGISTER CAN BE LOADED

2484	7371	TEST1	DISK CLR	1A0	ZENABLE CLEAR CONTROL
2485	7445		DEFAULT		ZOOPER CONTROL
2486	1172		TAD	W02	
2487	1284		DISK	CONTROL	ZSETUP IS BIT SHIFT COUNTER
2488	1182		TAD	W01	
2489	1174		TLL W01		
2490	7512		SRD CLP		ZDATA MS & ST02
2491	7542		TQA CLR	0MA	Z0R1
2492	4444		LOADD		ZLOAD DISK ADDRESS FLAG
2493	1180		TAD	W00K	
2494	1072		Y1	W2027	ZMASK EXPECTED VALUE
2495	1182		DISK	COMPARE	ZSETUP COMPARE REGISTER
2496	4437		ZMMA2		ZENTER MAINTENANCE
2497	1273		TAD	W0A02	ZENABLE SHIFT LOWER BUFFER
2498	4447		ZMMA		ZLOAD MAINTENANCE
2499	1182		DISK	CONTROL	ZCOUNT IS CHANGES
2500	4472		ZMM	W0	
2501	7542		TQA CLR		
2502	1187		TAD	W0207	ZENABLE READ LOWER BUFFER
2503	4447		ZMMA		ZLOAD MAINTENANCE
2504	1186		DISK	COMPARE	ZSAVE VALUE FOUND
2505	1186		TAD	W0202	
2506	4432		ZMMA1		ZCHECK RESULTS
2507	4407		ZMMA0		Z0K, 4006 LOOPS
2508	4437		ZMMA		ZERROR, SURFACE AND SECTOR SHIFT
2509	444		ZST14		ZSCORE LOOP POINTER
2510	4102		Z102		ZTEXT POINTER

VERIFY THAT THE DISK ADDRESS REGISTER CAN BE LOADED AND SHIFTED TO LOWER DATA BUFFER WITH THE MAINTENANCE

2511	7371	TEST1	DISK CLR	1A0	ZENABLE CLEAR CONTROL
2512	4445		DEFAULT		ZOOPER CONTROL
2513	1172		TAD	W02	
2514	1284		DISK	CONTROL	ZSETUP IS BIT SHIFT COUNTER
2515	1182		TAD	W01	
2516	1174		TLL W01		
2517	7512		SRD CLP		ZDATA MS & ST02
2518	7542		TQA CLR	0MA	Z0R1
2519	4444		LOADD		ZLOAD DISK ADDRESS FLAG
2520	1180		TAD	W00K	ZENTER MAINTENANCE
2521	1072		Y1	W2027	ZMASK EXPECTED VALUE
2522	1182		DISK	COMPARE	ZSETUP COMPARE REGISTER
2523	4437		ZMMA2		ZENTER MAINTENANCE
2524	1273		TAD	W0A02	ZENABLE SHIFT LOWER BUFFER
2525	4447		ZMMA		ZLOAD MAINTENANCE
2526	1182		DISK	CONTROL	ZCOUNT IS CHANGES
2527	4472		ZMM	W0	
2528	7542		TQA CLR		
2529	1187		TAD	W0207	ZENABLE READ LOWER BUFFER
2530	4447		ZMMA		ZLOAD MAINTENANCE
2531	1186		DISK	COMPARE	ZSAVE VALUE FOUND
2532	1186		TAD	W0202	
2533	4432		ZMMA1		ZCHECK RESULTS
2534	4407		ZMMA0		Z0K, 4006 LOOPS

2535	1472		ZMMA0		ZERROR, SURFACE AND SECTOR SHIFT
2536	547		ZS15		ZSCORE LOOP POINTER
2537	1102		Z102		ZTEXT POINTER

VERIFY THAT THE DISK ADDRESS REGISTER CAN BE LOADED AND SHIFTED TO LOWER DATA BUFFER WITH THE MAINTENANCE

2538	7371	TEST1	DISK CLR	1A0	ZENABLE CLEAR CONTROL
2539	4445		DEFAULT		ZOOPER CONTROL
2540	1172		TAD	W02	
2541	1284		DISK	CONTROL	ZSETUP IS BIT SHIFT COUNTER
2542	1182		TAD	W01	
2543	1174		TLL W01		
2544	7512		SRD CLP		ZDATA MS & ST02 IF LINK IS SET
2545	7542		TQA CLR	0MA	Z0R1
2546	1180		DISK	COMPARE	ZSETUP COMPARE REGISTER
2547	1182		TAD	W0A02	
2548	7542		DISK	COMPARE	
2549	1184		LOADD		ZSET DISK ADDRESS TO OPPOSITE
2550	1180		DISK	COMPARE	
2551	4444		LOADD		ZSET DISK ADDRESS TO EXPECTED
2552	4444		LOADD		ZREAD DISK ADDRESS
2553	4442		ZMMA0		ZCHECK RESULTS
2554	4432		ZMMA0		Z0K, 4006 LOOPS
2555	4427		ZMMA0		ZERROR, DISK ADDRESS REGISTER
2556	4437		ZMMA		ZSCORE LOOP POINTER
2557	547		ZS14		ZTEXT POINTER
2558	4102		Z102		ZTEXT POINTER

VERIFY THAT THE DISK ADDRESS REGISTER CAN BE LOADED AND SHIFTED TO LOWER DATA BUFFER WITH THE MAINTENANCE

2559	7371	TEST1	DISK CLR	1A0	ZENABLE CLEAR CONTROL
2560	4445		DEFAULT		ZOOPER CONTROL
2561	1172		TAD	W02	
2562	1284		DISK	CONTROL	ZSETUP IS BIT SHIFT COUNTER
2563	1182		TAD	W01	
2564	1174		TLL W01		
2565	7512		SRD CLP		ZDATA MS & ST02 IF LINK IS SET
2566	7542		TQA CLR	0MA	Z0R1
2567	1180		DISK	COMPARE	ZSETUP COMPARE REGISTER
2568	1182		TAD	W0A02	
2569	7542		DISK	COMPARE	
2570	1184		LOADD		ZSET DISK ADDRESS TO OPPOSITE
2571	1180		DISK	COMPARE	
2572	4444		LOADD		ZSET DISK ADDRESS TO EXPECTED
2573	4444		LOADD		ZREAD DISK ADDRESS
2574	4442		ZMMA0		ZCHECK RESULTS
2575	4432		ZMMA0		Z0K, 4006 LOOPS
2576	4427		ZMMA0		ZERROR, DISK ADDRESS REGISTER
2577	4437		ZMMA		ZSCORE LOOP POINTER
2578	547		ZS14		ZTEXT POINTER
2579	1102		Z102		ZTEXT POINTER

VERIFY THAT THE DISK ADDRESS REGISTER
CAN BE LOADED AND WRITTEN INTO THE LUNAR
DATA BUFFER, TRY ALL COMBINATIONS OF
/SET THE SURFACE AND SECTOR FROM THE SURFACE AND SECTOR
REGISTER, SET THE LUNAR CYLINDER BITS FROM THE CRC REGISTER,

```

8694 1150 /TEST1, TA, REG1, /SET A0 VALUE
8695 1142 DCA, DDRE02, /SET UP COMPARE REGISTER
8696 1150 LAD, REG1,
8697 4444 LDADD, /LOAD DISK ADDRESS REGISTER
8698 4440 RDCRC, /READ DISK ADDRESS REGISTER
8699 4432 ACCMP1, /CHECK RC, COMPARE TO DDRE02
8700 4427 MEMRDR, /AO CLK, LOOP 4096 TIMES
8701 4432 ERRCR, /ERROR, LOAD OF HEAD DISK
ADDRESS REGISTER
8702 4192 /SCOPE LOOP POINTER
/TEXT POINTER

```

VERIFY THAT DCLR DOES NOT AFFECT THE SURFACE
AND SECTOR INFO REGISTER = 4011B0

```

8614 1150 /TEST2, TAD, REG1, /SET A0 VALUE
8615 1142 DCA, DDRE02, /SET UP COMPARE REGISTER
8616 1151 LAD, REG2, /AO VALUE, COMPLIMENT OF REG1
8617 4444 LDADD, /LOAD DISK ADDRESS
8618 1152 TAD, REG1,
8619 4444 LDADD, /LOAD DISK ADDRESS
8620 4445 DCMALL, /AO, "DCLR ALL" HIT
8621 4442 RDCRC, /READ DISK ADDRESS
8622 4432 ACCMP2, /CHECK RC, COMPARE TO DDRE02
8623 4427 MEMRDR, /AO CLK, LOOP 4096 TIMES
8624 4430 ERRCR, /ERROR, LOAD OF HEAD DISK
ADDRESS OR "DCLR CLEAR"
8625 4192 /SCOPE LOOP POINTER
/TEXT POINTER

```

VERIFY THAT DCLR DOES NOT AFFECT SURFACE AND SECTOR
REGISTER WHEN ADDRESS = 4011B1

```

8633 1150 /TEST1, TAD, REG1, /SET A0 VALUE
8634 1142 DCA, DDRE02, /SET UP COMPARE REGISTER
8635 1152 TAD, REG1,
8636 4444 LDADD, /LOAD DISK ADDRESS
8637 7371 DCA CLL 140, /ADDRESS "DCLR ALL" HIT
8638 4445 DCMALL, /DCLR "DCLR ALL" HIT
8639 4442 RDCRC, /READ DISK ADDRESS
8640 4432 ACCMP1, /CHECK RES LFS
8641 4427 MEMRDR, /AO CLK, LOOP 4096
8642 4430 ERRCR, /ERROR, LOAD, RC0, OR CLEAR
DISK ADDRESS
8643 4192 /SCOPE LOOP POINTER
/TEXT POINTER

```

VERIFY THAT THE CRC CAN BE LOADED BY "BLAD"
AND "DLCR", USE DATA PATTERN 2092 = 7777

THIS WILL VERIFY THAT THE CRC CAN BE LOADED
BY THE EXTENDED CYLINDER BIT IN THE COMMAND REGISTER
/BY THE FOLLOWING LOG:

```

8645 7301 /TEST2, DCA CLL 140, /AO CLR
8646 4445 DCMALL, /AO CLR
8647 1150 TAD, REG1,
8648 7110 CLL PAR, /LOAD DATA 7777 IF LINK IS SET
8649 7310 SEL CLA,
8650 2240 DCA DMA,
8651 1175 AND, #7747
8652 3160 DCA, DDRE02, /SET UP COMPARE # 1
8653 7074 RAL, /LINK FOR EXTENDED BIT
8654 3157 DCA, DDRE01, /SET UP COMPARE REGISTER
8655 1157 TAD, DDRE01, /SET DATA
8656 4442 LDCHR, /LOAD CRC
8657 1167 TAD, DDRE02,
8658 4444 LDADD, /LOAD CRC
8659 4446 RDCRC, /READ CRC
8660 4433 ACCMP2, /CHECK RESULTS
8661 4427 MEMRDR, /AO, 4096 LOOPS
8662 4430 ERRCR, /ERROR, CRC REGISTER
8663 2647 /SCOPE LOOP POINTER
8664 6024 /TEXT POINTER

```

VERIFY THAT THE CRC CAN BE LOADED BY "BLAD"
AND "DLCR", USE DATA PATTERN 2025 = 5250,
THIS WILL VERIFY THAT THE CRC CAN BE LOADED
BY THE EXTENDED CYLINDER BIT IN THE COMMAND REGISTER
/BY THE FOLLOWING LOG:

```

8673 7301 /TEST2, DCA CLL 140, /AO CLR
8674 4445 DCMALL, /AO CLR
8675 1152 TAD, REG1,
8676 7117 CLL PAR, /LOAD DATA 5250 IF LINK IS SET
8677 7630 SEL CLA,
8678 1113 LAD, #2505
8679 1113 TAD, #2525
8680 7176 AND, #7742
8681 3160 DCA, DDRE02, /SET UP COMPARE # 1
8682 7074 RAL, /LINK FOR EXTENDED BIT
8683 3157 DCA, DDRE01, /SET UP COMPARE REGISTER
8684 1157 TAD, DDRE01, /SET DATA
8685 4442 LDCHR, /LOAD CRC
8686 1160 TAD, DDRE02,
8687 4444 LDADD, /LOAD CRC
8688 4446 RDCRC, /READ CRC
8689 4433 ACCMP2, /CHECK RESULTS
8690 4427 MEMRDR, /AO, 4096 LOOPS
8691 4430 ERRCR, /ERROR, CRC REGISTER
8692 2673 /SCOPE LOOP POINTER
8693 6004 /TEXT POINTER

```

VERIFY THAT THE CRC CAN BE LOADED BY "BLAD"
AND "DLCR", USE DATA PATTERN ALL COMBINATIONS.

VERIFY THAT THE CDR CAN BE LOADED
/BY THE EXTERNAL ONLINE HUB IN THE COMMAND REGISTER
/BY THE STATUS BIT.

0798	1169	TESTA	TA	REG1	TEST AC VALUE
0799	1176		ULL MFL		
0800	1183		PTL		
0801	1190		PA		
0802	1197		AN	47740	
0803	1204		QA	009E02	TEST COMPARE REGISTER
0804	1211		HAL		LINK FOR EXTENDED BIT
0805	1218		QA	009E01	TEST COMPARE REGISTER
0806	1225		TA	009E01	TEST DATA
0807	1232		LCOM		ALIAS COMMAND REGISTER
0808	1239		TA	009E02	
0809	1246		LDUP		LOAD LINK ADDRESS
0810	1253		RDOR		READ ORC REGISTER
0811	1260		ACOMP2		CHECK AN, COMPARE TO 009E01 + 009E02
0812	1267		ERROR		4296 LOOPS
0813	1274		ERROR		ERROR, ORC REGISTER LOAD BY
0814	1281		TS127		ALIAS ORC REGISTER
0815	1288		4296		SCOPE LOOP POINTER
0816	1295		4296		TEXT POINTER

VERIFY THAT CDR CAN BE LOADED BY THE ONLINE HUB
/BY THE STATUS BIT AND CDR.

0792	1151	TESTA	TA	REG2	
0793	1158		ULL MFL		
0794	1165		PTL		
0795	1172		PA		
0796	1179		AN	47740	
0797	1186		QA	009E02	TEST COMPARE REGISTER
0798	1193		HAL		LINK FOR EXTENDED BIT
0799	1200		QA	009E01	TEST COMPARE REGISTER
0800	1207		TA	009E01	TEST DATA
0801	1214		LCOM		ALIAS COMMAND REGISTER
0802	1221		TA	009E02	
0803	1228		LDUP		LOAD LINK ADDRESS
0804	1235		TA	REG2	
0805	1242		ANI	47775	ALIAS OF PENTAL
0806	1249		EMALL		ALIAS "CLR ALL"
0807	1256		RDOR		READ ORC REGISTER
0808	1263		ACOMP2		CHECK RESULTS, COMPARE TO 009E01 AND 009E02
0809	1270		ERROR		4296 LOOPS
0810	1277		ERROR		ERROR, LOAD, READ, CLEAR ORC REGISTER
0811	1284		TS127		SCOPE LOOP POINTER
0812	1291		4296		TEXT POINTER

VERIFY THAT THE ORC REGISTER IS NOT REPEATED BY
/MORON, MOKAP, MOKAP, MOKAP, OR MOKAP.
/ALSO DATA PATTERNS 0525 + 0522.

0797	1151	TESTA	CLA	LD	LDOR
0798	1158		ULL MFL		
0799	1165		TA	REG1	
0800	1172		ULL MFL		ALSO DATA 0522 IF LINK IS SET
0801	1179		SPL CLR		
0802	1186		TA	42925	
0803	1193		TA	42925	
0804	1200		AN	47740	
0805	1207		QA	009E02	TEST COMPARE REGISTER
0806	1214		HAL		LINK FOR EXTENDED BIT
0807	1221		QA	009E01	TEST COMPARE REGISTER
0808	1228		TA	009E01	TEST UPPER DATA
0809	1235		LCOM		ALIAS COMMAND
0810	1242		TA	009E02	
0811	1249		LDUP		LOAD LINK ADDRESS
0812	1256		LD REG2		READ STATUS
0813	1263		POSTAT		
0814	1270		TA	REG2	
0815	1277		MOKAP		MOKAP
0816	1284		MOK		READ BUFFER
0817	1291		MOKP		
0818	1298		TA M162		ALIAS CURRENT ADDRESS
0819	1305		LDOR		
0820	1312		TA	REG2	
0821	1319		LCOM		ALIAS COMMAND
0822	1326		TA	REG1	
0823	1333		LDUP		LOAD UPPER BUFFER
0824	1340		RDOR		READ ORC REGISTER
0825	1347		ACOMP2		CHECK RESULTS
0826	1354		ERROR		4296 LOOPS
0827	1361		ERROR		ERROR, ORC REGISTER
0828	1368		TS126		SCOPE LOOP POINTER
0829	1375		4296		TEXT POINTER

VERIFY THAT WRITE LOCK INHIBITS LOAD ADDRESS
/WHEN IT IS SET.

1297	1151	TESTA	CLA	LD	
1298	1158		EMALL		CLEAR CONTROL REGISTER
1299	1165		QA	009E02	TEST COMPARE REGISTER
1300	1172		TA	REG1	TEST AC VALUE
1301	1179		LDUP		LOAD LINK ADDRESS
1302	1186		TA	42927	
1303	1193		LCOM		SET WRITE LOCK
1304	1200		TA	REG2	TEST AC VALUE
1305	1207		LDUP		TRY TO LOAD DISK ADDRESS
1306	1214		RDOR		READ LINK ADDRESS
1307	1221		ACOMP1		CHECK RESULTS
1308	1228		ERROR		4296 LOOPS
1309	1235		ERROR		ERROR, ORC REGISTER
1310	1242		TS127		SCOPE LOOP POINTER
1311	1249		4296		TEXT POINTER

VERIFY THAT THE DISK ADDRESS REGISTER IS NOT

VERIFY THAT THE COMMAND REGISTER IS NOT AFFECTED BY /
/ERROR, HOLD, ERROR, HOLD, STOP, OR STOP BY /
/SET DATA PATTERNS ALL COMBINATIONS.

1247	1150	TEST6	TAO	REG01	WRITE ADDRESS
1248	1150		DOA	GDREG02	WRITE COMPARE REGISTER
1249	1150		TAO	REG01	
1250	4444		CLA	CLL	LOAD DISK ADDRESS
1251	1151		TAO	REG02	
1254	7123		AND	MSB27	MASK OUT WRITE LOCK
1255	4442		LDON		LOAD COMMAND REGISTER
1256	1151		TAO	REG02	
1257	4443		LDON		LOAD CURRENT ADDRESS
1258	1151		TAO	REG02	
1261	4441		MSKSP		WRITE
1262	7020		STOP		
1263	4434		RDSTAT		READ STATUS
1264	1151		TAO	REG02	
1265	4421		LDHUF		LOAD BUFFER
1266	4452		RDHUF		READ BUFFER
1267	7320		CLA	CLL	LOAD STATUS
1270	4449		RDSTAT		READ STATUS
1271	4440		RDAD		READ DISK ADDRESS
1272	4472		COMP1		CHECK AT COMPARE TO DISK
1273	4427		ERRR		ERROR, 4206 LOOPS
1274	4430		ERRR		ERROR, DISK ADDRESS AFFECTED
1275	4207		STOP		SCOPE LOOP POINTER
1276	4172		STOP		TEXT POINTER

VERIFY THAT THE COMMAND REGISTER IS NOT AFFECTED BY /
/ERROR, HOLD, ERROR, HOLD, STOP, OR STOP BY /
/SET DATA PATTERNS ALL COMBINATIONS.

1277	7301	TEST7	CLA	CLL	LOAD CONTROL
1280	4445		ENMAN		ENTER MAINTENANCE
1281	1150		TAO	REG01	WRITE ADDRESS
1282	3540		DOA	GDREG02	WRITE COMPARE REGISTER
1283	1150		TAO	REG01	
1284	4442		LDON		LOAD COMMAND REGISTER
1285	1151		TAO	REG02	
1286	4444		LDON		LOAD DISK ADDRESS
1287	1151		TAO	REG02	
1288	4443		LDON		LOAD CURRENT ADDRESS
1289	1151		TAO	REG02	
1292	4441		MSKSP		WRITE
1293	7020		STOP		
1294	4474		RDSTAT		READ STATUS
1295	1151		TAO	REG02	
1296	4471		LDHUF		LOAD BUFFER
1297	4452		RDHUF		READ BUFFER
1298	7301		CLA	CLL	LOAD STATUS
1299	4449		RDSTAT		READ STATUS
1300	7320		CLA	CLL	LOAD CONTROL
1301	4445		ENMAN		ENTER MAINTENANCE
1302	4430		ERRR		ERROR, DISK ADDRESS AFFECTED
1303	4435		ERRR		ERROR, 4206 LOOPS
1304	4432		ERRR		ERROR, 4207 LOOPS

1126	4427	ERRR			ERROR, 4206 LOOPS
1127	4420	ERRR			ERROR, COMMAND REGISTER
1130	4207	STOP			SCOPE LOOP POINTER
1131	4201	STOP			TEXT POINTER

VERIFY THAT RECALIBRATE INHIBITS LOAD COMMAND

1132	7301	TEST8	CLA	CLL	LOAD CONTROL
1133	4445		ENMAN		ENTER MAINTENANCE
1134	4434		ENMAN		ENTER MAINTENANCE
1136	7301		CLA	CLL	LOAD CONTROL
1136	4445		ENMAN		ENTER MAINTENANCE
1137	7320		CLA	CLL	LOAD CONTROL
1138	4445		ENMAN		ENTER MAINTENANCE
1141	3142		DOA	GDREG02	WRITE COMPARE REGISTER
1142	1150		TAO	REG01	
1143	4442		LDON		LOAD COMMAND
1144	4435		RDON		READ COMMAND
1145	4472		COMP1		CHECK RESULTS
1146	4427		ERRR		ERROR, 4206 LOOPS
1147	4430		ERRR		ERROR, DISK ADDRESS AFFECTED
1148	4207		STOP		SCOPE LOOP POINTER
1149	4201		STOP		TEXT POINTER

VERIFY THAT RECALIBRATE INHIBITS LOAD COMMAND

1150	7301	TEST9	CLA	CLL	LOAD CONTROL
1151	4445		ENMAN		ENTER MAINTENANCE
1154	4434		ENMAN		ENTER MAINTENANCE
1155	1150		TAO	REG01	WRITE ADDRESS
1156	3142		DOA	GDREG02	WRITE COMPARE REGISTER
1157	1150		TAO	GDREG02	
1158	4444		LDON		LOAD DISK ADDRESS (DLA)
1161	7320		CLA	CLL	LOAD CONTROL
1162	4445		ENMAN		ENTER MAINTENANCE
1163	1151		TAO	REG02	
1164	4444		LDON		LOAD DISK ADDRESS (DLA)
1165	4440		RDON		READ DISK ADDRESS
1166	4472		COMP1		CHECK RESULTS
1167	4427		ERRR		ERROR, 4206 LOOPS
1170	4470		ERRR		ERROR, DISK ADDRESS AFFECTED
1171	1150		TAO	REG01	WRITE ADDRESS
1172	1150		TAO	REG01	WRITE ADDRESS

VERIFY THAT "ENMAN" (MAINTENANCE) DOES NOT /
AFFECT AD WHEN ADDR0 AND ADDR1 ON 3.

1173	7301	TEST10	CLA	CLL	LOAD CONTROL
1174	4445		ENMAN		ENTER MAINTENANCE
1175	1150		TAO	REG01	WRITE ADDRESS
1176	3142		DOA	GDREG02	WRITE COMPARE REGISTER
1200	1150		TAO	GDREG02	
1201	4444		LDON		LOAD MAINTENANCE "ENMAN"


```

1333 7301 / TST34, CLA DLI IAO
1334 4445 CLHALL /CLEAR CLR ALL
1335 1114 TAO K2525 /SETUP COMPARE REGISTER
1336 3152 DCA SDREG2
1337 1042 TAO SDREG2
1338 1141 AND K2017
1339 3157 DCA SDREG1 /SETUP COMPARE REGISTER
1340 1133 TAO H16
1341 3153 DCA TONTR1 /SETUP 16 COUNT
1342 4436 ENMAN1 /ENTER MAINTENANCE MODE
1343 7320 T39H, CLA DLI IAO
1344 1153 TAO TONTR1
1345 7024 HAL
1346 1151 AND K2022 /SETUP DATA BIT
1347 1076 TAO K1920 /ENABLE BITS
1348 1147 LOMAN /LOAD MAINTENANCE
1349 2153 ISB TONTR1
1350 5145 JMP T39R /16 COUNT
1351 4446 RDRMC /READ CPU REGISTER
1352 4433 ADOMP2 /CHECK RESULTS
1353 4427 ERHOR /ERR, 4296 LOOPS
1354 4432 ERHOR, TRC REGISTER /ERROR, TRC REGISTER
1355 4433 TST39 /SCORE LOOP POINTER
1356 4424 6004 /TEXT POINTER

1357 4427 /
1358 4432 /
1359 4433 /
1360 4424 /
1361 4433 /
1362 4424 /
1363 5744 / JMP I 1-1 /TO NEXT TEST
1364 4420 TST3A
/
PAGE
/
/VERIFY THAT "CPU DATA" CAN BE SHIFTED
/TO CPU REGISTER, *WHEN READ CPU REGISTER,

```

```

/ BY PATTERN 4222525H
/
1420 7301 TST34, CLA DLI IAO
1421 4445 CLHALL /CLEAR ALL "CPU"
1422 1113 TAO K2525

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1423 3160 DCA SDREG2 /SETUP COMPARE REGISTER
1424 1160 TAO SDREG2
1425 1141 AND K2017
1426 3157 DCA SDREG1 /SETUP COMPARE REGISTER
1427 1033 TAO H16
1428 3153 DCA TONTR1 /16 COUNT REGISTER
1429 4436 ENMAN1 /ENTER MAINTENANCE MODE
1430 7320 T39H, CLA DLI IAO
1431 1153 TAO TONTR1
1432 7024 ORA HAL
1433 1151 AND K2022 /SETUP "CPU DATA"
1434 1076 TAO K1920 /ENABLE BITS
1435 1147 LOMAN /LOAD MAINTENANCE
1436 2153 ISB TONTR1
1437 5212 JMP T39R /16 COUNT
1438 4446 RDRMC /READ CPU REGISTER
1439 4433 ADOMP2 /CHECK RESULTS
1440 4427 ERHOR /ERR, 4296 LOOPS
1441 4432 ERHOR, TRC REGISTER /ERROR, TRC REGISTER
1442 4433 TST39 /SCORE LOOP POINTER
1443 4424 6004 /TEXT POINTER
/
/
/VERIFY THAT "CPU DATA" CAN BE SHIFTED TO CPU
/REGISTER, THRU ALL COMBINATIONS,
/
1430 7301 TST39, CLA DLI IAO
1431 4445 CLHALL /CLEAR CLR ALL
1432 1150 TAO HEG1
1433 3160 DCA SDREG2 /SETUP COMPARE REGISTER
1434 1150 TAO HEG1
1435 1141 AND K2017
1436 3157 DCA SDREG1 /SETUP COMPARE REGISTER
1437 7301 CLA DLI IAO
1438 3153 DCA TONTR1 /SETUP BIT MASKER
1439 1133 TAO H16
1440 3154 DCA TONTR2 /SETUP FIRST SHIFT COUNTER
1441 4436 ENMAN1 /ENTER MAINTENANCE MODE
1442 1152 T39H, TAO HEG1
1443 3153 AND TONTR1
1444 7642 SBA CLA /SKIP IF 0
1445 1261 TAO K2022 /HAS A 1
1446 1276 TAO K1920 /ENABLE BITS
1447 4447 LOMAN /LOAD MAINTENANCE
1448 7320 CLA DLI IAO
1449 1153 TAO TONTR1
1450 7024 HAL /HARTE BIT MARKER
1451 3153 DCA TONTR1
1452 7024 SBL CLA /AAPT FOR FIRST LINK THEN
1453 5254 JMP JH /RESET BIT 11 IN MASKER
1454 3154 ISB TONTR2 /LOOP BACK
1455 5244 JMP T39R /READ CPU REGISTER
1456 4445 RDRMC

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1441 4414          ERHQR          CHECK RESULTS
1444 4407          ERHQR          /ZC, 4294 LOOPS
1446 4412          ERHQR          /ERRR, AND REGISTER
1448 4411          ERHQR          /ERRR, AND REGISTER
1449 4414          ERHQR          /TEXT POINTER
/
VERIFY THAT "A012" DATA CAN BE SHIFTED TO
UPPER REGISTER, TRY ALL COMBINATIONS IN CPU
/
1470 7374          TEST41  CLA DLI 140
1471 4445          CLVALL
1472 4440          DDA          /NOOP "NO, N ALL"
1473 4447          DDA          /NOOP
1474 7381          TCR ALL 140
1475 4451          DDA          /NOOP COMPARE REGISTERS
1476 4453          TCR          /NOOP
1477 4454          TCR          /NOOP
1478 4451          DDA          /NOOP
1479 4453          TCR          /NOOP
1480 4454          TCR          /NOOP
1481 4454          TCR          /NOOP
1482 4454          TCR          /NOOP
1483 7384          TCR          /NOOP
1484 4454          TCR          /NOOP
1485 4454          TCR          /NOOP
1486 4454          TCR          /NOOP
1487 4454          TCR          /NOOP
1488 4454          TCR          /NOOP
1489 4454          TCR          /NOOP
1490 4454          TCR          /NOOP
1491 4454          TCR          /NOOP
1492 4454          TCR          /NOOP
1493 4454          TCR          /NOOP
1494 4454          TCR          /NOOP
1495 4454          TCR          /NOOP
1496 4454          TCR          /NOOP
1497 4454          TCR          /NOOP
1498 4454          TCR          /NOOP
1499 4454          TCR          /NOOP
/
VERIFY THAT "A012" DATA CAN BE SHIFTED TO
UPPER DATA BUFFER THEN SINK TO LOWER DATA
BUFFER, TRY ALL LFS AND BFS,
/
1526 7371          TEST41  CLA DLI 140
1527 4445          CLVALL
1528 4440          DDA          /NOOP "NO, N ALL"
1529 4447          DDA          /NOOP
1530 4447          DDA          /NOOP
1531 4447          DDA          /NOOP
1532 4447          DDA          /NOOP
1533 4447          DDA          /NOOP
1534 4447          DDA          /NOOP
1535 4447          DDA          /NOOP
1536 4447          DDA          /NOOP
1537 4447          DDA          /NOOP
1538 4447          DDA          /NOOP
1539 4447          DDA          /NOOP
1540 4447          DDA          /NOOP
1541 4447          DDA          /NOOP
1542 4447          DDA          /NOOP
1543 4447          DDA          /NOOP
1544 4447          DDA          /NOOP
/

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PAGE 142          1117      PAGE 140F
1541 4472          ADDR01          /CHECK ANI COMPARE TO CORRECT
1544 4477          ERHQR          /ZC, 4294 LOOPS
1542 4472          ERHQR          /ERRR, AND REGISTER
1543 4476          ERHQR          /ERRR, AND REGISTER
1544 4475          ERHQR          /TEXT POINTER
/
VERIFY THAT "A012" DATA CAN BE SHIFTED TO
UPPER DATA BUFFER THEN SINK TO LOWER DATA
BUFFER, TRY PATTERN 2525 + 8282
/
1545 7374          TEST42  CLA DLI 140
1546 4445          CLVALL
1547 4440          TAD          /NOOP "NO, N ALL"
1548 4447          DDA          /NOOP
1549 7117          DLI 254
1550 7377          SEL 254
1551 7377          SEL 254
1552 4443          TAD          /WHAT DATA???
1553 4443          TAD          /DATA ZERO
1554 4443          TAD          /DATA ZERO
1555 4443          TAD          /DATA ZERO
1556 4443          TAD          /DATA ZERO
1557 4443          TAD          /DATA ZERO
1558 4443          TAD          /DATA ZERO
1559 4443          TAD          /DATA ZERO
1560 4443          TAD          /DATA ZERO
1561 4443          TAD          /DATA ZERO
1562 4443          TAD          /DATA ZERO
1563 4443          TAD          /DATA ZERO
1564 4443          TAD          /DATA ZERO
/
VERIFY THAT "A012" DATA CAN BE SHIFTED TO
UPPER DATA BUFFER THEN SINK TO LOWER
DATA BUFFER, TRY ALL COMBINATIONS
/
1565 7371          TEST41  CLA DLI 140
1566 4445          CLVALL
1567 4440          TAD          /NOOP "NO, N ALL"
1568 4447          DDA          /NOOP
1569 4447          DDA          /NOOP
1570 4447          DDA          /NOOP
1571 4447          DDA          /NOOP
1572 4447          DDA          /NOOP
1573 4447          DDA          /NOOP
1574 4447          DDA          /NOOP
1575 4447          DDA          /NOOP
1576 4447          DDA          /NOOP
1577 4447          DDA          /NOOP
1578 4447          DDA          /NOOP
1579 4447          DDA          /NOOP
1580 4447          DDA          /NOOP
1581 4447          DDA          /NOOP
1582 4447          DDA          /NOOP
1583 4447          DDA          /NOOP
1584 4447          DDA          /NOOP
1585 4447          DDA          /NOOP
1586 4447          DDA          /NOOP
1587 4447          DDA          /NOOP
1588 4447          DDA          /NOOP
1589 4447          DDA          /NOOP
/
VERIFY THAT "A012" DATA CAN BE SHIFTED
TO UPPER DATA BUFFER THEN SINK TO LOWER
DATA BUFFER, TRY ALL COMBINATIONS,
/
1591 7371          TEST41  CLA DLI 140
1592 4445          CLVALL
1593 4440          TAD          /NOOP
1594 4447          DDA          /NOOP COMPARE REGISTER
1595 4447          DDA          /NOOP
1596 4447          DDA          /NOOP
1597 4447          DDA          /NOOP
1598 4447          DDA          /NOOP
1599 4447          DDA          /NOOP
/

```


VERIFY THAT "HOLD" OCCURS WHEN BUFFERS ARE FULL

```

0745 7311 004 CONTROL /START AT 0700
0746 7312 004 DLA DLA 100 /LOAD CLEAR CONTROL
0747 7313 004 DLA DLA 100 /LOAD CLEAR CONTROL
0748 7314 004 DLA DLA 100 /SET VALUE IN LOAD
0749 7315 004 DLA DLA 100 /SETUP COMPARE REGISTER
0750 7316 004 DLA DLA 100 /SET VALUE IN LOAD
0751 7317 004 DLA DLA 100 /LOAD UPPER BUFFER
0752 7318 004 DLA DLA 100 /LOAD LOWER BUFFER
0753 7319 004 DLA DLA 100 /CHECK RESULTS
0754 7320 004 DLA DLA 100 /DATA 0,1
0755 7321 004 DLA DLA 100 /ERROR
/
0756 7322 004 DLA DLA 100 /SET ONE TO LEFT
0757 7323 004 DLA DLA 100 /LOAD 4096 LIPS
0758 7324 004 DLA DLA 100 /ERROR SLD BUFFERS
0759 7325 004 DLA DLA 100 /SCDPE LOOP POINTER
0760 7326 004 DLA DLA 100 /TEXT POINTER
/
0761 7327 004 DLA DLA 100 /SET NEXT TEST
0762 7328 004 DLA DLA 100
/

```

VERIFY THAT "HOLD" OCCURS WHEN BUFFERS ARE FULL

```

0763 7329 004 DLA DLA 100 /LOAD CLEAR ALL
0764 7330 004 DLA DLA 100 /SET EXPECTED BITS
0765 7331 004 DLA DLA 100 /SETUP COMPARE REGISTER
0766 7332 004 DLA DLA 100 /HEAD STATUS REGISTER
0767 7333 004 DLA DLA 100 /CHECK RESULTS
0768 7334 004 DLA DLA 100 /OK
0769 7335 004 DLA DLA 100 /ERROR, STATUS REGISTER
0770 7336 004 DLA DLA 100 /SET EXPECTED BITS
0771 7337 004 DLA DLA 100 /SETUP COMPARE REGISTER
0772 7338 004 DLA DLA 100 /ENTER MAINTENANCE MODE
0773 7339 004 DLA DLA 100 /LOAD MAINTENANCE
0774 7340 004 DLA DLA 100 /HEAD STATUS REGISTER
0775 7341 004 DLA DLA 100 /CHECK RESULTS
0776 7342 004 DLA DLA 100 /OK
0777 7343 004 DLA DLA 100 /ERROR, STATUS REGISTER
0778 7344 004 DLA DLA 100 /SETUP COMPARE REGISTER
0779 7345 004 DLA DLA 100

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```

0780 7346 004 DLA DLA 100 /LOAD "HOLD STATUS"
0781 7347 004 DLA DLA 100 /HEAD STATUS REGISTER
0782 7348 004 DLA DLA 100 /CHECK RESULTS
0783 7349 004 DLA DLA 100 /STATUS 0,1, 4096 LOOPS
0784 7350 004 DLA DLA 100 /ERROR, STATUS REGISTER
0785 7351 004 DLA DLA 100 /SCDPE LOOP POINTER
0786 7352 004 DLA DLA 100 /TEXT POINTER
/

```

VERIFY THAT BUFFER FULL CAUSES "HOLD"

```

0787 7353 004 DLA DLA 100 /LOAD "HOLD ALL"
0788 7354 004 DLA DLA 100 /SETUP COMPARE REGISTER
0789 7355 004 DLA DLA 100 /HEAD STATUS REGISTER
0790 7356 004 DLA DLA 100 /CHECK RESULTS
0791 7357 004 DLA DLA 100 /OK
0792 7358 004 DLA DLA 100 /ERROR, STATUS REGISTER
0793 7359 004 DLA DLA 100 /SETUP COMPARE REGISTER
0794 7360 004 DLA DLA 100 /LOAD MAINTENANCE
0795 7361 004 DLA DLA 100 /CHECK WHEN BUFFERS ARE FULL
0796 7362 004 DLA DLA 100 /HEAD STATUS REGISTER
0797 7363 004 DLA DLA 100 /CHECK RESULTS
0798 7364 004 DLA DLA 100 /STATUS 0,1, 4096 LOOPS
0799 7365 004 DLA DLA 100 /ERROR, STATUS REGISTER
0800 7366 004 DLA DLA 100 /SCDPE LOOP POINTER
0801 7367 004 DLA DLA 100 /TEXT POINTER
/

```

VERIFY THAT "HOLD" OCCURS ON "HOLD" ERROR

```

0802 7368 004 DLA DLA 100 /LOAD "HOLD ALL"
0803 7369 004 DLA DLA 100 /ENTER MAINTENANCE MODE
0804 7370 004 DLA DLA 100 /SET "HOLD" "HOLD"
0805 7371 004 DLA DLA 100 /ERROR

```

```

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2175 5314 JMP T85E /ERROR, "D8KPH"
2177 4444 ISKSKP /"D8KPH"
2178 5314 JMP T85E /ERROR, "D8KPH"
2179 4445 DUMALL /CLEAR STATUS "D8KPH"
2180 4445 ISKSKP /"D8KPH" SKIP
2181 4427 NE4400 /STATUS "1", 4296 LOCUS
2182 4427 ERROR /ERROR, "D8KPH" SKIP ON "D8KPH"
2183 2277 T85E /SCOPE LOOP POINTER
2184 2286 T85E /TEXT POINTER
/
/VERIFY THAT "D8KPH" DOES CAUSE DISK "INTERUPT" IF
/ENABLED BY "ENABLE INTERRUPT" BIT IN COMMAND REGISTER,
/
2187 7581 T85E, CLA CLL IAC /"D8KPH" HOLD ALL"
2188 4445 CLRALL /
2189 1275 TAU K2422 /ENTER MAINTENANCE MODE
2190 4442 LDCMD /SET INT, ENABLE "LOAD COMMAND REG"
2191 4436 ENHMAN /ENTER MAINTENANCE MODE
2192 1275 TAU K1287 /
2193 4447 LDMAN /SET "DRM" DMAN
2194 4431 IONMAN /WAIT FOR INTERRUPT
2195 7616 SKP CLA /ERROR, NO INT, RG
2196 4427 /ERR, INT, OCCURRED
2197 4432 ERHOP /ERROR, INT, REQUEST
2198 2117 T85E /SCOPE LOOP POINTER
2199 2227 T85E /TEXT POINTER
/
/VERIFY THAT "D8KPH" SHOULD CAUSE INT, RG, ONLY
/IF "INT", ENABLE BIT IS SET, DOES LDCMD CLEAR INT,
/
2134 7581 T85E, CLA CLL IAC /"D8KPH" HOLD ALL"
2135 4445 CLRALL /
2136 4436 ENHMAN /ENTER MAINTENANCE MODE
2137 1275 TAU K1287 /
2138 4447 LDMAN /SET "DRM" DMAN
2139 4431 IONMAN /WAIT FOR INT,
2140 7616 SKP CLA /OK, NO INT, RG
2141 5386 JMP T85E /ERROR, INT, OCCURRED
2142 1275 TAU K2422 /
2143 4442 LDCMD /SET (MY, ENABLE AND CLEAR INT,
2144 4431 IONMAN /WAIT FOR INT,
2145 7616 SKP CLA /OK, NO INT, RG
2146 5386 JMP T85E /ERROR, INT, OCCURRED
2147 1275 TAU K1287 /
2148 4447 LDMAN /SET "DRM" DMAN
2149 4431 IONMAN /WAIT INT, SHOULD INT,
2150 7616 SKP CLA /ERROR, NO INT,
2151 4427 NEHOP /OK, INT, OCCURRED
2152 4432 ERHOP /ERROR, INT, RG
2153 7134 T85E, /SCOPE LOOP POINTER
2154 2227 T85E /TEXT POINTER
/
2161 2762 JMP : +1 /TO NEXT TEST

```

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```

2142 2228 / T85E
2143 2228 / PAGE
/
/VERIFY THAT "D8KPH" CLEARS STATUS REGISTER,
/
2222 7381 T85E, CLA CLL IAC /"D8KPH" HOLD ALL"
2223 4445 CLRALL /
2224 1174 TAU ST0CA /SETUP COMPARE REGISTER
2225 3162 DCA GDR6E2 /ENTER MAINTENANCE MODE
2226 4436 ENHMAN /ENABLE
2227 1275 TAU K1287 /SET "DRM" DMAN
2228 4447 LDMAN /
2229 7134 CLA CLL REG2 /READ STATUS REGISTER
2230 1151 TAU REG2 /CHECK RESULTS
2231 4434 RDSSTAT /CHECK RESULTS
2232 4432 ACCMP1 /OK, CHECK CLEAR
2233 7612 SKP CLA /STATUS REGISTER ERROR
2234 5225 JMP T85E /CLEAR STATUS, "LOAD COMMAND"
2235 4442 LDCMD /
2236 1174 TAU ST0CA /SETUP COMPARE REGISTER
2237 3162 DCA GDR6E2 /
2238 1152 TAU REG2 /READ STATUS REGISTER
2239 4434 RDSSTAT /CHECK RESULTS
2240 4432 ACCMP1 /CHECK RESULTS
2241 4427 ERHOP /STATUS "1", 4296 LOCUS
2242 4432 ERHOP /ERROR, STATUS REGISTER
2243 2228 T85E, T85E /SCOPE LOOP POINTER
2244 5228 T85E /TEXT POINTER
/
/VERIFY THAT RECALIBRATE DOES BLT DRIVE STATUS
/ERRROR IN THE STATUS REGISTER,
/
2250 7381 T85E, CLA CLL IAC /ENABLE CLEAR CONTROL
2251 4445 CLRALL /CLEAR CONTROL
2252 7321 CLA CLL IAC /ENABLE CLEAR CONTROL
2253 4445 CLRALL /CLEAR CONTROL
2254 1174 TAU ST0CA /SETUP EXPECTED COMPARE
2255 3162 DCA GDR6E2 /READ STATUS REGISTER
2256 4434 RDSSTAT /CHECK RESULTS
2257 4432 ACCMP1 /CHECK RESULTS
2258 7612 SKP CLA /STATUS "1",
2259 5252 JMP T85E /ERROR, STATUS
2260 7326 CLA CLL CHL RTL /SETUP EXPECTED COMPARE
2261 1174 TAU ST0CA /ENABLE RECALIBRATE
2262 3162 DCA GDR6E2 /RECALIBRATE
2263 7326 CLA CLL CHL RTL /READ STATUS
2264 4434 RDSSTAT /CHECK RESULTS
2265 4432 ACCMP1 /OK, 4296 LOCUS
2266 4427 ERHOP /ERROR, STATUS
2267 2228 T85E, T85E /SCOPE LOOP POINTER
2268 5228 T85E /TEXT POINTER

```

```

/VERIFY THAT "LOAD DISK ADDRESS CAUSES" "DIVE STATUS ERROR"
/
0205 0301  *STOP,  CLA  DLI  IAC          /CLEAR CLEAR CONTROL.
0206 0445  *HALT
0207 0444  *LOAD
0208 1174  *SU          *STOP
0209 1241  *AU          *2000
0210 1162  *CA          *ADDRESS
0211 1152  *AU          *TEST
/
0214 0474  *DSTAT          /HEAD STATUS REGISTER
0215 0471  *DCHK          /CHECK RESULTS
0216 0407  *DERR          /STATUS CL, 4296 LODS
0217 0432  *ERR          /ERROR, STAT S REGISTER
0218 0250  *DIB          /SCOPE LOOP POINTER
0219 0270  *DIB          /TEXT POINTER

```

```

/VERIFY THAT "DIVE STATUS ERROR" CAUSES "INT. PC."
/ "DIVE LOOP" "DIVE INT."
/
0222 0301  *STOP,  CLA  DLI  IAC          /DIVER HOLD ALL"
0223 0445  *HALT
0224 0870  *AU          *2420
0225 0442  *DCHK          /SET INT, ENABLE "LOAD COMMAND"
0226 0444  *LOAD          /SET "SELECT", "LOAD DISK ADDRESS"
0227 0471  *DSTAT          /WAIT FOR EXPECTED INT,
0228 0310  *DMP          *50E          /ERROR, NO INT.
0229 1270  *AU          *2420
0230 0442  *DCHK          /CLEAR INT, "LOAD COMMAND"
0231 0431  *DERR          /
0232 0407  *DERR          /DIVE INT, "DIVER"
0233 0432  *ERR          /ERROR, SELECT ERROR INT.
0234 0270  *DIB          /SCOPE LOOP POINTER
0235 0270  *DIB          /TEXT POINTER

```

```

/VERIFY THAT "LOAD DISK ADDRESS" CAUSES
"INVALID STATUS ERROR" TEST WITH "DISK SKIP"
/
0238 0301  *STOP,  CLA  DLI  IAC          /DIVER HOLD ALL"
0239 0445  *HALT          /LOAD DISK AND GO
0240 0444  *LOAD          /DISK DISK SKIP ICT
0241 0441  *DISK          /ERROR, NO SKIP
0242 0370  *DMP          *50E          /DISK DISK SKIP ICT
0243 0441  *DMP          *50E          /ERROR, NO SKIP
0244 0407  *DERR          /STATUS CL,
0245 0432  *ERR          /ERROR, STAT S REGISTER
0246 0270  *DIB          /SCOPE LOOP POINTER
0247 0270  *DIB          /TEXT POINTER

```

```

/VERIFY THAT "SELECT ERROR" CAUSES "DISK" TO SKIP ON "ERROR"
/
0250 0301  *STOP,  CLA  DLI  IAC

```

```

0254 0445  *HALT          /DIVER HOLD ALL"
0255 0444  *LOAD          /LOAD DISK ADDRESS AND GO
0256 0441  *DISK          /DISK DISK SKIP ICT
0257 0370  *DMP          *50E          /ERROR, NO SKIP
0258 0445  *HALT          /CLEAR SKIP
0259 0444  *LOAD          /DISK
0260 0441  *DISK          /DISK, 4296 LODS
0261 0407  *DERR          /ERROR, "DISK SKIP"
0262 0432  *ERR          /SCOPE LOOP POINTER
0263 0270  *DIB          /TEXT POINTER

```

```

0266 0277  *DMP  I  *+          /IN NEXT TEST
0267 0270  *DIB

```

```

/
/
/VERIFY THAT "SELECT ERROR" CAUSES "DISK" TO SKIP ON "ERROR"
/ "OPEN INTERRUPT"
/

```

```

0270 0301  *STOP,  CLA  DLI  IAC          /DIVER HOLD ALL"
0271 0445  *HALT
0272 1764  *AU          *2000
0273 1272  *CA          *1500+2
0274 1270  *AU          *2420
/
0275 0442  *DCHK          /SET INT, ENABLE
0276 0444  *LOAD          /LOAD DISK AND GO
0277 0441  *DISK          /DISK DISK SKIP
0278 0216  *DMP          *50E          /ERROR, NO SKIP
0279 1055  *AU          *2000
0280 1220  *CA          *1500+2
/
0281 0471  *DSTAT          /SETUP TEXT POINTER
0282 0471  *DCHK          /WAIT FOR INT, OCCURRED
0283 0407  *DERR          /SKIP AND INT, DIVE
0284 0432  *ERR          /ERROR, DISK OR INT.
0285 0407  *ERR          /SCOPE LOOP POINTER
0286 0270  *DIB          /ADJUSTED TEXT POINTER

```

```

/VERIFY THAT "DIVE" CAUSES AN INT, THEN SKIP
/

```

```

0288 0301  *STOP,  CLA  DLI  IAC          /DIVER HOLD ALL"
0289 0445  *HALT
0290 1055  *AU          *2000
0291 1243  *CA          *1500+2
0292 1370  *AU          *2420
/
0293 0442  *DCHK          /SETUP INT, ENABLE
0294 0436  *ERR          /ALTER WAITPREFERENCE MODE
/
0295 1074  *AU          *1000
0296 1074  *AU          *1000
0297 0407  *DERR          /SET "DIVE" "DIVE"
0298 0432  *ERR          /WAIT FOR INT.
0299 0241  *DMP          *50E          /ERROR, NO INT.
0300 1054  *AU          *2000
0301 1243  *CA          *1500+2
0302 0441  *DISK          /SETUP TEXT POINTER
0303 0441  *DISK          /DISK SKIP SHOULD SKIP
0304 0407  *ERR          /ERROR, NO SKIP

```

```

/
PAGE 1432
ADDRESS      DISASSEMBLY      CPU     PAGE SIZE
2440 4407   MBROR
2441 4438   TBROR, BRACK
2442 4421   TSTR1
2443 4407   MBROR
/
VERIFY THAT "RECALIBRATE" DOES INDICATE
/DRIVE STATUS ERROR DATA
/
2444 7301   TSTR2, 0LA 0LL 1A0
2445 4445   CLRALL
2446 4441   TSKSKP
2447 7410   SKP 0LA
2448 4400   JMP 1521
2449 7326   0LA 0LL 0YL RTL
2450 4445   CLRALL
2451 4441   TSKSKP
2452 4436   JMP 762E
2453 4436   ENMAN1
2454 4441   TSKSKP
2455 7410   SKP 0LA
2456 4400   JMP 762E
2457 7326   0LA 0LL 0YL RTL
2458 4445   CLRALL
2459 4441   TSKSKP
2460 4437   MBROR
2461 4438   TBROR
2462 4444   TSTR2
2463 4407   MBROR
/
VERIFY THAT "RECALIBRATE" THEN 00LA 00L SET BUSY
/AND DRIVE STATUS ERROR
/
2470 7301   TSTR3, 0LA 0LL 1P0
2471 4445   CLRALL
2472 1174   TAD  ST001
2473 3160   DCA  D0RE02
2474 4434   ROSTAT
2475 4432   ACCMPL
2476 7410   SKP 0LA
2477 4400   JMP 155E
2478 4434   ENMAN1
2479 7326   0LA 0LL 0YL RTL
2480 1174   TAD  ST001
2481 3160   DCA  D0RE02
2482 7326   0LA 0LL 0YL RTL
2483 4445   CLRALL
2484 4434   ROSTAT
2485 4432   ACCMPL
2486 7410   SKP 0LA
2487 4400   JMP 763E
2488 4437   TAD  763E
2489 4438   AND  7777b
2490 4445   CLRALL
2491 7426   0LA 0LL 0YL RTL
2492 1174   TAD  ST001
/
PAGE 1431
ADDRESS      DISASSEMBLY      CPU     PAGE SIZE
2517 1070   TAD  K0127
2522 3167   DCA  D0RE02
2523 1151   TAD  0E02
2524 4434   ROSTAT
2525 4432   ACCMPL
2526 4437   MBROR
2527 4430   MBROR
2528 7410   SKP 0LA
2529 4400   JMP 4070
/
VERIFY THAT "RECALIBRATE" THEN "R.L" RESULTS IN 00LA
/DRIVE STATUS, AND "TRANSFER DONE"
/
2542 7301   TSTR4, 0LA 0LL 1A0
2543 4445   CLRALL
2544 1174   TAD  ST001
2545 3160   DCA  D0RE02
2546 4434   ROSTAT
2547 4432   ACCMPL
2548 7410   SKP 0LA
2549 4400   JMP 154E
2550 4434   ENMAN1
2551 7326   0LA 0LL 0YL RTL
2552 1174   TAD  ST001
2553 3160   DCA  D0RE02
2554 1174   TAD  ST001
2555 4434   ROSTAT
2556 4432   ACCMPL
2557 4437   MBROR
2558 4430   MBROR
2559 2930   TSTR4
2560 4407   MBROR
/
JMP 154E
TSTR5, 0LA 0LL 1A0
/
PAGE 1430
/
VERIFY THAT "RECALIBRATE" THEN "00LA" SETS
/DRIVE STATUS AND BUSY ERROR IN STATUS REGISTER
/
2602 7301   TSTR5, 0LA 0LL 1A0

```



```

2741 4445          CORALL          /CLEAR
2742 1174          TAD          STCON
2743 7166          DCA CORREG2
2744 1191          TAD          REG2
2745 4434          ROSTAT          /READ STATUS
2746 4434          ACCMPL          /CHECK RESULTS
2747 4437          JMP          T74E
2748 4430          TAYD          /ERROR STATUS REGISTER
2749 7722          TSTZ          /SCOPE LOOP POINTER
2750 5200          BZ          /TEXT POINTER

```

/ VERIFY THAT INTERRUPT OCCURS ON BUSY ERROR

```

2753 7321          TSTZ          TLA CLL IAD          /CLEAR CONTROL
2754 4445          CLMALL          /ENABLE INT. BIT
2755 1375          TAD          K0487          /LOAD COMMAND
2756 4442          LDMAN          /ENTER MAINTENANCE
2757 4438          INWANA
2758 7330          CLA CLL CML R7L          /CLEAR
2759 4445          CLMALL          /WAIT FOR INT.
2760 4445          LDMAN          /INT. D.C.
2761 7631          SKP CLA          /ERROR, DISK INT.
2762 4445          JMP          T74E          /CLEAR STATUS
2763 4445          CLMALL          /WAIT FOR INTERRUPT
2764 4445          LDMAN          /ERROR, HD INT.
2765 4445          JMP          T74E          /CLEAR
2766 4445          LDMAN          /WAIT FOR INT.
2767 7631          SKP CLA          /INT. D.C.
2768 4445          CLMALL          /INIT. ADDR LOPS
2769 4445          LDMAN          /ERROR, INT.
2770 4430          TAYD          /SCOPE LOOP POINTER
2771 7722          TSTZ          /TEXT POINTER

```

/ VERIFY THAT "RUBBER", "COL-0", "RUB-1", "DLAG" FOR "RUBBER" DOES NOT AFFECT STATUS REGISTER

```

2777 7321          TSTZ          TLA CLL IAD          /CLEAR CONTROL
2778 4445          CLMALL          /ENTER MAINTENANCE
2779 4445          INWANA
2780 7330          CLA CLL CML R7L          /CLEAR
2781 4445          CLMALL          /SCOPE
2782 4445          TAD          K1807          /ENABLE SHIFT
2783 4445          LDMAN          /LOAD MAINTENANCE
2784 7330          CLA CLL CML R7L          /CLEAR
2785 4445          TAD          STCON
2786 4445          TAD          K0384
2787 1343          TAD          K4838
2788 1401          DCA CORREG2
2789 1147          PCHUF          /EXPECTED STATUS
2790 4445          TAD          REG1          /DTR COMPARE REGISTER
2791 4445          ROSTAT          /READ BUFFER
2792 4445          TAD          REG2          /READ STATUS
2793 4445          TAD          REG2          /LOAD CURRENT ADDRESS
2794 1174          TAD          REG1

```

```

3021 4441          BSKSKP          /DCKP
3022 7202          NOP
3023 4444          LDMAN          /LOAD DISK ADDRESS
3024 1152          TAD          REG1
3025 4421          LDBUF          /ALTA BUFFER REGISTER
3026 1151          TAD          REG2
3027 4444          ROSTAT          /READ STATUS
3028 4444          ACCMPL          /CHECK RESULTS
3029 7610          SKP CLA          /STATUS D.C.
3030 5241          JMP          T71E          /ERROR, STATUS
3031 4445          CLMALL          /CLEAR STATUS
3032 1174          TAD          STCON          /EXPECTED STATUS
3033 3140          DCA CORREG2          /DTR COMPARE REGISTER
3034 4434          ROSTAT          /READ STATUS
3035 4434          ACCMPL          /CHECK RESULTS
3036 4432          LDMAN          /D.C., ADDR LOPS
3037 4427          LDMAN          /ERROR, STATUS REGISTER
3038 4430          TAYD          /SCOPE LOOP POINTER
3039 5200          BZ          /TEXT POINTER

```

/ VERIFY THAT "WORD COUNT" OVERFLOWS AND SETS /TRANSFER DONE ONLY AFTER 256 (12 BIT COUNTS). /TRANSFER DONE SHOULD SET ON THE 11 TH SHIFT /OF THE 256 TH WORD.

```

3044 7242          TSTZ          DCA CMA          /SET FOR 1 PASS PER TEST
3045 1152          DCA          REG1
3046 7301          CLA CLL IAD          /CLEAR "HOLD ALL"
3047 6445          CLMALL
3048 1174          TAD          STCON
3049 3162          DCA CORREG2          /SETUP COMPARE REGISTER
3050 7326          CLA CLL CML R7L          /DTR
3051 1132          TAD          M12
3052 3163          DCA TONTR1          /FOR FINAL WORD
3053 1137          TAD          M255
3054 3164          DCA TONTR2          /FOR ONE LESS THAN "LAST WORD"
3055 4434          ENMAN          /ENTER MAINTENANCE MODE
3056 1132          TAD          M12
3057 3155          DCA TONTR3          /FOR EACH 12 BIT WORD
3058 1072          TAD          K2120          /ENABLE BITS TO SHIFT SILE
3059 4447          LDMAN          /LOAD MAINTENANCE
3060 2155          LSE          TONTR2          /SKIP ON EVERY 12 BIT WORD
3061 5263          JMP          M12
3062 4434          ROSTAT          /THIS SHOULD PREVENT A "DOR."
3063 4434          ROSTAT          /GET STATUS
3064 4432          ACCMPL          /CHECK RESULTS
3065 7610          SKP CLA
3066 772E          JMP          T72E          /STATUS ERROR
3067 772R          LSE          TONTR2
3068 772R          JMP          T72R          /COUNT 255 "12 BIT" WORDS
3069 4430          TAYD          /ENABLE SHIFT SILE
3070 1272          TAD          K0130          /LOAD MAINTENANCE
3071 4447          LDMAN          /BIT COUNTER
3072 2153          LSE          TONTR1          /COUNT 11 BITS
3073 5276          JMP          M12          /READ STATUS
3074 4434          ROSTAT

```

```

PAGE 11 1144 2000PH473 1117 PAGE 1148
3193 4472 ACCMPL /CHECK RESULTS
3193 7612 SKP CLA /STATUS OK
3194 5345 JMP T720 /ERROR STATUS
3195 7030 CLA CLL CML PAR
3196 1374 TAD STODR
3197 1346 TCA DDREG2 /SETUP COMPARE REGISTER
3198 1072 TAJ K210P
3199 4447 LDMAN /SKIP IN LAST WORD
3200 4474 RDNINT /READ STATUS
3201 4372 ACCMPL /ONLY TRANSFER DONE
3202 4407 SRRHOR /STATUS OK
3203 4472 /ERRR, 12 BIT COUNTER
3204 4244 TSTZ /STOP LOOP
3205 500A /TEXT POINTER
/
3206 5721 JMP L 101 /GO NEXT TEST
3207 3022 /
/
PAGE
/
/VERIFY THAT DCMC DOES CLEAR 12 BIT COUNTER
/
3208 7040 TSTZ, CLA CMA /
3209 5150 TCA REG1 /SET FOR 1 PASS PER TEST
3210 1372 TAD M255
3211 7175 TCA TONTR4 /COUNTER
3212 7071 CLA CLL IAC /
3213 4345 CLRALL /
3214 1346 TAJ TONTR4
3215 1345 TCA TONTR1
3216 1372 TAJ M12 /
3217 1374 TCA TONTR2 /12 BIT WORD COUNTER
3218 4416 ENMAN1 /ENTER MAINTENANCE MODE
3219 1072 TAJ K210P /
3220 4447 LDMAN /LOAD MAINTENANCE
3221 1354 ISB TONTR2 /WORD1 ENITS
3222 1254 JMP L 102 /WORD TO 00
3223 4450 RDNINT /PREVENT DR1
3224 1353 ISB TONTR1 /ADD IT 17 TIMES
3225 4250 JMP T730P /WORD 12 BIT COUNTS
3226 7321 CLA CLL IAC /VARIABLE CLEAR CONTROL
3227 4445 CLRALL /AND CLEAR THE COUNTER
3228 1174 TAD STODR
3229 1140 TCA DDREG2 /SET P COMPARE REGISTER
3230 1132 TAD M12
3231 7153 TCA TONTR1 /FOR FINAL WORD1
3232 1147 TAD M255
3233 1144 TCA TONTR2 /FOR ONE LESS THAN LAST WORDN
3234 4475 CMAN1 /ENTER MAINTENANCE MODE
3235 1132 TAD M12 /
3236 1150 TCA TONTR3 /FOR EACH 12 BIT WORD
3237 1072 TAJ K210P /VARIABLE BITS TO SHIFT BLK
3238 4447 LDMAN /LOAD MAINTENANCE
3239 1355 ISB TONTR3 /SKIP IN EMPTY 12 BIT WORDN
3240 703A JMP L 102

```

```

PAGE 11 1142 2000PH473 1117 PAGE 1147
/
3241 4457 RDNINT /THIS SHOULD PREVENT A "TRBL"
/
3242 4434 RDNINT /SET STATUS
3243 4432 ACCMPL /CHECK RESULTS
/
/
3244 7010 SKP CLA /
3245 5266 JMP T73E /STATUS ERROR
3246 7154 ISB TONTR2 /
3247 5273 LMY T7393 /COUNT 255 12 BIT WORDS
3248 7332 CLA CLL CML PAR
3249 1174 TAD STODR
3250 1167 TCA DDREG2 /SETUP COMPARE REGISTER
3251 1372 TAJ K210P
3252 4447 LDMAN /SKIP IN LAST WORD
3253 1150 ISB TONTR1
3254 5254 JMP L 102
3255 4474 RDNINT /READ STATUS
3256 4472 ACCMPL /ONLY TRANSFER DONE
3257 7612 SKP CLA /STATUS OK
3258 5254 LMY T73E /ERROR STATUS
3259 1156 ISB TONTR4 /UPDATE SPECIAL COUNTER
3260 7074 JMP T730P /WORD TO TEST
3261 4407 SRRHOR /STATUS OK
3262 4472 /ERRR, 12 BIT COUNTER
3263 7072 TSTZ /STOP LOOP
3264 5707 /TEXT POINTER
/
/
/VERIFY THAT 12TH BIT 0,4, H DOES INHIBIT
/SETTING UP CONTINUS, THIS IS WHAT STOPS
/HALF BLOCK DATA BREAKS ON A READ BREAK.
/
3271 7321 TSTZ, CLA CLL IAC /
3272 4445 CLRALL /CLEAR CONTROL
3273 1072 TAD K210P /HALF BLOCK TRANSFERS
3274 4442 LDDPD /LOAD COMMAND
3275 7340 CLA CLL CMA /
3276 1350 TCA REG1 /SETUP FOR 1 PASS
3277 1339 TAD M128
3278 1353 TCA TONTR1 /COUNTER FOR 228 WORDS
3279 4474 ENMAN1 /ENTER MAINTENANCE MODE

```



```

7493 7301 CLR CLR 140
7494 4443 CLRALL
7495 4456 ENMALL
7496 1172 TAB HONEMA
7497 1171 TAB 42920
7498 1492 LDMX
7499 1172 TAB HON1
7500 7117 CLR MAF
7501 7617 CLR CLR
7502 7347 CLR CLR 194
7503 7150 HON1
7504 7150 HON1
7505 7150 HON1
7506 7150 HON1
7507 7150 HON1
7508 7150 HON1
7509 7150 HON1
7510 7150 HON1
7511 7150 HON1
7512 7150 HON1
7513 7150 HON1
7514 7150 HON1
7515 7150 HON1
7516 7150 HON1
7517 7150 HON1
7518 7150 HON1
7519 7150 HON1
7520 7150 HON1
7521 7150 HON1

```

```

/OTL
/ENTER MAINTENANCE MODE
/COMPARE FIELD BITS
/ENABLE WRITE
/LOAD COMMAND
/MAKE DATA ADDR
/SETUP COMPARE REGISTER
/STORE OBTAINED DATA
/SET CURRENT ADDRESS TO 7777
/LOAD CURRENT ADDRESS TO 2
/ENABLE ENHANCE
/LOAD AND TO
/READ DATA BUFFER
/CHECK RESULTS
/OK, 4296 LTOPS
/ERROR, DATA BREAK
/SCORE LOOP POINTER
/TEXT POINTER

```

/VERIFY THAT "DATA BREAK" ADDR FROM LOCATION 0
/COMPARE FIELD, OF 1, WRITER AND USE DATA
/PATTERN 42920 AND 42920

```

7522 7301 CLR CLR 140
7523 4443 CLRALL
7524 4456 ENMALL
7525 1172 TAB HONEMA
7526 1171 TAB 42920
7527 1492 LDMX
7528 1172 TAB HON1
7529 7117 CLR MAF
7530 7617 CLR CLR
7531 7347 CLR CLR 194
7532 7150 HON1
7533 7150 HON1
7534 7150 HON1
7535 7150 HON1
7536 7150 HON1
7537 7150 HON1
7538 7150 HON1
7539 7150 HON1
7540 7150 HON1
7541 7150 HON1
7542 7150 HON1
7543 7150 HON1
7544 7150 HON1
7545 7150 HON1
7546 7150 HON1
7547 7150 HON1
7548 7150 HON1
7549 7150 HON1
7550 7150 HON1
7551 7150 HON1

```

```

/OTL
/ENTER MAINTENANCE MODE
/COMPARE FIELD BITS
/ENABLE WRITE
/LOAD COMMAND
/MAKE DATA ADDR
/SETUP COMPARE REGISTER
/STORE OBTAINED DATA
/SET CURRENT ADDRESS TO 7777
/LOAD CURRENT ADDRESS TO 2
/ENABLE ENHANCE
/LOAD AND TO
/READ DATA BUFFER
/CHECK RESULTS
/OK, 4296 LTOPS
/ERROR, DATA BREAK

```

/VERIFY THAT "DATA BREAK" ADDR FROM LOCATION 7777
/COMPARE FIELD, OF 1, WRITER AND USE DATA PATTERN
/42920 AND 7777

```

7552 7301 CLR CLR 140
7553 4443 CLRALL
7554 4456 ENMALL
7555 1172 TAB HONEMA
7556 1171 TAB 42920
7557 1492 LDMX
7558 1172 TAB HON1
7559 7117 CLR MAF
7560 7617 CLR CLR
7561 7347 CLR CLR 194
7562 7150 HON1
7563 7150 HON1
7564 7150 HON1
7565 7150 HON1
7566 7150 HON1
7567 7150 HON1
7568 7150 HON1
7569 7150 HON1
7570 7150 HON1
7571 7150 HON1
7572 7150 HON1
7573 7150 HON1
7574 7150 HON1
7575 7150 HON1

```

```

/OTL
/ENTER MAINTENANCE MODE
/COMPARE FIELD BITS
/ENABLE WRITE
/LOAD COMMAND
/MAKE DATA ADDR
/SETUP COMPARE REGISTER
/STORE OBTAINED DATA
/SET CURRENT ADDRESS TO 7777
/LOAD CURRENT ADDRESS TO 2
/ENABLE ENHANCE
/LOAD AND TO
/READ DATA BUFFER
/CHECK RESULTS
/OK, 4296 LTOPS
/ERROR, DATA BREAK
/SCORE LOOP POINTER
/TEXT POINTER

```

/VERIFY THAT "DATA BREAK" FROM LOCATION 7777 OF
/COMPARE FIELD, OF 1, WRITER AND USE DATA
/PATTERN 42920 AND 62920

```

7576 7301 CLR CLR 140
7577 4443 CLRALL
7578 4456 ENMALL
7579 1172 TAB HONEMA
7580 1171 TAB 42920
7581 1492 LDMX
7582 1172 TAB HON1
7583 7117 CLR MAF
7584 7617 CLR CLR
7585 7347 CLR CLR 194
7586 7150 HON1
7587 7150 HON1
7588 7150 HON1
7589 7150 HON1
7590 7150 HON1
7591 7150 HON1
7592 7150 HON1
7593 7150 HON1
7594 7150 HON1
7595 7150 HON1

```

```

/OTL
/ENTER MAINTENANCE MODE
/COMPARE FIELD BITS
/ENABLE WRITE
/LOAD COMMAND
/MAKE DATA ADDR
/SETUP COMPARE REGISTER
/STORE OBTAINED DATA
/SET CURRENT ADDRESS TO 7777
/LOAD CURRENT ADDRESS TO 2
/ENABLE ENHANCE
/LOAD AND TO
/READ DATA BUFFER
/CHECK RESULTS
/OK, 4296 LTOPS
/ERROR, DATA BREAK
/SCORE LOOP POINTER
/TEXT POINTER

```

```

3676 4443 LDRH    /CHECK CURRENT ADDRESS TO 7777
3677 1871 TAB     /BREAK ENABLE BIT
3678 4447 LHMAL  /LOAD MAINTENANCE AND GO
3679 4450 RDRH    /READ BUFFER
367A 443E ADDMPL /CHECK RESULTS
367B 4437 RDRH    /CHECK 4805 LDRS
367C 4430 BRHR   /ERROR, DATA BREAK
367D 3090 TSTR   /SCOPE LOAD POINTER
367E 42A3 JPR    /TEXT POINTER

```

```

/
VERIFY THAT "DATA BREAK" WORKS FROM CURRENT FIELD
LOCATION 0, DO A "WRITE" AND USE ALL COMBINATIONS
ALSO VERIFY THAT DATA IN LOCATION 0 DOESN'T CHANGE
ON A WRITE BREAK, (NOTE: DATA FROM LOCATION 0 PUT
IN INDICATOR 0010)
/

```

```

367F 7571 TSTL1  C/A CLL IAO /CLR HOLD ALL
3680 4445 CLRALL /ENTER MAINTENANCE MODE
3681 4436 ENMANS
3682 1151 TAB     /SETUP COMPARE REGISTER
3683 7160 DCA   GDREG2
3684 3500 TAB     /STORE OUTBOUND DATA
3685 3687 DCA   0 /STORE CURRENT ADDRESS TO 7
3686 1170 TAB     /CURRENT FIELD BITS
3687 1181 TAB     /WRITE FUNCTION
3688 4440 LDND   /LOAD COMMAND
3689 4440 LDND   /BREAK ENABLE BIT
3690 1871 LHMAL /LOAD AND GO
3691 4447 RDRH    /READ BUFFER
3692 443E ADDMPL /CHECK RESULTS
3693 7610 SKP  CLA /
3694 3035 JMP   TR11 /ERROR
3695 1871 TAB     /
3696 7572 DCA   DTREG /SAVE IN CASE OF ERROR
3697 1170 TAB     /
3698 443E ADDMPL /CHECK RESULTS
3699 4437 RDRH    /CHECK 4805 LDRS
3700 4430 BRHR   /ERROR, DATA BREAK
3701 7677 TSTR   /SCOPE LOAD POINTER
3702 42A3 JPR    /TEXT POINTER

```

```

/
VERIFY "DATA BREAK" FROM LOCATION 7777 OF
CURRENT FIELD, DO A "WRITE" AND USE ALL COMBINATIONS,
ALSO VERIFY THAT OUTBOUND DATA IN LOCATION 7777
DOESN'T CHANGE WHEN DOING A WRITE BREAK, (NOTE: DATA FROM
LOCATION 7777 PUT IN INDICATOR 0010)
/

```

```

3703 7381 TSTB2  C/A CLL IAO /CLR HOLD ALL
3704 4445 CLRALL /ENTER MAINTENANCE MODE
3705 4436 ENMANS
3706 1150 TAB     /SETUP COMPARE REGISTER
3707 3160 DCA   GDREG2

```

```

3708 1150 TAB     /STORE OUTBOUND DATA
3709 3926 DCA 1 7777 /STORE CURRENT ADDRESS TO 7777
3710 7142 C/A CLL 0Y4 /CURRENT FIELD BITS
3711 4443 LDRH    /CHECK FUNCTION
3712 1170 TAB     /LOAD COMMAND
3713 1182 TAB     /BREAK ENABLE BIT
3714 4447 LHMAL /LOAD AND GO
3715 4450 RDRH    /READ BUFFER
3716 443E ADDMPL /CHECK RESULTS
3717 7610 SKP  CLA /
3718 3035 JMP   TR12 /ERROR
3719 7696 TAB 1 7696 /
3720 4777 TAB 1 4777 /
3721 3176 DCA   DTREG /SAVE IN CASE OF ERROR
3722 1170 TAB     /
3723 443E ADDMPL /CHECK RESULTS
3724 4437 RDRH    /CHECK 4805 LDRS
3725 4430 BRHR   /ERROR, DATA BREAK
3726 7648 TSTR   /SCOPE LOAD POINTER
3727 42A3 JPR    /TEXT POINTER

```

```

/
VERIFY THAT "CURRENT" CLEARS CURRENT ADDRESS
FIELD ON A DATA BREAK FROM LOCATION 7777
"4805 LDRS" FROM LOCATION 8200, DO "A WRITE"
AND USE DATA PATTERNS ALL COMBINATIONS,
/

```

```

3728 7371 TSTB3  C/A CLL IAO /CLR HOLD CURRENT ADDRESS*
3729 4445 CLRALL /ENTER MAINTENANCE MODE
3730 4436 ENMANS
3731 1150 TAB     /SETUP COMPARE REGISTER
3732 7160 DCA   GDREG2
3733 1160 TAB     /STORE OUTBOUND DATA BREAK 1
3734 3903 DCA 1 4777 /STORE OUTBOUND DATA BREAK 2
3735 1151 TAB     /CURRENT FIELD BITS
3736 3687 DCA   0 /WRITE FUNCTION
3737 4440 LDND   /LOAD COMMAND
3738 7344 C/A CLL CMA FA /
3739 4443 LDRH    /LOAD CURRENT ADDRESS TO 7775
3740 1871 LHMAL /BREAK ENABLE BIT
3741 4447 RDRH    /LOAD AND GO
3742 4450 RDRH    /READ BUFFER
3743 443E ADDMPL /CHECK RESULTS
3744 7610 SKP  CLA /CHECK TRY LOCATION 0
3745 5834 JMP   TR13 /ERROR, DATA BREAK
3746 7371 C/A CLL IAO /
3747 4445 CLRALL /CLEAR CURRENT ADDRESS*
3748 4436 ENMANS /ENTER MAINTENANCE MODE
3749 7167 DCA   4DREG /SETUP FOR ERROR POINTER
3750 1172 TAB     /CURRENT FIELD BITS
3751 1182 TAB     /FUNCTION WRITE
3752 443E LDND   /LOAD COMMAND
3753 7610 SKP  CLA /
3754 3035 JMP   TR14 /
3755 1151 TAB     /

```


PA_11 1131 P2+4*7*71 1117 PAGE 1191

VERIFY THAT "DATA BREAK" CAN BE FILLED
FOR A SPECIFIC DATA BREAK AND LOCATION
IF OF CURRENT FIELD, USE ALL COMBINATIONS

4430	7321	TSTPL	CLA	CLL	IAC	NOPEL FOUR ALL
4435	4445		DEFAULT			
4436	4436		TAC		NOPEL FIELD	
4437	4440		ENMAN		ALOAD COMMAND	
4438	7248		DLA	DNA		
4439	4443		LOCUT		ALOAD CURRENT ADDRESS	
4442	1140		TAC	1511		
4443	7113		DLA	HAF		
4444	7876		DEL	DLI	WHAT DATA TO USE	
4445	1143		TAC	42503	DATA BREAK	
4446	1143		TAC	42503		
4447	1143		DLA	DDPE02	SETUP COMPARE REGISTER	
4448	1163		TAC	DDPE02	SET VALUE TO LOAD	
4449	4421		LDJUP		ALOAD UPPER BUFFER	
4452	1871		TAC	42547	ENABLE BREAK BIT	
4453	4447		LDJAP		ALOAD MAINTENANCE	
4454	7325		DLA	CLL		
4455	1150		TAC	42777	GET BREAK WORD	
4456	1150		DLA	11811	AGENT FOR ERROR PRINTER	
4457	1150		TAC	11811		
4458	4440		DDPE01		CHECK	
4459	4427		ENMAN		DATA BREAK	
4460	4428		ENMAN		DATA BREAK	
4461	4424		15191		LOAD POINTER	
4462	4423		4253		TEXT POINTER	

/

4463	7071	TSTPL	CLA	CLL	IAC	NOPEL FOUR ALL
4464	4445		DEFAULT			
4467	4436		ENMAN		ENTER MAIN/STATUS PAGE	
4468	1127		TAC	44		
4469	7140		DLA	CONTR1	FOR FOUR LOOPS	
4472	1137		TAC	REG1		
4473	7144		DLA	CONTR1	DATA START	
4474	1170		TAC	NOPEL4	CURRENT FIELD	
4475	1171		TAC	44247	CURRENT LOCATION	
4476	4442		DDPE01		ALOAD COMMAND	
4477	4440	TSTPL	LOCUT		ALOAD CURRENT ADDRESS TO 0	
4478	1154		TAC	CONTR2		
4481	3025		DLA	4	SCORE OUT GROUP DATA	
4482	1071		TAC	42747	ENABLE BREAK BIT	
4483	4447		LDJAP		LOAD AND GO	
4484	7378		DLA	CLL		
4485	1154		DLA	CONTR2	UPDATE DATA WORD	
4486	7075		ENM			
4487	7150		DLA	CONTR1		
4488	5247		JMP	75285	FILL BUFFER	
4489	1127		TAC	44		

PA_12 1142 P2+4*7*71 1117 PAGE 1192

4490	1153		DLA	CONTR1	
4491	1152		TAC	REG1	
4496	7141		DLA	NOPEL4	
4498	4438	TSTPL	DDPE01		
4499	7853		DLA	DLA	
4500	7075		JMP	75285	
4501	7141		DLA	ADDRESS	
4502	1153		DLA	CONTR1	
4503	7145		JMP	75282	
4504	4427		ENMAN		DATA BREAK
4505	4428		ENMAN		DATA BREAK
4506	4424		15191		LOAD POINTER
4507	4423		4253		TEXT POINTER

/

4508	5702	JMP	Y	191	ATA NEXT TEST
4509	4628	TSTPL			

/

PAGE

VERIFY THAT "DATA BREAK" WORDS WITH
A PREVIOUS CURRENT FIELD LOCATION X
TRY ALL COMBINATIONS

/

4510	7321	TSTPL	CLA	CLL	IAC	NOPEL FOUR ALL
4511	4445		DEFAULT			
4512	1172		TAC	NOPEL4	CURRENT FIELD	
4513	4442		LDJUP		ALOAD COMMAND FOR READ	
4514	3187		DLA	DDPE02	SAVE ADDRESS	
4515	1151		TAC	REG1		
4516	7140		DLA	DDPE02	SETUP COMPARE REGISTER	
4517	7140		DLA	DDPE02	SET VALUE TO LOAD	
4518	4421		LDJUP		ALOAD UPPER BUFFER	
4521	1071		TAC	42547	ENABLE BREAK BIT	
4522	4447		LDJAP		LOAD AND GO	
4523	7325		DLA	CLL		
4524	1173		TAC	4	GET DATA WORD	
4525	7171		DLA	DDPE02	AGENT FOR ERROR PRINTER	
4526	1173		TAC	11811		
4527	4432		DDPE01		CHECK	
4528	4427		ENMAN		DATA BREAK	
4529	4428		ENMAN		DATA BREAK	
4530	4424		15191		LOAD POINTER	
4531	4423		4253		TEXT POINTER	

/

VERIFY THAT A READ DATA BREAK DOES OCCUR
ENTER FUNCTION X 2

/

4532	7321	TSTPL	CLA	CLL	IAC	NOPEL
4533	4445		DEFAULT			
4534	1173		TAC	REG1	SET VALUE TO LOAD	
4535	7140		DLA	DDPE02	SETUP COMPARE REGISTER	
4536	1163		TAC	DDPE02		
4537	4421		LDJUP		ALOAD UPPER BUFFER	

5473	7049	SLR	OPR		
5473	7149			008000	ZCIPHER COMPARE REGISTER
5474	7207	TOHADR	SLR	OPR	
5475	7449			000000	ZCIPHER ADDRESS TO 7111
5476	7349			000000	
5477	7341			000000	
5507	7356			000000	
5507	7437	SMA	OPR		ZOVERRIDE FIELD
5508	5421	JMP		000000	ZRES, NOT THIS ONE
5509	7440			000000	ZOVERRIDE DATA
5514	7440	TOHADR	SLR		ZOVERRIDE OP
5515	7526			000000	ZOVERRIDE DATA
5516	7472	TOHADR	SLR		ZOVERRIDE OP
5517	7354			000000	
5518	7107	AND		000000	ZWRITE
5519	7107	AND		000000	ALIAS COMPARE REGISTER
5519	7447	LDMP			ZENABLE WRITE BREAK
5520	7171	JMP		000000	ZRES
5521	6447	LDMP			ZRES RESULTS
5522	6480	LDMP			ZCHECK RESULTS
5523	6482	LDMP			ZCHK, WRN, EVNT
5523	7610	LDMP			ZERRR
5524	7540	TOHADR	SLR		ZOVERRIDE DATA
5525	7540	TOHADR	SLR		ZOVERRIDE DATA
5526	7540	TOHADR	SLR		ZOVERRIDE DATA
5527	7540	TOHADR	SLR		ZOVERRIDE DATA
5528	7540	TOHADR	SLR		ZOVERRIDE DATA
5529	7540	TOHADR	SLR		ZOVERRIDE DATA
5530	7540	TOHADR	SLR		ZOVERRIDE DATA
5531	7540	TOHADR	SLR		ZOVERRIDE DATA
5532	7540	TOHADR	SLR		ZOVERRIDE DATA
5533	7540	TOHADR	SLR		ZOVERRIDE DATA
5534	7540	TOHADR	SLR		ZOVERRIDE DATA
5535	7540	TOHADR	SLR		ZOVERRIDE DATA

5570	7501	TOHADR	SLR		ZOVERRIDE DATA
5571	6485	LDMP			ZWRITE
5572	6485	LDMP			ZENTER MAINTENANCE MODE
5573	7142	JMP		000000	
5574	7037	OPR		000000	ZSTART FIELD #
5575	7175	JMP		000000	ZSTART FIELD #
5576	7470	OPR		000000	ZFIELDS TO TEST -1
5577	7485	OPR		000000	ZFIELDS TO TEST -1
5578	7281	OPR		000000	ZFIELDS TO TEST -1
5579	7140	OPR		000000	ZFIELDS TO TEST -1
5580	7140	OPR		000000	ZFIELDS TO TEST -1
5581	7140	OPR		000000	ZFIELDS TO TEST -1
5582	7140	OPR		000000	ZFIELDS TO TEST -1
5583	7140	OPR		000000	ZFIELDS TO TEST -1
5584	7140	OPR		000000	ZFIELDS TO TEST -1
5585	7140	OPR		000000	ZFIELDS TO TEST -1
5586	7140	OPR		000000	ZFIELDS TO TEST -1
5587	7140	OPR		000000	ZFIELDS TO TEST -1
5588	7140	OPR		000000	ZFIELDS TO TEST -1
5589	7140	OPR		000000	ZFIELDS TO TEST -1
5590	7140	OPR		000000	ZFIELDS TO TEST -1
5591	7140	OPR		000000	ZFIELDS TO TEST -1
5592	7140	OPR		000000	ZFIELDS TO TEST -1
5593	7140	OPR		000000	ZFIELDS TO TEST -1
5594	7140	OPR		000000	ZFIELDS TO TEST -1
5595	7140	OPR		000000	ZFIELDS TO TEST -1
5596	7140	OPR		000000	ZFIELDS TO TEST -1
5597	7140	OPR		000000	ZFIELDS TO TEST -1
5598	7140	OPR		000000	ZFIELDS TO TEST -1
5599	7140	OPR		000000	ZFIELDS TO TEST -1
5600	7140	OPR		000000	ZFIELDS TO TEST -1
5601	7140	OPR		000000	ZFIELDS TO TEST -1
5602	7140	OPR		000000	ZFIELDS TO TEST -1
5603	7140	OPR		000000	ZFIELDS TO TEST -1
5604	7140	OPR		000000	ZFIELDS TO TEST -1
5605	7140	OPR		000000	ZFIELDS TO TEST -1
5606	7140	OPR		000000	ZFIELDS TO TEST -1
5607	7140	OPR		000000	ZFIELDS TO TEST -1
5608	7140	OPR		000000	ZFIELDS TO TEST -1
5609	7140	OPR		000000	ZFIELDS TO TEST -1
5610	7140	OPR		000000	ZFIELDS TO TEST -1
5611	7140	OPR		000000	ZFIELDS TO TEST -1
5612	7140	OPR		000000	ZFIELDS TO TEST -1


```

PAGE 17      5131      22-APR-73      1117      PAGE 1-64
5422  7041      CIA
5421  1160      TAB      DOREG2
5420  7040      XRA  CLP
5419  2215      ISB      COMP2      /SKIP IF CLK;
5418  5615      JMP 1     COMP2      /ERROR; DON'T COMPARE
/
/ASUBROUTINE TO SEARCH FOR FIRST AND SECOND TO
/ADDRESS AND REGISTER
/
5429  7027      COMP2:  0
5426  7322      CLA  CLP
5427  1137      TAB      DOREG1
5432  1141      AND  DOREG1
5431  7041      CIA
5432  1141      TAB      DOREG1
5433  7042      XRA  CLP
5434  5271      JMP 1     DOREG1      /NOT THE SAME
5435  1142      ISB      DOREG2
5436  7041      CIA
5437  1140      TAB      DOREG2
5438  7047      XRA  CLP
5439  2225      DOREG1  ISB      COMP2      /ERROR; NOT THE SAME
5440  5679      JMP 1     COMP2
/
/ASUBROUTINE TO READ STATUS REGISTER
/
5443  7072      READ:  0
5444  6745      DOTS,  DOREG1
5445  7012      SBR      /READ STATUS LOG
5446  7002      BRHLT,  HL
5447  7163      DCA  STREG      /SKIP TRAP
5448  1163      SBR      /SAVE RESULTS
5449  7043      JMP 1     DOTS
/
/ASUBROUTINE TO LOAD CURRENT ADDRESS REGISTER
/
5452  7002      LOAD:  0
5453  1167      DCA  ADREG      /SAVE IN ADDRESS
5454  1167      TAB  ADREG
5455  7144      DOTA,  DOTA,  DCA  ADREG      /LOAD CURRENT ADDRESS LOG
5456  5652      JMP 1     DOTA      /EXIT
5457  7002      BRHLT,  HL
/
/ASUBROUTINE TO LOAD DISK ADDRESS REGISTER
/
5462  7002      LOAD:  0
5461  1166      DCA  DAREG      /SAVE OUTBOUND DATA
5462  1166      TAB  DAREG
5463  6743      DOTS,  DOTA,  DCA  DAREG      /LOAD DISK ADDRESS REGISTER
5464  7052      JMP 1     DOTA      /EXIT
5465  7002      BRHLT,  HL
/
/ASUBROUTINE TO LOAD COMMAND REGISTER
/

```

```

/
PAGE 17      5142      22-APR-73      1117      PAGE 1-65
5466  7002      LOAD:  0
5467  1165      DCA  DOREG      /SAVE INBOUND DATA
5473  1165      TAB  DOREG
5471  6743      DOTS,  DOTA,  DCA  DOREG      /LOAD COMMAND REGISTER
5472  5655      JMP 1     DOTA      /EXIT
5473  7002      BRHLT,  HL
/
/ASUBROUTINE TO ISSUE "DISK" DISK SKIP LOG
/
5474  4207      SBR:  0
5475  6744      DOTS,  DOREG
5476  7017      SBR      /DISK SKIP LOG
5477  2270      ISB      DOREG
5478  5674      JMP 1     DOREG      /EXIT
/
/ASUBROUTINE TO ISSUE "DOR" CLEAR LOG
/
5501  2075      LOAD:  0
5502  6745      DOTS,  DOREG
5503  6771      JMP 1     DOREG      /DOR "CLEAR" LOG
5504  7002      BRHLT,  HL
/
/ASUBROUTINE TO ISSUE "DMAN" MAINTENANCE LOG
/
5505  7002      LOAD:  0
5506  4747      DOTS,  DMAN
5507  5725      JMP 1     DMAN      /"DMAN" MAINTENANCE LOG
5508  7002      BRHLT,  HL
/
/ASUBROUTINE TO SHIFT, THEN READ DISK
/ADDRESS INTO DATA BUFFER, 12 SHIFTS
/
5511  1627      READ:  0
5512  4137      FANUM2
5513  1172      SCL  12
5514  1182      SCL  SBUNT1      /SETUP COUNTER
5515  1872      SCL  4000      /ENABLE SHIFT CRC
5516  1873      SCL  4000      /ENABLE SHIFT BUFFER AND SECTOR
5517  4447      DMAN
5520  2152      ISB  SBUNT1      /FOR SHIFTS
5521  5317      JMP 1     12
5522  1100      CIA  CLP
5523  1131      TAB  17
5524  2152      SCL  SBUNT1
5525  1872      SCL  4000      /SHIFT CRC
5526  4447      DMAN
5527  2153      SCL  SBUNT1
5528  5326      JMP 1     12      /SHIFT 12 BITS
5529  7332      CIA  CLP
5530  1247      ISB  4000
5531  4447      DMAN
5534  1165      DCA  DAREG      /READ DATA BUFFER
/
/SAVE RESULTS

```

```

4535 1104    CLR    D049
4536 0711    JMP    D049
/
/
/ SUBROUTINE TO READ DATA BUFFER TO AD
/
/
4547 0000    ROOM:
4548 1307    CLA    D01 D01 BAR
4549 4447    LDRM
4550 1067    TAU    K0827
4551 4447    LDMAN
4552 1064    DCA    D0806
4553 1064    TAU    D0806
4554 1171    DCA    D0806
4555 1072    TAU    D0806
4556 0707    JMP    D0806
/
/
/ SUBROUTINE TO SHIFT COMMAND REGISTER IN
/ DATA BUFFER THEN READ DATA BUFFER
/
/
4565 1077    ROOM:
4566 4437    ENMAN2
4567 1152    TAU    Y12
4568 1307    DCA    S0001
4569 1076    TAU    K0827
4570 4447    LDMAN
4571 1152    LSR    S0001
4572 1067    JMP    Y12
4573 1307    CLA    D01 D01 BAR
4574 4447    LDMAN
4575 1307    CLA    D01
4576 0707    JMP    D0806
/
/
/
/ SUBROUTINE TO ENTER MAINTENANCE MODE
/
/
4587 0000    ROOM:
4588 1307    ENMAN2
4589 4447    LDMAN
4590 1307    CLA    D01
4591 0707    JMP    D0806
/
/
/
/ SUBROUTINE TO SHIFT ORC REGISTER TO DATA
/ BUFFER THEN READ IT
/
/
4602 1077    ROOM:
4603 4437    ENMAN2
4604 1152    TAU    Y12
4605 1307    DCA    S0001
4606 1076    TAU    K0827
4607 4447    LDMAN
/

```

```

4618 1077    ROOM:
4619 4437    ENMAN2
4620 1152    TAU    Y12
4621 1307    DCA    S0001
4622 1076    TAU    K0827
4623 4447    LDMAN
4624 141    AND    K0212
4625 1161    OR    D0806
4626 0707    JMP    D0806
/
/
/ SUBROUTINE TO PRINT TWO TOTAL
/
/
4635 0000    ROOM:
4636 1152    DCA    S0001
4637 1152    TAU    S0001
4638 0000    ROOM:
4639 1077    ENMAN2
4640 4447    LDMAN
4641 141    AND    K0212
4642 1161    OR    D0806
4643 0707    JMP    D0806
/
/
/
/ SUBROUTINE TO PRINT FOUR TOTAL
/
/
4645 0000    ROOM:
4646 1152    DCA    S0001
4647 1152    TAU    S0001
4648 0000    ROOM:
4649 1077    ENMAN2
4650 4447    LDMAN
4651 141    AND    K0212
4652 1161    OR    D0806
4653 0707    JMP    D0806
/
/
/
/ SUBROUTINE TO PRINT FOUR TOTAL
/
/
4656 0000    ROOM:
4657 1077    ENMAN2
4658 1077    ENMAN2

```



```

4661 4246      JNB  JF01E
4662 4246      JNB  JF01E
4663 4246      JNB  JF01E
4664 4246      JNB  JF01E
4665 4246      JNB  JF01E
4666 4246      JNB  JF01E
4667 4246      JNB  JF01E
4668 4246      JNB  JF01E
4669 4246      JNB  JF01E
4670 4246      JNB  JF01E
4671 4246      JNB  JF01E
4672 4246      JNB  JF01E
4673 4246      JNB  JF01E
4674 4246      JNB  JF01E
4675 4246      JNB  JF01E
4676 4246      JNB  JF01E
4677 4246      JNB  JF01E
4678 4246      JNB  JF01E

```

/ PROLOGUE TO PRINT TEXT

```

4679 4246      JNB  JF01E
4680 4246      JNB  JF01E
4681 4246      JNB  JF01E
4682 4246      JNB  JF01E
4683 4246      JNB  JF01E
4684 4246      JNB  JF01E
4685 4246      JNB  JF01E
4686 4246      JNB  JF01E
4687 4246      JNB  JF01E
4688 4246      JNB  JF01E
4689 4246      JNB  JF01E
4690 4246      JNB  JF01E
4691 4246      JNB  JF01E
4692 4246      JNB  JF01E
4693 4246      JNB  JF01E
4694 4246      JNB  JF01E
4695 4246      JNB  JF01E
4696 4246      JNB  JF01E
4697 4246      JNB  JF01E
4698 4246      JNB  JF01E
4699 4246      JNB  JF01E
4700 4246      JNB  JF01E

```

/ PROLOGUE TO INFL

```

4701 4246      JNB  JF01E
4702 4246      JNB  JF01E

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4741 4246      JNB  JF01E
4742 4246      JNB  JF01E
4743 4246      JNB  JF01E
4744 4246      JNB  JF01E
4745 4246      JNB  JF01E

```

/ PROLOGUE TO GET ALL REGISTERS AFTER "LEHLEP"

```

4746 4246      JNB  JF01E
4747 4246      JNB  JF01E
4748 4246      JNB  JF01E
4749 4246      JNB  JF01E
4750 4246      JNB  JF01E
4751 4246      JNB  JF01E
4752 4246      JNB  JF01E
4753 4246      JNB  JF01E
4754 4246      JNB  JF01E
4755 4246      JNB  JF01E
4756 4246      JNB  JF01E
4757 4246      JNB  JF01E
4758 4246      JNB  JF01E
4759 4246      JNB  JF01E
4760 4246      JNB  JF01E
4761 4246      JNB  JF01E
4762 4246      JNB  JF01E
4763 4246      JNB  JF01E
4764 4246      JNB  JF01E
4765 4246      JNB  JF01E
4766 4246      JNB  JF01E
4767 4246      JNB  JF01E
4768 4246      JNB  JF01E
4769 4246      JNB  JF01E
4770 4246      JNB  JF01E
4771 4246      JNB  JF01E
4772 4246      JNB  JF01E
4773 4246      JNB  JF01E
4774 4246      JNB  JF01E
4775 4246      JNB  JF01E

```

/ PROLOGUE TO ENTER MAINTENANCE MODE AND

```

4776 4246      JNB  JF01E
4777 4246      JNB  JF01E
4778 4246      JNB  JF01E
4779 4246      JNB  JF01E
4780 4246      JNB  JF01E

```

/ SUBROUTINE FOR AND PRRGSH AND SCOP

```

4781 4246      JNB  JF01E
4782 4246      JNB  JF01E
4783 4246      JNB  JF01E
4784 4246      JNB  JF01E
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4793 4246      JNB  JF01E
4794 4246      JNB  JF01E
4795 4246      JNB  JF01E
4796 4246      JNB  JF01E
4797 4246      JNB  JF01E
4798 4246      JNB  JF01E
4799 4246      JNB  JF01E
4800 4246      JNB  JF01E

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/ PROLOGUE TO ENTER MAINTENANCE MODE AND

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4801 4246      JNB  JF01E
4802 4246      JNB  JF01E
4803 4246      JNB  JF01E
4804 4246      JNB  JF01E
4805 4246      JNB  JF01E

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/	AA117	1142	22+33+77	1117	BASE 1147		
AE770	7124		EM143	7214	40700	0077	NEXFL5 5443
AE771	7125		EM144	7207	40700	0113	NEXFL4 5421
AE772	7126		EM145	7203	40700	0116	NEXFL3 5444
AE773	7127		EM146	7204	40700	0119	NEXFL2 7034
AE774	7128		EM147	7205	40700	0100	NEXFL1 4307
AE775	7129		EM148	7206	40700	0101	BTG00 4276
AE776	7130		EM149	7207	40700	0102	BTG01 4290
AE777	7131		EM150	7208	40700	0103	BTG02 4452
AE778	7132		EM151	7209	40700	0104	BTG03 4341
AE779	7133		EM152	7210	40700	0105	BTG04 4346
AE780	7134		EM153	7211	40700	0106	BTG05 4577
AE781	7135		EM154	7212	40700	0107	BTG06 4544
AE782	7136		EM155	7213	40700	0108	BTG07 4443
AE783	7137		EM156	7214	40700	0109	BTG08 4637
AE784	7138		EM157	7215	40700	0110	BTG09 4454
AE785	7139		EM158	7216	40700	0111	BTG10 4443
AE786	7140		EM159	7217	40700	0112	BTG11 4443
AE787	7141		EM160	7218	40700	0113	BTG12 4443
AE788	7142		EM161	7219	40700	0114	BTG13 4443
AE789	7143		EM162	7220	40700	0115	BTG14 4443
AE790	7144		EM163	7221	40700	0116	BTG15 4443
AE791	7145		EM164	7222	40700	0117	BTG16 4443
AE792	7146		EM165	7223	40700	0118	BTG17 4443
AE793	7147		EM166	7224	40700	0119	BTG18 4443
AE794	7148		EM167	7225	40700	0120	BTG19 4443
AE795	7149		EM168	7226	40700	0121	BTG20 4443
AE796	7150		EM169	7227	40700	0122	BTG21 4443
AE797	7151		EM170	7228	40700	0123	BTG22 4443
AE798	7152		EM171	7229	40700	0124	BTG23 4443
AE799	7153		EM172	7230	40700	0125	BTG24 4443
AE800	7154		EM173	7231	40700	0126	BTG25 4443
AE801	7155		EM174	7232	40700	0127	BTG26 4443
AE802	7156		EM175	7233	40700	0128	BTG27 4443
AE803	7157		EM176	7234	40700	0129	BTG28 4443
AE804	7158		EM177	7235	40700	0130	BTG29 4443
AE805	7159		EM178	7236	40700	0131	BTG30 4443
AE806	7160		EM179	7237	40700	0132	BTG31 4443
AE807	7161		EM180	7238	40700	0133	BTG32 4443
AE808	7162		EM181	7239	40700	0134	BTG33 4443
AE809	7163		EM182	7240	40700	0135	BTG34 4443
AE810	7164		EM183	7241	40700	0136	BTG35 4443
AE811	7165		EM184	7242	40700	0137	BTG36 4443
AE812	7166		EM185	7243	40700	0138	BTG37 4443
AE813	7167		EM186	7244	40700	0139	BTG38 4443
AE814	7168		EM187	7245	40700	0140	BTG39 4443
AE815	7169		EM188	7246	40700	0141	BTG40 4443
AE816	7170		EM189	7247	40700	0142	BTG41 4443
AE817	7171		EM190	7248	40700	0143	BTG42 4443
AE818	7172		EM191	7249	40700	0144	BTG43 4443
AE819	7173		EM192	7250	40700	0145	BTG44 4443
AE820	7174		EM193	7251	40700	0146	BTG45 4443

