RK611 RK611 DSKLS PRT 2 AH-9102D-MC MAR 1982
RK06,RK07 CZR6BDO FICHE 1 OF 1
MADE IN USA

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                                        IDENTIFICATION


                        PRODUCT CODE:   AC-9100D-MC

                        PRODUCT NAME:   CZR6BD0 RK611 DKSLS PRT2

                        DATE:           AUGUST 10 1981

                        MAINTAINER:     DIAGNOSTIC GROUP

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1.0 ABSTRACT

THE RK611 DISKLESS CONTROLLER DIAGNOSTIC. PART 2 TEST THE LOADING OF THE DRIVE BUS MESSAGES BY EXECUTING CLASS A COMMANDS. SOME TESTS EXECUTE COMMANDS PARTIALLY MAINTENANCE MODE AND PARTIALLY AT NORMAL SPEED TO FOOL THE CONTROLLER AND FORCE ERRORS. THIS PROGRAM DOES NOT REQUIRE THE PRESENCE OF AN RK06 DRIVE.

2.0 REQUIREMENTS

2.1 EQUIPMENT

PDP-11 SYSTEM (16K CORE MEMORY)
CONSOLE TERMINAL
DECTAPE, PAPER TAPE READER, OR DECDISK
RK611 CONTROLLER

2.2 PRELIMINARY PROGRAMS

RK611 DISKLESS CONTROLLER DIAGNOSTIC: PART 1
CZR6AXX

3.0 OPERATING PROCEDURES

3.1 LOADING PROCEDURE

THE PROGRAM CAN BE LOADED FROM PAPER TAPE USING ABSOLUTE LOADER OR FROM ANY MEDIA SUPPORTED BY XXDP.

3.2 STARTING PROCEDURE

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                        LOCATION 200    - START PROGRAM

                        LOCATION 204    - RESTART PROGRAM

                        LOCATION 214    - REQUEST BUS ADDRESS, VECTOR ADDRESS, AND
                                          PRIORITY MODIFICATION
                3.3 OPTIONAL SWITCH SETTINGS

                        SW15 -  HALT PROGRAM
                        SW14 -  LOOP ON TEST
                        SW13 -  INHIBIT ERROR TYPE OUT
                        SW12 -  ABORT AFTER 20 ERRORS
                        SW11 -  INHIBIT ITERATION COUNT
                        SW10 -  BELL ON ERROR
                        SW9  -  LOOP ON ERROR
                        SW8  -  LOOP ON TEST IN SWITCHES 0-7


                3.5 RUN TIME

                        FIRST PASS              7 SECONDS
                        SUBSEQUENT PASSES       2 MINUTES


                4.0     OPERATING PROCEDURES

                THE PROGRAM IS EXECUTED BY STARTING AT THE APPROPIATE ADDRESS.


                5.0 PROGRAM DESCRIPTION

                        **DRIVE MESSAGE LOADING

                                TEST 1  FIRST COMMAND IN MAINT MODE

                                        INITIALIZE RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER I
                                        MODE. ISSUE SELECT DRIVE. WAIT AND MAKE SURE CS1 REMAINS
                                        THE SAME. CLOCK IN MESSAGES A AND B. MAKE SURE
                                        CORRECT MSG ARE LOADED. CHECKING IS DONE A FIELD AT A
                                        TIME.


                                TEST 2  DRIVE SELECT BITS LOADING FOR DRIVE MESS.

                                        INITIALIZE RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER
                                        DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 2 WIT
                                        ZERO.  LOAD COMMAND AND STATUS REGISTER WITH A SELECT
                                        COMMAND.  CLOCK IN MESSAGES A AND B INTO SHIFT REGISTER.
                                        MAKE SURE CORRECT MESSAGES ARE LOADED.  REPEAT FOR DRIVE
                                        SELECT = 1-17.


                                TEST 3  FORMAT BIT LOADING TO FOR DRIVE MESS.

                                        CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                                        DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 1 WIT
```

A SELECT COMMAND AND 24 SECTOR MODE FORMAT. MAKE SURE
CORRECT MESSAGE IS LOADED.

TEST 4 HEAD SELECT BITS LOADING FOR DRIVE MESS.

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD TRACK ADDRESS WITH ZERO. LOAD
COMMAND AND STATUS REGISTER 2 WITH ZERO. LOAD COMMAND
AND STATUS REGISTER WITH SELECT COMMAND. CLOCK IN
MESSAGE A AND B INTO SHIFT REGISTER. MAKE SURE CORRECT
MESSAGE IS LOADED. REPEAT FOR TRACK ADDRESS = 1-7.

TEST 5 MESSAGE SELECT BITS LOADING FOR DRIVE MESS.

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE AND ZERO IN MESSAGE SELECT BITS. LOAD
COMMAND AND STATUS REGISTER 1 WITH A SELECT COMMAND. CL
IN MESSAGE A AND B INTO SHIFT REGISTER. MAKE SURE
CORRECT MESSAGE IS LOADED. REPEAT FOR MESSAGE SELECT -

TEST 6 CLEAR DRIVE COMMAND LOADING FOR DRIVE MESS

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 1 WIT
A DRIVE CLEAR. CLOCK MESSAGE A AND B INTO SHIFT REGISTE
MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY. REPEAT
FOR 24 SECTOR FORMAT.

TEST 7 UNLOAD COMMAND LOADING FOR DRIVE MESS.

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 1 WIT
AN UNLOAD COMMAND. CLOCK IN MESSAGES A AND B INTO SHIFT
REGISTERS. MAKE SURE SHIFT REGISTERS ARE LOADED CORRECT
REPEAT FOR 24 SECTOR FORMAT.

TEST 10 PACK ACKNOWLEDGE COMMAND LOADING FOR DRIVE MESS.

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 1 WIT
A PACK ACKNOWLEDGE. CLOCK MESSAGES A AND B INTO SHIFT
REGISTERS. MAKE SURE SHIFT REGISTERS ARE LOADED CORRECT
REPEAT FOR 24 SECTOR FORMAT.

TEST 11 RECALIBRATE COMMAND LOADING FOR DRIVE MESS.

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 1 WIT
A RECALIBRATE. CLOCK MESSAGES A AND B INTO SHIFT REGIST
MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY.

TEST 12 START SPINDLE COMMAND LOADING FOR DRIVE MESS.

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 1 WIT A START SPINDLE. CLOCK MESSAGES A AND B INTO SHIFT REGI MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY.

TEST 13 SEEK AND CYLINDER ADD 0-777 LOADING FOR DRIVE MESS

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD ZERO IN CYLINDER ADDRESS. LOAD COMMAND AND STATUS REGISTER 1 WITH A SEEK COMMAND. CLOCK IN MESSAGE A AND B INTO SHIFT REGISTER. MAKE SURE CORRECT MESSAGE IS LOADED. REPEAT FOR CYLINDER = 1-777.

TEST 14 SEEK AND CYLINDER BIT 9 AND RK06 FOR DRIVE MESS.

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD 1000 IN CYLINDER ADDRESS. LOAD COMMAND AND STATUS REGISTER 1 WITH A SEEK COMMAND. CLOCK IN MESSAGE A AND B INTO SHIFT REGISTERS. MAKE SURE CYLINDER BIT 9 IN MESSAGE IN RESET. REPEAT FOR CYLINDER = 1400.

TEST 15 SEEK AND CYLINDER ADD 0,777-1777 LOADING FOR DRIVE MESS

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD 0 IN CYLINDER ADDRESS. LOAD COMMAND AND STATUS REGISTER 1 WITH SEEK COMMAND AND CDT SET. CLOCK IN MESSAGE A AND B INTO SHIFT REGISTER. MAKE SURE CYLINDER CORRECT. REPEAT FOR CYLINDER = 777-1

TEST 16 OFFSET COMMAND LOADING FOR DRIVE MESS.

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD OFFSET REGISTER WITH 0. LOAD COMMAND AND STATUS REGISTER 1 WITH AN OFFSET. CLOCK MESSAGES A AND B INTO SHIFT REGISTERS. MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY. REPEAT FOR OFFSET REGISTER = 1-377.

TEST 17 CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 1)

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD CYLINDER ADDRESS REGISTER WITH 777. LOAD THE OFFSET REG TO 52. LOAD COMMAND AND STATUS REGISTER 1 WITH A SELECT. CLOCK MESSAGES A AND B INTO SHIFT REGISTERS. MAKE SURE

SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.

TEST 20 CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 2)

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD CYLINDER ADDRESS REGISTER
WITH 777. LOAD THE OFFSET REG TO 52. LOAD COMMAND
AND STATUS REGISTER 1 WITH A PACK ACKNOWLEDGE. CLOCK
MESSAGES A AND B INTO SHIFT REGISTERS. MAKE SURE
SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.

TEST 21 CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 3)

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD CYLINDER ADDRESS REGISTER
WITH 777. LOAD THE OFFSET REG TO 52. LOAD COMMAND
AND STATUS REGISTER 1 WITH A CLEAR DRIVE. CLOCK
MESSAGES A AND B INTO SHIFT REGISTERS. MAKE SURE
SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.

TEST 22 CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 4)

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD CYLINDER ADDRESS REGISTER
WITH 777. LOAD THE OFFSET REG TO 52. LOAD COMMAND
AND STATUS REGISTER 1 WITH AN UNLOAD. CLOCK
MESSAGES A AND B INTO SHIFT REGISTERS. MAKE SURE
SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.

TEST 23 CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 5)

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD CYLINDER ADDRESS REGISTER
WITH 777. LOAD THE OFFSET REG TO 52. LOAD COMMAND
AND STATUS REGISTER 1 WITH A START SPINDLE. CLOCK
MESSAGES A AND B INTO SHIFT REGISTERS. MAKE SURE
SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.

TEST 24 CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 6)

CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
DIAGNOSTIC MODE. LOAD CYLINDER ADDRESS REGISTER
WITH 777. LOAD THE OFFSET REG TO 52. LOAD COMMAND
AND STATUS REGISTER 1 WITH A RECALIBRATE. CLOCK
MESSAGES A AND B INTO SHIFT REGISTERS. MAKE SURE
SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER

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                        ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.


TEST 25 MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 1)

        CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
        DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
        COMMAND AND STATUS REGISTER 1 WITH A PACK ACKNOWLEDGE.
        CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
        MESSAGE SELECT BITS ARE CLEARED.


TEST 26 MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 2)

        CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
        DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
        COMMAND AND STATUS REGISTER 1 WITH A DRIVE CLEAR.
        CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
        MESSAGE SELECT BITS ARE CLEARED.


TEST 27 MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 3)

        CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
        DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
        COMMAND AND STATUS REGISTER 1 WITH AN UNLOAD.
        CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
        MESSAGE SELECT BITS ARE CLEARED.


TEST 30 MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 4)

        CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
        DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
        COMMAND AND STATUS REGISTER 1 WITH A START SPINDLE.
        CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
        MESSAGE SELECT BITS ARE CLEARED.


TEST 31 MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 5)

        CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
        DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
        COMMAND AND STATUS REGISTER 1 WITH A RECALIBRATE.
        CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
        MESSAGE SELECT BITS ARE CLEARED.


TEST 32 MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 6)

        CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
        DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
        COMMAND AND STATUS REGISTER 1 WITH A OFFSET.
        CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
        MESSAGE SELECT BITS ARE CLEARED.
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                        TEST 33 MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 7)

                                CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                                DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
                                COMMAND AND STATUS REGISTER 1 WITH A SEEK.
                                CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
                                MESSAGE SELECT BITS ARE CLEARED.


                    **DRIVE MESSAGE LOOPBACK AND PARITY GENERATION TESTS

                        TEST 34 DRIVE MESSAGE LOOPBACK

                                CLEAR THE RK611 WITH A CONTROLLER CLEAR. PUT CONTROLLER
                                IN DIAGNOSTIC MODE INDICATING MESSAGE 3. LOAD COMMAND
                                STATUS REGISTER FOR DRIVE 5. LOAD COMMAND AND STATUS
                                REGISTER 1 WITH A SELECT COMMAND.  CLOCK 4 BITS
                                THROUGH THE DRIVE MESSAGE LOOPBACK. VERIFY THAT BITS
                                ARE INDEED LOOPED BACK.


                        TEST 35 DRIVE MESSAGE SHIFT

                                CLEAR THE RK611 WITH A CONTROLLER CLEAR. PUT CONTROLLER
                                IN DIAGNOSTIC MODE. LOAD CYLINDER ADDRESS WITH 441.
                                LOAD HEAD ADDRESS WITH 1. LOAD COMMAND AND STATUS
                                REGISTER 1 WITH A SEEK IN 24 SECTOR MODE. CLOCK 8 BITS
                                THROUGH THE DRIVE MESSAGE LOOPBACK. VERIFY THAT BITS ARE
                                SHIFTED PROPERLY.


                        TEST 36 DRIVE MESSAGE PARITY PRECONDITIONING

                                CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER
                                IN DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 1 W
                                A SELECT COMMAND. CLOCK ALL 16 BITS THROUGH THE
                                DRIVE MESSAGE LOOPBACK. VERIFY PARITY HAS BEEN PRECONDIT
                                PROPERLY. REPEAT FOR BAD PARITY GENERATION.


                        TEST 37 ODD DRIVE MESSAGE PARITY GENERATION

                                CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER
                                IN DIAGNOSTIC MODE AND MESSAGE SELECT = 1.
                                LOAD COMMAND AND STATUS REGISTER 2 WITH DRIVE
                                SELECT = 1. LOAD COMMAND AND STATUS REGISTER 1 WITH
                                A SELECT COMMAND. VERIFY THAT PARITY HAS BEEN
                                GENERATED CORRECTLY. REPEAT FOR MESSAGE SELECT =
                                DRIVE SELECT = 2-17.


                        TEST 40 DRIVE MESSAGE PARITY INTERACTION

                                CLEAR THE RK611 WITH A CONTROLLER CLEAR. PUT CONTROLLER
                                IN DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 2
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                                        WITH DRIVE SELECT = 1. LOAD COMMAND AND STATUS REGISTER
                                        WITH A SELECT COMMAND. VERIFY THAT THE CORRECT PARITY
                                        IS GENERATED FOR BOTH MESSAGES. REPEAT FOR MESSAGE
                                        SELECT = 1 AND DRIVE SELECT = 0.


                                TEST 41 EVEN DRIVE MESSAGE PARITY GENERATION

                                        CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER
                                        IN DIAGNOSTIC MODE AND MESSAGE SELECT = 1
                                        AND BAD PARITY SET. LOAD COMMAND AND STATUS
                                        REGISTER 2 WITH DRIVE SELECT = 1. LOAD COMMAND
                                        AND STATUS REGISTER SELECT COMMAND. VERIFY THAT
                                        EVEN PARITY IS GENERATED.  REPEAT FOR MESSAGE SELECT
                                        DRIVE SELECT = 2-17.


                        **CLASS A COMMAND EXECUTION

                                        TEST 42 RELEASE COMMAND IN DIAGNOSTIC MODE

                                        CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                                        PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD COMMAND AND
                                        STATUS REGISTER 2 WITH DRIVE SELECT = 10. LOAD
                                        COMMAND AND STATUS REGISTER 1 WITH A SELECT.
                                        CLOCK COMMAND TO COMPLETION. MAKE SURE UNIT
                                        FIELD ERROR DOES NOT SET (SACK HIGH). REPEAT FOR
                                        DRIVE SELECT = 11-17.


                                TEST 43 SELECT COMMAND IN DIAGNOSTIC MODE

                                        CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                                        PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD COMMAND AND
                                        STATUS REGISTER 2 WITH DRIVE SELECT = 0. LOAD
                                        COMMAND AND STATUS REGISTER 1 WITH A SELECT.
                                        CLOCK COMMAND TO COMPLETION. MAKE SURE MESSAGE SHIFT IS
                                        NOT DONE DURING THE RECEIVE CYCLE OF DRIVE MESSAGE.
                                        MAKE SURE NO ERRORS SET. REPEAT FOR DRIVE SELECT = 1-7.


                                TEST 44 RELEASE COMMAND IN NORMAL MODE

                                        CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                                        LOAD COMMAND AND STATUS REGISTER 2 WITH DRIVE SELECT = 1
                                        LOAD COMMAND AND STATUS REGISTER 1 WITH A SELECT.
                                        MAKE SURE NO ERRORS OCCUR. REPEAT FOR DRIVE
                                        SELECT = 11-17


                                TEST 45 INTERRUPT AT COMMAND COMPLETION

                                        CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                                        LOWER PROCESSOR PRIORITY TO ZERO. ISSUE A RELEASE
                                        COMMAND WITH INTERRUPT ENABLE SET. MAKE SURE
                                        INTERRUPT OCCURS. LOWER PRIORITY AFTER INTERRUPT
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                        AND MAKE SURE INTERRUPT HAS CLEARED.

                        LOWER PROCESSOR PRIORITY TO ZERO.  REISSUE RELEASE
                        WITH INTERRUPT ENABLE RESET.  MAKE SURE NO INTERRUPT
                        OCCURS.  SET INTERRUPT ENABLE AND MAKE SURE NO
                        INTERRUPT OCCURS.


                TEST 46 GO CLEAR OF SILO

                        CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        WRITE ONE WORD INTO THE SILO.  ISSUE A RELEASE COMMAND
                        WITH INTERRUPT ENABLE RESET.  WAIT FOR READY.
                        READ THE DATA BUFFER TO MAKE SURE THE SILO HAS BEEN
                        CLEARED. (DATA LATE SET AFTER READ OF DATA BUFFER)


                TEST 47 SEEK COMMAND IN DIAGNOSTIC MODE

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK WITH CDT
                        24 SECTOR FORMAT TO CYLINDER 1714, HEAD 7, DRIVE 0.
                        MAKE SURE NO STATUS BITS ARE SET AND NO ERROR
                        BITS ARE SET.


        **ERROR AND STATUS BIT FORCING WITH DRIVE MESSAGES

                TEST 50 DRIVE STATUS FROM SHIFT REGISTER

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
                        TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 757, HEAD 1,
                        DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS
                        6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE SPEED LOSS,
                        DRIVE AVAILABLE, VOLUME VALID, OFFSET, DRIVE READY,
                        AND WRITE LOCK ARE SET.


                TEST 51 DRIVE AVAILABLE SETTING

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK TO A RK0
                        26 SECTOR FORMAT TO CYLINDER 2, HEAD 0, DRIVE 0.
                        CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
                        TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE
                        AVAILIABLE SETS.


                TEST 52 DRIVE BUS PARITY ERROR

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK
                        TO A RK06, 26 SECTOR FORMAT TO CYLINDER 3, HEAD 0,
                        DRIVE 0. CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
                        TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE BUS
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                        PARITY, DRIVE AVAILIABLE, AND CONTROLLER ERROR ARE SET.


TEST 53 DRIVE AVAILABLE RESET ERROR

        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SELECT
        TO A RK06, 26 SECTOR FORMAT, AND DRIVE 0.
        CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
        TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE AVAILIABLE
        IS RESET AND CONTROLLER ERROR IS SET.


TEST 54 CDT SET DRIVE TYPE

        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK
        WITH CDT SET, 26 SECTOR FORMAT, TO CYLINDER 23,
        HEAD 0, DRIVE 0. CLOCK IN DIAGNOSTIC MODE
        UNTIL PHASE ADDRESS 6. TURN OFF DIAGNOSTIC MODE
        AND MAKE SURE ONLY DRIVE AVAILIABLE SETS.


TEST 55 CDT SET AND DRIVE TYPE ERROR

        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK
        WITH CDT SET, 26 SECTOR FORMAT, TO CYLINDER 2,
        HEAD 0, DRIVE 0. CLOCK IN DIAGNOSTIC MODE
        UNTIL PHASE ADDRESS 6. TURN OFF DIAGNOSTIC MODE
        AND MAKE SURE DRIVE AVAILIABLE, DRIVE TYPE ERROR,
        AND CONTROLLER ERROR SET.


TEST 56 RK06 AND DRIVE TYPE ERROR

        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR
        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK
        TO A RK06, 26 SECTOR FORMAT, TO CYLINDER 23,
        HEAD 0, DRIVE 0. CLOCK IN DIAGNOSTIC MODE
        UNTIL PHASE ADDRESS 6. TURN OFF DIAGNOSTIC
        MODE AND MAKE SURE DRIVE AVAILIABLE, DRIVE TYPE ERROR,
        AND CONTROLLER ERROR SETS.


TEST 57 SPEED LOSS FROM SHIFT REG.

        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK TO A RK0
        26 SECTOR FORMAT, TO CYLINDER 3, HEAD 1, DRIVE 0.
        CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6. TURN
        OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE AVAILIABLE AND
        SPEED LOSS ARE SET.


TEST 60 DRIVE OFF TRACK FROM SHIFT REG.
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                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK TO A RK0
                        26 SECTOR FORMAT, TO CYLINDER 3, HEAD 2, DRIVE 0.
                        CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
                        TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE AVAILIABLE
                        AND DRIVE OFF TRACK ARE SET.


TEST 61 WRITE LOCK ERROR FROM SHIFT REG.

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A PACK ACKNOWLE
                        TO A RK06, 26 SECTOR FORMAT, WITH CYLINDER 0,
                        HEAD 1, DRIVE 0. CLOCK IN DIAGNOSTIC MODE UNTIL
                        PHASE ADDRESS 6. TURN OFF DIAGNOSTIC MODE AND MAKE
                        SURE SPEED LOSS, WRITE LOCK ERROR AND CONTROLLER ERROR
                        ARE SET WITH DRIVE AVAILIABLE RESET.


TEST 62 SEEK INCOMPLETE

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE AN UNLOAD
                        TO A RK06, 26 SECTOR FORMAT, WITH CYLINDER 0,
                        HEAD 1, DRIVE 0, CLOCK IN DIAGNOSTIC MODE UNTIL
                        PHASE ADDRESS 6. TURN OFF DIAGNOSTIC MODE AND MAKE
                        SURE SPEED LOSS, SEEK INCOMPLETE, AND CONTROLLER ERROR
                        ARE SET WITH DRIVE AVAILIABLE RESET.


TEST 63 NON-EXECUTABLE DRIVE FUNCTION FROM SHIFT REG.

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR
                        PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE
                        A DRIVE CLEAR TO A RK06, 26 SECTOR FORMAT,
                        WITH CYLINDER 0, HEAD 1, DRIVE 0. CLOCK IN DIAGNOSTIC
                        MODE UNTIL PHASE ADDRESS 6. TURN OFF DIAGNOSTIC
                        MODE AND MAKE SURE SPEED LOSS, NON-EXECUTABLE DRIVE FUNC
                        CONTROLLER ERROR ARE SET WITH DRIVE AVAILIABLE RESET.


TEST 64 AC LOW AND C-D PARITY FROM SHIFT REG.

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR, PUT RK611
                        CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A START SPINDLE
                        TO AN RK06, IN 24 SECTOR FORMAT, CYLINDER 0, HEAD 0,
                        DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6
                        TURN OFF DIAGNOSTIC MODE AND MAKE SURE AC LOW, DRIVE

                        DETECTED SERCOM PARITY, AND CONTROLLER ERROR SET WITH
                        DRIVE AVAILABLE RESET.


TEST 65 ILLEGAL DISK ADDRESS ERROR FROM SHIFT REG.
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                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A RECALIBRAT
                        TO AN RK06, IN 26 SECTOR FORMAT, CYLINDER 0, HEAD 1,
                        DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE
                        ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE
                        SPEED LOSS, ILLEGAL DISK ADDRESS ERROR, AND CONTROLLER
                        ERROR ARE SET WITH DRIVE AVAILABLE RESET.


TEST 66 IDAE DETECTION IN RK611 CONTROLLER (PART 1)

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A
                        SEEK TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 1003,
                        HEAD 0, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL
                        PHASE ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE
                        SURE DRIVE AVAILABLE, ILLEGAL DISK ADDRESS ERROR,
                        AND CONTROLLER ERROR ARE SET.


TEST 67 IDAE DETECTION IN RK611 CONTROLLER (PART 2)

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR. PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
                        WITH CDT SET IN 26 SECTOR FORMAT, CYLINDER 1022, HEAD
                        0, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE
                        ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE
                        DRIVE AVAILABLE AND POSITIONING IN PROGRESS ARE SET
                        WITH ILLEGAL DISK ADDRESS ERROR RESET.


TEST 70 IDAE DETECTION IN RK611 CONTROLLER (PART 3)

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR. PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
                        TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 2,
                        HEAD 3, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL
                        PHASE ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE
                        SURE DRIVE AVAILABLE, DRIVE OFF TRACK, SPEED LOSS,
                        ILLEGAL DISK ADDRESS ERROR, AND CONTROLLER ERROR ARE
                        SET.


TEST 71 IDAE DETECTION IN RK611 CONTROLLER (PART4)

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
                        TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 3, HEAD
                        4, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE
                        ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE
                        DRIVE AVAILABLE, UNSAFE, ILLEGAL DISK ADDRESS ERROR
                        AND CONTROLLER ERROR ARE SET.


TEST 72 IDAE DETECTION IN RK611 CONTROLLER (PART 5)
```

```
                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
                        WITH CDT SET IN 26 SECTOR FORMAT, CYLINDER 23, HEAD 5,
                        DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS
                        6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE
                        AVAILABLE, UNSAFE, SPFED LOSS, ILLEGAL DISK ADDRESS
                        ERROR, AND CONTROLLER ERROR ARE SET.


TEST 73 IDAE DETECTION IN RK611 CONTROLLER (PART 6)

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
                        WITH CDT SET IN 26 SECTOR FORMAT, CYLINDER 23, HEAD 6,
                        DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS
                        6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE
                        AVAILABLE, UNSAFE, DRIVE OFF TRACK, ILLEGAL
                        DISK ADDRESS ERROR, AND CONTROLLER CLEAR ARE SET.


TEST 74 NON-STANDARD MESSAGE RECEIVING

                        CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                        RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
                        WITH CDT SET IN 24 SECTOR FORMAT, CYLINDER 1757, HEAD 7,
                        DRIVE 1.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6
                        TURN OFF DIAGNOSTIC MODE AND MAKE SURE NO ERRORS SET
                        AND DRIVE STATUS IS NOT REPORTED.  REPEAT FOR DRIVES
                        2 AND 4.


TEST 75 DRIVE BUS PARITY ON NON-STANDARD MESSAGE

                        CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        PUT THE RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE
                        A SEEK TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 2,
                        HEAD 0, DRIVE 1.  CLOCK IN DIAGNOSTIC MODE UNTIL
                        PHASE ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE
                        SURE DRIVE BUS PARITY ERROR AND CONTROLLER ERROR SETS.


TEST 76 NON-EXISTENT DRIVE (DRIVE MESSAGE TIME OUT)

                        CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        PUT THE RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE
                        A SELECT TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 0,
                        HEAD 0, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL
                        PHASE ADDRESS 5.  TURN OFF DIAGNOSTIC MODE
                        AND MAKE SURE NON-EXISTENT DRIVE AND CONTROLLER
                        ERROR ARE SET.  THIS TEST CHECKS NON-EXISTENT DRIVE
                        DUE TO DRIVE MESSAGE TIME OUT.


TEST 77 NON-EXISTENT DRIVE AND NO SACK
```

```
                        CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                        THE RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A
                        SELECT TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 0,
                        HEAD 0, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL
                        PHASE ADDRESS 4.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE
                        NON-EXISTENT DRIVE AND CONTROLLER ERROR ARE SET.

                        THIS TEST EXERCISES THE NON-EXISTENT DRIVE LOGIC
                        DUE TO RELEASE BIT RESET AND SACK RESET BUT THE PASSING

                        OF THIS TEST DOES GUARENTEE THAT THIS SITUATION DID
                        INDEED CAUSE A NON-EXISTENT DRIVE.


                **ILLEGAL FUNCTION CODE TEST

                        TEST 100        ILLEGAL FUNCTION CODE

                        CLEAR RK611 WITH A CONTROL ER CLEAR.  ISSUE AN ILLEGAL
                        COMMAND IN NORMAL MODE AND MAKE SURE COMMAND FINISHES
                        SETTING CONTROLLER READY WITH PROPER ERROR CONDITIONS.


        6.0 ERROR REPORTING

        THE GENERAL FORMAT OF ERROR REPORTS IS:

        OPERATION DESCRIPTION AND ERROR DESCRIPTION
        TEST    ERROR
        NUM     PC
        XXXXXX  YYYYYY
          EXPECT  ACTUAL  OTHER PERTENANT
          REG     REG     INFORMATION
          ZZZZZZ  WWWWWW  AAAAAA

        NOTE:   MOVE THAN ONE SET OF EXPECT/ACTUAL REGISTERS MAY BE
                PRINTED OUT. OTHER PERTENANT INFORMATION MAY CONSIST
                OF MORE THAN ONE WORD.
        %
```

```
                        ; *** REV 003 ***
                        .TITLE  CZR6BD0 RK611 DSKLS CTRL PRT2
                        ;*COPYRIGHT (C) 1976,1981
                        ;*DIGITAL EQUIPMENT CORP.
                        ;*MAYNARD, MASS. 01754
                        ;*
                        ;*PROGRAM BY ROY SPITZER
                        ;*
                        ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                        ;*PACKAGE (MAINDEC-11-DZQAC-C5), JAN, 1981.
                        ;*
                        .SBTTL  OPERATIONAL SWITCH SETTINGS
                        ;*
                        ;*      SWITCH                  USE
                        ;*      ------          --------------------
                        ;*        15            HALT ON ERROR
                        ;*        14            LOOP ON TEST
                        ;*        13            INHIBIT ERROR TYPEOUTS
                        ;*        12            ABORT PROGRAM AFTER 20 ERRORS
                        ;*        11            INHIBIT ITERATIONS
                        ;*        10            BELL ON ERROR
                        ;*         9            LOOP ON ERROR
                        ;*         8            LOOP ON TEST IN SWR<7:0>
                        .SBTTL  BASIC DEFINITIONS

                        ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
001100                  STACK=  1100
                        .EQUIV  EMT,ERROR       ;;BASIC DEFINITION OF ERROR CALL
                        .EQUIV  IOT,SCOPE       ;;BASIC DEFINITION OF SCOPE CALL

                        ;*MISCELLANEOUS DEFINITIONS
000011                  HT=     11              ;;CODE FOR HORIZONTAL TAB
000012                  LF=     12              ;;CODE FOR LINE FEED
000015                  CR=     15              ;;CODE FOR CARRIAGE RETURN
000200                  CRLF=   200             ;;CODE FOR CARRIAGE RETURN-LINE FEED
177776                  PS=     177776          ;;PROCESSOR STATUS WORD
                        .EQUIV  PS,PSW
177774                  STKLMT= 177774          ;;STACK LIMIT REGISTER
177772                  PIRQ=   177772          ;;PROGRAM INTERRUPT REQUEST REGISTER
177570                  DSWR=   177570          ;;HARDWARE SWITCH REGISTER
177570                  DDISP=  177570          ;;HARDWARE DISPLAY REGISTER

                        ;*GENERAL PURPOSE REGISTER DEFINITIONS
000000                  R0=     %0              ;;GENERAL REGISTER
000001                  R1=     %1              ;;GENERAL REGISTER
000002                  R2=     %2              ;;GENERAL REGISTER
000003                  R3=     %3              ;;GENERAL REGISTER
000004                  R4=     %4              ;;GENERAL REGISTER
000005                  R5=     %5              ;;GENERAL REGISTER
000006                  R6=     %6              ;;GENERAL REGISTER
000007                  R7=     %7              ;;GENERAL REGISTER
000006                  SP=     %6              ;;STACK POINTER
000007                  PC=     %7              ;;PROGRAM COUNTER

                        ;*PRIORITY LEVEL DEFINITIONS
000000                  PR0=    0               ;;PRIORITY LEVEL 0
```

```
                        PR1=    40              ;;PRIORITY LEVEL 1
                        PR2=    100             ;;PRIORITY LEVEL 2
                        PR3=    140             ;;PRIORITY LEVEL 3
                        PR4=    200             ;;PRIORITY LEVEL 4
                        PR5=    240             ;;PRIORITY LEVEL 5
                        PR6=    300             ;;PRIORITY LEVEL 6
                        PR7=    340             ;;PRIORITY LEVEL 7

                        ;*''SWITCH REGISTER'' SWITCH DEFINITIONS
100000                  SW15=   100000
040000                  SW14=   40000
020000                  SW13=   20000
010000                  SW12=   10000
004000                  SW11=   4000
002000                  SW10=   2000
001000                  SW09=   1000
000400                  SW08=   400
000200                  SW07=   200
000100                  SW06=   100
000040                  SW05=   40
000020                  SW04=   20
000010                  SW03=   10
000004                  SW02=   4
000002                  SW01=   2
000001                  SW00=   1
                        .EQUIV  SW09,SW9
                        .EQUIV  SW08,SW8
                        .EQUIV  SW07,SW7
                        .EQUIV  SW06,SW6
                        .EQUIV  SW05,SW5
                        .EQUIV  SW04,SW4
                        .EQUIV  SW03,SW3
                        .EQUIV  SW02,SW2
                        .EQUIV  SW01,SW1
                        .EQUIV  SW00,SW0

                        ;*DATA BIT DEFINITIONS (BIT00 TO BIT15)
100000                  BIT15=  100000
040000                  BIT14=  40000
020000                  BIT13=  20000
010000                  BIT12=  10000
004000                  BIT11=  4000
002000                  BIT10=  2000
001000                  BIT09=  1000
000400                  BIT08=  400
000200                  BIT07=  200
000100                  BIT06=  100
000040                  BIT05=  40
000020                  BIT04=  20
000010                  BIT03=  10
000004                  BIT02=  4
000002                  BIT01=  2
000001                  BIT00=  1
                        .EQUIV  BIT09,BIT9
                        .EQUIV  BIT08,BIT8
                        .EQUIV  BIT07,BIT7
```

```
                        .EQUIV  BIT06,BIT6
                        .EQUIV  BIT05,BIT5
                        .EQUIV  BIT04,BIT4
                        .EQUIV  BIT03,BIT3
                        .EQUIV  BIT02,BIT2
                        .EQUIV  BIT01,BIT1
                        .EQUIV  BIT00,BIT0

                        ;*BASIC "CPU" TRAP VECTOR ADDRESSES
000004                  ERRVEC= 4               ;;TIME OUT AND OTHER ERRORS
000010                  RESVEC= 10              ;;RESERVED AND ILLEGAL INSTRUCTIONS
000014                  TBITVEC=14              ;;"T" BIT
000014                  TRTVEC= 14              ;;TRACE TRAP
000014                  BPTVEC= 14              ;;BREAKPOINT TRAP (BPT)
000020                  IOTVEC= 20              ;;INPUT/OUTPUT TRAP (IOT) **SCOPE**
000024                  PWRVEC= 24              ;;POWER FAIL
000030                  EMTVEC= 30              ;;EMULATOR TRAP (EMT) **ERROR**
000034                  TRAPVEC=34              ;;"TRAP" TRAP
000060                  TKVEC=  60              ;;TTY KEYBOARD VECTOR
000064                  TPVEC=  64              ;;TTY PRINTER VECTOR
000240                  PIRQVEC=240             ;;PROGRAM INTERRUPT REQUEST VECTOR
000114                  MEMVEC= 114                     ;VECTOR FOR MEMORY CHECK ENABLE
172100                  MEMBAS= 172100                  ;BUS ADDRESS FOR MEMORY CHECK ENABLE
000001                  PAR.EN= 1                       ;MEMORY ENABLE PARITY CHECKING
120210                  AVECT1= 120210                  ;DEFINE RK611 VECTOR ADDRESS
000005                  APRIOR= 5                       ;DEFINE RK611 PRIORITY
177440                  ABASE=  177440                  ;DEFINE BASE OF RK611 REGISTERS

                        .SBTTL  RK611 CONTROLLER REGISTER DEFINITION

000000                  RKCS1-  0               ;CONTROL AND STATUS REGISTER 1
000002                  RKWC=   2               ;WORD COUNT REGISTER
000004                  RKBA-   4               ;BUS ADDRESS REGISTER
000006                  RKDA=   6               ;DESIRED TRACK SECTOR REGISTER
000010                  RKCS2=  10              ;CONTROL AND STATUS REGISTER 2
000012                  RKDS=   12              ;DRIVE STATUS REGISTER
000014                  RKER=   14              ;ERROR REGISTER
000016                  RKASOF= 16              ;ATTENTION SUMMARY AND OFFSET REGISTER
000020                  RKDCYL= 20              ;DESIRED CYLINDER REGISTER
000024                  RKDB=   24              ;DATA BUFFER
000026                  RKMR1=  26              ;MAINTENANCE REGISTER 1
000034                  RKMR2-  34              ;MAINTENANCE REGISTER 2
000036                  RKMR3-  36              ;MAINTENANCE REGISTER 3
000030                  RKECPS= 30              ;ECC POSITION INFORMATION
000032                  RKECPT= 32              ;ECC PATTERN INFORMATION
000022                  RKSPAR= 22              ;SPARE REGISTER

                        .SBTTL  DRIVE COMMANDS

000001                  SELDRV- 01              ;SELECT DRIVE
000003                  PACK=   03              ;PACK ACKNOWLEDGE
000005                  CLEAR=  05              ;DRIVE CLEAR
000007                  UNLOAD= 07              ;UNLOAD
000011                  SRTSPL= 11              ;START SPINDLE
000013                  RECAL=  13              ;RECALIBRATE
000015                  OFFSET= 15              ;OFFSET
```

```
                        SEEK=   7               ;SEEK
                        RDDATA= 21              ;READ DATA
                        WRDATA= 23              ;WRITE DATA
                        RDHEAD= 25              ;READ HEADER
                        WRHEAD= 27              ;WRITE HEADER AND DATA
                        WRTCHK= 31              ;WRITE CHECK
                        INTR=   300             ;GENERATE INTERRUPT TO CPU

                        .SBTTL  CONTROL AND STATUS REGISTER 1 BITS

                        GO=     BIT0            ;GO BIT
                        IE=     BIT6            ;INTERRUPT ENABLE
                        RDY=    BIT7            ;CONTROLLER READY
                        BA16=   BIT8            ;BUS ADDRESS BIT 16
                        BA17=   BIT9            ;BUS ADDRESS BIT 17
                        CDT=    BIT10           ;CONTROLLER DRIVE TYPE (0=RK06)
                        CTO=    BIT11           ;CONTROLLER TIMED OUT WAITING FOR
                                                ;  DRIVE RESPONSE
                        CFMT=   BIT12           ;CONTROLLER DRIVE FORMAT (0=26 SECTOR, 1=24 SECTOR)
                        SPAR=   BIT13           ;DRIVE BUS PARITY ERROR DETECTED BY CONTROLLER
                        DI=     BIT14           ;DRIVE INTERRUPT
                        CERR=   BIT15           ;CONTROLLER ERROR
                        CCLR=   BIT15           ;CONTROLLER CLEAR

                        .SBTTL  CONTROL AND STATUS REGISTER 2 BITS

                        DRVMSK= 7               ;MASK FOR DRIVE SELECTION CODE
                        RLS=    BIT3            ;DESELECT OR RELEASE DRIVE IN BITS 0-2
                        BAI=    BIT4            ;BUS ADDRESS INCREMENT INHIBIT
                        SCLR=   BIT5            ;CLEAR CONTROLLER AND ALL DRIVES
                        IR=     BIT6            ;INPUT READY
                        OR=     BIT7            ;OUTPUT READY
                        UFE=    BIT8            ;UNIT FIELD ERROR
                        MDS=    BIT9            ;MULTIPLE DRIVE SELECT
                        PGE=    BIT10           ;PROGRAMMING ERROR
                        NEM=    BIT11           ;NON-EXISTENT MEMORY
                        NED=    BIT12           ;NON-EXISTENT DRIVE
                        UPE=    BIT13           ;UNIBUS PARITY ERROR
                        WCE=    BIT14           ;WRITE CHECK ERROR
                        DLT=    BIT15           ;DATA LATE ERROR

                        .SBTTL  ERROR REGISTER BIT DEFINITION

                        ILF=    BIT0            ;ILLEGAL FUNCTION CODE
                        SKI=    BIT1            ;SEEK INCOMPLETE
                        NXF=    BIT2            ;NON-EXECUTABLE DRIVE FUNCTION
                        DRPAR=  BIT3            ;DRIVE DETECTED DRIVE BUS PARITY ERROR
                        FMTE=   BIT4            ;FORMAT ERROR
                        DTYE=   BIT5            ;DRIVE TYPE ERROR
                        ECH=    BIT6            ;ECC HARD
                        BSE=    BIT7            ;BAD SECTOR ERROR
                        HVRC=   BIT8            ;HEADER VRC ERRROR
                        COE=    BIT9            ;CYLINDER ADDRESS OVERFLOW ERROR
                        IDAE=   BIT10           ;INVALID DISK ADDRESS ERROR
                        WLE=    BIT11           ;WRITE LOCK ERROR
                        DTE=    BIT12           ;DRIVE TIMING ERROR
```

```
                        OPI=    BIT13                   ;OPERATION (SEARCH) INCOMPLETE
                        UNS=    BIT14                   ;DRIVE UNSAFE
                        DCK=    BIT15                   ;DATA CHECK

                        .SBTTL  STATUS REGISTER BIT DEFINITION

                        DRA=    BIT0                    ;DRIVE AVAILABLE (CONTROLLER IS SET IF
                                                        ;  THIS BIT IS RESET)
                        OFST=   BIT2                    ;DRIVE OFFSET
                        ACLO=   BIT3                    ;AC LOW
                        SPDLSS= BIT4                    ;SPEED LOSS
                        DROT=   BIT5                    ;DRIVE OFF TRACK
                        VV=     BIT6                    ;VOLUME VALID
                        DRDY=   BIT7                    ;DRIVE READY
                        DDT=    BIT8                    ;DRIVE TYPE (0=RK06)
                        WRL=    BIT11                   ;WRITE LOCK
                        PIP=    BIT13                   ;POSITIONING IN PROGRESS
                        DSC=    BIT14                   ;DRIVE STATUS CHANGE
                        SVAL=   BIT15                   ;STATUS VALID

                        .SBTTL  MAINTENANCE REGISTER 1 BIT DEFINITION

                        MESMSK= 17                      ;MESSAGE MASK

                        PAT=    BIT4                    ;FORCE EVEN PARITY ON DRIVE MESSAGE LINES
                        DMD=    BIT5                    ;DIAGNOSTIC MODE
                        MSP=    BIT6                    ;MAINTENANCE SECTOR PULSE
                        MIND=   BIT7                    ;MAINTENANCE INDEX
                        MCLK=   BIT8                    ;MAINTENANCE CLOCK
                        MERD=   BIT9                    ;MAINTENANCE ENCODED READ DATA
                        MEWD=   BIT10                   ;MAINTENACNE ENCODED WRITE DATA
                        PCA=    BIT11                   ;PRECOMPENSATION ADVANCE
                        PCD=    BIT12                   ;PRECOMPENSATION DELAY
                        ECCW=   BIT13                   ;ECC WORD IS BEING READ OR WRITTEN
                        WRTGAT= BIT14                   ;WRITE GATE
                        RDGATE= BIT15                   ;READ GATE

                        .SBTTL  TRANSMITTED MESSAGE A

                        S.SEEK= BIT4                    ;SEEK COMMAND
                        S.RECL= BIT5                    ;RECALIBRATE COMMAND
                        S.STSP= BIT6                    ;START SPINDLE COMMAND
                        S.RTC=  BIT7                    ;DRIVE RETURN TO CENTERLINE COMMAND
                        S.CLR=  BIT8                    ;CLEAR ERROR AND DSC
                        S.FMT=  BIT9                    ;FORMAT
                        S.UNLD= BIT10                   ;UNLOAD
                        S.PACK= BIT11                   ;SET VOLUME VALID (PACK ACKNOWLEDGE)
                        .SBTTL  TRAP CATCHER

                                .=0
                        ;*ALL UNUSED LOCATIONS FROM 4 - 776 CONTAIN A ".+2,HALT"
                        ;*SEQUENCE TO CATCH ILLEGAL TRAPS AND INTERRUPTS
                        ;*LOCATION 0 CONTAINS 0 TO CATCH IMPROPERLY LOADED VECTORS
                                .=174
000174  000000  DISPREG: .WORD  0                       ;;SOFTWARE DISPLAY REGISTER
000176  000000  SWREG:   .WORD  0                       ;;SOFTWARE SWITCH REGISTER
```

```
                                .SBTTL  STARTING ADDRESS(ES)
000200  000137  004316                  JMP     @#START ;;JUMP TO STARTING ADDRESS OF PROGRAM
000204  000137  004306                  JMP     RESTRT          ;JUMP TO RESTART ROUTINE
        000214                          .=214
000214  000137  004276                  JMP     PARM            ;JUMP TO OPERATOR ASSIGNED PARMETERS
                                .SBTTL  ACT11 HOOKS

                                ;;**************************************************************
                                ;HOOKS REQUIRED BY ACT11
        000220                          $SVPC=.                 ;SAVE PC
        000046                          .=46
000046  042340                  $ENDAD                          ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
        000052                          .=52
000052  000000                  .WORD   0                       ;;2)SET LOC.52 TO ZERO
        000220                          .=$SVPC                 ;; RESTORE PC
        001000                          .=1000
                                .SBTTL  APT PARAMETER BLOCK

                                ;;**************************************************************
                                ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
                                ;;**************************************************************
        001000                          .$X=.   ;;SAVE CURRENT LOCATION
        000024                  .=24    ;;SET POWER FAIL TO POINT TO START OF PROGRAM
000024  000200                  200     ;;FOR APT START UP
        000044                  .=44    ;;POINT TO APT INDIRECT ADDRESS PNTR.
000044  001000                  $APTHDR ;;POINT TO APT HEADER BLOCK
        001000                  .=.$X   ;;RESET LOCATION COUNTER
                                ;;**************************************************************
                                ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
                                ;INTERFACE SPEC.

001000                  $APTHD:
001000  000000          $HIBTS: .WORD   0       ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
001002  001214          $MBADR: .WORD   $MAIL   ;;ADDRESS OF APT MAILBOX (BITS 0-15)
001004  000001          $TSTM:  .WORD   1       ;;RUN TIM OF LONGEST TEST
001006  000007          $PASTM: .WORD   7       ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
001010  000007          $UNITM: .WORD   7       ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
001012  000032                  .WORD   $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)
```

```
                        .SBTTL  COMMON TAGS

                        ;;*****************************************************************
                        ;*THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
                        ;*USED IN THE PROGRAM.

                001100          .=1100
001100                  $CMTAG:                         ;;START OF COMMON TAGS
001100  000000                  .WORD   0
001102  000            $TSTNM:  .BYTE   0               ;;CONTAINS THE TEST NUMBER
001103  000            $ERFLG:  .BYTE   0               ;;CONTAINS ERROR FLAG
001104  000000         $ICNT:   .WORD   0               ;;CONTAINS SUBTEST ITERATION COUNT
001106  000000         $LPADR:  .WORD   0               ;;CONTAINS SCOPE LOOP ADDRESS
001110  000000         $LPERR:  .WORD   0               ;;CONTAINS SCOPE RETURN FOR ERRORS
001112  000000         $ERTTL:  .WORD   0               ;;CONTAINS TOTAL ERRORS DETECTED
001114  000            $ITEMB:  .BYTE   0               ;;CONTAINS ITEM CONTROL BYTE
001115  001            $ERMAX:  .BYTE   1               ;;CONTAINS MAX. ERRORS PER TEST
001116  000000         $ERRPC:  .WORD   0               ;;CONTAINS PC OF LAST ERROR INSTRUCTION
001120  000000         $GDADR:  .WORD   0               ;;CONTAINS ADDRESS OF 'GOOD' DATA
001122  000000         $BDADR:  .WORD   0               ;;CONTAINS ADDRESS OF 'BAD' DATA
001124  000000         $GDDAT:  .WORD   0               ;;CONTAINS 'GOOD' DATA
001126  000000         $BDDAT:  .WORD   0               ;;CONTAINS 'BAD' DATA
001130  000000                  .WORD   0               ;;RESERVED--NOT TO BE USED
001132  000000                  .WORD   0
001134  000            $AUTOB:  .BYTE   0               ;;AUTOMATIC MODE INDICATOR
001135  000            $INTAG:  .BYTE   0               ;;INTERRUPT MODE INDICATOR
001136  000000                  .WORD   0
001140  177570         SWR:     .WORD   DSWR            ;;ADDRESS OF SWITCH REGISTER
001142  177570         DISPLAY: .WORD   DDISP           ;;ADDRESS OF DISPLAY REGISTER
001144  177560         $TKS:    177560                  ;;TTY KBD STATUS
001146  177562         $TKB:    177562                  ;;TTY KBD BUFFER
001150  177564         $TPS:    177564                  ;;TTY PRINTER STATUS REG. ADDRESS
001152  177566         $TPB:    177566                  ;;TTY PRINTER BUFFER REG. ADDRESS
001154  000            $NULL:   .BYTE   0               ;;CONTAINS NULL CHARACTER FOR FILLS
001155  002            $FILLS:  .BYTE   2               ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
001156  012            $FILLC:  .BYTE   12              ;;INSERT FILL CHARS. AFTER A "LINE FEED"
001157  000            $TPFLG:  .BYTE   0               ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0-YES)
001160  000000         $TMP0:   .WORD   0               ;;USER DEFINED
001162  000000         $TMP1:   .WORD   0               ;;USER DEFINED
001164  000000         $TMP2:   .WORD   0               ;;USER DEFINED
001166  000000         $TMP3:   .WORD   0               ;;USER DEFINED
001170  000000         $TMP4:   .WORD   0               ;;USER DEFINED
001172  000000         $TMP5:   .WORD   0               ;;USER DEFINED
001174  000000         $TMP6:   .WORD   0               ;;USER DEFINED
001176  000000         $TMP7:   .WORD   0               ;;USER DEFINED
001200  000000         $TIMES:  0                       ;;MAX. NUMBER OF ITERATIONS
001202  000000         $ESCAPE:0                        ;;ESCAPE ON ERROR ADDRESS
001204  177607  000377 $BELL:   .ASCIZ  <207><377><377> ;;CODE FOR BELL
001210  077            $QUES:   .ASCII  /?/             ;;QUESTION MARK
001211  015            $CRLF:   .ASCII  <15>            ;;CARRIAGE RETURN
001212  000012         $LF:     .ASCIZ  <12>            ;;LINE FEED
                        ;;*****************************************************************
                        .SBTTL  APT MAILBOX-ETABLE

                        ;;*****************************************************************
                        .EVEN
```

```
1173  001214                  $MAIL:                          ;;APT MAILBOX
1174  001214  000000          $MSGTY: .WORD   AMSGTY          ;;MESSAGE TYPE CODE
1175  001216  000000          $FATAL: .WORD   AFATAL          ;;FATAL ERROR NUMBER
1176  001220  000000          $TESTN: .WORD   ATESTN          ;;TEST NUMBER
1177  001222  000000          $PASS:  .WORD   APASS           ;;PASS COUNT
1178  001224  000000          $DEVCT: .WORD   ADEVCT          ;;DEVICE COUNT
1179  001226  000000          $UNIT:  .WORD   AUNIT           ;;I/O UNIT NUMBER
1180  001230  000000          $MSGAD: .WORD   AMSGAD          ;;MESSAGE ADDRESS
1181  001232  000000          $MSGLG: .WORD   AMSGLG          ;;MESSAGE LENGTH
1182  001234                  $ETABLE:                        ;;APT ENVIRONMENT TABLE
1183  001234     000          $ENV:   .BYTE   AENV            ;;ENVIRONMENT BYTE
1184  001235     000          $ENVM:  .BYTE   AENVM           ;;ENVIRONMENT MODE BITS
1185  001236  000000          $SWREG: .WORD   ASWREG          ;;APT SWITCH REGISTER
1186  001240  000000          $USWR:  .WORD   AUSWR           ;;USER SWITCHES
1187  001242  000000          $CPUOP: .WORD   ACPUOP          ;;CPU TYPE,OPTIONS
1188                          ;*                              BITS 15-11=CPU TYPE
1189                          ;*                                      11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
1190                          ;*                                      11/70=06,PDQ=07,Q=10
1191                          ;*                              BIT 10=REAL TIME CLOCK
1192                          ;*                              BIT  9=FLOATING POINT PROCESSOR
1193                          ;*                              BIT  8=MEMORY MANAGEMENT
1194  001244     000          $MAMS1: .BYTE   AMAMS1          ;;HIGH ADDRESS,M.S. BYTE
1195  001245     000          $MTYP1: .BYTE   AMTYP1          ;;MEM. TYPE,BLK#1
1196                          ;*                              MEM.TYPE BYTE   --  (HIGH BYTE)
1197                          ;*                                      900 NSEC CORE=001
1198                          ;*                                      300 NSEC BIPOLAR=002
1199                          ;*                                      500 NSEC MOS=003
1200  001246  000000          $MADR1: .WORD   AMADR1          ;;HIGH ADDRESS,BLK#1
1201                          ;*                                MEM.LAST ADDR.=3 BYTES,THIS WORD AND LOW OF ''TYPE'' ABOVE
1202  001250     000          $MAMS2: .BYTE   AMAMS2          ;;HIGH ADDRESS,M.S. BYTE
1203  001251     000          $MTYP2: .BYTE   AMTYP2          ;;MEM.TYPE,BLK#2
1204  001252  000000          $MADR2: .WORD   AMADR2          ;;MEM.LAST ADDRESS,BLK#2
1205  001254     000          $MAMS3: .BYTE   AMAMS3          ;;HIGH ADDRESS,M.S.BYTE
1206  001255     000          $MTYP3: .BYTE   AMTYP3          ;;MEM.TYPE,BLK#3
1207  001256  000000          $MADR3: .WORD   AMADR3          ;;MEM.LAST ADDRESS,BLK#3
1208  001260     000          $MAMS4: .BYTE   AMAMS4          ;;HIGH ADDRESS,M.S.BYTE
1209  001261     000          $MTYP4: .BYTE   AMTYP4          ;;MEM.TYPE,BLK#4
1210  001262  000000          $MADR4: .WORD   AMADR4          ;;MEM.LAST ADDRESS,BLK#4
1211  001264  120210          $VECT1: .WORD   AVECT1          ;;INTERRUPT VECTOR#1,BUS PRIORITY#1
1212  001266  000000          $VECT2: .WORD   AVECT2          ;;INTERRUPT VECTOR#2BUS PRIORITY#2
1213  001270  177440          $BASE:  .WORD   ABASE           ;;BASE ADDRESS OF EQUIPMENT UNDER TEST
1214  001272  000000          $DEVM:  .WORD   ADEVM           ;;DEVICE MAP
1215  001274  000000          $CDW1:  .WORD   ACDW1           ;;CONTROLLER DESCRIPTION WORD#1
1216  001276  000000          $CDW2:  .WORD   ACDW2           ;;CONTROLLER DESCRIPTION WORD#2
1217  001300                  $ETEND:
1218                          .MEXIT
```

```
                        .SBTTL  ERROR POINTER TABLE

                        ;*THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCUR.
                        ;*THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN
                        ;*LOCATION $ITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTINENT.
                        ;*NOTE1:        IF $ITEMB IS 0 THE ONLY PERTINENT DATA IS ($ERRPC).
                        ;*NOTE2:        EACH ITEM IN THE TABLE CONTAINS 4 POINTERS EXPLAINED AS FOLLOWS:

                        ;*      EM              ;;POINTS TO THE ERROR MESSAGE
                        ;*      DH              ;;POINTS TO THE DATA HEADER
                        ;*      DT              ;;POINTS TO THE DATA
                        ;*      DF              ;;POINTS TO THE DATA FORMAT


001300                  $ERRTB:
                        ;       ERROR 1: ATTEMPTING TO SET CMD BIT DRIVE MESS A
001300  000000          EM1N:   0
001302  000000                  0
001304  046602                  DT001
001306  047236                  DF001
                        ;       ERROR 2. ATTEMPTING A SELECT OF DRIVE NUM - CS1 INCORRECT
001310  052472                  EM106
001312  057223                  EM2003
001314  046622                  DT002
001316  047272                  DF002
                        ;       ERROR 3: ATTEMPTING A SELECT  OF DRIVE NUM - DRIVE NUM INCORRECT
001320  052472                  EM106
001322  057266                  EM2004
001324  046622                  DT002
001326  047272                  DF002
                        ;       ERROR 4: ATTEMPTING A SELECT OF DRIVE NUM - MESSAGE A INCORRECT
001330  052472                  EM106
001332  057145                  EM2001
001334  046622                  DT002
001336  047272                  DF002
                        ;       ERROR 5: ATTEMPTING A SELECT OF DRIVE NUM - MESSAGE B INCORRECT
001340  052472                  EM106
001342  057174                  EM2002
001344  046622                  DT002
001346  047272                  DF002
                        ;       ERROR 6: ATTEMPTING A SELECT WITH HEAD ADD - CS1 INCORRECT
001350  052576                  EM107
001352  057223                  EM2003
001354  046644                  DT006
001356  047326                  DF006
                        ;       ERROR 7: ATTEMPTING A SELECT WITH HEAD ADD - HEAD INCORRECT
001360  052576                  EM107
001362  057337                  EM2005
001364  046644                  DT006
001366  047326                  DF006
                        ;       ERROR 10: ATTEMPTING A SELECT WITH HEAD ADD - MESSAGE A INCORRECT
001370  052576                  EM107
001372  057145                  EM2001
001374  046644                  DT006
001376  047326                  DF006
                        ;       ERROR 11: ATTEMPTING A SELECT WITH HEAD ADD - MESSAGE B INCORRECT
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1275  001400  052576                    EM107
1276  001402  057174                    EM2002
1277  001404  046644                    DT006
1278  001406  047326                    DF006
1279                          ;         ERROR 12: ATTEMPTING A SELECT WITH MESS SELECT BITS - CS1 INCORRECT
1280  001410  052673                    EM108
1281  001412  057223                    EM2003
1282  001414  046666                    DT012
1283  001416  047362                    DF012
1284                          ;         ERROR 13: ATTEMPTING A SELECT WITH MESS SELECT BITS - MR1 INCORRECT
1285  001420  052673                    EM108
1286  001422  057404                    EM2006
1287  001424  046666                    DT012
1288  001426  047362                    DF012
1289                          ;         ERROR 14: ATTEMPTING A SELECT WITH MESS SELECT BITS - MESS SELECT CODE INCORRECT
1290  001430  052673                    EM108
1291  001432  057433                    EM2007
1292  001434  046666                    DT012
1293  001436  047362                    DF012
1294                          ;         ERROR 15: ATTEMPTING A SELECT WITH MESS SELECT BITS - MESS A INCORRECT
1295  001440  052673                    EM108
1296  001442  057145                    EM2001
1297  001444  046666                    DT012
1298  001446  047362                    DF012
1299                          ;         ERROR 16: ATTEMPTING A SELECT WITH MESS SELECT BITS - MESS B INCORRECT
1300  001450  052673                    EM108
1301  001452  057174                    EM2002
1302  001454  046666                    DT012
1303  001456  047362                    DF012
1304                          ;         ERROR 17: ATTEMPTING A SEEK TO AN RK06 - CS1 INCORRECT
1305  001460  052773                    EM109
1306  001462  057223                    EM2003
1307  001464  046714                    DT017
1308  001466  047416                    DF017
1309                          ;         ERROR 20: ATTEMPTING A SEEK TO AN RK06 - SEEK BIT IN MESS A NOT SET
1310  001470  052773                    EM109
1311  001472  057067                    EM2000
1312  001474  046714                    DT017
1313  001476  047416                    DF017
1314                          ;         ERROR 21: ATTEMPTING A SEEK TO AN RK06 - CYLINDER ADD INCORRECT IN MESS B
1315  001500  052773                    EM109
1316  001502  057503                    EM2008
1317  001504  046714                    DT017
1318  001506  047416                    DF017
1319                          ;         ERROR 22: ATTEMPTING A SEEK TO AN RK06 - MESSAGE A INCORRECT
1320  001510  052773                    EM109
1321  001512  057145                    EM2001
1322  001514  046714                    DT017
1323  001516  047416                    DF017
1324                          ;         ERROR 23: ATTEMPTING A SEEK TO AN RK06 - MESSAGE B INCORRECT
1325  001520  052773                    EM109
1326  001522  057174                    EM2002
1327  001524  046714                    DT017
1328  001526  046714                    DT017
1329                          ;         ERROR 24: ATTEMPTING A SEEK WITH CDT SET - CS1 INCORRECT
1330  001530  053046                    EM110
```

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1331  001532  057223                  EM2003
1332  001534  046714                  DT017
1333  001536  047416                  DF017
1334                          ;       ERROR 25: ATTEMPTING A SEEK TO AN RK607 - SEEK BIT IN MESS A NOT SET
1335  001540  053046                  EM110
1336  001542  057067                  EM2000
1337  001544  046714                  DT017
1338  001546  047416                  DF017
1339                          ;       ERROR 26: ATTEMPTING A SEEK WITH CDT SET
1340                          ;       CYLINDER ADD INCORRECT IN MESS B
1341  001550  053046                  EM110
1342  001552  057503                  EM2008
1343  001554  046714                  DT017
1344  001556  047416                  DF017
1345                          ;       ERROR 27: ATTEMPTING A SEEK WITH CDT SET - MESSAGE A INCORRECT
1346  001560  053046                  EM110
1347  001562  057145                  EM2001
1348  001564  046714                  DT017
1349  001566  047416                  DF017
1350                          ;       ERROR 30: ATTEMPTING A SEEK WITH CDT SET - MESSAGE B INCORRECT
1351  001570  053046                  EM110
1352  001572  057174                  EM2002
1353  001574  046714                  DT017
1354  001576  047416                  DF017
1355                          ;       ERROR 31: ATTEMPTING OFFSET - CS1 INCORRECT
1356  001600  053123                  EM111
1357  001602  057223                  EM2003
1358  001604  046736                  DT031
1359  001606  047452                  DF031
1360                          ;       ERROR 32: ATTEMPTING OFFSET - OFFSET BITS INCORRECT
1361  001610  053123                  EM111
1362  001612  057554                  EM2009
1363  001614  046736                  DT031
1364  001616  047452                  DF031
1365                          ;       ERROR 33: ATTEMPTING OFFSET - MESS A INCORRECT
1366  001620  053123                  EM111
1367  001622  057145                  EM2001
1368  001624  046736                  DT031
1369  001626  047452                  DF031
1370                          ;       ERROR 34: ATTEMPTING OFFSET - MESS B INCORRECT
1371  001630  053123                  EM111
1372  001632  057145                  EM2001
1373  001634  046736                  DT031
1374  001636  047452                  DF031
1375                          ;       ERROR 35: ATTEMPTING COMMAND WITH NON-ZERO CYL ADD AND OFFSET-
1376                          ;                 CS1 INCORRECT
1377  001640  053166                  EM112
1378  001642  057223                  EM2003
1379  001644  046760                  DT035
1380  001646  047506                  DF035
1381                          ;       ERROR 36: ATTEMPTING COMMAND WITH NON-ZERO CYL ADD AND OFFSET-
1382                          ;                 DRIVE COMMAND BIT NOT SET IN MESS A
1383  001650  053166                  EM112
1384  001652  057067                  EM2000
1385  001654  046760                  DT035
1386  001656  047506                  DF035
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1387                                    ;       ERROR 37: ATTEMPTING COMMAND WITH NON-ZERO CYL ADD AND OFFSET-
1388                                    ;                 CYLINDER ADDRESS BITS INCORRECT IN MESS B
1389  001660  053166                            EM112
1390  001662  057503                            EM2008
1391  001664  046760                            DT035
1392  001666  047506                            DF035
1393                                    ;       ERROR 40: ATTEMPTING COMMAND WITH NON-ZERO CYL ADD AND OFFSET-
1394                                    ;                 MESS A INCORRRECT
1395  001670  053166                            EM112
1396  001672  057145                            EM2001
1397  001674  046760                            DT035
1398  001676  047506                            DF035
1399                                    ;       ERROR 41: ATTEMPTING COMMAND WITH NON-ZERO CYL ADD AND OFFSET-
1400                                    ;                 MESS B INCORRECT
1401  0017C0  053166                            EM112
1402  001702  057174                            EM2002
1403  001704  046760                            DT035
1404  001706  047506                            DF035
1405                                    ;       ERROR 42: ATTEMPTING COMMAND WITH NON-ZERO MSG SELECT
1406                                    ;                 CS1 INCORRECT
1407  001710  053321                            EM113
1408  001712  057223                            EM2003
1409  001714  046666                            DT012
1410  001716  047362                            DF012
1411                                    ;       ERROR 43: ATTEMPTING COMMAND WITH NON-ZERO MSG SELECT
1412                                    ;                 MAINT REG 1 INCORRECT
1413  001720  053321                            EM113
1414  001722  057404                            EM2006
1415  001724  046666                            DT012
1416  001726  047362                            DF012
1417                                    ;       ERROR 44: ATTEMPTING COMMAND WITH NON-ZERO MSG SELECT
1418                                    ;                 DRIVE COMMAND BIT INCORRECT
1419  001730  053321                            EM113
1420  001732  057067                            EM2000
1421  001734  046666                            DT012
1422  001736  046666                            DT012
1423                                    ;       ERROR 45: ATTEMPTING COMMAND WITH NON-ZERO MSG SELECT
1424                                    ;                 MESSAGE SELECT SELECT CODE IN MESSAGE B INCORRECT
1425  001740  053321                            EM113
1426  001742  057433                            EM2007
1427  001744  046666                            DT012
1428  001746  047362                            DF012
1429                                    ;       ERROR 46: ATTEMPTING COMMAND WITH NON-ZERO MSG SELECT
1430                                    ;                 MESS A INCORRECT
1431  001750  053321                            EM113
1432  001752  057145                            EM2001
1433  001754  046666                            DT012
1434  001756  047362                            DF012
1435                                    ;       ERROR 47: ATTEMPTING COMMAND WITH NON-ZERO MSG SELECT
1436                                    ;                 MESS B INCORRECT
1437  001760  053321                            EM113
1438  001762  057174                            EM2002
1439  001764  046666                            DT012
1440  001766  047362                            DF012
1441                                    ;       ERROR 50:       ATTEMPTING TO SHIFT DRIVE MESSAGE
1442                                    ;                       SHIFT REG A INCORRECT
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1443  001770  053433                    EM114
1444  001772  057145                    EM2001
1445  001774  047004                    DT050
1446  001776  047542                    DF050
1447                          ;         ERROR 51:       ATTEMPTING TO SHIFT DRIVE MESSAGE
1448                          ;                         SHIFT REG B INCORRECT
1449  002000  053433                    EM114
1450  002002  057174                    EM2002
1451  002004  047004                    DT050
1452  002006  047542                    DF050
1453                          ;         ERROR 52:       ATTEMPTING TO GENERATE ODD PARITY ON SELECT DRIVE MESSAGE
1454                          ;                         PARITY ON MESSAGE A INCORRECT
1455  002010  053476                    EM115
1456  002012  057625                    EM2010
1457  002014  047026                    DT052
1458  002016  047576                    DF052
1459                          ;         ERROR 53:       ATTEMPTING TO GENERATE ODD PARITY ON SELECT DRIVE MESSAGE
1460                          ;                         PARITY ON MESSAGE B INCORRECT
1461  002020  053476                    EM115
1462  002022  057667                    EM2011
1463  002024  047026                    DT052
1464  002026  047576                    DF052
1465                          ;         ERROR 54:       ATTEMPTING TO GENERATE ODD PARITY ON SELECT DRIVE MESSAGE
1466                          ;                         MESSAGE A INCORRECT
1467  002030  053476                    EM115
1468  002032  057145                    EM2001
1469  002034  047026                    DT052
1470  002036  047576                    DF052
1471                          ;         ERROR 55:       ATTEMPTING TO GENERATE ODD PARITY ON SELECT DRIVE MESSAGE
1472                          ;                         MESSAGE B INCORRECT
1473  002040  053476                    EM115
1474  002042  057174                    EM2002
1475  002044  047026                    DT052
1476  002046  047576                    DF052
1477                          ;         ERROR 56:       ATTEMPTING TO GENERATE EVEN PARITY ON SELECT DRIVE MESSAGE
1478                          ;                         PARITY ON MESSAGE A INCORRECT
1479  002050  053570                    EM116
1480  002052  057625                    EM2010
1481  002054  047026                    DT052
1482  002056  047576                    DF052
1483                          ;         ERROR 57:       ATTEMPTING TO GENERATE EVEN PARITY ON SELECT DRIVE MESSAGE
1484                          ;                         PARITY ON MESSAGE IS INCORRECT
1485  002060  053570                    EM116
1486  002062  057667                    EM2011
1487  002064  047026                    DT052
1488  002066  047576                    DF052
1489                          ;         ERROR 60:       ATTEMPTING TO GENERATE EVEN PARITY ON SELECT DRIVE MESSAGE
1490                          ;                         MESSAGE A INCORRECT
1491  002070  053570                    EM116
1492  002072  057145                    EM2001
1493  002074  047026                    DT052
1494  002076  047576                    DF052
1495                          ;         ERROR 61:       ATTEMPTING TO GENERATE EVEN PARITY ON SELECT DRIVE MESSAGE
1496                          ;                         MESSAGE B INCORRECT
1497  002100  053570                    EM116
1498  002102  057174                    EM2002
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1499  002104  047026                    DT052
1500  002106  047576                    DF052
1501                          ;         ERROR 62:       ATTEMPTING COMPLETE EXECUTION OF DESELECT DRIVE IN
1502                          ;                         MAINT MODE - COMMAND AND STATUS REG 1 INCORRECT.
1503  002110  053663                    EM117
1504  002112  057223                    EM2003
1505  002114  047042                    DT062
1506  002116  047622                    DF062
1507                          ;         ERROR 63:       ATTEMPTING COMPLETE EXECUTION OF DESELECT DRIVE IN
1508                          ;                         MAINT MODE - COMMAND AND STATUS REG 2 INCORRECT.
1509  002120  053663                    EM117
1510  002122  057731                    EM2012
1511  002124  047042                    DT062
1512  002126  047622                    DF062
1513                          ;         ERROR 64:       ATTEMPTING COMPELTE EXECUTION OF DESELECT DRIVE IN
1514                          ;                         MAINT MODE - ERROR REG. INCORRECT.
1515  002130  053663                    EM117
1516  002132  057774                    EM2013
1517  002134  047042                    DT062
1518  002136  047622                    DF062
1519                          ;         ERROR 65:       ATTEMPTING COMPLETE EXECUTION OF SELECT DRIVE IN
1520                          ;                         MAINT MODE - COMMAND AND STATUS REGISTER 1 INCORRECT AT
1521                          ;                         PHASE ADDRESS 4
1522  002140  054000                    EM118
1523  002142  060020                    EM2014
1524  002144  047066                    DT065
1525  002146  047646                    DF065
1526                          ;         ERROR 66:       ATTEMPTING COMPLETE EXECUTION OF SELECT DRIVE IN
1527                          ;                         MAINT MODE - COMMAND AND STATUS REG 1 INVALID DURING
1528                          ;                         COMMAND EXECUTION.
1529  002150  054000                    EM118
1530  002152  060106                    EM2015
1531  002154  047066                    DT065
1532  002156  047646                    DF065
1533                          ;         ERROR 67:       ATTEMPTING COMPLETE EXECUTION OF SELECT DRIVE IN
1534                          ;                         MAINT MODE - MAINTENANCE REG 2 UNEXPECTEDLY CHANGED
1535                          ;                         DURING COMMAND EXECUTION.
1536  002160  054000                    EM118
1537  002162  060200                    EM2016
1538  002164  047076                    DT067
1539  002166  047672                    DF067
1540                          ;         ERROR 70:       ATTEMPTING COMPLETE EXECUTION OF SELECT DRIVE IN
1541                          ;                         MAINT MODE - MAINTENANCE REG 3 UNEXPECTEDLY CHANGED
1542                          ;                         DURING COMMAND EXECUTION.
1543  002170  054000                    EM118
1544  002172  060300                    EM2017
1545  002174  047076                    DT067
1546  002176  047672                    DF067
1547                          ;         ERROR 71:       ATTEMPTING COMPLETE EXECUTION OF SELECT DRIVE IN
1548                          ;                         MAINT MODE - COMMAND AND STATUS REG 1 INCORRECT.
1549  002200  054000                    EM118
1550  002202  057223                    EM2003
1551  002204  047042                    DT062
1552  002206  047622                    DF062
1553                          ;         ERROR 72:       ATTEMPTING COMPLETE EXECUTION OF SELECT DRIVE IN
1554                          ;                         MAINT MODE - COMMAND AND STATUS REG. 2 INCORRECT.
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1555  002210  054000                    EM118
1556  002212  057731                    EM2012
1557  002214  047042                    DT062
1558  002216  047622                    DF062
1559                          ;         ERROR 73:       ATTEMPTING COMPLETE EXECUTION OF SELECT DRIVE IN
1560                          ;                         MAINT MODE - ERROR REGISTER INCORRECT.
1561  002220  054000                    EM118
1562  002222  057774                    EM2013
1563  002224  047042                    DT062
1564  002226  047622                    DF062
1565                          ;         ERROR 74:       ATTEMPTING EXECUTION OF DESELECT DRIVE AT NORMAL
1566                          ;                         SPEED - COMMAND AND STATUS REG. 1 INCORRECT.
1567  002230  054113                    EM119
1568  002232  057145                    EM2001
1569  002234  047042                    DT062
1570  002236  047622                    DF062
1571                          ;         ERROR 75:       ATTEMPTING EXECUTION OF DESELECT DRIVE AT NORMAL
1572                          ;                         SPEED - COMMAND AND STATUS REG. 2 INCORRECT.
1573  002240  054113                    EM119
1574  002242  057731                    EM2012
1575  002244  047042                    DT062
1576  002246  047622                    DF062
1577                          ;         ERROR 76:       ATTEMPTING EXECUTION OF DESELECT DRIVE AT NORMAL
1578                          ;                         SPEED - ERROR REG INCORRECT.
1579  002250  054113                    EM119
1580  002252  057774                    EM2013
1581  002254  047042                    DT062
1582  002256  047622                    DF062
1583                          ;         ERROR 77:       ATTEMPTING TO WRITE CS1 IN MAINT MODE - CS1 INCORRECT
1584  002260  054202                    EM120
1585  002262  057223                    EM2003
1586  002264  047066                    DT065
1587  002266  047646                    DF065
1588                          ;         ERROR 100:      ATTEMPTING EXECUTION OF DESELECT DRIVE WITH IE SET
1589                          ;                         INTERRUPT DID NOT OCCUR.
1590  002270  054276                    EM121
1591  002272  060400                    EM2018
1592  002274  047112                    DT100
1593  002276  047716                    DF100
1594                          ;         ERROR 101:      ATTEMPTING EXECUTION OF DESELECT DRIVE WITH IE SET
1595                          ;                         CS1 INCORRECT AFTER INTERRUPT.
1596  002300  054276                    EM121
1597  002302  060430                    EM2019
1598  002304  047042                    DT062
1599  002306  047622                    DF062
1600                          ;         ERROR 102:      ATTEMPTING EXECUTION OF DESELECT DRIVE WITH IE SET
1601                          ;                         CS2 INCORRECT AFTER INTERRUPT.
1602  002310  054276                    EM121
1603  002312  060513                    EM2020
1604  002314  047042                    DT062
1605  002316  047622                    DF062
1606                          ;         ERROR 103:      ATTEMPTING EXECUTION OF DESELECT DRIVE WITH IE SET
1607                          ;                         ERROR REGISTER IN CORRECT AFTER INTERRJPT
1608  002320  054276                    EM121
1609  002322  060576                    EM2021
1610  002324  047042                    DT062
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1611  002326  047622                  DF062
1612                          ;       ERROR 104:      ATTEMPTING EXECUTION OF DESELECT DRIVE WITH IF SET
1613                          ;                       INTERRUPT DID NOT CLEAR IN RK611
1614  002330  054276                  EM121
1615  002332  060647                  EM2022
1616  002334  047112                  DT100
1617  002336  047716                  DF100
1618                          ;       ERROR 105:      ATTEMPTING DESELECT COMMAND AFTER WRITING SILO
1619                          ;                       TO CHECK GO CLEAR-CS2 INCORRECT
1620
1621  002340  054377                  EM122
1622  002342  057731                  EM2012
1623  002344  047042                  DT062
1624  002346  047622                  DF062
1625                          ;       ERROR 106:      ATTEMPTING DESELECT COMMAND AFTER WRITING SILO
1626                          ;                       TO CHECK GO CLEAR-DATA LATE DID NOT OCCUR WHEN
1627                          ;                       READING SILO
1628  002350  054377                  EM122
1629  002352  060710                  EM2023
1630  002354  047042                  DT062
1631  002356  047622                  DF062
1632                          ;       ERROR 107:      ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE
1633                          ;                       COMMAND AND STATUS REG 1 INCORRECT AT PHASE ADDRESS 4
1634  002360  054500                  EM123
1635  002362  060020                  EM2014
1636  002364  047066                  DT065
1637  002366  047646                  DF065
1638                          ;       ERROR 110:      ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE
1639                          ;                       COMMAND AND STATUS REG 1 INVALID DURING COMMAND EXECUTION
1640  002370  054500                  EM123
1641  002372  060106                  EM2015
1642  002374  047066                  DT065
1643  002376  047646                  DF065
1644
1645                          ;       ERROR 111:      ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE
1646                          ;                       MAINTENANCE REG 2 UNEXPECTEDLY CHANGED DURING COMMAND EXECUTION
1647  002400  054500                  EM123
1648  002402  060200                  EM2016
1649  002404  047076                  DT067
1650  002406  047672                  DF067
1651                          ;       ERROR 112:      ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE
1652                          ;                       MAINTENANCE REG 3 UNEXPECTEDLY CHANGED DURING COMMAND EXECUTION
1653  002410  054500                  EM123
1654  002412  060300                  EM2017
1655  002414  047076                  DT067
1656  002416  047672                  DF067
1657                          ;       ERROR 113:      ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE
1658                          ;                       COMMAND AND STATUS REG. 1 INCORRECT
1659  002420  054500                  EM123
1660  002422  057223                  EM2003
1661  002424  047042                  DT062
1662  002426  047622                  DF062
1663                          ;       ERROR 114:      ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE
1664                          ;                       COMMAND AND STATUS REG. 2 INCORRECT
1665  002430  054500                  EM123
1666  002432  057731                  EM2012
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1667  002434  047042                    DT062
1668  002436  047622                    DF062
1669                          ;         ERROR 115:      ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE
1670                          ;                         ERROR REGISTER INCORRECT
1671  002440  054500                    EM123
1672  002442  057774                    EM2013
1673  002444  047042                    DT062
1674  002446  047622                    DF062
1675                          ;         ERROR 116:      ATTEMPTING SELECT DRIVE IN MAINT MODE
1676                          ;                         COMMAND AND STATUS REG. 1 INCORRECT
1677  002450  054564                    EM124
1678  002452  057223                    EM2003
1679  002454  046602                    DT001
1680  002456  047236                    DF001
1681                          ;         ERROR 117:      ATTEMPTING SELECT DRIVE IN MAINT MODE
1682                          ;                         DRIVE SELECT CODE IN MESSAGE INCORRECT
1683  002460  054564                    EM124
1684  002462  057266                    EM2004
1685  002464  046602                    DT001
1686  002466  047236                    DF001
1687                          ;         ERROR 120:      ATTEMPTING SELECT DRIVE IN MAINT MODE
1688                          ;                         DRIVE COMMAND BITS IN MESSAGE INCORRECT
1689  002470  054564                    EM124
1690  002472  060762                    EM2024
1691  002474  046602                    DT001
1692  002476  047236                    DF001
1693                          ;         ERROR 121:      ATTEMPTING SELECT DRIVE IN MAINT MODE
1694                          ;                         HEAD ADD CODE IN MESSAGE A INCORRECT
1695  002500  054564                    EM124
1696  002502  057337                    EM2005
1697  002504  046602                    DT001
1698  002506  047236                    DF001
1699                          ;         ERROR 122:      ATTEMPTING SELECT DRIVE IN MAINT MODE
1700                          ;                         PARITY BIT IN MESSAGE INCORRECT
1701  002510  054564                    EM124
1702  002512  057625                    EM2010
1703  002514  046602                    DT001
1704  002516  047236                    DF001
1705                          ;         ERROR 123:      ATTEMPTING SELECT DRIVE IN MAINT MODE
1706                          ;                         MESS SELECT CODE IN MESSAGF IN CORRECT
1707  002520  054564                    EM124
1708  002522  057433                    EM2007
1709  002524  046602                    DT001
1710  002526  047236                    DF001
1711                          ;         ERROR 124:      ATTEMPTING SELECT DRIVE IN MAINT MODE
1712                          ;                         CYLINDER AND BITS IN MESSAGE IS INCORRECT
1713  002530  054564                    EM124
1714  002532  057503                    EM2008
1715  002534  046602                    DT001
1716  002536  047236                    DF001
1717                          ;         ERROR 125:      ATTEMPTING SELECT DRIVE IN MAINT MODE
1718                          ;                         PARITY BIT IN MESSAGE IS INCORRECT
1719  002540  054564                    EM124
1720  002542  057667                    EM2011
1721  002544  046602                    DT001
1722  002546  047236                    DF001
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1723                                    ;       ERROR 126:      ATTEMPTING COMPLETE EXECUTION OF DESELECT DRIVE IN
1724                                    ;                       MAINT MODE - DRIVE STATUS REG INCORRECT
1725  002550  053663                            EM117
1726  002552  061032                            EM2025
1727  002554  047042                            DT062
1728  002556  047622                            DF062
1729                                    ;       ERROR 127:      ATTEMPTING EXECUTION OF SELECT DRIVE IN
1730                                    ;                       MAINT MODE - DRIVE STATUS REG INCORRECT
1731  002560  054000                            EM118
1732  002562  061032                            EM2025
1733  002564  047042                            DT062
1734  002566  047622                            DF062
1735                                    ;       ERROR 130:      ATTEMPTING EXECUTION OF DESELECT DRIVE AT NORMAL
1736                                    ;                       SPEED - DRIVE STATUS REG INCORRECT
1737  002570  054113                            EM119
1738  002572  061032                            EM2025
1739  002574  047042                            DT062
1740  002576  047622                            DF062
1741                                    ;       ERROR 131:      ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE
1742                                    ;                       DRIVE STATUS REG INCORRECT
1743  002600  054500                            EM123
1744  002602  061032                            EM2025
1745  002604  047042                            DT062
1746  002606  047622                            DF062
1747                                    ;       ERROR 132:  ATTEMPTING TO FORCE DRA,SPDLSS,VV,OFST,DRDY,WRL
1748                                    ;                   CONTROLLER READY DID NOT SET
1749  002610  054632                            EM125
1750  002612  061072                            EM2026
1751  002614  047112                            DT100
1752  002616  047716                            DF100
1753                                    ;       ERROR 133:  ATTEMPTING TO FORCE DRA,SPDLSS,VV,OFST,DRDY,WRL
1754                                    ;                   LOAD STATUS DID NOT LOAD DRIVE STATUS REF
1755  002620  054632                            EM125
1756  002622  061127                            EM2027
1757  002624  047042                            DT062
1758  002626  047622                            DF062
1759                                    ;       ERROR 134:  ATTEMPTING TO FORCE DRA,SPDLSS,VV,OFST,DRDY,WRL
1760                                    ;                   CS1 !NCORRECT
1761  002630  054632                            EM125
1762  002632  057223                            EM2003
1763  002634  047042                            DT062
1764  002636  047622                            DF062
1765                                    ;       ERROR 135:  ATTEMPTING TO FORCE DRA,SPDLSS,VV,OFST,DRDY,WRL
1766                                    ;                   CS2 INCORRECT
1767  002640  054632                            EM125
1768  002642  057731                            EM2012
1769  002644  047042                            DT062
1770  002646  047622                            DF062
1771                                    ;       ERROR 136:  ATTEMPTING TO FORCE DRA,SPDLSS,VV,OFST,DRDY,WL
1772                                    ;                   ERROR REG. INCORRECT
1773  002650  054632                            EM125
1774  002652  057774                            EM2013
1775  002654  047042                            DT062
1776  002656  047622                            DF062
1777                                    ;       ERROR 137:  ATTEMPTING TO FORCE DRA,SPDLSS,VV,OFST,DRDY,WL
1778                                    ;                   DRIVE STATUS REG. INCORRECT
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 1779  002660  054632                    EM125
 1780  002662  061032                    EM2025
 1781  002664  047042                    DT062
 1782  002666  047622                    DF062
 1783                          ;         ERROR 140:  ATTEMPTING TO FORCE DRIVE AVAILIABLE
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1784                                    ;                       CS1 INCORRECT
1785  002670  055065                    ;       EM126
1786  002672  057223                    ;       EM2003
1787  002674  047042                    ;       DT062
1788  002676  047622                    ;       DF062
1789                                    ;       ERROR 141:  ATTEMPTING TO FORCE DRIVE AVAILABLE
1790                                    ;                       CS2 INCORRECT
1791  002700  055051                    ;       EM126
1792  002702  057731                    ;       EM2012
1793  002704  047042                    ;       DT062
1794  002706  047622                    ;       DF062
1795                                    ;       ERROR 142:  ATTEMPTING TO FORCE DRIVE AVAILIABLE
1796                                    ;                       DRIVE STATUS REC INCORRECT
1797  002710  055051                    ;       EM126
1798  002712  061032                    ;       EM2025
1799  002714  047042                    ;       DT062
1800  002716  047622                    ;       DF062
1801                                    ;       ERROR 143:  ATTEMPTING TO FORCE DRIVE AVAIVIABLE
1802                                    ;                       ERROR REGISTER INCORRECT
1803  002720  055051                    ;       EM126
1804  002722  057774                    ;       EM2013
1805  002724  047042                    ;       DT062
1806  002726  047622                    ;       DF062
1807                                    ;       ERROR 144:  ATTEMPTING TO FORCE DRIVE BUS PARITY ERROR DETECTED BY RK611
1808                                    ;                       CS1 INCORRECT
1809  002730  055116                    ;       EM127
1810  002732  057223                    ;       EM2003
1811  002734  047042                    ;       DT062
1812  002736  047622                    ;       DF062
1813                                    ;       ERROR 145:  ATTEMPTING TO FORCE DRIVE BUS PARITY ERROR DETECTED BY RK611
1814                                    ;                       CS2 INCORRECT
1815  002740  055116                    ;       EM127
1816  002742  057731                    ;       EM2012
1817  002744  047042                    ;       DT062
1818  002746  047622                    ;       DF062
1819                                    ;       ERROR 146:  ATTEMPTING TO FORCE DRIVE BUS PARITY ERROR DETECTED BY RK611
1820                                    ;                       DRIVE STATUS REG INCORRECT
1821  002750  055116                    ;       EM127
1822  002752  061032                    ;       EM2025
1823  002754  047042                    ;       DT062
1824  002756  047622                    ;       DF062
1825                                    ;       ERROR 147:  ATTEMPTING TO FORCE DRIVE BUS PARITY ERROR DETECTED BY RK611
1826                                    ;                       ERROR REC INCORRRECT
1827  002760  055116                    ;       EM127
1828  002762  057774                    ;       EM2013
1829  002764  047042                    ;       DT062
1830  002766  047622                    ;       DF062
1831                                    ;       ERROR 150:  ATTEMPTING TO FORCE DRIVE AVAILIABLE RESET ERROR
1832                                    ;                       CS1 INCORRECT
1833  002770  055214                    ;       EM128
1834  002772  057223                    ;       EM2003
1835  002774  047042                    ;       DT062
1836  002776  047622                    ;       DF062
1837                                    ;       ERROR 151:  ATTEMPTING TO FORCE DRIVE AVAILABLE RESET ERROR
1838                                    ;                       CS2 INCORRECT
1839  003000  055214                    ;       EM128
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1840  003002  057731                    EM2012
1841  003004  047042                    DT062
1842  003006  047622                    DF062
1843                          ;         ERROR 152:  ATTEMPTING TO FORCE DRIVE AVAILABLE RESET ERROR
1844                          ;                     DRIVE STATUS REG. INCORRECT
1845  003010  055214                    EM128
1846  003012  061032                    EM2025
1847  003014  047042                    DT062
1848  003016  047622                    DF062
1849                          ;         ERROR 153:  ATTEMPTING TO FORCE DRIVE AVAILABLE RESET ERROR
1850                          ;                     ERROR REG. INCORRECT
1851  003020  055214                    EM128
1852  003022  057774                    EM2013
1853  003024  047042                    DT062
1854  003026  047622                    DF062
1855                          ;         ERROR 154:  TESTING CDT SET DRIVE TYPE DETECTION
1856                          ;                     CS1 INCORRECT
1857  003030  055275                    EM129
1858  003032  057223                    EM2003
1859  003034  047042                    DT062
1860  003036  047622                    DF062
1861                          ;         ERROR 155:  TESTING CDT SET DRIVE TYPE DETECTION
1862                          ;                     CS2 INCORRECT
1863  003040  055275                    EM129
1864  003042  057731                    EM2012
1865  003044  047042                    DT062
1866  003046  047622                    DF062
1867                          ;         ERROR 156:  TESTING CDT SET DRIVE TYPE DETECTION
1868                          ;                     DRIVE STATUS REG INCORRECT
1869  003050  055275                    EM129
1870  003052  061032                    EM2025
1871  003054  047042                    DT062
1872  003056  047622                    DF062
1873                          ;         ERROR 157:  TESTING CDT SET DRIVE TYPE DETECTION
1874                          ;                     ERROR REG INCORRECT
1875  003060  055275                    EM129
1876  003062  057774                    EM2013
1877  003064  047042                    DT062
1878  003066  047622                    DF062
1879                          ;         ERROR 160:  ATTEMPTING TO FORCE DRIVE TYPE ERROR ADDRESSING RK06
1880                          ;                     CS1 INCORRECT
1881  003070  055342                    EM130
1882  003072  057223                    EM2003
1883  003074  047042                    DT062
1884  003076  047622                    DF062
1885                          ;         ERROR 161:  ATTEMPTING TO FORCE DRIVE TYPE ERROR ADDRESSING RK06
1886                          ;                     CS2 INCORRECT
1887  003100  055342                    EM130
1888  003102  057731                    EM2012
1889  003104  047042                    DT062
1890  003106  047622                    DF062
1891                          ;         ERROR 162.  ATTEMPTING TO FORCE DRIVE TYPE ERROR ADDRESSING RK06
1892                          ;                     DRIVE STATUS REG INCORRECT
1893  003110  055342                    EM130
1894  003112  061032                    EM2025
1895  003114  047042                    DT062
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1896  003116  047622                          DF062
1897                                ;         ERROR 163:  ATTEMPTING TO FORCE DRIVE TYPE ERROR ADDRESSING RK06
1898                                ;                     ERROR REG INCORRECT
1899  003120  055342                          EM130
1900  003122  057774                          EM2013
1901  003124  047042                          DT062
1902  003126  047622                          DF062
1903                                ;         ERROR 164:  ATTEMPTING TO FORCE DRIVE TYPE ERROR WITH CTD SET
1904                                ;                     CS1 INCORRECT
1905  003130  055424                          EM131
1906  003132  057223                          EM2003
1907  003134  047042                          DT062
1908  003136  047622                          DF062
1909                                ;         ERROR 165:  ATTEMPTING TO FORCE DRIVE TYPE ERROR WITH CDT SET
1910                                ;                     CS2 INCORRECT
1911  003140  055424                          EM131
1912  003142  057731                          EM2012
1913  003144  047042                          DT062
1914  003146  047622                          DF062
1915                                ;         ERROR 166:  ATTEMPTING TO FORCE DRIVE TYPE ERROR WITH CDT SET
1916                                ;                     DRIVE STATUS REG INCORRECT
1917  003150  055424                          EM131
1918  003152  061032                          EM2025
1919  003154  047042                          DT062
1920  003156  047622                          DF062
1921                                ;         ERROR 167:  ATTEMPTING TO FORCE DRIVE TYPE ERROR WITH CDT SET
1922                                ;                     ERROR REG INCORRECT
1923  003160  055424                          EM131
1924  003162  057774                          EM2013
1925  003164  047042                          DT062
1926  003166  047622                          DF062
1927                                ;         ERROR 170:  ATTEMPTING TO FORCE SPEED LOSS
1928                                ;                     CS1 INCORRECT
1929  003170  055511                          EM132
1930  003172  057223                          EM2003
1931  003174  047042                          DT062
1932  003176  047622                          DF062
1933                                ;         ERROR 171:  ATTEMPTING TO FORCE SPEED LOSS
1934                                ;                     CS2 INCORRECT
1935  003200  055511                          EM132
1936  003202  057731                          EM2012
1937  003204  047042                          DT062
1938  003206  047622                          DFC62
1939                                ;         ERROR 172:  ATTEMPTING TO FORCE SPEED LOSS
1940                                ;                     DRIVE STATUS REG INCORRECT
1941  003210  055511                          EM132
1942  003212  061032                          EM2025
1943  003214  047042                          DT062
1944  003216  047622                          DF062
1945                                ;         ERROR 173:  ATTEMPTING TO FORCE SPEED LOSS
1946                                ;                     ERROR REG. INCORRECT
1947  003220  055511                          EM132
1948  003222  057774                          EM2013
1949  003224  047042                          DT062
1950  003226  047622                          DF062
1951                                ;         ERROR 174:  ATTEMPTING TO FORCE DRIVE OFF TRACK
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1952                                    ;                       CS1 INCORRECT
1953  003230  055550                          EM133
1954  003232  057223                          EM2003
1955  003234  047042                          DT062
1956  003236  047622                          DF062
1957                                    ;       ERROR 175:  ATTEMPTING TO FORCE DRIVE OFF TRACK
1958                                    ;                   CS2 INCORRECT
1959  003240  055550                          EM133
1960  003242  057731                          EM2012
1961  003244  047042                          DT062
1962  003246  047622                          DF062
1963                                    ;       ERROR 176:  ATTEMPTING TO FORCE DRIVE OFF TRACK
1964                                    ;                   DRIVE STATUS REG INCORREC~
1965  003250  055550                          EM133
1966  003252  061032                          EM2025
1967  003254  047042                          DT062
1968  003256  047622                          DF062
1969                                    ;       ERROR 177:  ATTEMPTING TO FORCE DRIVE OFF TRACK
1970                                    ;                   ERROR REG INCORRECT
1971  003260  055550                          EM133
1972  003262  057774                          EM2013
1973  003264  047042                          DT062
1974  003266  047622                          DF062
1975                                    ;       ERROR 200:  ATTEMPTING TO FORCE WRITE LOCK ERROR
1976                                    ;                   CS1 INCORRECT
1977  003270  055614                          EM134
1978  003272  057223                          EM2003
1979  003274  047042                          DT062
1980  003276  047622                          DF062
1981                                    ;       ERROR 201:  ATTEMPTING TO FORCE WRITE LOCK ERROR
1982                                    ;                   CS2 INCORRECT
1983  003300  055614                          EM134
1984  003302  057731                          EM2012
1985  003304  047042                          DT062
1986  003306  047622                          DF062
1987                                    ;       ERROR 202:  ATTEMPTING TO FORCE WRITE LOCK ERROR
1988                                    ;                   DRIVE STATUS REG INCORRECT
1989  003310  055614                          EM134
1990  003312  061032                          EM2025
1991  003314  047042                          DT062
1992  003316  047622                          DF062
1993                                    ;       ERROR 203:  ATTEMPTING TO FORCE WRITE LOCK ERROR
1994                                    ;                   ERROR REG INCORRECT
1995  003320  055614                          EM134
1996  003322  057774                          EM2013
1997  003324  047042                          DT062
1998  003326  047622                          DF062
1999                                    ;       ERROR 204:  ATTEMPTING TO FORCE SEEK INCOMPLETE
2000                                    ;                   CS1 INCORRECT
2001  003330  055661                          EM135
2002  003332  057223                          EM2003
2003  003334  047042                          DT062
2004  003336  047622                          DF062
2005                                    ;       ERROR 205:  ATTEMPTING TO FORCE SEEK INCOMPLETE
2006                                    ;                   CS2 INCORRECT
2007  003340  055661                          EM135
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 2008  003342  057731                    EM2012
 2009  003344  047042                    DT062
 2010  003346  047622                    DF062
 2011                          ;         ERROR 206:  ATTEMPTING TO FORCE SEEK INCOMPLETE
 2012                          ;                     DRIVE STATUS REG INCORRECT
 2013  003350  055661                    EM135
 2014  003352  061032                    EM2025
 2015  003354  047042                    DT062
 2016  003356  047622                    DF062
 2017                          ;         ERROR 207:  ATTEMPTING TO FORCE SEEK INCOMPLETE
 2018                          ;                     ERROR REG INCORRECT
 2019  003360  055661                    EM135
 2020  003362  057774                    EM2013
 2021  003364  047042                    DT062
 2022  003366  047622                    DF062
 2023                          ;         ERROR 210:  ATTEMPTING TO FORCE NON-EXECUTABLE FUNCTION
 2024                          ;                     CS1 INCORRECT
 2025  003370  055725                    EM136
 2026  003372  057223                    EM2003
 2027  003374  047042                    DT062
 2028  003376  047622                    DF062
 2029                          ;         ERROR 211:  ATTEMPTING TO FORCE NON-EXECUTABLE FUNCTION
 2030                          ;                     CS2 INCORRECT
 2031  003400  055725                    EM136
 2032  003402  057731                    EM2012
 2033  003404  047042                    DT062
 2034  003406  047622                    DF062
 2035                          ;         ERROR 212:  ATTEMPTING TO FORCE NON-EXECUTABLE FUNCTION
 2036                          ;                     DRIVE STATUS REG INCORRECT
 2037  003410  055725                    EM136
 2038  003412  061032                    EM2025
 2039  003414  047042                    DT062
 2040  003416  047622                    DF062
 2041                          ;         ERROR 213:  ATTEMPTING TO FROCE NON-EXECUTABLE FUNCTION
 2042                          ;                     ERROR REG INCORRECT
 2043  003420  055725                    EM136
 2044  003422  057774                    EM2013
 2045  003424  047042                    DT062
 2046  003426  047622                    DF062
 2047                          ;         ERROR 214:  ATTEMPTING TO FORCE AC LOW AND C-D PARITY ERROR
 2048                          ;                     CS1 INCORRECT
 2049  003430  056001                    EM137
 2050  003432  057223                    EM2003
 2051  003434  047042                    DT062
 2052  003436  047622                    DF062
 2053                          ;         ERROR 215:  ATTEMPTING TO FORCE AC LOW AND C-D PARITY ERROR
 2054                          ;                     CS2 INCORRECT
 2055  003440  056001                    EM137
 2056  003442  057731                    EM2012
 2057  003444  047042                    DT062
 2058  003446  047622                    DF062
 2059                          ;         ERROR 216:  ATTEMPTING TO FORCE AC LOW AND C-D PARITY ERROR
 2060                          ;                     DRIVE STATUS REG INCORRECT
 2061  003450  056001                    EM137
 2062  003452  061032                    EM2025
 2063  003454  047042                    DT062
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2064  003456  047622                    DF062
2065                          ;         ERROR 217:  ATTEMPTING TO FORCE AC LOW AND C-D PARITY ERROR
2066                          ;                     ERRCR REG INCORRECT
2067  003460  056001                    EM137
2068  003462  057774                    EM2013
2069  003464  047042                    DT062
2070  003466  047622                    DF062
2071                          ;         ERROR 220:  ATTEMPTING TO FORCE ILLEGAI DISK ADDRESS ERROR (DRIVE)
2072                          ;                     CS1 INCORRECT
2073  003470  056061                    EM138
2074  003472  057223                    EM2003
2075  003474  047042                    DT062
2076  003476  047622                    DF062
2077                          ;         ERROR 221:  ATTEMPTING TO FORCE ILLEGAL DISK ADDRESS ERROR (DRIVE)
2078                          ;                     CS2 INCORRECT
2079  003500  056061                    EM138
2080  003502  057731                    EM2012
2081  003504  047042                    DT062
2082  003506  047622                    DF062
2083                          ;         ERROR 222:  ATTEMPTING TO FORCE ILLEGAL DISK ADDRRESS ERROR (DRIVE)
2084                          ;                     DRIVE STATUS REG INCORRECT
2085  003510  056061                    EM138
2086  003512  061032                    EM2025
2087  003514  047042                    DT062
2088  003516  047622                    DF062
2089                          ;         ERROR 223:  ATTEMPTING TO FORCE ILLEGAL DISK ADDRESS ERROR (DRIVE)
2090                          ;                     ERROR REG INCORRECT
2091  003520  056061                    EM138
2092  003522  057774                    EM2013
2093  003524  047042                    DT062
2094  003526  047622                    DF062
2095                          ;         ERROR 224:  ATTERMPTING TO CLEAR RK611 WITH A CONTROLLER CLEAR
2096                          ;                     CS1 INCORRECT
2097  003530  056171                    EM139
2098  003532  057223                    EM2003
2099  003534  047126                    DT224
2100  003536  047756                    DF224
2101                          ;         ERROR 225:  ATTERMPTING TO CLEAR RK611 WITH A CONTROLLER CLEAR
2102                          ;                     CS2 INCORRECT
2103  003540  056171                    EM139
2104  003542  057731                    EM2012
2105  003544  047126                    DT224
2106  003546  047756                    DF224
2107                          ;         ERROR 226:  ATTERMPTING TO CLEAR RK611 WITH A CONTROLLER CLEAR
2108                          ;                     DRIVE STATUS REG INCORRECT
2109  003550  056171                    EM139
2110  003552  061032                    EM2025
2111  003554  047126                    DT224
2112  003556  047756                    DF224
2113                          ;         ERROR 227:  ATTERMPTING TO CLEAR RK611 WITH A CONTROLLER CLEAR
2114                          ;                     ERROR REG INCORRECT
2115  003560  056171                    EM139
2116  003562  057774                    EM2013
2117  003564  047126                    DT224
2118  003566  047756                    DF224
2119                          ;         ERROR 230: TESTING ILLEGAL DISK ADDRESS ERROR LOGIC IN RK611
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2120                                    ;                       CSI INCORRECT
2121  003570  056253                    ;       EM140
2122  003572  057223                    ;       EM2003
2123  003574  047162                    ;       DT230
2124  003576  050012                    ;       DF230
2125                                    ;       ERROR 231: TESTING ILLEGAL DISK ADDRESS ERROR LOGIC IN RK611
2126                                    ;                       CS2 INCORRECT
2127  003600  056253                    ;       EM140
2128  003602  057731                    ;       EM2012
2129  003604  047162                    ;       DT230
2130  003606  050012                    ;       DF230
2131                                    ;       ERROR 232: TESTING ILLEGAL DISK ADDRESS ERROR LOGIC IN RK611
2132                                    ;                       DRIVE STATUS REG INCORRECT
2133  003610  056253                    ;       EM140
2134  003612  061032                    ;       EM2025
2135  003614  047162                    ;       DT230
2136  003616  050012                    ;       DF230
2137                                    ;       ERROR 233: TESTING ILLEGAL DISK ADDRESS ERROR LOGIC IN RK611
2138                                    ;                       ERROR REGISTER
2139  003620  056253                    ;       EM140
2140  003622  057774                    ;       EM2013
2141  003624  047162                    ;       DT230
2142  003626  050012                    ;       DF230
2143                                    ;       ERROR 234: ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES
2144                                    ;                       CS1 INCORRECT
2145  003630  056335                    ;       EM141
2146  003632  057223                    ;       EM2003
2147  003634  047042                    ;       DT062
2148  003636  047622                    ;       DF062
2149                                    ;       ERROR 235: ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES
2150                                    ;                       CS2 INCORRECT
2151  003640  056335                    ;       EM141
2152  003642  057731                    ;       EM2012
2153  003644  047042                    ;       DT062
2154  003646  047622                    ;       DF062
2155                                    ;       ERROR 236: ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES
2156                                    ;                       DRIVE STATUS REG. INCORRECT
2157  003650  056335                    ;       EM141
2158  003652  061032                    ;       EM2025
2159  003654  047042                    ;       DT062
2160  003656  047622                    ;       DF062
2161                                    ;       ERROR 237: ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES
2162                                    ;                       ERROR REG. INCORRECT
2163  003660  056335                    ;       EM141
2164  003662  057774                    ;       EM2013
2165  003664  047042                    ;       DT062
2166  003666  047622                    ;       DF062
2167                                    ;       ERROR 240. ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES WITH
2168                                    ;                       BAD PARITY - CS1 INCORRECT
2169  003670  056411                    ;       EM142
2170  003672  057223                    ;       EM2003
2171  003674  047042                    ;       DT062
2172  003676  047622                    ;       DF062
2173                                    ;       ERROR 241: ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES WITH
2174                                    ;                       BAD PARITY - CS2 INCORRECT
2175  003700  056411                    ;       EM142
```

```
2176  003702  057731                  EM2012
2177  003704  047042                  DT062
2178  003706  047622                  DF062
2179                          ;       ERROR 242: ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES WITH
2180                          ;                  BAD PARITY - DRIVE STATUS REG. INCORRECT
2181  003710  056411                  EM142
2182  003712  061032                  EM2025
2183  003714  047042                  DT062
2184  003716  047622                  DF062
2185                          ;       ERROR 243: ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES WITH
2186                          ;                  BAD PARITY - ERROR ERROR INCOMPLETE
2187  003720  056411                  EM142
2188  003722  057774                  EM2013
2189  003724  047042                  DT062
2190  003726  047622                  DF062
2191                          ;       ERROR 244: ATTEMPTING TO FORCE NON-EXISTENT DRIVE (DRIVE BUS TIMEOUT)
2192                          ;                  CS1 INCORRECT
2193  003730  056507                  EM143
2194  003732  057223                  EM2003
2195  003734  047042                  DT062
2196  003736  047622                  DF062
2197                          ;       ERROR 245: ATTEMPTING TO FORCE NON-EXISTENT DRIVE (DRIVE BUS TIMEOUT)
2198                          ;                  CS2 INCORRECT
2199  003740  056507                  EM143
2200  003742  057731                  EM2012
2201  003744  047042                  DT062
2202  003746  047622                  DF062
2203                          ;       ERROR 246: ATTEMPTING TO FORCE NON-EXISTENT DRIVE (DRIVE BUS TIMEOUT)
2204                          ;                  DRIVE STATUS REG INCORRECT
2205  003750  056507                  EM143
2206  003752  061032                  EM2025
2207  003754  047042                  DT062
2208  003756  047622                  DF062
2209                          ;       ERROR 247: ATTEMPTING TO FORCE NON-EXISTENT DRIVE (DRIVE BUS TIMEOUT)
2210                          ;                  ERROR REG INCORRECT
2211  003760  056507                  EM143
2212  003762  057774                  EM2013
2213  003764  047042                  DT062
2214  003766  047622                  DF062
2215                          ;       ERROR 250: ATTEMPTING TO FORCE NON-EXISTENT DRIVE (NO SACK)
2216                          ;                  CS1 INCORRECT
2217  003770  056602                  EM144
2218  003772  057223                  EM2003
2219  003774  047042                  DT062
2220  003776  047622                  DF062
2221                          ;       ERROR 251: ATTEMPTING TO FORCE NON-EXISTENT DRIVE (NO SACK)
2222                          ;                  CS2 INCORRECT
2223  004000  056602                  EM144
2224  004002  057731                  EM2012
2225  004004  047042                  DT062
2226  004006  047622                  DF062
2227                          ;       ERROR 252: ATTEMPTING TO FORCE NON-EXISTENT DRIVE (NO SACK)
2228                          ;                  DRIVE STATUS REG INCORRECT
2229  004010  056602                  EM144
2230  004012  061032                  EM2025
2231  004014  047042                  DT062
```

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2232  004016  047622                    DF062
2233                              ;     ERROR 253: ATTEMPTING TO FORCE NON-EXISTEN' DRIVE (NO SACK)
2234                              ;                ERROR REG INCORRECT
2235  004020  056602                    EM144
2236  004022  057774                    EM2013
2237  004024  047042                    DT062
2238  004026  047622                    DF062
2239                              ;     ERROR 254: ATTEMPTING EXECUTION OF DESFLECT DRIVE WITH IE RESET
2240                              ;                UNEXPECTED INTERRUPT OCCURRED
2241  004030  056663                    EM145
2242  004032  061202                    EM2028
2243  004034  047112                    DT100
2244  004036  047716                    DF100
2245                              ;     ERROR 255: ATTEMPTING EXECUTION FO DESELECT DRIVE WITH IE RESET
2246                              ;                INTERRUPT OCCURRED WHEN INTERRUPT ENABLE SET
2247  004040  056663                    EM145
2248  004042  061240                    EM2029
2249  004044  047112                    DT100
2250  004046  047716                    DF100
2251                              ;     ERROR 256:      ATTEMPTING TO EXECUTE AN ILLEGAL FUNCTION
2252                              ;                      CS1 INCORRECT
2253  004050  056750                    EM146
2254  004052  057223                    EM2003
2255  004054  047214                    DT256
2256  004056  050046                    DF256
2257                              ;     ERROR 257:      ATTEMPTING TO EXECUTE AN ILLEGAL FUNCTION
2258                              ;                      ERROR REG INCORRECT
2259  004060  056750                    EM146
2260  004062  057774                    EM2013
2261  004064  047214                    DT256
2262  004066  050046                    DF256
2263                              ;     ERROR 260:      ATTEMPTING TO CLEAR ILLEGAL FUNCTION - CS1 INCORRECT
2264  004070  057022                    EM147
2265  004072  057223                    EM2003
2266  004074  047214                    DT256
2267  004076  050046                    DF256
2268                              ;     ERROR 261:      ATTEMPTING TO CLEAR ILLEGAL FUNCTION - ERROR REG INCORRECT
2269  004100  057022                    EM147
2270  004102  057774                    EM2013
2271  004104  047214                    DT256
2272  004106  050046                    DF256
2273                              ;     ERROR 262:  UNEXPECTED MEMORY PARITY ERROR TRAP
2274  004110  052050                    EM000
2275  004112  050322                    DH000C
2276  004114  046576                    DT000
2277  004116  047232                    DF000
```

```
                                .SBTTL  TEMPORARY STORAGE FOR RK611 CONTROLLER REGISTER

004120  000000          T.CS1:  .WORD   0               ;CONTROL AND STATUS REGISTER 1
004122  000000          T.WC:   .WORD   0               ;WORD COUNT REGISTER
004124  000000          T.BA:   .WORD   0               ;BUS ADDRESS REGISTER
004126  000000          T.DA:   .WORD   0               ;DESIRED TRACK SECTOR REGISTER
004130  000000          T.CS2:  .WORD   0               ;CONTROL AND STATUS REGISTER 2
004132  000000          T.DS:   .WORD   0               ;DRIVE STATUS REGISTER
004134  000000          T.ER:   .WORD   0               ;ERROR REGISTER
004136  000000          T.ASOF: .WORD   0               ;ATTENTION SUMMARY AND OFFSET REGISTER
004140  000000          T.DCYL: .WORD   0               ;DESIRED CYLINDER REGISTER
004142  000000          T.DB:   .WORD   0               ;DATA BUFFER
004144  000000          T.MR1:  .WORD   0               ;MAINTENANCE REGISTER 1
004146  000000          T.MR2:  .WORD   0               ;MAINTENANCE REGISTER 2
004150  000000          T.MR3:  .WORD   0               ;MAINTENANCE REGISTER 3
004152  000000          T.ECPS: .WORD   0               ;ECC POSITION INFORMATION
004154  000000          T.ECPT: .WORD   0               ;ECC PATTERN INFORMATION
004156  000000          T.SPAR: .WORD   0               ;SPARE REGISTER

                                .SBTTL  EXPECTED RK611 CONTROLLER REGISTERS

004160  000000          E.CS1:  .WORD   0               ;CONTROL AND STATUS REGISTER 1
004162  000000          E.WC:   .WORD   0               ;WORD COUNT REGISTER
004164  000000          E.BA:   .WORD   0               ;BUS ADDRESS REGISTER
004166  000000          E.DA:   .WORD   0               ;DESIRED TRACK SECTOR REGISTER
004170  000000          E.CS2:  .WORD   0               ;CONTROL AND STATUS REGISTER 2
004172  000000          E.DS:   .WORD   0               ;DRIVE STATUS REGISTER
004174  000000          E.ER:   .WORD   0               ;ERROR REGISTER
004176  000000          E.ASOF: .WORD   0               ;ATTENTION SUMMARY AND OFFSET REGISTER
004200  000000          E.DCYL: .WORD   0               ;DESIRED CYLINDER REGISTER
004202  000000          E.DB:   .WORD   0               ;DATA BUFFER
004204  000000          E.MR1:  .WORD   0               ;MAINTENANCE REGISTER 1
004206  000000          E.MR2:  .WORD   0               ;MAINTENANCE REGISTER 2
004210  000000          E.MR3:  .WORD   0               ;MAINTENANCE REGISTER 3
004212  000000          E.ECPS: .WORD   0               ;ECC POSITION INFORMATION
004214  000000          E.ECPT: .WORD   0               ;ECC PATTERN INFORMATION
004216  000000          E.SPAR: .WORD   0               ;SPARE REGISTER

                                .SBTTL  PREVIOUS RK611 CONTROLLER REGISTERS

004220  000000          P.CS1:  .WORD   0               ;PREVIOUS COMMAND AND STATUS REG 1
004222  000000          P.CS2:  .WORD   0               ;PREVIOUS COMMAND AND STATUS REG 2
004224  000000          P.DS:   .WORD   0               ;PREVIOUS DRIVE STATUS REG
004226  000000          P.ER:   .WORD   0               ;PREVIOUS ERROR REG
004230  000000          U.MR2:  .WORD   0               ;UNSHIFTED MAINTENANCE REG 2
004232  000000          U.MR3:  .WORD   0               ;UNSHIFTED MAINTENANCE REG 3
```

```
2324                                    .SBTTL  PROGRAM DEFINED VARIABLES
2325
2326  004234  000210                    RKVEC:  .WORD   210             ;RK611 VECTOR
2327  004236  000240                    RKPRI:  .WORD   PR5             ;RK611 PRIORITY
2328  004240  000000                    SRTFLG: .WORD   0               ;START FLAG
2329                                                                    ;  0 = 200
2330                                                                    ;  1 = 214
2331                                                                    ; -1 = 204
2332  004242  000000                    ERRCNT: .WORD   0               ;ERROR COUNT FOR SWITCH 12 ABORT
2333  004244  000000                    DRVCOD: .WORD   0               ;DRIVE SELECT CODE
2334  004246  000000                    MSGCOD: .WORD   0               ;MESSAGE SELECT CODE
2335  004250  000000                    HDCODE: .WORD   0               ;HEAD SELECT CODE
2336  004252  000000                    CYLIN:  .WORD   0               ;CYLINDER ADD VALUE
2337  004254  000000                    OFFVAL: .WORD   0               ;OFFSET VALUE
2338  004256  000000                    SFTCNT: .WORD   0               ;SHIFT COUNT FOR DRIVE MESSAGE SHIFTING
2339  004260  000000                    PARBIT: .WORD   0               ;PARITY BIT FOR SHIFT
2340  004262  000015                    WAITIM: .WORD   15              ;WAITING FOR DESELECT COMMAND
2341  004264  000144                    STALL:  .WORD   100.            ;STALL TIME FOR MESSAGE TIME OUT (NED)
2342  004266  000000                    DRVTYP: .WORD   0               ;DRIVE TYPE INDICATOR
2343  004270  000000                    ILLFUN: .WORD   0               ;ILLEGAL FUNCTION CODE
2344  004272  000000                    TRAPPC: .WORD   0               ;ADDRESS OF TRAP FROM MEMORY CHECK
2345  004274  000000                    SAVSWR: .WORD   0               ;SAVED SWITCH REG FOR POWER FAIL
```

```
2346                                    .SBTTL  PROGRAM SETUP
2347
2348  004276  012737  000001  004240  PARM:   MOV     #1,SRTFLG       ;LOAD START FLAG FOR PARMETER START
2349  004304  000406                          BR      START1
2350
2351  004306  012737  177777  004240  RESTRT: MOV     #-1,SRTFLG      ;LOAD START FLAG FOR RESTART
2352  004314  000402                          BR      START1
2353
2354  004316  005037  004240          START:  CLR     SRTFLG          ;CLEAR START FLAG
2355  004322  000005                  START1: RESET                   ;RESET THE WHOLE SYSTEM
2356  004324  012706  001100                  MOV     #STACK,SP       ;INITIALIZE STACK POINTER
2357  004330  012746  000340                  MOV     #PR7,-(SP)      ;LOAD STACK TO LOCK OUT ALL INTERRUPTS
2358  004334  012746  004342                  MOV     #1$,-(SP)       ;LOAD START OF PROGRAM
2359  004340  000002                          RTI                     ;LOAD PSW
2360
2361  004342                          1$:
2362                                    .SBTTL  INITIALIZE THE COMMON TAGS
2363                                    ;;CLEAR THE COMMON TAGS ($CMTAG) AREA
2364  004342  012706  001100                  MOV     #$CMTAG,R6      ;;FIRST LOCATION TO BE CLEARED
2365  004346  005026                          CLR     (R6)+           ;;CLEAR MEMORY LOCATION
2366  004350  022706  001140                  CMP     #SWR,R6 ;;DONE?
2367  004354  001374                          BNE     .-6             ;;LOOP BACK IF NO
2368  004356  012706  001100                  MOV     #STACK,SP       ;;SETUP THE STACK POINTER
2369                                    ;;INITIALIZE A FEW VECTORS
2370  004362  012737  042512  000020          MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
2371  004370  012737  000340  000022          MOV     #340,@#IOTVEC+2 ;;LEVEL 7
2372  004376  012737  043516  000030          MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
2373  004404  012737  000340  000032          MOV     #340,@#EMTVEC+2 ;;LEVEL 7
2374  004412  012737  046506  000034          MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
2375  004420  012737  000340  000036          MOV     #340,@#TRAPVEC+2;LEVEL 7
2376  004426  012737  046354  000024          MOV     #$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
2377  004434  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;LEVEL 7
2378  004442  013737  042204  042176          MOV     $ENDCT,$EOPCT   ;;SETUP END-OF-PROGRAM COUNTER
2379  004450  005037  001200                  CLR     $TIMES          ;;INITIALIZE NUMBER OF ITERATIONS
2380  004454  005037  001202                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE ON ERROR ADDRESS
2381  004460  112737  000001  001115          MOVB    #1,$ERMAX       ;;ALLOW ONE ERROR PER TEST
2382  004466  012737  004466  001106          MOV     #.,$LPADR       ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
2383  004474  012737  004474  001110          MOV     #.,$LPERR       ;;SETUP THE ERROR LOOP ADDRESS
2384                                    ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
2385                                    ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
2386  004502  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE ERROR VECTOR
2387  004506  012737  004542  000004          MOV     #64$,@#ERRVEC   ;;SET UP ERROR VECTOR
2388  004514  012737  177570  001140          MOV     #DSWR,SWR       ;;SETUP FOR A HARDWARE SWICH REGISTER
2389  004522  012737  177570  001142          MOV     #DDISP,DISPLAY  ;;AND A HARDWARE DISPLAY REGISTER
2390  004530  022777  177777  174402          CMP     #-1,@SWR        ;;TRY TO REFERENCE HARDWARE SWR
2391  004536  001012                          BNE     66$             ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
2392                                                                  ;;AND  THE HARDWARE SWR IS NOT = -1
2393  004540  000403                          BR      65$             ;;BRANCH IF NO TIMEOUT
2394  004542  012716  004550          64$:    MOV     #65$,(SP)       ;;SET UP FOR TRAP RETURN
2395  004546  000002                          RTI
2396  004550  012737  000176  001140  65$:    MOV     #SWREG,SWR      ;;POINT TO SOFTWARE SWR
2397  004556  012737  000174  001142          MOV     #DISPREG,DISPLAY
2398  004564  012637  000004          66$:    MOV     (SP)+,@#ERRVEC  ;;RESTORE ERROR VECTOR
2399
2400  004570  005037  001222                  CLR     $PASS           ;;CLEAR PASS COUNT
2401  004574  132737  000200  001235          BITB    #APTSIZE,$ENVM  ;;TEST USER SIZE UNDER APT
```

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2402  004602  001403                          BEQ     67$                 ;;YES,USE NON-APT SWITCH
2403  004604  012737  001236  001140          MOV     #$SWREG,SWR         ;;NO,USE APT SWITCH REGISTER
2404  004612                          67$:
2405  004612  005037  004242                  CLR     ERRCNT              ;CLEAR ERROR COUNT FOR SWITCH 12 ABORT
2406                                  .SBTTL  TYPE PROGRAM NAME
2407                                  ;;TYPE THE NAME OF THE PROGRAM IF FIRST PASS
2408  004616  005227  177777                  INC     #-1                 ;;FIRST TIME?
2409  004622  001055                          BNE     68$                 ;;BRANCH IF NO
2410  004624  022737  042340  000042          CMP     #$ENDAD,@#42        ;;ACT-11?
2411  004632  001451                          BEQ     68$                 ;;BRANCH IF YES
2412  004634  104401  004702                  TYPE    ,69$                ;;TYPE ASCIZ STRING
2413                                  .SBTTL  GET VALUE FOR SOFTWARE SWITCH REGISTER
2414  004640  005737  000042                  TST     @#42                ;;ARE WE RUNNING UNDER XXDP/ACT?
2415  004644  001012                          BNE     70$                 ;;BRANCH IF YES
2416  004646  123727  001234  000001          CMPB    $ENV,#1             ;;ARE WE RUNNING UNDER APT?
2417  004654  001406                          BEQ     70$                 ;;BRANCH IF YES
2418  004656  023727  001140  000176          CMP     SWR,#SWREG          ;;SOFTWARE SWITCH REG SELECTED?
2419  004664  001005                          BNE     71$                 ;;BRANCH IF NO
2420  004666  104406                          GTSWR                       ;;GET SOFT-SWR SETTINGS
2421  004670  000403                          BR      71$
2422  004672  112737  000001  001134  70$:    MOVB    #1,$AUTOB           ;;SET AUTO-MODE INDICATOR
2423  004700                          71$:
2424  004700  000426                          BR      68$                 ;;GET OVER THE ASCIZ
2425                                  ;;69$:  .ASCIZ  <CRLF>/RK611 DISKLESS DIAGNOSTIC: PART 2 CZR6BD0/<CRLF>
2426  004756                          68$:
2427  004756  022737  000001  004240          CMP     #1,SRTFLG           ;CHECK IF PARAMETER START
2428  004764  001122                          BNE     15$                 ;NO, CONTINUE SETUP
2429  004766  104401  050072          5$:     TYPE    ,OPR001             ;TYPE "RK611 BUS ADDRESS (  ) ="
2430  004772  013746  001270                  MOV     $BASE,-(SP)         ;;SAVE $BASE FOR TYPEOUT
2431  004776  104402                          TYPOC                       ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
2432  005000  104401  050121                  TYPE    ,OPR002
2433  005004  104412                          RDOCT                       ;GET VALUE
2434  005006  012637  001160                  MOV     (SP)+,$TMP0
2435  005012  001407                          BEQ     7$                  ;CHECK IF <CR>
2436  005014  022737  160000  001160          CMP     #160000,$TMP0       ;CHECK IF IN I/O PAGE
2437  005022  101361                          BHI     5$
2438  005024  013737  001160  001270          MOV     $TMP0,$BASE         ;LOAD NEW BUS ADDRESS
2439  005032  104401  050127          7$:     TYPE    ,OPR003             ;TYPE "RK611 VECTOR ADDRESS (  ) ="
2440  005036  013746  001264                  MOV     $VECT1,-(SP)
2441  005042  042716  160000                  BIC     #160000,(SP)
2442  005046  104402                          TYPOC
2443  005050  104401  050121                  TYPE    ,OPR002
2444  005054  104412                          RDOCT                       ;GET VALUE
2445  005056  012637  001160                  MOV     (SP)+,$TMP0
2446  005062  001412                          BEQ     10$                 ;CHECK IF <CR>
2447  005064  022737  001000  001160          CMP     #1000,$TMP0         ;CHECK IF LEGAL
2448  005072  101757                          BLOS    7$
2449  005074  042737  017777  001264          BIC     #17777,$VECT1       ;LOAD NEW VECTOR ADDRESS
2450  005102  053737  001160  001264          BIS     $TMP0,$VECT1
2451  005110  104401  050157          10$:    TYPE    ,OPR004             ;TYPE "RK611 PRIORITY (  ) ="
2452  005114  005046                          CLR     -(SP)               ;MAKE ROOM ON THE STACK
2453  005116  113716  001265                  MOVB    $VECT1+1,(SP)
2454  005122  006216                          ASR     (SP)                ;SHIFT 5 BITS RIGHT
2455  005124  006216                          ASR     (SP)
2456  005126  006216                          ASR     (SP)
2457  005130  006216                          ASR     (SP)
```

```
2458  005132  006216                          ASR     (SP)
2459  005134  104402                          TYPOC
2460  005136  104401  050121                 TYPE    ,OPR002
2461  005142  104412                          RDOCT                   ;GET VALUE
2462  005144  012637  001160                 MOV     (SP)+,$TMP0
2463  005150  001430                          BEQ     15$             ;CHECK FOR DEFAULT
2464  005152  022737  000007  001160         CMP     #7,$TMP0        ;CHECK IF LEGAL
2465  005160  103753                          BLO     10$
2466  005162  022737  000004  001160         CMP     #4,$TMP0
2467  005170  101347                          BHI     10$
2468  005172  006337  001160                 ASL     $TMP0           ;SHIFT 5 BITS LEFT
2469  005176  006337  001160                 ASL     $TMP0
2470  005202  006337  001160                 ASL     $TMP0
2471  005206  006337  001160                 ASL     $TMP0
2472  005212  006337  001160                 ASL     $TMP0
2473  005216  042737  160000  001264         BIC     #160000,$VECT1  ;STORE NEW PRIORITY
2474  005224  153737  001160  001265         BISB    $TMP0,$VECT1+1
2475  005232  013737  001264  004234  15$:    MOV     $VECT1,RKVEC    ;STORE RK611 VECTOR
2476  005240  042737  160000  004234         BIC     #160000,RKVEC
2477  005246  113737  001265  004236         MOVB    $VECT1+1,RKPRI  ;STORE RK611 PRIORITY
2478
2479  005254  004737  042360          NEWPAS: JSR     PC,CHKPAR       ;CHECK FOR MEMORY CHECK ENABLE
2480  005260  012746  000340                  MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPTS
2481  005264  012746  005272                  MOV     #1$,-(SP)
2482  005270  000002                          RTI
```

```
                                .SBTTL  **DRIVE MESSAGE LOADING

                                ;;*****************************************************************
                                ;*TEST 1         FIRST COMMAND IN MAINT MODE
                                ;*
                                ;*      INITIALIZE RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER IN
                                ;*      MODE. ISSUE SELECT DRIVE. WAIT AND MAKE SURE CS1 REMAINS
                                ;*      THE SAME. CLOCK IN MESSAGES A AND B. MAKE SURE
                                ;*      CORRECT MSG ARE LOADED. CHECKING IS DONE A FIELD AT A
                                ;*      TIME.
                                ;*
                                ;;*****************************************************************
005272  000004                  TST1:   SCOPE
005274  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
005302  013702  001270          1$:     MOV     $BASE,R2        ;LOAD RK611 BASE
005306  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
005314  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN DIAGNOSTIC MODE
005322  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)       ;LOAD CS1 WITH SELECT DRIVE
005330  012700  000015                  MOV     #15,R0          ;WAIT FOR READY TO SET
005334  005300                  1$:     DEC     R0
005336  001376                          BNE     1$
005340  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
005346  012737  000001  004160          MOV     #SELDRV,E.CS1   ;LOAD EXPECT CS1
005354  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CHANGED
005362  001402                          BEQ     2$              ;NO, CONTINUE
005364  104077                          ERROR   77              ;CS1 INCORRECT
005366  000503                          BR      TST2            ;;GO ON TO NEXT TEST

005370  012700  000016          2$:     MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
005374  012762  000440  000026  3$:     MOV     #DMD.MCLK,RKMR1(R2)
005402  012762  000040  000026          MOV     #DMD,RKMR1(R2)
005410  005300                          DEC     R0
005412  001370                          BNE     3$
005414  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
005422  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
005430  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
005436  012737  000001  004160          MOV     #SELDRV,E.CS1   ;LOAD EXPECTED CS1
005444  005037  004206                  CLR     E.MR2           ;LOAD EXPECTED MAINT REG. 2
005450  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
005454  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG. 1 CORRECT
005462  001402                          BEQ     4$              ;YES, CHECK MESSAGES A & B
005464  104116                          ERROR   116             ;CS1 INCORRECT
005466  000443                          BR      TST2            ;;GO ON TO NEXT TEST

005470  032737  000017  004146  4$:     BIT     #17,T.MR2       ;CHECK IF DRIVE SELECT BITS ZERO
005476  001401                          BEQ     5$              ;YES, CONTINUE
005500  104117                          ERROR   117             ;MESSAGE SELECT BITS NOT ZERO
005502  032737  007760  004146  5$:     BIT     #7760,T.MR2     ;CHECK IF COMMAND BITS ZERO
005510  001401                          BEQ     6$              ;YES, CONTINUE

005512  104120                          ERROR   120             ;COMMAND BITS NOT ZERO
005514  032737  070000  004146  6$:     BIT     #70000,T.MR2    ;CHECK IF HEAD SELECT BITS ZERO
005522  001401                          BEQ     7$              ;YES, CONTINUE
005524  104121                          ERROR   121             ;HEAD SELECT NOT ZERO
005526  032737  100000  004146  7$:     BIT     #BIT15,T.MR2    ;CHECK PARITY BIT ON MESS A ZERO
005534  001401                          BEQ     8$              ;YES, CONTINUE
```

```
2539  005536  104122                          ERROR   122             ;PARITY ON MESS A NOT ZERO
2540  005540  032737  000017  004150  8$:     BIT     #17,T.MR3       ;CHECK MESS SELECT BITS ZERO
2541  005546  001401                          BEQ     9$              ;YES, CONTINUE
2542  005550  104123                          ERROR   123             ;MESSAGE SELECT BITS NOT ZERO
2543  005552  032737  077760  004150  9$:     BIT     #77760,T.MR3    ;CHECK CYLINDER ADDRESS BUFFER
2544  005560  001401                          BEQ     10$             ;YES, CONTINUE
2545  005562  104124                          ERROR   124             ;CYLINDER ADD BITS NOT ZERO
2546  005564  032737  100000  004150  10$:    BIT     #BIT15,T.MR3    ;CHECK PARITY BIT ON MESSAGE B
2547  005572  001401                          BEQ     TST2            ;;YES, GO ON TO NEXT TEST
2548  005574  104125                          ERROR   125             ;PARITY ON MESS. B NOT ZERO
2549
2550                                  ;;*****************************************************************
2551                                  ;*TEST 2        DRIVE SELECT BITS LOADING FOR DRIVE MESS.
2552                                  ;*
2553                                  ;*      INITIALIZE RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
2554                                  ;*      DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 2 WITH
2555                                  ;*      ZERO.  LOAD COMMAND AND STATUS REGISTER WITH A SELECT
2556                                  ;*      COMMAND.  CLOCK IN MESSAGES A AND B INTO SHIFT REGISTER.
2557                                  ;*      MAKE SURE CORRECT MESSAGES ARE LOADED.  REPEAT FOR DRIVE
2558                                  ;*      SELECT = 1-17.
2559                                  ;*
2560                                  ;;*****************************************************************
2561  005576  000004                  TST2:   SCOPE
2562  005600  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
2563  005606  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
2564  005612  005037  004244                  CLR     DRVCOD          ;INITIALIZE DRIVE SELECT CODE
2565  005616  012737  000001  004160          MOV     #SELDRV,E.CS1   ;LOAD EXPECTED CS1
2566  005624  012737  005632  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
2567                                                                  ;  SUBTEST LOOP
2568
2569  005632                          1$:
2570  005632  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
2571  005640  012762  000040  000C26          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN DIAGNOSTIC MODE
2572  005646  013762  004244  000010          MOV     DRVCOD,RKCS2(R2) ;LOAD DRIVE NUMBER
2573  005654  012762  000001  000000          MOV     #SELDRV,RKCS1(R2) ;LOAD SELECT COMMAND
2574  005662  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
2575  005666  012762  000440  000026  2$:     MOV     #DMD.MCLK,RKMR1(R2)
2576  005674  012762  000040  000026          MOV     #DMD,RKMR1(R2)
2577  005702  005300                          DEC     R0
2578  005704  001370                          BNE     2$
2579  005706  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
2580  005714  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
2581  005722  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
2582  005730  013737  004244  004206          MOV     DRVCOD,E.MR2    ;LOAD EXPECTED MAINT REG. 2
2583  005736  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
2584  005742  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
2585  005750  001405                          BEQ     3$              ;YES, CHECK MESSAGE A&B
2586  005752  104002                          ERROR   2
2587  005754  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
2588  005762  000426                          BR      25$             ;CHECK IF LOOP ON ERROR
2589
2590  005764  013737  004146  001160  3$:     MOV     T.MR2,$TMP0     ;MASK BITS NOT UNDER TEST
2591  005772  042737  177760  001160          BIC     #177760,$TMP0
2592  006000  023737  004244  001160          CMP     DRVCOD,$TMP0    ;CHECK IF DRIVE SELECT BITS CORRECT
2593  006006  001402                          BEQ     4$              ;YES, CHECK MESSAGES A&B
2594  006010  104003                          ERROR   3               ;DRIVE SELECT BITS INCORRECT
```

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2595  006012  000412                          BR      25$             ;CHECK IF LOOP ON ERROR
2596
2597  006014  023737  004206  004146  4$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
2598  006022  001401                          BEQ     5$              ;YES, CHECK MESSAGE B
2599  006024  104004                          ERROR   4               ;MESSAGE A INCORRECT
2600  006026  023737  004210  004150  5$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
2601  006034  001401                          BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
2602  006036  104005                          ERROR   5               ;MESSAGE B INCORRECT
2603  006040  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
2604  006042  005237  004244                  INC     DRVCOD          ;INCREMENT DRIVE SELECT CODE
2605  006046  022737  000017  004244          CMP     #17,DRVCOD      ;CHECK IF FINISHED
2606  006054  103266                          BHIS    1$              ;NO, TRY NEXT CONFIGURATION
2607
2608                                  ;;*****************************************************************
2609                                  ;*TEST 3        FORMAT BIT LOADING TO FOR DRIVE MESS.
2610                                  ;*
2611                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
2612                                  ;*      DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 1 WITH
2613                                  ;*      A SELECT COMMAND AND 24 SECTOR MODE FORMAT.  MAKE SURE
2614                                  ;*      CORRECT MESSAGE IS LOADED.
2615                                  ;*
2616                                  ;;*****************************************************************
2617  006056  000004                  TST3:   SCOPE
2618  006060  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
2619  006066  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
2620  006072  012737  052115  001300          MOV     #EM100,EM1N     ;LOAD ERROR MESSAGE
2621  006100  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
2622  006106  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
2623  006114  012762  010001  000000          MOV     #CFMT!SELDRV,RKCS1(R2)  ;LOAD CFMT!SELDRV INTO COMMAND AND STATUS REG.
2624  006122  012737  010001  004160          MOV     #CFMT!SELDRV,E.CS1      ;LOAD EXPECT CS1
2625  006130  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGES
2626  006134  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
2627  006142  012762  000040  000026          MOV     #DMD,RKMR1(R2)
2628  006150  005300                          DEC     R0
2629  006152  001370                          BNE     1$
2630  006154  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
2631  006162  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
2632  006170  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
2633  006176  012737  001000  004206          MOV     #S.FMT,E.MR2    ;LOAD EXPECTED MAINT REG. 2
2634  006204  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
2635  006210  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
2636  006216  001410                          BEQ     2$              ;YES, CHECK MESSAGE A&B
2637  006220  012737  057223  001302          MOV     #EM2003,EM1N+2  ;LOAD ERROR MESSAGE
2638  006226  104001                          ERROR   1
2639  006230  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT TEST
2640  006236  000431                          BR      TST4            ;;GO ON TO NEXT TEST
2641
2642  006240  032737  001000  004146  2$:     BIT     #S.FMT,T.MR2    ;CHECK IF S.FMT SET IN MESSAGE A
2643  006246  001005                          BNE     3$              ;YES, CHECK MESSAGES A&B
2644  006250  012737  057067  001302          MOV     #EM2000,EM1N+2  ;LOAD ERROR MESSAGE
2645  006256  104001                          ERROR   1
2646  006260  000420                          BR      TST4            ;;GO ON TO NEXT TEST
2647
2648  006262  023737  004206  004140  3$:     CMP     E.MR2,T.MR2     ;CHECK IF DRIVE MESSAGE A CORRECT
2649  006270  001404                          BEQ     4$              ;YES, CHECK MESSAGE B
2650  006272  012737  057145  001302          MOV     #EM2001,EM1N+2  ;LOAD ERROR MESSAGE
```

```
                                ERROR   1
006302  023737  004210  004150  4$:     CMP     E.MR3,T.MR3     ;CHECK IF DRIVE MESSAGE B CORRECT
006310  001404                          BEQ     TST4            ;;YES, GO ON TO NEXT TEST
006312  012737  057174  001302          MOV     #EM2002,EMIN+2  ;LOAD ERROR MESSAGE
006320  104001                          ERROR   1

                        ;;*************************************************************
                        ;*TEST 4        HEAD SELECT BITS LOADING FOR DRIVE MESS.
                        ;*
                        ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                        ;*      DIAGNOSTIC MODE.  LOAD TRACK ADDRESS WITH ZERO.  LOAD
                        ;*      COMMAND AND STATUS REGISTER 2 WITH ZERO.  LOAD COMMAND
                        ;*      AND STATUS REGISTER WITH SELECT COMMAND.  CLOCK IN
                        ;*      MESSAGE A AND B INTO SHIFT REGISTER.  MAKE SURE CORRECT
                        ;*      MESSAGE IS LOADED.  REPEAT FOR TRACK ADDRESS = 1-7.
                        ;*
                        ;;*************************************************************
006322  000004         TST4:   SCOPE
006324  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
006332  013702  001270          MOV     $BASE,R2        ;LOAD RK611 BASE
006336  005037  004250          CLR     HDCODE          ;CLEAR HEAD SELECT CODE
006342  012737  000001  004160          MOV     #SELDRV,E.CS1   ;LOAD EXPECTED CS1
006350  012737  006356  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                        ;  SUBTEST LOOP

006356                          1$:
006356  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
006364  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN DIAGNOSTIC MODE
006372  005046                          CLR     -(SP)           ;MAKE ROOM ON STACK
006374  113766  004250  000001          MOVB    HDCODE,1(SP)    ;LOAD HEAD ADDRESS
006402  012662  000006          MOV     (SP)+,RKDA(R2)
006406  012762  000001  000000          MOV     #SELDRV,RKCS1(R2) ;LOAD SELECT COMMAND
006414  012700  000016          MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
006420  012762  000440  000026  2$:     MOV     #DMD!MCLK,RKMR1(R2)
006426  012762  000040  000026          MOV     #DMD,RKMR1(R2)
006434  005300                          DEC     R0
006436  001370                          BNE     2$
006440  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMMAND AND STATUS REG. 1
006446  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
006454  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
006462  005037  004206          CLR     E.MR2
006466  113737  004250  004207          MOVB    HDCODE,E.MR2+1  ;GENERATE EXPECTED MAINT REG. 2
006474  006337  004206          ASL     E.MR2
006500  006337  004206          ASL     E.MR2
006504  006337  004206          ASL     E.MR2
006510  006337  004206          ASL     E.MR2
006514  005037  004210          CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
006520  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
006526  001405                          BEQ     3$              ;YES, CHECK MESSAGE A&B
006530  104006                          ERROR   6
006532  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
006540  000426                          BR      25$             ;CHECK IF LOOP ON ERROR

006542  013737  004146  001160  3$:     MOV     T.MR2,$TMP0     ;MASK BITS NOT UNDER TEST
006550  042737  103777  001160          BIC     #103777,$TMP0
006556  023737  004206  001160          CMP     E.MR2,$TMP0     ;CHECK IF HEAD SELECT BITS CORRECT
```

```
                                                        ;YES, CHECK MESSAGES A&B
                                                        ;HEAD SELECT BITS INCORRECT
                                                        ;CHECK IF LOOP ON ERROR

                                                        ;CHECK IF MESSAGE A CORRECT
                                                        ;YES, CHECK MESSAGE B
                                                        ;MESSAGE A INCORRECT
                                                        ;CHECK IF MESSAGE B CORRECT
                                                        ;YES, CHECK IF LOOP ON ERROR
                                                        ;MESSAGE B INCORRECT
                                                        ;CHECK IF LOOP ON ERROR
                                                        ;INCREMENT HEAD SELECT CODE F
                                                        ;CHECK IF FINISHED
                                                        ;NO, TRY NEXT CONFIGURATION

                                ;;*********************************************************************
                                ;*TEST 5        MESSAGE SELECT BITS LOADING FOR DRIVE MESS.
                                ;*
                                ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                                ;*      DIAGNOSTIC MODE AND ZERO IN MESSAGE SELECT BITS.  LOAD
                                ;*      COMMAND AND STATUS REGISTER 1 WITH A SELECT COMMAND.  CLOCK
                                ;*      IN MESSAGE A AND B INTO SHIFT REGISTER.   MAKE SURE
                                ;*      CORRECT MESSAGE IS LOADED.  REPEAT FOR MESSAGE SELECT = 1-17.
                                ;*
                                ;;*********************************************************************
006634  000004               TST5:  SCOPE
006636  012737  000144  001200      MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
006644  013702  001270              MOV     $BASE,R2        ;LOAD RK611 BASE
006650  005037  004246              CLR     MSGCOD          ;INITIALIZE MESSAGE SELECT
006654  012737  000001  004160      MOV     #SELDRV,E.CS1   ;LOAD EXPECTED CS1
006662  012737  006670  001110      MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                            ;  SUBTEST LOOP

006670                       1$:
006670  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
006676  013762  004246  000026          MOV     MSGCOD,RKMR1(R2) ;LOAD MESSAGE SELECT BITS
006704  052762  000040  000026          BIS     #DMD,RKMR1(R2)  ;PUT RK611 IN DIAGNOSTIC MODE
006712  012762  000001  000000          MOV     #SELDRV,RKCS1(R2) ;LOAD SELECT COMMAND
006720  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IF DRIVE MESSAGE
006724  052762  000400  000026  2$:     BIS     #MCLK,RKMR1(R2)
006732  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
006740  005300                          DEC     R0
006742  001370                          BNE     2$
006744  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
006752  016237  000026  004144          MOV     RKMR1(R2),T.MR1 ;STORE MAINTENANCE REG. 1
006760  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG. 2
006766  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
006774  013737  004246  004204          MOV     MSGCOD,E.MR1    ;LOAD EXPECTED MAINT REG. 1
007002  052737  002040  004204          BIS     #MEWD!DMD,E.MR1
007010  032737  020000  004144          BIT     #ECCW,T.MR1
007016  001403                          BEQ     10$
007020  052737  020000  004204          BIS     #ECCW,E.MR1
007026  005037  004206              10$:CLR     E.MR2           ;LOAD EXPECTED MAINT REG. 2
007032  013737  004246  004210          MOV     MSGCOD,E.MR3    ;LOAD EXPECTED MAINT REG. 3
007040  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
007046  001405                          BEQ     3$              ;YES, CHECK MAINT REG. 1
```

```
2763  007050  104012                          ERROR   12              ;CS1 INCORRECT
2764  007052  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
2765  007060  000437                          BR      25$             ;CHECK IF LOOP ON ERROR
2766
2767  007062  023737  004204  004144  3$:     CMP     E.MR1,T.MR1     ;CHECK IF MAINT REG. 1 CORRECT
2768  007070  001405                          BEQ     4$              ;YES, CHECK MESSAGE A&B
2769  007072  104013                          ERROR   13              ;MR1 INCORRECT
2770  007074  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
2771  007102  000426                          BR      25$             ;CHECK IF LOOP ON ERROR
2772
2773  007104  013737  004150  001160  4$:     MOV     T.MR3,$TMP0     ;MASK BITS NOT UNDER TEST
2774  007112  042737  177760  001160          BIC     #177760,$TMP0
2775  007120  023737  004246  001160          CMP     MSGCOD,$TMP0    ;CHECK IF MESSAGE SELECT CODE CORRECT
2776  007126  001402                          BEQ     5$              ;YES, CHECK MESSAGES A&B
2777  007130  104014                          ERROR   14              ;MESSAGE SELECT CODE INCORRECT
2778  007132  000412                          BR      25$
2779
2780  007134  023737  004206  004146  5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
2781  007142  001401                          BEQ     6$              ;YES, CHECK MESSAGE B
2782  007144  104015                          ERROR   15              ;MESSAGE A INCORRECT
2783  007146  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
2784  007154  001401                          BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
2785  007156  104016                          ERROR   16              ;MESSAGE B INCORRECT
2786  007160  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
2787  007162  005237  004246                  INC     MSGCOD          ;INCREMENT MESSAGE SELECT CODE
2788  007166  022737  000017  004246          CMP     #17,MSGCOD      ;CHECK IF FINISHED
2789  007174  103235                          BHIS    1$              ;NO, TRY NEXT CONFIGURATION
2790
2791                                          ;;*****************************************************************
2792                                          ;*TEST 6        CLEAR DRIVE COMMAND LOADING FOR DRIVE MESS
2793                                          ;*
2794                                          ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
2795                                          ;*      DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 1 WITH
2796                                          ;*      A DRIVE CLEAR.  CLOCK MESSAGE A AND B INTO SHIFT REGISTERS.
2797                                          ;*      MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY.  REPEAT
2798                                          ;*      FOR 24 SECTOR FORMAT.
2799                                          ;*
2800                                          ;;*****************************************************************
2801  007176  000004                  TST6:   SCOPE
2802  007200  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
2803  007206  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
2804  007212  012737  052203  001300          MOV     #EM101,EM1N     ;LOAD ERROR MESSAGE
2805  007220  012737  000005  004160          MOV     #CLEAR,E.CS1    ;LOAD EXPECTED COMMAND AND STATUS REG. 1
2806  007226  012737  000400  004206          MOV     #S.CLR,E.MR2    ;LOAD EXPECTED MAINT. REG. 2
2807  007234  012737  007242  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
2808                                                                  ;  SUBTEST LOOP
2809
2810  007242                          1$:
2811  007242  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
2812  007250  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
2813  007256  013762  004160  000000          MOV     E.CS1,RKCS1(R2) ;LOAD CLEAR INTO COMMAND AND STATUS REG. 1
2814  007264  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
2815  007270  012762  000440  000026  2$:     MOV     #DMD!MCLK,RKMR1(R2)
2816  007276  012762  000040  000026          MOV     #DMD,RKMR1(R2)
2817  007304  005300                          DEC     R0
2818  007306  001370                          BNE     2$
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2819  007310  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
2820  007316  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG. 2
2821  007324  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
2822  007332  005037  004210                  CLR     E.MR3           ;STORE EXPECTED MAINT REG. 3
2823  007336  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
2824  007344  001410                          BEQ     3$              ;YES, CHECK MESSAGE A&B
2825  007346  012737  057223  001302          MOV     #EM2003,EM1N+2  ;LOAD ERROR MESSAGE
2826  007354  104001                          ERROR   1
2827  007356  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
2828  007364  000437                          BR      25$             ;CHECK IF LOOP ON ERROR
2829
2830  007366  013737  004146  001160  3$:     MOV     T.MR2,$TMP0     ;MASK BITS NOT UNDER TEST
2831  007374  042737  176377  001160          BIC     #^C<S.FMT.S.CLR>,$TMP0
2832  007402  023737  004206  001160          CMP     E.MR2,$TMP0     ;CHECK IF S.CLR AND FORMAT
2833                                                                  ;  BITS IN MESSAGE CORRECT
2834  007410  001405                          BEQ     4$              ;YES, CHECK MESSAGE A&B
2835  007412  012737  057067  001302          MOV     #EM2000,EM1N+2  ;LOAD ERROR MESSAGE
2836  007420  104001                          ERROR   1
2837  007422  000420                          BR      25$             ;CHECK IF LOOP ON ERROR
2838
2839  007424  023737  004206  004146  4$:     CMP     E.MR2,T.MR2     ;CHECK IF DRIVE MESSAGE A CORRECT
2840  007432  001404                          BEQ     5$              ;YES, CHECK MESSAGE B
2841  007434  012737  057145  001302          MOV     #EM2001,EM1N+2  ;LOAD ERROR MESSAGE
2842  007442  104001                          ERROR   1
2843  007444  023737  004210  004150  5$:     CMP     E.MR3,T.MR3     ;CHECK IF DRIVE MESSAGE B CORRECT
2844  007452  001404                          BEQ     25$             ;YES, CHECK IF LOOP ON EROR
2845  007454  012737  057174  001302          MOV     #EM2002,EM1N+2  ;LOAD ERROR MESSAGE
2846  007462  104001                          ERROR   1
2847  007464  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
2848  007466  032737  010000  004160          BIT     #CFMT,E.CS1     ;CHECK IF ISSUED IN 24 SECTOR FORMAT
2849  007474  001007                          BNE     TST7            ;;YES, GO ON TO NEXT TEST
2850  007476  052737  010000  004160          BIS     #CFMT,E.CS1     ;INDICATE COMMAND IN 24 SECTOR FORMAT
2851  007504  052737  001000  004206          BIS     #S.FMT,E.MR2
2852  007512  000653                          BR      1$              ;REISSUE IN 24 SECTOR FORMAT
2853
2854                                  ;;*****************************************************************
2855                                  ;*TEST 7         UNLOAD COMMAND LOADING FOR DRIVE MESS.
2856                                  ;*
2857                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
2858                                  ;*      DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 1 WITH
2859                                  ;*      AN UNLOAD COMMAND.  CLOCK IN MESSAGES A AND B INTO SHIFT
2860                                  ;*      REGISTERS.  MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY.
2861                                  ;*      REPEAT FOR 24 SECTOR FORMAT.
2862                                  ;*
2863                                  ;;*****************************************************************
2864  007514  000004                  TST7:   SCOPE
2865  007516  012737  000144  001200          MOV     #100.,*TIMES    ;;DO 100. ITERATIONS
2866  007524  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
2867  007530  012737  052252  001300          MOV     #EM102,EM1N     ;LOAD ERROR MESSAGE
2868  007536  012737  000007  004160          MOV     #UNLOAD,E.CS1   ;LOAD EXPECTED COMMAND AND STATUS REG. 1
2869  007544  012737  002000  004206          MOV     #S.UNLD,E.MR2   ;LOAD EXPECTED MAINT. REG. 2
2870  007552  012737  007560  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
2871                                                                  ;  SUBTEST LOOP
2872
2873  007560                          1$:
2874  007560  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
```

```
2875  007566  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
2876  007574  013762  004160  000000          MOV     E.CS1,RKCS1(R2) ;LOAD UNLOAD INTO COMMAND AND STATUS REG. 1
2877  007602  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
2878  007606  012762  000440  000026  2$:     MOV     #DMD!MCLK,RKMR1(R2)
2879  007614  012762  000040  000026          MOV     #DMD,RKMR1(R2)
2880  007622  005300                          DEC     R0
2881  007624  001370                          BNE     2$
2882  007626  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
2883  007634  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG. 2
2884  007642  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
2885  007650  005037  004210                  CLR     E.MR3           ;STORE EXPECTED MAINT REG. 3
2886  007654  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
2887  007662  001410                          BEQ     3$              ;YES, CHECK MESSAGE A&B
2888  007664  012737  057223  001302          MOV     #EM2003,EM1N+2  ;LOAD ERROR MESSAGE
2889  007672  104001                          ERROR   1
2890  007674  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
2891  007702  000437                          BR      25$             ;CHECK IF LOOP ON ERROR
2892
2893  007704  013737  004146  001160  3$:     MOV     T.MR2,$TMP0     ;MASK BITS NOT UNDER TEST
2894  007712  042737  174777  001160          BIC     #^C<S.FMT!S.UNLD>,$TMP0
2895  007720  023737  004206  001160          CMP     E.MR2,$TMP0     ;CHECK IF S.UNLD AND FORMAT
2896                                                                  ;  BITS IN MESSAGE CORRECT
2897  007726  001405                          BEQ     4$              ;YES, CHECK MESSAGE A&B
2898  007730  012737  057067  001302          MOV     #EM2000,EM1N+2  ;LOAD ERROR MESSAGE
2899  007736  104001                          ERROR   1
2900  007740  000420                          BR      25$             ;CHECK IF LOOP ON ERROR
2901
2902  007742  023737  004206  004146  4$:     CMP     E.MR2,T.MR2     ;CHECK IF DRIVE MESSAGE A CORRECT
2903  007750  001404                          BEQ     5$              ;YES, CHECK MESSAGE B
2904  007752  012737  057145  001302          MOV     #EM2001,EM1N+2  ;LOAD ERROR MESSAGE
2905  007760  104001                          ERROR   1
2906  007762  023737  004210  004150  5$:     CMP     E.MR3,T.MR3     ;CHECK IF DRIVE MESSAGE B CORRECT
2907  007770  001404                          BEQ     25$             ;YES, CHECK IF LOOP ON EROR
2908  007772  012737  057174  001302          MOV     #EM2002,EM1N+2  ;LOAD ERROR MESSAGE
2909  010000  104001                          ERROR   1
2910  010002  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
2911  010004  032737  010000  004160          BIT     #CFMT,E..S1     ;CHECK IF ISSUED IN 24 SECTOR FORMAT
2912  010012  001007                          BNE     TST10           ;;YES, GO ON TO NEXT TEST
2913  010014  052737  010000  004160          BIS     #CFMT,E.CS1     ;INDICATE COMMAND IN 24 SECTOR FORMA
2914  010022  052737  001000  004206          BIS     #S.FMT,E.MR2
2915  010030  000653                          BR      1$              ;REISSUE IN 24 SECTOR FORMAT
2916
2917                                  ;;*****************************************************************
2918                                  ;*TEST 10       PACK ACKNOWLEDGE COMMAND LOADING FOR DRIVE MESS.
2919                                  ;*
2920                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
2921                                  ;*      DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 1 WITH
2922                                  ;*      A PACK ACKNOWLEDGE.  CLOCK MESSAGES A AND B INTO SHIFT
2923                                  ;*      REGISTERS.  MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY.
2924                                  ;*      REPEAT FOR 24 SECTOR FORMAT.
2925                                  ;*
2926                                  ;;*****************************************************************
2927  010032  000004                  TST10:  SCOPE
2928  010034  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
2929  010042  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
2930  010046  012737  052314  001300          MOV     #EM103,EM1N     ;LOAD ERROR MESSAGE
```

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2931  010054  012737  000003  004160          MOV     #PACK,E.CS1     ;LOAD EXPECTED COMMAND AND STATUS REG. 1
2932  010062  012737  004000  004206          MOV     #S.PACK,E.MR2   ;LOAD EXPECTED MAINT. REG. 2
2933  010070  012737  010076  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
2934                                                                  ;  SUBTEST LOOP
2935
2936  010076                          1$:
2937  010076  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
2938  010104  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
2939  010112  013762  004160  000000          MOV     E.CS1,RKCS1(R2) ;LOAD PACK INTO COMMAND AND STATUS REG. 1
2940  010120  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
2941  010124  012762  000440  000026  2$:     MOV     #DMD.MCLK,RKMR1(R2)
2942  010132  012762  000040  000026          MOV     #DMD,RKMR1(R2)
2943  010140  005300                          DEC     R0
2944  010142  001370                          BNE     2$
2945  010144  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
2946  010152  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG. 2
2947  010160  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
2948  010166  005037  004210                  CLR     E.MR3           ;STORE EXPECTED MAINT REG. 3
2949  010172  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
2950  010200  001410                          BEQ     3$              ;YES, CHECK MESSAGE A&B
2951  010202  012737  057223  001302          MOV     #EM2003,EM1N+2  ;LOAD ERROR MESSAGE
2952  010210  104001                          ERROR   1
2953  010212  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
2954  010220  000437                          BR      25$             ;CHECK IF LOOP ON ERROR
2955
2956  010222  013737  004146  001160  3$:     MOV     T.MR2,$TMP0     ;MASK BITS NOT UNDER TEST
2957  010230  042737  172777  001160          BIC     #^C<S.FMT!S.PACK>,$TMP0
2958  010236  023737  004206  001160          CMP     E.MR2,$TMP0     ;CHECK IF S.PACK AND FORMAT
2959                                                                  ;  BITS IN MESSAGE CORRECT
2960  010244  001405                          BEQ     4$              ;YES, CHECK MESSAGE A&B
2961  010246  012737  057067  001302          MOV     #EM2000,EM1N+2  ;LOAD ERROR MESSAGE
2962  010254  104001                          ERROR   1
2963  010256  000420                          BR      25$             ;CHECK IF LOOP ON ERROR
2964
2965  010260  023737  004206  004146  4$:     CMP     E.MR2,T.MR2     ;CHECK IF DRIVE MESSAGE A CORRECT
2966  010266  001404                          BEQ     5$              ;YES, CHECK MESSAGE B
2967  010270  012737  057145  001302          MOV     #EM2001,EM1N+2  ;LOAD ERROR MESSAGE
2968  010276  104001                          ERROR   1
2969  010300  023737  004210  004150  5$:     CMP     E.MR3,T.MR3     ;CHECK IF DRIVE MESSAGE B CORRECT
2970  010306  001404                          BEQ     25$             ;YES, CHECK IF LOOP ON EROR
2971  010310  012737  057174  001302          MOV     #EM2002,EM1N+2  ;LOAD ERROR MESSAGE
2972  010316  104001                          ERROR   1
2973  010320  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
2974  010322  032737  010000  004160          BIT     #CFMT,E.CS1     ;CHECK IF ISSUED IN 24 SECTOR FORMAT
2975  010330  001007                          BNE     TST11           ;;YES, GO ON TO NEXT TEST
2976  010332  052737  010000  004160          BIS     #CFMT,E.CS1     ;INDICATE COMMAND IN 24 SECTOR FORMAT
2977  010340  052737  001000  004206          BIS     #S.FMT,E.MR2
2978  010346  000653                          BR      1$              ;REISSUE IN 24 SECTOR FORMAT
2979
2980                                  ;;*****************************************************************
2981                                  ;*TEST 11       RECALIBRATE COMMAND LOADING FOR DRIVE MESS.
2982                                  ;*
2983                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
2984                                  ;*      DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 1 WITH
2985                                  ;*      A RECALIBRATE.  CLOCK MESSAGES A AND B INTO SHIFT REGISTERS.
2986                                  ;*      MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY.
```

```
                                        ;*
                                        ;;*****************************************************************
010350  000004                        TST11:  SCOPE
010352  012737  000144  001200                MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
010360  013702  001270                        MOV     $BASE,R2        ;LOAD RK611 BASE
010364  012737  052370  001300                MOV     #EM104,EM1N     ;LOAD ERROR MESSAGE
010372  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
010400  012762  000040  000026                MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
010406  012762  000013  000000                MOV     #RECAL,RKCS1(R2)        ;LOAD RECAL INTO COMMAND AND STATUS REG.  1
010414  012737  000013  004160                MOV     #RECAL,E.CS1    ;LOAD EXPECT CS1
010422  012700  000016                        MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGES
010426  012762  000440  000026        1$:     MOV     #DMD!MCLK,RKMR1(R2)
010434  012762  000040  000026                MOV     #DMD,RKMR1(R2)
010442  005300                              DEC     R0
010444  001370                              BNE     1$
010446  016237  000000  004120              MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
010454  016237  000034  004146              MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
010462  016237  000036  004150              MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
010470  012737  000040  004206              MOV     #S.RECL,E.MR2   ;LOAD EXPECTED MAINT REG. 2
010476  005037  004210                        CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
010502  023737  004160  004120              CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
010510  001410                              BEQ     2$              ;YES, CHECK MESSAGE A&B
010512  012737  057223  001302              MOV     #EM2003,EM1N+2  ;LOAD ERROR MESSAGE
010520  104001                              ERROR   1
010522  012762  100000  000000              MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT TEST
010530  000431                              BR      TST12           ;;GO ON TO NEXT TEST
                                        ;
010532  032737  000040  004146  2$:       BIT     #S.RECL,T.MR2   ;CHECK IF S.RECL SET IN MESSAGE A
010540  001005                              BNE     3$              ;YES, CHECK MESSAGES A&B
010542  012737  057067  001302              MOV     #EM2000,EM1N+2  ;LOAD ERROR MESSAGE
010550  104001                              ERROR   1
010552  000420                              BR      TST12           ;;GO ON TO NEXT TEST
                                        ;
010554  023737  004206  004146  3$:       CMP     E.MR2,T.MR2     ;CHECK IF DRIVE MESSAGE A CORRECT
010562  001404                              BEQ     4$              ;YES, CHECK MESSAGE B
010564  012737  057145  001302              MOV     #EM2001,EM1N+2  ;LOAD ERROR MESSAGE
010572  104001                              ERROR   1
010574  023737  004210  004150  4$:       CMP     E.MR3,T.MR3     ;CHECK IF DRIVE MESSAGE B CORRECT
010602  001404                              BEQ     TST12           ;;YES  GO ON TO NEXT TEST
010604  012737  057174  001302              MOV     #EM2002,EM1N+2  ;LOAD ERROR MESSAGE
010612  104001                              ERROR   1
                                        ;
                                        ;;*****************************************************************
                                        ;*TEST 12       START SPINDLE COMMAND LOADING FOR DRIVE MESS.
                                        ;*
                                        ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                                        ;*      DIAGNOSTIC MODE.  LOAD COMMAND AND STATUS REGISTER 1 WITH
                                        ;*      A START SPINDLE.  CLOCK MESSAGES A AND B INTO SHIFT REGISTERS.
                                        ;*      MAKE SURE SHIFT REGISTERS ARE LOADED CORRECTLY.
                                        ;*
                                        ;;*****************************************************************
010614  000004                        TST12:  SCOPE
010616  012737  000144  001200                MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
010624  013702  001270                        MOV     $BASE,R2        ;LOAD RK611 BASE
010630  012737  052437  001300                MOV     #EM105,EM1N     ;LOAD ERROR MESSAGE
010636  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
```

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                        START SPINDLE COMMAND LOADING FOR DRIVE MESS.                                   SEQ 0059

3043  010644  012762  000040  000026        MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
3044  010652  012762  000011  000000        MOV     #SRTSPL,RKCS1(R2)       ;LOAD SRTSPL INTO COMMAND AND STATUS REG.  1
3045  010660  012737  000011  004160        MOV     #SRTSPL,E.CS1   ;LOAD EXPECT CS1
3046  010666  012700  000016                MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGES
3047  010672  012762  000440  000026  1$:   MOV     #DMD.MCLK,RKMR1(R2)
3048  010700  012762  000040  000026        MOV     #DMD,RKMR1(R2)
3049  010706  005300                        DEC     R0
3050  010710  001370                        BNE     1$
3051  010712  016237  000000  004120        MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
3052  010720  016237  000034  004146        MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
3053  010726  016237  000036  004150        MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
3054  010734  012737  000100  004206        MOV     #S.STSP,E.MR2   ;LOAD EXPECTED MAINT REG. 2
3055  010742  005037  004210                CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
3056  010746  023737  004160  004120        CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
3057  010754  001410                        BEQ     2$              ;YES, CHECK MESSAGE A&B
3058  010756  012737  057223  001302        MOV     #EM2003,EMIN+2  ;LOAD ERROR MESSAGE
3059  010764  104001                        ERROR   1
3060  010766  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT TEST
3061  010774  000431                        BR      TST13           ;;GO ON TO NEXT TEST
3062
3063  010776  032737  000100  004146  2$:   BIT     #S.STSP,T.MR2   ;CHECK IF S.STSP SET IN MESSAGE A
3064  011004  001005                        BNE     3$              ;YES, CHECK MESSAGES A&B
3065  011006  012737  057067  001302        MOV     #EM2000,EMIN+2  ;LOAD ERROR MESSAGE
3066  011014  104001                        ERROR   1
3067  011016  000420                        BR      TST13           ;;GO ON TO NEXT TEST
3068
3069  011020  023737  004206  004146  3$:   CMP     E.MR2,T.MR2     ;CHECK IF DRIVE MESSAGE A CORRECT
3070  011026  001404                        BEQ     4$              ;YES, CHECK MESSAGE B
3071  011030  012737  057145  001302        MOV     #EM2001,EMIN+2  ;LOAD ERROR MESSAGE
3072  011036  104001                        ERROR   1
3073  011040  023737  004210  004150  4$:   CMP     E.MR3,T.MR3     ;CHECK IF DRIVE MESSAGE B CORRECT
3074  011046  001404                        BEQ     TST13           ;;YES, GO ON TO NEXT TEST
3075  011050  012737  057174  001302        MOV     #EM2002,EMIN+2  ;LOAD ERROR MESSAGE
3076  011056  104001                        ERROR   1
3077
3078                                  ;;*****************************************************************
3079                                  ;*TEST 13       SEEK AND CYLINDER ADD 0-777 LOADING FOR DRIVE MESS
3080                                  ;*
3081                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3082                                  ;*      DIAGNOSTIC MODE.  LOAD ZERO IN CYLINDER ADDRESS.  LOAD
3083                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A SEEK COMMAND.
3084                                  ;*      CLOCK IN MESSAGE A AND B INTO SHIFT REGISTER.  MAKE SURE
3085                                  ;*      CORRECT MESSAGE IS LOADED.  REPEAT FOR CYLINDER = 1-777.
3086                                  ;*
3087                                  ;;*****************************************************************
3088  011060  000004                TST13:  SCOPE
3089  011062  012737  000144  001200        MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3090  011070  013702  001270                MOV     $BASE,R2        ;LOAD RK611 BASE
3091  011074  005037  004252                CLR     CYLIN           ;INITIALIZE CYLINDER
3092  011100  012737  000017  004160        MOV     #SEEK,E.CS1     ;LOAD EXPECTED CS1
3093  011106  012737  011114  001110        MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
3094                                                                ;  SUBTEST LOOP
3095
3096  011114                         1$:
3097  011114  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3098  011122  012762  000040  000026        MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
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3099  011130  013762  004252  000020          MOV     CYLIN,RKDCYL(R2) ;LOAD CYLINDER ADDRESS
3100  011136  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
3101  011144  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
3102  011150  012762  000440  000026  2$:     MOV     #DMD!MCLK,RKMR1(R2)
3103  011156  012762  000040  000026          MOV     #DMD,RKMR1(R2)
3104  011164  005300                          DEC     R0
3105  011166  001370                          BNE     2$
3106  011170  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
3107  011176  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
3108  011204  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
3109  011212  012737  000020  004206          MOV     #S.SEEK,E.MR2   ;LOAD EXPECTED MAINT REG. 2
3110  011220  013737  004252  004210          MOV     CYLIN,E.MR3     ;GENERATE EXPECTED MAINT REG. 3
3111  011226  006337  004210                  ASL     E.MR3
3112  011232  006337  004210                  ASL     E.MR3
3113  011236  006337  004210                  ASL     E.MR3
3114  011242  006337  004210                  ASL     E.MR3
3115  011246  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
3116  011254  001405                          BEQ     3$              ;YES, CHECK MESSAGE A&B
3117  011256  104017                          ERROR   17
3118  011260  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
3119  011266  000434                          BR      25$             ;CHECK IF LOOP ON ERROR
3120
3121  011270  032737  000020  004146  3$:     BIT     #S.SEEK,T.MR2   ;CHECK IF SEEK COMMAND BIT SET
3122  011276  001002                          BNE     4$              ;YES, CHECK CYLINDER ADDRESS BITS
3123  011300  104020                          ERROR   20              ;SEEK BIT NOT SET
3124  011302  000426                          BR      25$             ;CHECK IF LOOP ON ERROR
3125
3126  011304  013737  004150  001160  4$:     MOV     T.MR3,$TMP0     ;MASK BITS NOT UNDER TEST
3127  011312  042737  140017  001160          BIC     #140017,$TMP0
3128  011320  023737  004210  001160          CMP     E.MR3,$TMP0     ;CHECK IF CYLINDER ADDRESS BITS CORRECT
3129  011326  001402                          BEQ     5$              ;YES, CHECK MESSAGES A&B
3130  011330  104021                          ERROR   21              ;CYLINDER ADDRESS BITS INCORRECT
3131  011332  000412                          BR      25$             ;CHECK IF LOOP ON ERROR
3132
3133  011334  023737  004206  004146  5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSSAGE A CORRECT
3134  011342  001401                          BEQ     6$              ;YES, CHECK MESSAGE B
3135  011344  104022                          ERROR   22              ;MESSAGE A INCORRECT
3136  011346  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
```

```
 3137  011354  001401                          BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
 3138  011356  104023                          ERROR   23              ;MESSAGE B INCORRECT
 3139  011360  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 3140  011362  005237  004252                  INC     CYLIN           ;INCREMENT CYLINDER NUMBER
 3141  011366  022737  000777  004252          CMP     #777,CYLIN      ;CHECK IF FINISHED
 3142  011374  103247                          BHIS    1$              ;NO, TRY NEXT CONFIGURATION
 3143
 3144                                  ;;*****************************************************************
 3145                                  ;*TEST 14       SEEK AND CYLINDER BIT 9 AND RK06 FOR DRIVE MESS.
 3146                                  ;*
 3147                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
 3148                                  ;*      DIAGNOSTIC MODE.  LOAD 1000 IN CYLINDER ADDRESS.  LOAD
 3149                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A SEEK COMMAND.
 3150                                  ;*      CLOCK IN MESSAGE A AND B INTO SHIFT REGISTERS.  MAKE
 3151                                  ;*      SURE CYLINDER BIT 9 IN MESSAGE IN RESET.  REPEAT FOR
 3152                                  ;*      CYLINDER = 1400.
 3153                                  ;*
 3154                                  ;;*****************************************************************
 3155  011376  000004                  TST14:  SCOPE
 3156  011400  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 3157  011406  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 3158  011412  012737  001000  004252          MOV     #1000,CYLIN     ;INITIALIZE CYLINDER
 3159  011420  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED
 3160  011424  012737  000017  004160          MOV     #SEEK,E.CS1     ;LOAD EXPECTED CS1
 3161  011432  012737  011440  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
 3162                                                                  ;  SUBTEST LOOP
 3163
 3164  011440                          1$:
 3165  011440  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
 3166  011446  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
 3167  011454  013762  004252  000020          MOV     CYLIN,RKDCYL(R2) ;LOAD CYLINDER ADDRESS
 3168  011462  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
 3169  011470  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
 3170  011474  012762  000440  000026  2$:     MOV     #DMD!MCLK,RKMR1(R2)
 3171  011502  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 3172  011510  005300                          DEC     R0
 3173  011512  001370                          BNE     2$
 3174  011514  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
 3175  011522  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG.2
 3176  011530  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG.3
 3177  011536  012737  000020  004206          MOV     #S.SEEK,E.MR2   ;LOAD EXPECTED MAINT REG. 2
 3178  011544  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
 3179  011552  001405                          BEQ     3$                      ;YES, CHECK MESSAGE A&B
 3180  011554  104017                          ERROR   17
 3181  011556  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
 3182  011564  000434                          BR      25$             ;CHECK IF LOOP ON ERROR
 3183
 3184  011566  032737  000020  004146  3$:     BIT     #S.SEEK,T.MR2   ;CHECK IF SEEK COMMAND BIT SEEK
 3185  011574  001002                          BNE     4$              ;YES, CHECK CYLINDER ADDRESS BITS
 3186  011576  104020                          ERROR   20              ;SEEK BIT NOT SET
 3187  011600  000426                          BR      25$             ;CHECK IF LOOP ON ERROR
 3188
 3189  011602  013737  004150  001160  4$:     MOV     T.MR3,$TMP0     ;MASK BITS NOT UNDER TEST
 3190  011610  042737  140017  001160          BIC     #140017,$TMP0
 3191  011616  023737  004210  001160          CMP     E.MR3,$TMP0     ;CHECK IF CYLINDER ADDRESS BITS CORRECT
 3192  011624  001402                          BEQ     5$              ;YES, CHECK MESSAGES A&B
```

```
                                        ERROR   21              ;CYLINDER ADDRESS BITS INCORRECT
                                        BR      25$             ;CHECK IF LOOP ON ERROR

                                5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
                                        BEQ     6$              ;YES, CHECK MESSAGE B
                                        ERROR   22              ;MESSAGE B INCOPRECT
                                6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE IS CORRECT
                                        BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
                                        ERROR   23              ;MESSAGE INCORRECT
                                25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
                                        CMP     #1400,CYLIN     ;CHECK IF CYLINDER 1400
                                        BEQ     TST15           ;;YES, GO ON TO NEXT TEST
                                        MOV     #1400,CYLIN     ;SET CYLINDER=1400
                                        MOV     #10000,E.MR3    ;LOAD EXPECTED CONFIGUR
                                        BR      1$              ;TRY NEXT CONFIGURATION

                        ;;*****************************************************************
                        ;*TEST 15       SEEK AND CYLINDER ADD 0,777-1777 LOADING FOR DRIVE MESS
                        ;*
                        ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                        ;*      DIAGNOSTIC MODE.  LOAD 0 IN CYLINDER ADDRESS.  LOAD
                        ;*      COMMAND AND STATUS REGISTER 1 WITH SEEK COMMAND AND
                        ;*      CDT SET.  CLOCK IN MESSAGE A AND B INTO SHIFT REGISTER.
                        ;*      MAKE SURE CYLINDER CORRECT.  REPEAT FOR CYLINDER = 777-1777.
                        ;*
                        ;;*****************************************************************
                TST15:  SCOPE
                        MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
                        MOV     $BASE,R2        ;LOAD RK611 BASE
                        CLR     CYLIN           ;INITIALIZE CYLINDER
                        MOV     #CDT!SEEK,E.CS1 ;LOAD EXPECTED CS1
                        MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                ;  SUBTEST LOOP

                1$:
                        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
                        MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
                        MOV     CYLIN,RKDCYL(R2) ;LOAD CYLINDER ADDRESS
                        MOV     #CDT!SEEK,RKCS1(R2) ;ISSUE SEEK WITH CDT SET
                        MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
                2$:     MOV     #DMD!MCLK,RKMR1(R2)
                        MOV     #DMD,RKMR1(R2)
                        DEC     R0
                        BNE     2$
                        MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
                        MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
                        MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
                        MOV     #S.SEEK,E.MR2   ;LOAD EXPECTED MAINT REG. 2
                        MOV     CYLIN,E.MR3     ;GENERATE EXPECTED MAINT REG. 3
                        ASL     E.MR3
                        ASL     E.MR3
                        ASL     E.MR3
                        ASL     E.MR3
                        CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
                        BEQ     3$              ;YES, CHECK MESSAGE A&B
                        ERROR   24
```

```
3249  012106  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGRURATION
3250  012114  000434                          BR      25$             ;CHECK IF LOOP ON ERROR
3251
3252  012116  032737  000020  004146  3$:     BIT     #S.SEEK,T.MR2   ;CHECK IF SEEK COMMAND BIT SET
3253  012124  001002                          BNE     4$              ;YES, CHECK CYLINDER ADDRESS BITS
3254  012126  104025                          ERROR   25              ;SEEK BIT NOT SEEK
3255  012130  000426                          BR      25$             ;CHECK IF LOOP ON ERROR
3256
3257  012132  013737  004150  001160  4$:     MOV     T.MR3,$TMP0     ;MASK BITS NOT UNDER TEST
3258  012140  042737  140017  001160          BIC     #140017,$TMP0
3259  012146  023737  004210  001160          CMP     E.MR3,$TMP0     ;CHECK IF CYLINDER ADDRESS BITS CORRECT
3260  012154  001402                          BEQ     5$              ;YES, CHECK MESSAGES A&B
3261  012156  104026                          ERROR   26              ;CYLINDER ADDRESS BIT INCORRECT
3262  012160  000412                          BR      25$             ;CHECK IF LOOP ON ERROR
3263
3264  012162  023737  004206  004146  5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
3265  012170  001401                          BEQ     6$              ;YES, CHECK M MESSAGE B
3266  012172  104027                          ERROR   27
3267  012174  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B
3268  012202  001401                          BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
3269  012204  104030                          ERROR   30              ;MESSAGE B INCORRECT
3270  012206  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
3271  012210  005737  004252                  TST     CYLIN           ;CHECK IF ZERO
3272  012214  001003                          BNE     26$             ;NO, INCREMENT CYLINDER
3273  012216  012737  000776  004252          MOV     #776,CYLIN      ;NEXT CYLINDER=777
3274  012224  005237  004252          26$:    INC     CYLIN           ;INCREMENT CYLINDER NUMBER
3275  012230  022737  001777  004252          CMP     #1777,CYLIN     ;CHECK IF FINISHED
3276  012236  103241                          BHIS    1$              ;NO, TRY NEXT CONFIGURATION
3277
3278                                          ;;*****************************************************************
3279                                          ;*TEST 16       OFFSET COMMAND LOADING FOR DRIVE MESS.
3280                                          ;*
3281                                          ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3282                                          ;*      DIAGNOSTIC MODE.  LOAD OFFSET REGISTER WITH 0.  LOAD
3283                                          ;*      COMMAND AND STATUS REGISTER 1 WITH AN OFFSET.  CLOCK
3284                                          ;*      MESSAGES A AND B INTO SHIFT REGISTERS.  MAKE SURE SHIFT
3285                                          ;*      REGISTERS ARE LOADED CORRECTLY.  REPEAT FOR OFFSET
3286                                          ;*      REGISTER = 1-377.
3287                                          ;*
3288                                          ;;*****************************************************************
3289  012240  000004                  TST16:  SCOPE
3290  012242  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3291  012250  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
3292  012254  005037  004254                  CLR     OFFVAL          ;INITIALIZE OFFSET VALUE
3293  012260  012737  000015  004160          MOV     #OFFSET,E.CS1   ;LOAD EXPECTED CS1
3294  012266  005037  004206                  CLR     E.MR2           ;LOAD EXPECT MAINT REG 2
3295  012272  012737  012300  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
3296                                                                  ;  SUBTEST LOOP
3297
3298  012300                          1$:
3299  012300  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3300  012306  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
3301  012314  013762  004254  000016          MOV     OFFVAL,RKASOF(R2);LOAD OFFSET VALUE
3302  012322  012762  000015  000000          MOV     #OFFSET,RKCS1(R2);ISSUE OFFSET
3303  012330  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
3304  012334  012762  000440  000026  2$:     MOV     #DMD.MCLK,RKMR1(R2)
```

```
 3305  012342  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 3306  012350  005300                          DEC     R0
 3307  012352  001370                          BNE     2$
 3308  012354  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
 3309  012362  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
 3310  012370  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
 3311  012376  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 2
 3312  012402  013737  004254  004210          MOV     OFFVAL,E.MR3    ;GENERATE EXPECTED MR3
 3313  012410  005137  004210                  COM     E.MR3
 3314  012414  042737  177700  004210          BIC     #177700,E.MR3
 3315  012422  006337  004210                  ASL     E.MR3
 3316  012426  006337  004210                  ASL     E.MR3
 3317  012432  006337  004210                  ASL     E.MR3
 3318  012436  006337  004210                  ASL     E.MR3
 3319  012442  052737  014000  004210          BIS     #14000,E.MR3
 3320  012450  032737  000200  004254          BIT     #BIT7,OFFVAL    ;DETERMINE SIGN
 3321  012456  001003                          BNE     10$
 3322  012460  052737  002000  004210          BIS     #BIT10,E.MR3
 3323  012466  023737  004160  004120  10$:    CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
 3324  012474  001405                          BEQ     4$              ;YES, CHECK MESSAGE A&B
 3325  012476  104031                          ERROR   31
 3326  012500  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAN UP FOR NEXT CONFIGURATION
 3327  012506  000426                          BR      25$             ;CHECK IF LOOP ON ERROR
 3328
 3329  012510  013737  004150  001160  4$:     MOV     T.MR3,$TMP0     ;MASK BITS NOT UNDER TEST
 3330  012516  042737  140017  001160          BIC     #140017,$TMP0
 3331  012524  023737  004210  001160          CMP     E.MR3,$TMP0     ;CHECK IF OFFSET VALUE CORRECT
 3332  012532  001402                          BEQ     5$              ;YES, CHECK MESSAGES A&B
 3333  012534  104032                          ERROR   32              ;OFFSET VALUE INCORRECT
 3334  012536  000412                          BR      25$             ;CHECK IF LOOP ON ERROR
 3335
 3336  012540  023737  004206  004146  5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
 3337  012546  001401                          BEQ     6$              ;YES, CHECK MESSAGE B
 3338  012550  104033                          ERROR   33              ;MESSAGE A INCORRECT
 3339  012552  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
 3340  012560  001401                          BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
 3341  012562  104034                          ERROR   34              ;MESSAGE B INCORRECT
 3342  012564  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 3343  012566  005237  004254                  INC     OFFVAL          ;INCREMENT OFFSET VALUE
 3344  012572  022737  000377  004254          CMP     #377,OFFVAL     ;CHECK IF FINISHED
 3345  012600  103237                          BHIS    1$              ;NO, TRY NEXT CONFIGURATION
 3346
 3347                                  ;;*****************************************************************
 3348                                  ;*TEST 17       CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 1)
 3349                                  ;*
 3350                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
 3351                                  ;*      DIAGNOSTIC MODE.  LOAD CYLINDER ADDRESS REGISTER
 3352                                  ;*      WITH 777.  LOAD THE OFFSET REG TO 52.  LOAD COMMAND
 3353                                  ;*      AND STATUS REGISTER 1 WITH A SELECT.  CLOCK
 3354                                  ;*      MESSAGES A AND B INTO SHIFT REGISTERS.  MAKE SURE
 3355                                  ;*      SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
 3356                                  ;*      ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.
 3357                                  ;*
 3358                                  ;;*****************************************************************
 3359  012602  000004                  ST17:   SCOPE
 3360  012604  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
```

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3361  012612  013702  001270                    MOV     $BASE,R2          ;LOAD RK611 BASE
3362  012616  012737  001777  004252            MOV     #1777,CYLIN       ;LOAD CYLINDER VALUE
3363  012624  012737  000052  004254            MOV     #52,OFFVAL        ;LOAD OFFSET VALUE
3364  012632  012737  000001  004160            MOV     #SELDRV,E.CS1     ;LOAD EXPECTED CS1
3365  012640  012762  100000  000000            MOV     #CCLR,RKCS1(R2)   ;CLEAR RK611
3366  012646  012762  000040  000026            MOV     #DMD,RKMR1(R2)    ;PUT RK611 IN MAINTENANCE MODE
3367  012654  012762  001777  000020            MOV     #1777,RKDCYL(R2)  ;LOAD CYLINDER VALUE
3368  012662  012762  000052  000016            MOV     #52,RKASOF(R2)    ;LOAD OFFSET VALUE
3369  012670  012762  000001  000000            MOV     #SELDRV,RKCS1(R2) ;ISSUE SELDRV
3370  012676  012700  000016                    MOV     #3*4+2,R0         ;CLOCK IN DRIVE MESSAGE
3371  012702  012762  000440  000026  1$:       MOV     #DMD!MCLK,RKMR1(R2)
3372  012710  012762  000040  000026            MOV     #DMD,RKMR1(R2)
3373  012716  005300                            DEC     R0
3374  012720  001370                            BNE     1$
3375  012722  016237  000000  004120            MOV     RKCS1(R2),T.CS1   ;STORE COMMAND AND STATUS REG. 1
3376  012730  016237  000034  004146            MOV     RKMR2(R2),T.MR2   ;STORE MAINT REG. 2
3377  012736  016237  000036  004150            MOV     RKMR3(R2),T.MR3   ;STORE MAINT REG. 3
3378  012744  012737  000000  004206            MOV     #0,E.MR2          ;LOAD EXPECTED MAINT REG. 2
3379  012752  005037  004210                    CLR     E.MR3             ;LOAD EXPECTED MAINTENANCE REG. 3
3380  012756  023737  004160  004120            CMP     E.CS1,T.CS1       ;CHECK IF CS1 CORRECT
3381  012764  001405                            BEQ     2$                ;YES, CHECK MESSAGES A&B
3382  012766  104035                            ERROR   35
3383  012770  012762  100000  000000            MOV     #CCLR,RKCS1(R2)   ;CLEAR CONTROLLER FOR NEXT TEST
3384  012776  000423                            BR      TST20             ;;GO ON TO NEXT TEST
3385
3386  013000                          2$:
3387  013000  013737  004150  001160            MOV     T.MR3,$TMP0       ;MASK OUT BITS NOT UNDER TEST
3388  013006  042737  140017  001160            BIC     #140017,$TMP0
3389  013014  001402                            BEQ     4$                ;CHECK IF CYLINDER ADDRESS ZERO
3390  013016  104037                            ERROR   37                ;CYLINDER ADDRESS BITS INCORRECT
3391  013020  000412                            BR      TST20             ;;GO ON TO NEXT TEST
3392
3393  013022  023737  004206  004146  4$:       CMP     E.MR2,T.MR2       ;CHECK IF MESSAGE A CORRECT
3394  013030  001401                            BEQ     5$                ;YES, CHECK MESSAGE B
3395  013032  104040                            ERROR   40                ;MESS A INCORRECT
3396  013034  023737  004210  004150  5$:       CMP     E.MR3,T.MR3       ;CHECK IF MESSAGE B CORRECT
3397  013042  001401                            BEQ     TST20             ;;YES, GO ON TO NEXT TEST
3398  013044  104041                            ERROR   41                ;MESS B INCORRECT
3399
3400                                  ;;*****************************************************************
3401                                  ;*TEST 20       CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 2)
3402                                  ;*
3403                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3404                                  ;*      DIAGNOSTIC MODE.  LOAD CYLINDER ADDRESS REGISTER
3405                                  ;*      WITH 777.  LOAD THE OFFSET REG TO 52.  LOAD COMMAND
3406                                  ;*      AND STATUS REGISTER 1 WITH A PACK ACKNOWLEDGE.  CLOCK
3407                                  ;*      MESSAGES A AND B INTO SHIFT REGISTERS.  MAKE SURE
3408                                  ;*      SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
3409                                  ;*      ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.
3410                                  ;*
3411                                  ;*****************************************************************
3412  013046  000004                  TST20:  SCOPE
3413  013050  012737  000144  001200            MOV     #100.,$TIMES      ;;DO 100. ITERATIONS
3414  013056  013702  001270                    MOV     $BASE,R2          ;LOAD RK611 BASE
3415  013062  012737  001777  004252            MOV     #1777,CYLIN       ;LOAD CYLINDER VALUE
3416  013070  012737  000052  004254            MOV     #52,OFFVAL        ;LOAD OFFSET VALUE
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```
3417  013076  012737  000003  004160          MOV     #PACK,E.CS1     ;LOAD EXPECTED CS1
3418  013104  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3419  013112  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
3420  013120  012762  001777  000020          MOV     #1777,RKDCYL(R2) ;LOAD CYLINDER VALUE
3421  013126  012762  000052  000016          MOV     #52,RKASOF(R2) ;LOAD OFFSET VALUE
3422  013134  012762  000003  000000          MOV     #PACK,RKCS1(R2) ;ISSUE PACK
3423  013142  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
3424  013146  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
3425  013154  012762  000040  000026          MOV     #DMD,RKMR1(R2)
3426  013162  005300                          DEC     R0
3427  013164  001370                          BNE     1$
3428  013166  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REC. 1
3429  013174  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
3430  013202  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
3431  013210  012737  004000  004206          MOV     #S.PACK,E.MR2   ;LOAD EXPECTED MAINT REG. 2
3432  013216  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINTENANCE REG. 3
3433  013222  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
3434  013230  001405                          BEQ     2$              ;YES, CHECK MESSAGES A&B
3435  013232  104035                          ERROR   35
3436  013234  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR CONTROLLER FOR NEXT TEST
3437  013242  000431                          BR      TST21           ;;GO ON TO NEXT TEST
3438
3439  013244                          2$:
3440  013244  032737  004000  004146          BIT     #S.PACK,T.MR2   ;CHECK IF PACK COMMAND
3441                                                                  ;  BIT SET
3442  013252  001002                          BNE     3$              ;YES, CHECK CYLINDER ADDRESS BITS
3443  013254  104036                          ERROR   36               ;S.PACK BIT NOT SET
3444  013256  000423                          BR      TST21           ;;GO ON TO NEXT TEST
3445
3446  013260                          3$:
3447  013260  013737  004150  001160          MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
3448  013266  042737  140017  001160          BIC     #140017,$TMP0
3449  013274  001402                          BEQ     4$              ;CHECK IF CYLINDER ADDRESS ZERO
3450  013276  104037                          ERROR   37              ;CYLINDER ADDRESS BITS INCORRECT
3451  013300  000412                          BR      TST21           ;;GO ON TO NEXT TEST
3452
3453  013302  023737  004206  004146  4$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
3454  013310  001401                          BEQ     5$              ;YES, CHECK MESSAGE B
3455  013312  104040                          ERROR   40              ;MESS A INCORRECT
3456  013314  023737  004210  004150  5$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
3457  013322  001401                          BEQ     TST21           ;;YES, GO ON TO NEXT TEST
3458  013324  104041                          ERROR   41              ;MESS B INCORRECT
3459
3460                                  ;;*****************************************************************
3461                                  ;*TEST 21       CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 3)
3462                                  ;*
3463                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3464                                  ;*      DIAGNOSTIC MODE.  LOAD CYLINDER ADDRESS REGISTER
3465                                  ;*      WITH 777.  LOAD THE OFFSET REG TO 52.  LOAD COMMAND
3466                                  ;*      AND STATUS REGISTER 1 WITH A CLEAR DRIVE.  CLOCK
3467                                  ;*      MESSAGES A AND B INTO SHIFT REGISTERS.  MAKE SURE
3468                                  ;*      SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
3469                                  ;*      ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.
3470                                  ;*
3471                                  ;;*****************************************************************
3472  013326  000004                  TST21:  SCOPE
```

```
3473  013330  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3474  013336  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
3475  013342  012737  001777  004252          MOV     #1777,CYLIN     ;LOAD CYLINDER VALUE
3476  013350  012737  000052  004254          MOV     #52,OFFVAL      ;LOAD OFFSET VALUE
3477  013356  012737  000005  004160          MOV     #CLEAR,E.CS1    ;LOAD EXPECTED CS1
3478  013364  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3479  013372  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
3480  013400  012762  001777  000020          MOV     #1777,RKDCYL(R2) ;LOAD CYLINDER VALUE
3481  013406  012762  000052  000016          MOV     #52,RKASOF(R2) ;LOAD OFFSET VALUE
3482  013414  012762  000005  000000          MOV     #CLEAR,RKCS1(R2) ;ISSUE CLEAR
3483  013422  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
3484  013426  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
3485  013434  012762  000040  000026          MOV     #DMD,RKMR1(R2)
3486  013442  005300                          DEC     R0
3487  013444  001370                          BNE     1$
3488  013446  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
3489  013454  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
3490  013462  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
3491  013470  012737  000400  004206          MOV     #S.CLR,E.MR2    ;LOAD EXPECTED MAINT REG. 2
3492  013476  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINTENANCE REG. 3
3493  013502  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
3494  013510  001405                          BEQ     2$              ;YES, CHECK MESSAGES A&B
3495  013512  104035                          ERROR   35
3496  013514  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR CONTROLLER FOR NEXT TEST
3497  013522  000431                          BR      TST22           ;;GO ON TO NEXT TEST
3498
3499  013524                          2$:
3500  013524  032737  000400  004146          BIT     #S.CLR,T.MR2    ;CHECK IF CLEAR COMMAND
3501                                                                  ;  BIT SET
3502  013532  001002                          BNE     3$              ;YES, CHECK CYLINDER ADDRESS BITS
3503  013534  104036                          ERROR   36              ;S.CLR BIT NOT SET
3504  013536  000423                          BR      TST22           ;;GO ON TO NEXT TEST
3505
3506  013540                          3$:
3507  013540  013737  004150  001160          MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
3508  013546  042737  140017  001160          BIC     #140017,$TMP0
3509  013554  001402                          BEQ     4$              ;CHECK IF CYLINDER ADDRESS ZERO
3510  013556  104037                          ERROR   37              ;CYLINDER ADDRESS BITS INCORRECT
3511  013560  000412                          BR      TST22           ;;GO ON TO NEXT TEST
3512
3513  013562  023737  004206  004146  4$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
3514  013570  001401                          BEQ     5$              ;YES, CHECK MESSAGE B
3515  013572  104040                          ERROR   40              ;MESS A INCORRECT
3516  013574  023737  004210  004150  5$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
3517  013602  001401                          BEQ     TST22           ;;YES, GO ON TO NEXT TEST
3518  013604  104041                          ERROR   41              ;MESS B INCORRECT
3519
3520                                  ;;*****************************************************************
3521                                  ;*TEST 22       CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 4)
3522                                  ;*
3523                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3524                                  ;*      DIAGNOSTIC MODE.  LOAD CYLINDER ADDRESS REGISTER
3525                                  ;*      WITH 777.  LOAD THE OFFSET REG TO 52.  LOAD COMMAND
3526                                  ;*      AND STATUS REGISTER 1 WITH AN UNLOAD.  CLOCK
3527                                  ;*      MESSAGES A AND B INTO SHIFT REGISTERS.  MAKE SURE
3528                                  ;*      SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
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                                        ;*      ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.
                                        ;*
                                        ;;*****************************************************************
013606  000004                        TST22:  SCOPE
013610  012737  000144  001200                MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
013616  013702  001270                        MOV     $BASE,R2        ;LOAD RK611 BASE
013622  012737  001777  004252                MOV     #1777,CYLIN     ;LOAD CYLINDER VALUE
013630  012737  000052  004254                MOV     #52,OFFVAL      ;LOAD OFFSET VALUE
013636  012737  000007  004160                MOV     #UNLOAD,E.CS1   ;LOAD EXPECTED CS1
013644  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
013652  012762  000040  000026                MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
013660  012762  001777  000020                MOV     #1777,RKDCYL(R2) ;LOAD CYLINDER VALUE
013666  012762  000052  000016                MOV     #52,RKASOF(R2) ;LOAD OFFSET VALUE
013674  012762  000007  000000                MOV     #UNLOAD,RKCS1(R2) ;ISSUE UNLOAD
013702  012700  000016                        MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
013706  012762  000440  000026        1$:     MOV     #DMD.MCLK,RKMR1(R2)
013714  012762  000040  000026                MOV     #DMD,RKMR1(R2)
013722  005300                              DEC     R0
013724  001370                              BNE     1$
013726  016237  000000  004120              MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
013734  016237  000034  004146              MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
013742  016237  000036  004150              MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
013750  012737  002000  004206              MOV     #S.UNLD,E.MR2   ;LOAD EXPECTED MAINT REG. 2
013756  005037  004210                      CLR     E.MR3           ;LOAD EXPECTED MAINTENANCE REG. 3
013762  023737  004160  004120              CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
013770  001405                              BEQ     2$              ;YES, CHECK MESSAGES A&B
013772  104035                              ERROR   35
013774  012762  100000  000000              MOV     #CCLR,RKCS1(R2) ;CLEAR CONTROLLER FOR NEXT TEST
014002  000431                              BR      TST23           ;;GO ON TO NEXT TEST
                                        
014004                                  2$:
014004  032737  002000  004146              BIT     #S.UNLD,T.MR2   ;CHECK IF UNLOAD COMMAND
                                                                    ;  BIT SET
014012  001002                              BNE     3$              ;YES, CHECK CYLINDER ADDRESS BITS
014014  104036                              ERROR   36               ;S.UNLD BIT NOT SET
014016  000423                              BR      TST23           ;;GO ON TO NEXT TEST
                                        
014020                                  3$:
014020  013737  004150  001160              MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
014026  042737  140017  001160              BIC     #140017,$TMP0
014034  001402                              BEQ     4$              ;CHECK IF CYLINDER ADDRESS ZERO
014036  104037                              ERROR   37              ;CYLINDER ADDRESS BITS INCORRECT
014040  000412                              BR      TST23           ;;GO ON TO NEXT TEST
                                        
014042  023737  004206  004146        4$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
014050  001401                              BEQ     5$              ;YES, CHECK MESSAGE B
014052  104040                              ERROR   40              ;MESS A INCORRECT
014054  023737  004210  004150        5$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
014062  001401                              BEQ     TST23           ;;YES, GO ON TO NEXT TEST
014064  104041                              ERROR   41              ;MESS B INCORRECT
                                        
                                        ;;*****************************************************************
                                        ;*TEST 23       CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 5)
                                        ;*
                                        ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                                        ;*      DIAGNOSTIC MODE.  LOAD CYLINDER ADDRESS REGISTER
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                                        ;*      WITH 777.  LOAD THE OFFSET REG TO 52.  LOAD COMMAND
                                        ;*      AND STATUS REGISTER 1 WITH A START SPINDLE.  CLOCK
                                        ;*      MESSAGES A AND B INTO SHIFT REGISTERS.  MAKE SURE
                                        ;*      SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
                                        ;*      ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.
                                        ;*
                                        ;;*****************************************************************
014066  000004                        TST23:  SCOPE
014070  012737  000144  001200                MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
014076  013702  001270                        MOV     $BASE,R2        ;LOAD RK611 BASE
014102  012737  001777  004252                MOV     #1777,CYLIN     ;LOAD CYLINDER VALUE
014110  012737  000052  004254                MOV     #52,OFFVAL      ;LOAD OFFSET VALUE
014116  012737  000011  004160                MOV     #SRTSPL,E.CS1   ;LOAD EXPECTED CS1
014124  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
014132  012762  000040  000026                MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
014140  012762  001777  000020                MOV     #1777,RKDCYL(R2) ;LOAD CYLINDER VALUE
014146  012762  000052  000016                MOV     #52,RKASOF(R2) ;LOAD OFFSET VALUE
014154  012762  000011  000000                MOV     #SRTSPL,RKCS1(R2) ;ISSUE SRTSPL
014162  012700  000016                        MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
014166  012762  000440  000026        1$:     MOV     #DMD!MCLK,RKMR1(R2)
014174  012762  000040  000026                MOV     #DMD,RKMR1(R2)
014202  005300                                DEC     R0
014204  001370                                BNE     1$
014206  016237  000000  004120                MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
014214  016237  000034  004146                MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
014222  016237  000036  004150                MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
014230  012737  000100  004206                MOV     #S.STSP,E.MR2   ;LOAD EXPECTED MAINT REG. 2
014236  005037  004210                        CLR     E.MR3           ;LOAD EXPECTED MAINTENANCE REG. 3
014242  023737  004160  004120                CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
014250  001405                                BEQ     2$              ;YES, CHECK MESSAGES A&B
014252  104035                                ERROR   35
014254  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR CONTROLLER FOR NEXT TEST
014262  000431                                BR      TST24           ;;GO ON TO NEXT TEST
                                        
014264                                  2$:
014264  032737  000100  004146                BIT     #S.STSP,T.MR2   ;CHECK IF SRTSPL COMMAND
                                                                        ;  BIT SET
014272  001002                                BNE     3$              ;YES, CHECK CYLINDER ADDRESS BITS
014274  104036                                ERROR   36               ;S.STSP BIT NOT SET
014276  000423                                BR      TST24           ;;GO ON TO NEXT TEST
                                        
014300                                  3$:
014300  013737  004150  001160                MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
014306  042737  140017  001160                BIC     #140017,$TMP0
014314  001402                                BEQ     4$              ;CHECK IF CYLINDER ADDRESS ZERO
014316  104037                                ERROR   37              ;CYLINDER ADDRESS BITS INCORRECT
014320  000412                                BR      TST24           ;;GO ON TO NEXT TEST
                                        
014322  023737  004206  004146        4$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
014330  001401                                BEQ     5$              ;YES, CHECK MESSAGE B
014332  104040                                ERROR   40              ;MESS A INCORRECT
014334  023737  004210  004150        5$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
014342  001401                                BEQ     TST24           ;;YES, GO ON TO NEXT TEST
014344  104041                                ERROR   41              ;MESS B INCORRECT
                                        
                                        ;;*****************************************************************
```

```
                                        ;*TEST 24       CYLINDER ADDRESS LOADING OF DRIVE MESS (PART 6)
                                        ;*
                                        ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                                        ;*      DIAGNOSTIC MODE.  LOAD CYLINDER ADDRESS REGISTER
                                        ;*      WITH 777.  LOAD THE OFFSET REG TO 52.  LOAD COMMAND
                                        ;*      AND STATUS REGISTER 1 WITH A RECALIBRATE.  CLOCK
                                        ;*      MESSAGES A AND B INTO SHIFT REGISTERS.  MAKE SURE
                                        ;*      SHIFT REGISTERS ARE LOADED CORRECTLY AND THE CYLINDER
                                        ;*      ADDRESS FIELD IS ZERO IN DRIVE MESSAGE.
                                        ;*
                                        ;;*****************************************************************
014346  000004                        TST24:  SCOPE
014350  012737  000144  001200                MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
014356  013702  001270                        MOV     $BASE,R2        ;LOAD RK611 BASE
014362  012737  001777  004252                MOV     #1777,CYLIN     ;LOAD CYLINDER VALUE
014370  012737  000052  004254                MOV     #52,OFFVAL      ;LOAD OFFSET VALUE
014376  012737  000013  004160                MOV     #RECAL,E.CS1    ;LOAD EXPECTED CS1
014404  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
014412  012762  000040  000026                MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
014420  012762  001777  000020                MOV     #1777,RKDCYL(R2) ;LOAD CYLINDER VALUE
014426  012762  000052  000016                MOV     #52,RKASOF(R2) ;LOAD OFFSET VALUE
014434  012762  000013  000000                MOV     #RECAL,RKCS1(R2) ;ISSUE RECAL
014442  012700  000016                        MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
014446  012762  000440  000026        1$:     MOV     #DMD!MCLK,RKMR1(R2)
014454  012762  000040  000026                MOV     #DMD,RKMR1(R2)
014462  005300                        DEC     R0
014464  001370                        BNE     1$
014466  016237  000000  004120                MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
014474  016237  000034  004146                MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG. 2
014502  016237  000036  004150                MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG. 3
014510  012737  000040  004206                MOV     #S.RECL,E.MR2   ;LOAD EXPECTED MAINT REG. 2
014516  005037  004210                        CLR     E.MR3           ;LOAD EXPECTED MAINTENANCE REG. 3
014522  023737  004160  004120                CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
014530  001405                        BEQ     2$              ;YES, CHECK MESSAGES A&B
014532  104035                        ERROR   35
014534  012762  100000  000000                MOV     #CCLR,RKCS1(R2) ;CLEAR CONTROLLER FOR NEXT TEST
014542  000431                        BR      TST25           ;;GO ON TO NEXT TEST
                                        
014544                          2$:
014544  032737  000040  004146                BIT     #S.RECL,T.MR2   ;CHECK IF RECAL COMMAND
                                                                        ;  BIT SET
014552  001002                        BNE     3$              ;YES, CHECK CYLINDER ADDRESS BITS
014554  104036                        ERROR   36               ;S.RECL BIT NOT SET
014556  000423                        BR      TST25           ;;GO ON TO NEXT TEST
                                        
014560                          3$:
014560  013737  004150  001160                MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
014566  042737  140017  001160                BIC     #140017,$TMP0
014574  001402                        BEQ     4$              ;CHECK IF CYLINDER ADDRESS ZERO
014576  104037                        ERROR   37              ;CYLINDER ADDRESS BITS INCORRECT
014600  000412                        BR      TST25           ;;GO ON TO NEXT TEST
                                        
014602  023737  004206  004146  4$:   CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
014610  001401                        BEQ     5$              ;YES, CHECK MESSAGE B
014612  104040                        ERROR   40              ;MESS A INCORRECT
014614  023737  004210  004150  5$:   CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
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3697  014622  001401                          BEQ     TST25           ;;YES, GO ON TO NEXT TEST
3698  014624  10404*                          ERROR   41              ;MESS B INCORRECT
3699
3700                                  ;;*****************************************************************
3701                                  ;*TEST 25       MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 1)
3702                                  ;*
3703                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3704                                  ;*      DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
3705                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A PACK ACKNOWLEDGE.
3706                                  ;*      CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
3707                                  ;*      MESSAGE SELECT BITS ARE CLEARED.
3708                                  ;*
3709                                  ;*****************************************************************
3710  014626  000004                  TST25:  SCOPE
3711  014630  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3712  014636  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
3713  014642  012737  000017  004246          MOV     #17,MSGCOD      ;LOAD MESSAGE CODE FOR PRINT OUT
3714  014650  012737  000003  004160          MOV     #PACK,E.CS1     ;LOAD EXPECTED CS1
3715  014656  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3716  014664  012762  000057  000026          MOV     #DMD!17,RKMR1(R2) ;PUT RK611 IN MAINTENANCE MODE
3717                                                                  ;  SELECT MESSAGE 17
3718  014672  012762  000003  000000          MOV     #PACK,RKCS1(R2) ;ISSUE PACK
3719  014700  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
3720  014704  052762  000400  000026  1$:     BIS     #MCLK,RKMR1(R2)
3721  014712  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
3722  014720  005300                          DEC     R0
3723  014722  001370                          BNE     1$
3724  014724  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
3725  014732  016237  000026  004144          MOV     RKMR1(R2),T.MR1 ;STORE MAINTENANCE REG. 1
3726  014740  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG.2
3727  014746  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
3728  014754  012737  002040  004204          MOV     #MEWD!DMD,E.MR1 ;LOAD EXPECTED MAINT REG. 1
3729  014762  032737  020000  004*44          BIT     #ECCW,T.MR1
3730  014770  001403                          BEQ     10$
3731  014772  052737  020000  004204          BIS     #ECCW,E.MR1
3732  015000  012737  004000  004206  10$:     MOV     #S.PACK,E.MR2   ;LOAD EXPECTED MAINT REG. 2
3733  015006  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
3734  015012  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
3735  015020  001405                          BEQ     2$              ;YES, CHECK MAINT REG. 1
3736  015022  104042                          ERROR   42
3737  015024  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
3738  015032  000442                          BR      TST26           ;;GO ON TO NEXT TEST
3739
3740  015034  023737  004204  004144  2$:     CMP     E.MR1,T.MR1     ;CHECK IF MAINT REG. 1 CORRECT
3741  015042  001405                          BEQ     3$              ;YES, CHECK MESSAGES A&B
3742  015044  104043                          ERROR   43              ;MAINT REG. 1 INCORRECT
3743  015046  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
3744  015054  000431                          BR      TST26           ;;GO ON TO NEXT TEST
3745
3746  015056                          3$:
3747  015056  032737  004000  004146          BIT     #S.PACK,T.MR2   ;CHECK IF PACK COMMAND
3748                                                                  ;  BIT SET
3749  015064  001002                          BNE     4$              ;YES, CHECK MESSAGE SELECT BITS
3750  015066  104044                          ERROR   44              ;S.PACK BIT NOT SET
3751  015070  000423                          BR      TST26           ;;GO ON TO NEXT TEST
3752
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3753  015072                          4$:
3754  015072  013737  004150  001160          MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
3755  015100  042737  177760  001160          BIC     #177760,$TMP0
3756  015106  001402                          BEQ     5$              ;CHECK IF MESSAGE SELECT ZERO
3757  015110  104045                          ERROR   45              ;MESSAGE SELECT BITS NOT ZERO
3758  015112  000412                          BR      TST26           ;;GO ON TO NEXT TEST
3759
3760  015114  023737  004206  004146  5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
3761  015122  001401                          BEQ     6$              ;YES, CHECK MESSAGE B
3762  015124  104046                          ERROR   46              ;MESSAGE A INCORRECT
3763  015126  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
3764  015134  001401                          BEQ     TST26           ;;YES, GO ON TO NEXT TEST
3765  015136  104047                          ERROR   47              ;MESS B INCORRECT
3766
3767                                  ;;*****************************************************************
3768                                  ;*TEST 26       MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 2)
3769                                  ;*
3770                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3771                                  ;*      DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
3772                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A DRIVE CLEAR.
3773                                  ;*      CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
3774                                  ;*      MESSAGE SELECT BITS ARE CLEARED.
3775                                  ;*
3776                                  ;;*****************************************************************
3777  015140  000004                  TST26:  SCOPE
3778  015142  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3779  015150  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
3780  015154  012737  000017  004246          MOV     #17,MSGCOD      ;LOAD MESSAGE CODE FOR PRINT OUT
3781  015162  012737  000005  004160          MOV     #CLEAR,E.CS1    ;LOAD EXPECTED CS1
3782  015170  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3783  015176  012762  000057  000026          MOV     #DMD!17,RKMR1(R2) ;PUT RK611 IN MAINTENANCE MODE
3784                                                                  ;  SELECT MESSAGE 17
3785  015204  012762  000005  000000          MOV     #CLEAR,RKCS1(R2)        ;ISSUE CLEAR
3786  015212  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
3787  015216  052762  000400  000026  1$:     BIS     #MCLK,RKMR1(R2)
3788  015224  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
3789  015232  005300                          DEC     R0
3790  015234  001370                          BNE     1$
3791  015236  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
3792  015244  016237  000026  004144          MOV     RKMR1(R2),T.MR1 ;STORE MAINTENANCE REG. 1
3793  015252  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG.2
3794  015260  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
3795  015266  012737  002040  004204          MOV     #MEWD!DMD,E.MR1 ;LOAD EXPECTED MAINT REG. 1
3796  015274  032737  020000  004144          BIT     #ECCW,T.MR1
3797  015302  001403                          BEQ     10$
3798  015304  052737  020000  004204          BIS     #ECCW,E.MR1
3799  015312  012737  000400  004206  10$:    MOV     #S.CLR,E.MR2    ;LOAD EXPECTED MAINT REG. 2
3800  015320  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
3801  015324  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
3802  015332  001405                          BEQ     2$              ;YES, CHECK MAINT REG. 1
3803  015334  104042                          ERROR   42
3804  015336  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
3805  015344  000442                          BR      TST27           ;;GO ON TO NEXT TEST
3806
3807  015346  023737  004204  004144  2$:     CMP     E.MR1,T.MR1     ;CHECK IF MAINT REG. 1 CORRECT
3808  015354  001405                          BEQ     3$              ;YES, CHECK MESSAGES A&B
```

```
3809  015356  104043                          ERROR   43              ;MAINT REG. 1 INCORRECT
3810  015360  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
3811  015366  000431                          BR      TST27           ;;GO ON TO NEXT TEST
3812
3813  015370                          3$:
3814  015370  032737  000400  004146          BIT     #S.CLR,T.MR2    ;CHECK IF CLEAR COMMAND
3815                                                                  ;  BIT SET
3816  015376  001002                          BNE     4$              ;YES, CHECK MESSAGE SELECT BITS
3817  015400  104044                          ERROR   44              ;S.CLR BIT NOT SET
3818  015402  000423                          BR      TST27           ;;GO ON TO NEXT TEST
3819
3820  015404                          4$:
3821  015404  013737  004150  001160          MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
3822  015412  042737  177760  001160          BIC     #177760,$TMP0
3823  015420  001402                          BEQ     5$              ;CHECK IF MESSAGE SELECT ZERO
3824  015422  104045                          ERROR   45              ;MESSAGE SELECT BITS NOT ZERO
3825  015424  000412                          BR      TST27           ;;GO ON TO NEXT TEST
3826
3827  015426  023737  004206  004146  5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
3828  015434  001401                          BEQ     6$              ;YES, CHECK MESSAGE B
3829  015436  104046                          ERROR   46              ;MESSAGE A INCORRECT
3830  015440  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
3831  015446  001401                          BEQ     TST27           ;;YES, GO ON TO NEXT TEST
3832  015450  104047                          ERROR   47              ;MESS B INCORRECT
3833
3834                                  ;;*****************************************************************
3835                                  ;*TEST 27       MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 3)
3836                                  ;*
3837                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3838                                  ;*      DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
3839                                  ;*      COMMAND AND STATUS REGISTER 1 WITH AN UNLOAD.
3840                                  ;*      CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
3841                                  ;*      MESSAGE SELECT BITS ARE CLEARED.
3842                                  ;*
3843                                  ;;*****************************************************************
3844  015452  000004                  TST27:  SCOPE
3845  015454  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3846  015462  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
3847  015466  012737  000017  004246          MOV     #17,MSGCOD      ;LOAD MESSAGE CODE FOR PRINT OUT
3848  015474  012737  000007  004160          MOV     #UNLOAD,E.CS1   ;LOAD EXPECTED CS1
3849  015502  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3850  015510  012762  000057  000026          MOV     #DMD!17,RKMR1(R2) ;PUT RK611 IN MAINTENANCE MODE
3851                                                                  ;  SELECT MESSAGE 17
3852  015516  012762  000007  000000          MOV     #UNLOAD,RKCS1(R2)       ;ISSUE UNLOAD
3853  015524  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
3854  015530  052762  000400  000026  1$:     BIS     #MCLK,RKMR1(R2)
3855  015536  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
3856  015544  005300                          DEC     R0
3857  015546  001370                          BNE     1$
3858  015550  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.
3859  015556  016237  000026  004144          MOV     RKMR1(R2),T.MR1 ;STORE MAINTENANCE REG. 1
3860  015564  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG.2
3861  015572  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
3862  015600  012737  002040  004204          MOV     #MEWD.DMD,E.MR1 ;LOAD EXPECTED MAINT REG. 1
3863  015606  032737  020000  004144          BIT     #ECCW,T.MR1
3864  015614  001403                          BEQ     10$
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3865  015616  052737  020000  004204          BIS     #ECCW,E.MR1
3866  015624  012737  002000  004206  10$:    MOV     #S.UNLD,E.MR2   ;LOAD EXPECTED MAINT REG. 2
3867  015632  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
3868  015636  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
3869  015644  001405                          BEQ     2$              ;YES, CHECK MAINT REG. 1
3870  015646  104042                          ERROR   42
3871  015650  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
3872  015656  000442                          BR      TST30           ;;GO ON TO NEXT TEST
3873
3874  015660  023737  004204  004144  2$:     CMP     E.MR1,T.MR1     ;CHECK IF MAINT REG. 1 CORRECT
3875  015666  001405                          BEQ     3$              ;YES, CHECK MESSAGES A&B
3876  015670  104043                          ERROR   43              ;MAINT REG. 1 INCORRECT
3877  015672  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
3878  015700  000431                          BR      TST30           ;;GO ON TO NEXT TEST
3879
3880  015702                          3$:
3881  015702  032737  002000  004146          BIT     #S.UNLD,T.MR2   ;CHECK IF UNLOAD COMMAND
3882                                                                  ;  BIT SET
3883  015710  001002                          BNE     4$              ;YES, CHECK MESSAGE SELECT BITS
3884  015712  104044                          ERROR   44              ;S.UNLD BIT NOT SET
3885  015714  000423                          BR      TST30           ;;GO ON TO NEXT TEST
3886
3887  015716                          4$:
3888  015716  013737  004150  001160          MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
3889  015724  042737  177760  001160          BIC     #177760,$TMP0
3890  015732  001402                          BEQ     5$              ;CHECK IF MESSAGE SELECT ZERO
3891  015734  104045                          ERROR   45              ;MESSAGE SELECT BITS NOT ZERO
3892  015736  000412                          BR      TST30           ;;GO ON TO NEXT TEST
3893
3894  015740  023737  004206  004146  5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
3895  015746  001401                          BEQ     6$              ;YES, CHECK MESSAGE B
3896  015750  104046                          ERROR   46              ;MESSAGE A INCORRECT
3897  015752  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
3898  015760  001401                          BEQ     TST30           ;;YES, GO ON TO NEXT TEST
3899  015762  104047                          ERROR   47              ;MESS B INCORRECT
3900
3901                                  ;;*****************************************************************
3902                                  ;*TEST 30       MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 4)
3903                                  ;*
3904                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3905                                  ;*      DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
3906                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A START SPINDLE.
3907                                  ;*      CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
3908                                  ;*      MESSAGE SELECT BITS ARE CLEARED.
3909                                  ;*
3910                                  ;*****************************************************************
3911  015764  000004                  TST30:  SCOPE
3912  015766  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3913  015774  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
3914  016000  012737  000017  004246          MOV     #17,MSGCOD      ;LOAD MESSAGE CODE FOR PRINT OUT
3915  016006  012737  000011  004160          MOV     #SRTSPL,E.CS1   ;LOAD EXPECTED CS1
3916  016014  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3917  016022  012762  000057  000026          MOV     #DMD!17,RKMR1(R2) ;PUT RK611 IN MAINTENANCE MODE
3918                                                                  ;  SELECT MESSAGE 17
3919  016030  012762  000011  000000          MOV     #SRTSPL,RKCS1(R2)       ;ISSUE SRTSPL
3920  016036  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
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3921  016042  052762  000400  000026  1$:     BIS     #MCLK,RKMR1(R2)
3922  016050  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
3923  016056  005300                          DEC     R0
3924  016060  001370                          BNE     1$
3925  016062  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
3926  016070  016237  000026  004144          MOV     RKMR1(R2),T.MR1 ;STORE MAINTENANCE REG. 1
3927  016076  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG.2
3928  016104  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
3929  016112  012737  002040  004204          MOV     #MEWD!DMD,E.MR1 ;LOAD EXPECTED MAINT REG. 1
3930  016120  032737  020000  004144          BIT     #ECCW,T.MR1
3931  016126  001403                          BEQ     10$
3932  016130  052737  020000  004204          BIS     #ECCW,E.MR1
3933  016136  012737  000100  004206  10$:    MOV     #S.STSP,E.MR2   ;LOAD EXPECTED MAINT REG. 2
3934  016144  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
3935  016150  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
3936  016156  001405                          BEQ     2$              ;YES, CHECK MAINT REG. 1
3937  016160  104042                          ERROR   42
3938  016162  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
3939  016170  000442                          BR      TST31           ;;GO ON TO NEXT TEST
3940
3941  016172  023737  004204  004144  2$:     CMP     E.MR1,T.MR1     ;CHECK IF MAINT REG. 1 CORRECT
3942  016200  001405                          BEQ     3$              ;YES, CHECK MESSAGES A&B
3943  016202  104043                          ERROR   43              ;MAINT REG. 1 INCORRECT
3944  016204  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
3945  016212  000431                          BR      TST31           ;;GO ON TO NEXT TEST
3946
3947  016214                          3$:
3948  016214  032737  000100  004146          BIT     #S.STSP,T.MR2   ;CHECK IF SRTSPL COMMAND
3949                                                                  ;  BIT SET
3950  016222  001002                          BNE     4$              ;YES, CHECK MESSAGE SELECT BITS
3951  016224  104044                          ERROR   44              ;S.STSP BIT NOT SET
3952  016226  000423                          BR      TST31           ;;GO ON TO NEXT TEST
3953
3954  016230                          4$:
3955  016230  013737  004150  001160          MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
3956  016236  042737  177760  001160          BIC     #177760,$TMP0
3957  016244  001402                          BEQ     5$              ;CHECK IF MESSAGE SELECT ZERO
3958  016246  104045                          ERROR   45              ;MESSAGE SELECT BITS NOT ZERO
3959  016250  000412                          BR      TST31           ;;GO ON TO NEXT TEST
3960
3961  016252  023737  004206  004146  5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
3962  016260  001401                          BEQ     6$              ;YES, CHECK MESSAGE B
3963  016262  104046                          ERROR   46              ;MESSAGE A INCORRECT
3964  016264  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
3965  016272  001401                          BEQ     TST31           ;;YES, GO ON TO NEXT TEST
3966  016274  104047                          ERROR   47              ;MESS B INCORRECT
3967
3968                                  ;;*****************************************************************
3969                                  ;*TEST 31        MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 5)
3970                                  ;*
3971                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
3972                                  ;*      DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
3973                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A RECALIBRATE.
3974                                  ;*      CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
3975                                  ;*      MESSAGE SELECT BITS ARE CLEARED.
3976                                  ;*
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3977                                    ;;*****************************************************************
3978  016276  000004                    TST31:  SCOPE
3979  016300  012737  000144  001200            MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
3980  016306  013702  001270                    MOV     $BASE,R2        ;LOAD RK611 BASE
3981  016312  012737  000017  004246            MOV     #17,MSGCOD      ;LOAD MESSAGE CODE FOR PRINT OUT
3982  016320  012737  000013  004160            MOV     #RECAL,E.CS1    ;LOAD EXPECTED CS1
3983  016326  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
3984  016334  012762  000057  000026            MOV     #DMD!17,RKMR1(R2) ;PUT RK611 IN MAINTENANCE MODE
3985                                                                    ;  SELECT MESSAGE 17
3986  016342  012762  000013  000000            MOV     #RECAL,RKCS1(R2)        ;ISSUE RECAL
3987  016350  012700  000016                    MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
3988  016354  052762  000400  000026  1$:       BIS     #MCLK,RKMR1(R2)
3989  016362  042762  000400  000026            BIC     #MCLK,RKMR1(R2)
3990  016370  005300                            DEC     R0
3991  016372  001370                            BNE     1$
3992  016374  016237  000000  004120            MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
3993  016402  016237  000026  004144            MOV     RKMR1(R2),T.MR1 ;STORE MAINTENANCE REG. 1
3994  016410  016237  000034  004146            MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG.2
3995  016416  016237  000036  004150            MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
3996  016424  012737  002040  004204            MOV     #MEWD!DMD,E.MR1 ;LOAD EXPECTED MAINT REG. 1
3997  016432  032737  020000  004144            BIT     #ECCW,T.MR1
3998  016440  001403                            BEQ     10$
3999  016442  052737  020000  004204            BIS     #ECCW,E.MR1
4000  016450  012737  000040  004206  10$:      MOV     #S.RECL,E.MR2   ;LOAD EXPECTED MAINT REG. 2
4001  016456  005037  004210                    CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
4002  016462  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
4003  016470  001405                            BEQ     2$              ;YES, CHECK MAINT REG. 1
4004  016472  104042                            ERROR   42
4005  016474  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
4006  016502  000442                            BR      TST32           ;;GO ON TO NEXT TEST
4007
4008  016504  023737  004204  004144  2$:       CMP     E.MR1,T.MR1     ;CHECK IF MAINT REG. 1 CORRECT
4009  016512  001405                            BEQ     3$              ;YES, CHECK MESSAGES A&B
4010  016514  104043                            ERROR   43              ;MAINT REG. 1 INCORRECT
4011  016516  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
4012  016524  000431                            BR      TST32           ;;GO ON TO NEXT TEST
4013
4014  016526                          3$:
4015  016526  032737  000040  004146            BIT     #S.RECL,T.MR2   ;CHECK IF RECAL COMMAND
4016                                                                    ;  BIT SET
4017  016534  001002                            BNE     4$              ;YES, CHECK MESSAGE SELECT BITS
4018  016536  104044                            ERROR   44              ;S.RECL BIT NOT SET
4019  016540  000423                            BR      TST32           ;;GO ON TO NEXT TEST
4020
4021  016542                          4$:
4022  016542  013737  004150  001160            MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
4023  016550  042737  177760  001160            BIC     #177760,$TMP0
4024  016556  001402                            BEQ     5$              ;CHECK IF MESSAGE SELECT ZERO
4025  016560  104045                            ERROR   45              ;MESSAGE SELECT BITS NOT ZERO
4026  016562  000412                            BR      TST32           ;;GO ON TO NEXT TEST
4027
4028  016564  023737  004206  004146  5$:       CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
4029  016572  001401                            BEQ     6$              ;YES, CHECK MESSAGE B
4030  016574  104046                            ERROR   46              ;MESSAGE A INCORRECT
4031  016576  023737  004210  004150  6$:       CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
4032  016604  001401                            BEQ     TST32           ;;YES, GO ON TO NEXT TEST
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                                        ERROR   47              ;MESS B INCORRECT

                        ;;*****************************************************************
                        ;*TEST 32       MESSAGE SELECT BIT CLEARING FOR CLASS A (PART 6)
                        ;*
                        ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
                        ;*      DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
                        ;*      COMMAND AND STATUS REGISTER 1 WITH A OFFSET.
                        ;*      CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
                        ;*      MESSAGE SELECT BITS ARE CLEARED.
                        ;*
                        ;;*****************************************************************
016610  000004         TST32:  SCOPE
016612  012737  000144  001200        MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
016620  013702  001270            MOV     $BASE,R2        ;LOAD RK611 BASE
016624  012737  000017  004246        MOV     #17,MSGCOD      ;LOAD MESSAGE CODE FOR PRINT OUT
016632  012737  000015  004160        MOV     #OFFSET,E.CS1   ;LOAD EXPECTED CS1
016640  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
016646  012762  000057  000026        MOV     #DMD.17,RKMR1(R2) ;PUT RK611 IN MAINTENANCE MODE
                                                        ;  SELECT MESSAGE 17
016654  012762  000015  000000        MOV     #OFFSET,RKCS1(R2)       ;ISSUE OFFSET
016662  012700  000016            MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
016666  052762  000400  000026  1$:   BIS     #MCLK,RKMR1(R2)
016674  042762  000400  000026        BIC     #MCLK,RKMR1(R2)
016702  005300                    DEC     R0
016704  001370                    BNE     1$
016706  016237  000000  004120        MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
016714  016237  000026  004144        MOV     RKMR1(R2),T.MR1 ;STORE MAINTENANCE REG. 1
016722  016237  000034  004146        MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG.2
016730  016237  000036  004150        MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
016736  012737  002040  004204        MOV     #MEWD!DMD,E.MR1 ;LOAD EXPECTED MAINT REG. 1
016744  032737  020000  004144        BIT     #ECCW,T.MR1
016752  001403                    BEQ     10$
016754  052737  020000  004204        BIS     #ECCW,E.MR1
016762  005037  004206        10$:    CLR     E.MR2           ;LOAD EXPECTED MAINT REG 2
016766  012737  017760  004210        MOV     #17760,E.MR3    ;LOAD EXPECTED MAINT REG 3
016774  023737  004160  004120        CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
017002  001405                    BEQ     2$              ;YES, CHECK MAINT REG. 1
017004  104042                    ERROR   42
017006  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
017014  000434                    BR      TST33           ;;GO ON TO NEXT TEST

017016  023737  004204  004144  2$:   CMP     E.MR1,T.MR1     ;CHECK IF MAINT REG. 1 CORRECT
017024  001405                    BEQ     3$              ;YES, CHECK MESSAGES A&B
017026  104043                    ERROR   43              ;MAINT REG. 1 INCORRECT
017030  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
017036  000423                    BR      TST33           ;;GO ON TO NEXT TEST

017040                  3$:
017040  013737  004150  001160        MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
017046  042737  177760  001160        BIC     #177760,$TMP0
017054  001402                    BEQ     5$              ;CHECK IF MESSAGE SELECT ZERO
017056  104045                    ERROR   45              ;MESSAGE SELECT BITS NOT ZERO
017060  000412                    BR      TST33           ;;GO ON TO NEXT TEST

017062  023737  004206  004146  5$:   CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
```

```
4089  017070  001401                          BEQ     6$              ;YES, CHECK MESSAGE B
4090  017072  104046                          ERROR   46              ;MESSAGE A INCORRECT
4091  017074  023737  004210  004150  6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
4092  017102  001401                          BEQ     TST33           ;;YES, GO ON TO NEXT TEST
4093  017104  104047                          ERROR   47              ;MESS B INCORRECT
4094
4095                                  ;;**********************************************************
4096                                  ;*TEST 33       MESSAGE SELECT P.T CLEARING FOR CLASS A (PART 7)
4097                                  ;*
4098                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR.  PUT CONTROLLER IN
4099                                  ;*      DIAGNOSTIC MODE WITH MESSAGE SELECT BITS = 17.  LOAD
4100                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A SEEK.
4101                                  ;*      CLOCK MESSAGE TO LOAD B SHIFT REG. TIME.  MAKE SURE
4102                                  ;*      MESSAGE SELECT BITS ARE CLEARED.
4103                                  ;*
4104                                  ;;**********************************************************
4105  017106  000004                  TST33:  SCOPE
4106  017110  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
4107  017116  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
4108  017122  012737  000017  004246          MOV     #17,MSGCOD      ;LOAD MESSAGE CODE FOR PRINT OUT
4109  017130  012737  000017  004160          MOV     #SEEK,E.CS1     ;LOAD EXPECTED CS1
4110  017136  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
4111  017144  012762  000057  000026          MOV     #DMD!17,RKMR1(R2) ,PUT RK611 IN MAINTENANCE MODE
4112                                                                  ;  SELECT MESSAGE 17
4113  017152  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
4114  017160  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN DRIVE MESSAGE
4115  017164  052762  000400  000026  1$:     BIS     #MCLK,RKMR1(R2)
4116  017172  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
4117  017200  005300                          DEC     R0
4118  017202  001370                          BNE     1$
4119  017204  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
4120  017212  016237  000026  004144          MOV     RKMR1(R2),T.MR1 ;STORE MAINTENANCE REG. 1
4121  017220  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINTENANCE REG.2
4122  017226  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINTENANCE REG. 3
4123  017234  012737  002040  004204          MOV     #MFWD!DMD,E.MR1 ;LOAD EXPECTED MAINT REG. 1
4124  017242  032737  020000  004144          BIT     #ECCW,T.MR1
4125  017250  001403                          BEQ     10$
4126  017252  052737  020000  004204          BIS     #ECCW,E.MR1
4127  017260  012737  000020  004206  10$:     MOV     #S.SEEK,E.MR2   ;LOAD EXPECTED MAINT REG. 2
4128  017266  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MAINT REG. 3
4129  017272  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
4130  017300  001405                          BEQ     2$              ;YES, CHECK MAINT REG. 1
4131  017302  104042                          ERROR   42
4132  017304  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
4133  017312  000442                          BR      TST34           ;;GO ON TO NEXT TEST
4134
4135  017314  023737  004204  004144  2$:     CMP     E.MR1,T.MR1     ;CHECK IF MAINT REG. 1 CORRECT
4136  017322  001405                          BEQ     3$              ;YES, CHECK MESSAGES A&B
4137  017324  104043                          ERROR   43              ;MAINT REG. 1 INCORRECT
4138  017326  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER FOR NEXT TEST
4139  017334  000431                          BR      TST34           ;;GO ON TO NEXT TEST
4140
4141  017336                          3$:
4142  017336  032737  000020  004146          BIT     #S.SEEK,T.MR2   ;CHECK IF SEEK COMMAND
4143                                                                  ;  BIT SET
4144  017344  001002                          BNE     4$              ;YES, CHECK MESSAGE SELECT BITS
```

```
                                        ERROR   44              ;S.SEEK BIT NOT SET
                                        BR      TST34           ;;GO ON TO NEXT TEST

                                4$:
                                        MOV     T.MR3,$TMP0     ;MASK OUT BITS NOT UNDER TEST
                                        BIC     #177760,$TMP0
                                        BEQ     5$              ;CHECK IF MESSAGE SELECT ZERO
                                        ERROR   45              ;MESSAGE SELECT BITS NOT ZERO
                                        BR      TST34           ;;GO ON TO NEXT TEST

                                5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE A CORRECT
                                        BEQ     6$              ;YES, CHECK MESSAGE B
                                        ERROR   46              ;MESSAGE A INCORRECT
                                6$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE B CORRECT
                                        BEQ     TST34           ;;YES, GO ON TO NEXT TEST
                                        ERROR   47              ;MESS B INCORRECT


                                .SBTTL  **DRIVE MESSAGE LOOPBACK AND PARITY GENERATION TESTS

                                ;;******************************************************************
                                ;*TEST 34       DRIVE MESSAGE LOOPBACK
                                ;*
                                ;*      CLEAR THE RK611 WITH A CONTROLLER CLEAR. PUT CONTROLLER
                                ;*      IN DIAGNOSTIC MODE INDICATING MESSAGE 3. LOAD COMMAND
                                ;*      STATUS REGISTER FOR DRIVE 5. LOAD COMMAND AND STATUS
                                ;*      REGISTER 1 WITH A SELECT COMMAND.  CLOCK 4 BITS
                                ;*      THROUGH THE DRIVE MESSAGE LOOPBACK. VERIFY THAT BITS
                                ;*      ARE INDEED LOOPED BACK.
                                ;*
                                ;;******************************************************************
017420  000004                  TST34:  SCOPE
017422  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
017430  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
017434  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
017442  005037  004256                  CLR     SFTCNT          ;INITIALIZE SHIFT COUNT
017446  012737  000005  004206          MOV     #5,E.MR2        ;LOAD EXPECTED SHIFT REG. A
017454  012737  000005  004230          MOV     #5,U.MR2        ;LOAD UNSHIFTED SHIFT REG. A
017462  012737  000003  004210          MOV     #3,E.MR3        ;LOAD EXPECTED SHIFT REG.B
017470  012737  000003  004232          MOV     #3,U.MR3        ;LOAD UNSHIFTED SHIFT REG.B
017476  012762  000043  000026          MOV     #DMD.3,RKMR1(R2)        ;PUT RK611 IN MAINT. MODE
                                                                ;  MESSAGE SELECT = 3
017504  012762  000005  000010          MOV     #5,RKCS2(R2)    ;LOAD DRIVE NUMBER = 5
017512  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)       ;ISSUE SELECT DRIVE
017520  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN MESSAGE
017524  052762  000400  000026  1$:     BIS     #MCLK,RKMR1(R2) ;ISSUE CLOCKS
017532  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
017540  005300                          DEC     R0
017542  001370                          BNE     1$
017544  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE SHIFT REG. A
017552  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE SHIFT REG. B
017560  023737  004206  004146          CMP     E.MR2,T.MR2     ;CHECK SHIFT REG A CORRECT
017566  001402                          BEQ     2$              ;YES, CHECK SHIFT REG. B
017570  104050                          ERROR   50              ;SHIFT REG A INCORRECT
017572  000431                          BR      TST35           ;;GO ON TO NEXT TEST
```

```
 4201  017574  023737  004210  004150  2$:     CMP     E.MR3,T.MR3     ;CHECK SHIFT REG B CORRECT
 4202  017602  001402                          BEQ     3$              ;YES, SHIFT A BIT
 4203  017604  104051                          ERROR   51              ;SHIFT REG B INCORRECT
 4204  017606  000423                          BR      TST35           ;;GO ON TO NEXT TEST
 4205
 4206  017610  032737  000001  004210  3$:     BIT     #BIT0,E.MR3     ;CHECK IF SHIFT BIT = 1
 4207  017616  001402                          BEQ     4$              ;NO, CLEAR SHIFT BIT
 4208  017620  000261                          SEC                     ;SET SHIFT BIT
 4209  017622  000401                          BR      5$              ;GENERATE EXPECTED SHIFT
 4210                                                                  ;  REGISTERS A & B
 4211
 4212  017624  000241                  4$:     CLC                     ;CLEAR SHIFT BIT
 4213  017626  006037  004206          5$:     ROR     E.MR2           ;GENERATE EXPECTED SHIFT REG A
 4214  017632  006037  004210                  ROR     E.MR3           ;GENERATE EXPECTED SHIFT REG B
 4215  017636  012700  000004                  MOV     #4,R0           ;LOAD COUNT FOR 1 BIT SHIFT
 4216  017642  005237  004256                  INC     SFTCNT          ;INCREMENT SHIFT BIT COUNT
 4217  017646  022737  000004  004256          CMP     #4,SFTCNT       ;CHECK IF FINISHED
 4218  017654  103323                          BHIS    1$              ;NO, SHIFT IN NEXT BIT
 4219
 4220                                  ;;*****************************************************************
 4221                                  ;*TEST 35       DRIVE MESSAGE SHIFT
 4222                                  ;*
 4223                                  ;*      CLEAR THE RK611 WITH A CONTROLLER CLEAR. PUT CONTROLLER
 4224                                  ;*      IN DIAGNOSTIC MODE. LOAD CYLINDER ADDRESS WITH 441.
 4225                                  ;*      LOAD HEAD ADDRESS WITH 1. LOAD COMMAND AND STATUS
 4226                                  ;*      REGISTER 1 WITH A SEEK IN 24 SECTOR MODE. CLOCK 8 BITS
 4227                                  ;*      THROUGH THE DRIVE MESSAGE LOOPBACK. VERIFY THAT BITS ARE
 4228                                  ;*      SHIFTED PROPERLY.
 4229                                  ;*
 4230                                  ;;*****************************************************************
 4231  017656  000004                  TST35:  SCOPE
 4232  017660  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 4233  017666  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 4234  017672  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
 4235  017700  005037  004256                  CLR     SFTCNT          ;INITIALIZE SHIFT COUNT
 4236  017704  012737  011020  004206          MOV     #S.FMT!S.SEEK!BIT12,E.MR2       ;LOAD EXPECTED SHIFT REG. A
 4237  017712  012737  011020  004230          MOV     #S.FMT!S.SEEK.BIT12,U.MR2       ;LOAD UNSHIFTED SHIFT REG. A
 4238  017720  012737  011020  004210          MOV     #11020,E.MR3    ;LOAD EXPECTED SHIFT REG. B
 4239  017726  012737  011020  004232          MOV     #11020,U.MR3    ;LOAD UNSHIFTED SHIFT REG. B
 4240  017734  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT. MODE
 4241  017742  012762  000441  000020          MOV     #441,RKDCYL(R2) ;LOAD CYLINDER ADD. REG.
 4242  017750  012762  000400  000006          MOV     #400,RKDA(R2)   ;LOAD DISK ADDRESS REG.
 4243  017756  012762  010017  000000          MOV     #SEEK.CFMT,RKCS1(R2)    ;ISSUE SEEK
 4244
 4245  017764  012700  000016                  MOV     #3*4+2,R0       ;CLOCK IN MESSAGE
 4246  017770  052762  000400  000026  1$:     BIS     #MCLK,RKMR1(R2) ;ISSUE CLOCKS
 4247  017776  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
 4248  020004  005300                          DEC     R0
 4249  020006  001370                          BNE     1$
 4250  020010  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE SHIFT REG. A
 4251  020016  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE SHIFT REG. B
 4252  020024  023737  004206  004146          CMP     E.MR2,T.MR2     ;CHECK SHIFT REG A CORRECT
 4253  020032  001402                          BEQ     2$              ;YES, CHECK SHIFT REG. B
 4254  020034  104050                          ERROR   50              ;SHIFT REG A INCORRECT
 4255  020036  000431                          BR      TST36           ;;GO ON TO NEXT TEST
 4256
```

```
 4257  020040  023737  004210  004150  2$:     CMP     E.MR3,T.MR3     ;CHECK SHIFT REG B CORRECT
 4258  020046  001402                          BEQ     3$              ;YES, SHIFT A BIT
 4259  020050  104051                          ERROR   51              ;SHIFT REG B INCORRECT
 4260  020052  000423                          BR      TST36           ;;GO ON TO NEXT TEST
 4261
 4262  020054  032737  000C01  004210  3$:     BIT     #BIT0,E.MR3     ;CHECK IF SHIFT BIT = 1
 4263  020062  001402                          BEQ     4$              ;NO, CLEAR SHIFT BIT
 4264  020064  000261                          SEC                     ;SET SHIFT BIT
 4265  020066  000401                          BR      5$              ;GENERATE EXPECTED SHIFT
 4266                                                                  ;  REGISTERS A & B
 4267
 4268  020070  000241                  4$:     CLC                     ;CLEAR SHIFT BIT
 4269  020072  006037  004206          5$:     ROR     E.MR2           ;GENERATE EXPECTED SHIFT REG A
 4270  020076  006037  004210                  ROR     E.MR3           ;GENERATE EXPECTED SHIFT REG B
 4271  020102  012700  000004                  MOV     #4,R0           ;LOAD COUNT FOR 1 BIT SHIFT
 4272  020106  005237  004256                  INC     SFTCNT          ;INCREMENT SHIFT BIT COUNT
 4273  020112  022737  000010  004256          CMP     #8.,SFTCNT      ;CHECK IF FINISHED
 4274  020120  103323                          BHIS    1$              ;NO, SHIFT IN NEXT BIT
 4275
 4276                                  ;;*****************************************************************
 4277                                  ;*TEST 36       DRIVE MESSAGE PARITY PRECONDITIONING
 4278                                  ;*
 4279                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER
 4280                                  ;*      IN DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 1 WITH
 4281                                  ;*      A SELECT COMMAND. CLOCK ALL 16 BITS THROUGH THE
 4282                                  ;*      DRIVE MESSAGE LOOPBACK. VERIFY PARITY HAS BEEN PRECONDITIONED
 4283                                  ;*      PROPERLY. REPEAT FOR BAD PARITY GENERATION.
 4284                                  ;*
 4285                                  ;;*****************************************************************
 4286  020122  000004                  TST36:  SCOPE
 4287  020124  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 4288  020132  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 4289  020136  012762  100000  000C00          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
 4290  020144  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
 4291  020152  012762  000001  000000          MOV     #SELDRV,RKCS1(R2) ;ISSUE SELECT DRIVE
 4292  020160  012700  000116                  MOV     #19.*4+2,R0     ;LOAD DRIVE MESSAGE AND SHIFT
 4293  020164  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2) ;  ALL 16 BITS
 4294  020172  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 4295  020200  005300                          DEC     R0
 4296  020202  001370                          BNE     1$
 4297  020204  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE SHIFTED MESSAGE B
 4298  020212  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE SHIFTED MESSAGE A
 4299  020220  012737  100000  004206          MOV     #100000,E.MR2   ;LOAD EXPECTED MESSAGE B
 4300  020226  012737  100000  004210          MOV     #100000,E.MR3   ;LOAD EXPECTED MESSAGE A
 4301  020234  032737  100000  004150          BIT     #BIT15,T.MR3    ;CHECK IF PARITY ON MESSAGE A CORRECT
 4302
 4303  020242  001002                          BNE     2$              ;YES, CHECK PARITY ON MESSAGE B
 4304  020244  104052                          ERROR   52              ;PARITY ON MESSAGE A INCORRECT
 4305  020246  000420                          BR      5$              ;TRY EVEN PARITY
 4306
 4307  020250  032737  100000  004146  2$:     BIT     #BIT15,T.MR2    ;CHECK IF PARITY ON MESS B CORRECT
 4308  020256  001002                          BNE     3$              ;YES, CHECK MESSAGE A AND B
 4309  020260  104053                          ERROR   53              ;PARITY ON MESSAGE B INCORRECT
 4310  020262  000412                          BR      5$              ;TRY EVEN PARITY
 4311
 4312  020264  023737  004210  004150  3$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE A CORRECT
```

```
4313  020272  001401                          BEQ     4$              ;YES, CHECK MESSAGE B
4314  020274  104054                          ERROR   54              ;MESSAGE A INCORRECT
4315  020276  023737  004206  004146  4$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE B CORRECT
4316  020304  001401                          BEQ     5$              ;YES, TRY EVEN PARITY
4317  020306  104055                          ERROR   55              ;MESSAGE B INCORRECT
4318  020310  012762  100000  000000  5$:     MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
4319  020316  012762  000060  000026          MOV     #DMD.PAT,RKMR1(R2) ;PUT RK611 MAINTENANCE MODE
4320                                                                  ;  AND EVEN PARITY
4321  020324  012762  000001  000000          MOV     #SELDRV,RKCS1(R2) ;ISSUE SELECT DRIVE
4322  020332  012700  000116                  MOV     #19.*4+2,R0     ;LOAD DRIVE MESSAGE AND SHIFT
4323  020336  012762  000460  000026  6$:     MOV     #DMD!PAT!MCLK,RKMR1(R2) ;  ALL 16 BITS
4324  020344  012762  000060  000026          MOV     #DMD.PAT,RKMR1(R2)
4325  020352  005300                          DEC     R0
4326
4327  020354  001370                          BNE     6$
4328  020356  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE SHIFTED MESSAGE B
4329  020364  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE SHIFTED MESSAGE A
4330  020372  005037  004206                  CLR     E.MR2           ;LOAD EXPECTED MESSAGE B
4331  020376  005037  004210                  CLR     E.MR3           ;LOAD EXPECTED MESSAGE A
4332  020402  032737  100000  004150          BIT     #BIT15,T.MR3    ;CHECK IF PARITY ON MESSAGE A CORRECT
4333  020410  001402                          BEQ     7$              ;YES, CHECK PARITY ON MESSAGE B
4334  020412  104056                          ERROR   56              ;PARITY ON MESSAGE A INCORRECT
4335  020414  000420                          BR      TST37           ;;GO ON TO NEXT TEST
4336
4337  020416  032737  100000  004146  7$:     BIT     #BIT15,T.MR2    ;CHECK IF PARITY ON MESS B CORRECT
4338  020424  001402                          BEQ     8$              ;YES, CHECK MESSAGE A AND B
4339  020426  104057                          ERROR   57              ;PARITY ON MESSAGE B INCORRECT
4340  020430  000412                          BR      TST37           ;;GO ON TO NEXT TEST
4341
4342  020432  023737  004210  004150  8$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE A CORRECT
4343  020440  001401                          BEQ     9$              ;YES, CHECK MESSAGE B
4344  020442  104060                          ERROR   60              ;MESSAGE A INCORRECT
4345  020444  023737  004206  004146  9$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE B CORRECT
4346  020452  001401                          BEQ     TST37           ;;YES, GO ON TO NEXT TEST
4347  020454  104061                          ERROR   61              ;MESSAGE B INCORRECT
4348
4349                                  ;;*****************************************************************
4350                                  ;*TEST 37       ODD DRIVE MESSAGE PARITY GENERATION
4351                                  ;*
4352                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER
4353                                  ;*      IN DIAGNOSTIC MODE AND MESSAGE SELECT = 1.
4354                                  ;*      LOAD COMMAND AND STATUS REGISTER 2 WITH DRIVE
4355                                  ;*      SELECT = 1. LOAD COMMAND AND STATUS REGISTER 1 WITH
4356                                  ;*      A SELECT COMMAND. VERIFY THAT PARITY HAS BEEN
4357                                  ;*      GENERATED CORRECTLY. REPEAT FOR MESSAGE SELECT =
4358                                  ;*      DRIVE SELECT = 2-17.
4359                                  ;*
4360                                  ;;*****************************************************************
4361  020456  000004                  TST37:  SCOPE
4362  020460  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
4363  020466  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
4364  020472  012737  000001  004244          MOV     #1,DRVCOD       ;LOAD DRIVE CODE
4365  020500  012737  020506  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
4366                                                                  ;  SUBTEST LOOP
4367
4368  020506                          1$:
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```
 4369  020506  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
 4370  020514  013762  004244  000026          MOV     DRVCOD,RKMR1(R2)        ;LOAD MESSAGE SELECT CODE
 4371  020522  052762  000040  000026          BIS     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
 4372  020530  013762  004244  000010          MOV     DRVCOD,RKCS2(R2)        ;LOAD DRIVE SELECT CODE
 4373  020536  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)       ;ISSUE SELECT DRIVE
 4374  020544  012700  000116                  MOV     #19.*4+2,R0     ;LOAD DRIVE MESSAGE AND SHIFT
 4375  020550  052762  000400  000026  2$:     BIS     #MCLK,RKMR1(R2) ;  ALL 16 BITS
 4376  020556  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
 4377  020564  005300                          DEC     R0
 4378  020566  001370                          BNE     2$
 4379  020570  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE SHIFTED MESSAGE B
 4380  020576  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE SHIFTED MESSAGE A
 4381  020604  013701  004244                  MOV     DRVCOD,R1       ;DETERMINE PARITY
 4382  020610  012703  000004                  MOV     #4,R3
 4383  020614  005004                          CLR     R4
 4384  020616  006001                  3$:     ROR     R1
 4385  020620  103001                          BCC     4$
 4386  020622  005204                          INC     R4
 4387  020624  005303                  4$:     DEC     R3
 4388  020626  001373                          BNE     3$
 4389  020630  013737  004244  004206          MOV     DRVCOD,E.MR2    ;LOAD EXPECTED SHIFTED REG. B
 4390  020636  013737  004244  004210          MOV     DRVCOD,E.MR3    ;LOAD EXPECTED SHIFTED REG. A
 4391  020644  005037  004260                  CLR     PARBIT
 4392  020650  032704  000001                  BIT     #BIT0,R4        ;CHECK FOR PARITY ON WORD
 4393  020654  001011                          BNE     5$              ;PARITY ALREADY ODD
 4394  020656  012737  100000  004260          MOV     #BIT15,PARBIT   ;SET PARITY BIT
 4395  020664  052737  100000  004206          BIS     #BIT15,E.MR2
 4396  020672  052737  100000  004210          BIS     #BIT15,E.MR3
 4397  020700  013737  004150  001160  5$:     MOV     T.MR3,$TMP0     ;MASK ALL BITS EXCEPT PARITY
 4398  020706  042737  077777  001160          BIC     #77777,$TMP0
 4399  020714  023737  004260  001160          CMP     PARBIT,$TMP0    ;CHECK IF PARITY CORRECT
 4400  020722  001402                          BEQ     6$              ;  ON MESSAGE A
 4401  020724  104052                          ERROR   52              ;PARITY ON MESSAGE A INCORRECT
 4402  020726  000426                          BR      25$             ;CHECK IF LOOP ON ERROR
 4403
 4404  020730  013737  004146  001160  6$:     MOV     T.MR2,$TMP0     ;MASK ALL BITS EXCEPT PARITY
 4405  020736  042737  077777  001160          BIC     #77777,$TMP0
 4406  020744  023737  004260  001160          CMP     PARBIT,$TMP0    ;CHECK IF PARITY CORRECT
 4407  020752  001402                          BEQ     7$              ;  ON MESSAGE B
 4408  020754  104053                          ERROR   53              ;PARITY ON MESSAGE B INCORRECT
 4409  020756  000412                          BR      25$             ;CHECK IF LOOP ON ERROR
 4410
 4411  020760  023737  004210  004150  7$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE A CORRECT
 4412  020766  001401                          BEQ     8$              ;YES, CHECK MESSAGE B
 4413  020770  104054                          ERROR   54              ;MESSAGE A INCORRECT
 4414  020772  023737  004206  004146  8$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE B CORRECT
 4415  021000  001401                          BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
 4416  021002  104055                          ERROR   55              ;MESSAGE B INCORRECT
 4417  021004  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
 4418  021006  005237  004244                  INC     DRVCOD          ;INCREMENT DRIVE SELECT CODE
 4419  021012  022737  000017  004244          CMP     #17,DRVCOD      ;CHECK IF FINISHED
 4420  021020  103232                          BHIS    1$              ;NO, TRY NEXT CONFIGURATION
 4421
 4422                                  ;;*****************************************************************
 4423                                  ;*TEST 40        DRIVE MESSAGE PARITY INTERACTION
 4424                                  ;*
```

```
                                        ;*      CLEAR THE RK611 WITH A CONTROLLER CLEAR. PUT CONTROLLER
                                        ;*      IN DIAGNOSTIC MODE. LOAD COMMAND AND STATUS REGISTER 2
                                        ;*      WITH DRIVE SELECT = 1. LOAD COMMAND AND STATUS REGISTER 1
                                        ;*      WITH A SELECT COMMAND. VERIFY THAT THE CORRECT PARITY
                                        ;*      IS GENERATED FOR BOTH MESSAGES. REPEAT FOR MESSAGE
                                        ;*      SELECT = 1 AND DRIVE SELECT = 0.
                                        ;*
                                        ;*************************************************************
021022  000004                          TST40:  SCOPE
021024  012737  000144  001200                  MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
021032  013702  001270                          MOV     $BASE,R2        ;LOAD RK611 BASE
021036  012737  000001  004244                  MOV     #1,DRVCOD       ;SET INITIAL DRIVE SELECT CODE
021044  005037  004246                          CLR     MSGCOD          ;SET INITIAL MESSAGE SELECT CODE
021050  012737  100000  004206                  MOV     #BIT15,E.MR2    ;LOAD EXPECTED MAINT. REG. 2 (MESS B)
021056  012737  000001  004210                  MOV     #BIT0,E.MR3     ;LOAD EXPECTED MAINT. REG. 3 (MESS A)
021064  012737  100000  004260                  MOV     #BIT15,PARBIT   ;LOAD PARITY FOR MESSAGE B
021072  012737  021100  001110                  MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                        ;  SUBTEST LOOP
021100                                  1$:
021100  012762  100000  000000                  MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
021106  013762  004246  000026                  MOV     MSGCOD,RKMR1(R2) ;LOAD MESSAGE SELECT CODE
021114  052762  000040  000026                  BIS     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
021122  013762  004244  000010                  MOV     DRVCOD,RKCS2(R2) ;LOAD DRIVE SELECT CODE
021130  012762  000001  000000                  MOV     #SELDRV,RKCS1(R2) ;ISSUE DRIVE SELECT
021136  012700  000116                          MOV     #19.*4+2,R0     ;LOAD DRIVE MESSAGE AND SHIFT
021142  052762  000400  000026          2$:     BIS     #MCLK,RKMR1(R2) ;  ALL 16 BITS
021150  042762  000400  000026                  BIC     #MCLK,RKMR1(R2)
021156  005300                                  DEC     R0
021160  001370                                  BNE     2$
021162  016237  000034  004146                  MOV     RKMR2(R2),T.MR2 ;STORE SHIFTED MESSAGE B
021170  016237  000036  004150                  MOV     RKMR3(R2),T.MR3 ;STORE SHIFTED MESSAGE A
021176  013737  004150  001160                  MOV     T.MR3,$TMP0     ;MASK ALL BITS EXCEPT PARITY
021204  042737  077777  001160                  BIC     #77777,$TMP0
021212  023737  004260  001160                  CMP     PARBIT,$TMP0    ;CHECK IF PARITY BIT CORRECT
021220  001002                                  BNE     3$              ;  ON MESSAGE A
021222  104052                                  ERROR   52              ;NO, PARITY ON MESSAGE INCORRECT
021224  000426                                  BR      25$             ;CHECK IF LOOP ON ERROR
021226  013737  004146  001160          3$:     MOV     T.MR2,$TMP0     ;MASK ALL BITS EXCEPT PARITY
021234  042737  077777  001160                  BIC     #77777,$TMP0
021242  023737  004260  001160                  CMP     PARBIT,$TMP0    ;CHECK IF PARITY CORRECT
021250  001402                                  BEQ     4$              ;  MESSAGE B
021252  104053                                  ERROR   53              ;PARITY ON MESSAGE B INCORRECT
021254  000412                                  BR      25$             ;CHECK IF LOOP ON ERROR
021256  023737  004210  004150          4$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE A CORRECT
021264  001401                                  BEQ     5$              ;YES, CHECK IN MESSAGE B CORRECT
021266  104054                                  ERROR   54              ;MESSAGE A INCORRECT
021270  023737  004206  004146          5$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE B CORRECT
021276  001401                                  BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
021300  104055                                  ERROR   55              ;MESSAGE B INCORRECT
021302  104415                          25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
021304  005737  004244                          TST     DRVCOD          ;CHECK IF DRIVE SELECT = 0 (FINISHED)
021310  001416                                  BEQ     TST41           ;;YES,GO ON TO NEXT TEST
021312  005037  004244                          CLR     DRVCOD          ;SET DRIVE SELECT CODE = 0
```

```
4481  021316  012737  000001  004246          MOV     #1,MSGCOD       ;SET MESSAGE SELECT CODE
4482  021324  012737  000001  004206          MOV     #BIT0,E.MR2     ;LOAD EXPECTED MAINT REG 2 (MESS B)
4483  021332  012737  100000  004210          MOV     #BIT15,E.MR3    ;LOAD EXPECTED MAINT REG 3 (MESS A)
4484  021340  005037  004260                  CLR     PARBIT          ;LOAD PARITY FOR MESSAGE B
4485  021344  000655                          BR      1$              ;TRY SECOND CONFIGURATION
4486
4487                                  ;;*****************************************************************
4488                                  ;*TEST 41       EVEN DRIVE MESSAGE PARITY GENERATION
4489                                  ;*
4490                                  ;*      CLEAR RK611 WITH CONTROLLER CLEAR. PUT CONTROLLER
4491                                  ;*      IN DIAGNOSTIC MODE AND MESSAGE SELECT = 1
4492                                  ;*      AND BAD PARITY SET. LOAD COMMAND AND STATUS
4493                                  ;*      REGISTER 2 WITH DRIVE SELECT = 1. LOAD COMMAND
4494                                  ;*      AND STATUS REGISTER SELECT COMMAND. VERIFY THAT
4495                                  ;*      EVEN PARITY IS GENERATED.  REPEAT FOR MESSAGE SELECT =
4496                                  ;*      DRIVE SELECT = 2-17.
4497                                  ;*
4498                                  ;;*****************************************************************
4499  021346  000004                  TST41:  SCOPE
4500  021350  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
4501  021356  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
4502  021362  012737  000001  004244          MOV     #1,DRVCOD       ;LOAD DRIVE CODE
4503  021370  012737  021376  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
4504                                                                  ;  SUBTEST LOOP
4505
4506  021376                          1$:
4507  021376  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
4508  021404  013762  004244  000026          MOV     DRVCOD,RKMR1(R2)        ;LOAD MESSAGE SELECT CODE
4509  021412  052762  000060  000026          BIS     #DMD!PAT,RKMR1(R2)      ;PUT RK611 IN MAINTENANCE MODE
4510                                                                  ;  AND SET BAD PARITY
4511  021420  013762  004244  000010          MOV     DRVCOD,RKCS2(R2)        ;LOAD DRIVE SELECT CODE
4512  021426  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)       ;ISSUE SELECT DRIVE
4513  021434  012700  000116                  MOV     #19.*4+2,R0     ;LOAD DRIVE MESSAGE AND SHIFT
4514  021440  052762  000400  000026  2$:     BIS     #MCLK,RKMR1(R2) ;  ALL 16 BITS
4515  021446  042762  000400  000026          BIC     #MCLK,RKMR1(R2)
4516  021454  005300                          DEC     R0
4517  021456  001370                          BNE     2$
4518  021460  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE SHIFTED MESSAGE B
4519  021466  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE SHIFTED MESSAGE A
4520  021474  013701  004244                  MOV     DRVCOD,R1       ;DETERMINE PARITY
4521  021500  012703  000004                  MOV     #4,R3
4522  021504  005004                          CLR     R4
4523  021506  006001                  3$:     ROR     R1
4524  021510  103001                          BCC     4$
4525  021512  005204                          INC     R4
4526  021514  005303                  4$:     DEC     R3
4527  021516  001373                          BNE     3$
4528  021520  013737  004244  004206          MOV     DRVCOD,E.MR2    ;LOAD EXPECTED SHIFTED REG. B
4529  021526  013737  004244  004210          MOV     DRVCOD,E.MR3    ;LOAD EXPECTED SHIFTED REG. A
4530  021534  005037  004260                  CLR     PARBIT
4531  021540  032704  000001                  BIT     #BIT0,R4        ;CHECK FOR PARITY ON WORD
4532  021544  001411                          BEQ     5$              ;PARITY ALREADY EVEN
4533  021546  012737  100000  004260          MOV     #BIT15,PARBIT   ;SET PARITY BIT
4534  021554  052737  100000  004206          BIS     #BIT15,E.MR2
4535  021562  052737  100000  004210          BIS     #BIT15,E.MR3
4536  021570  013737  004150  001160  5$:     MOV     T.MR3,$TMP0     ;MASK ALL BITS EXCEPT PARITY
```

```
4537  021576  042737  077777  001160          BIC     #77777,$TMP0
4538  021604  023737  004260  001160          CMP     PARBIT,$TMP0    ;CHECK IF PARITY CORRECT
4539  021612  001402                          BEQ     6$              ;  ON MESSAGE A
4540  021614  104056                          ERROR   56              ;PARITY ON MESSAGE A INCORRECT
4541  021616  000426                          BR      25$             ;CHECK IF LOOP ON ERROR
4542
4543  021620  013737  004146  001160  6$:     MOV     T.MR2,$TMP0     ;MASK ALL BITS EXCEPT PARITY
4544  021626  042737  077777  001160          BIC     #77777,$TMP0
4545  021634  023737  004260  001160          CMP     PARBIT,$TMP0    ;CHECK IF PARITY CORRECT
4546  021642  001402                          BEQ     7$              ;  ON MESSAGE B
4547  021644  104057                          ERROR   57              ;PARITY ON MESSAGE B INCORRECT
4548  021646  000412                          BR      25$             ;CHECK IF LOOP ON ERROR
4549
4550  021650  023737  004210  004150  7$:     CMP     E.MR3,T.MR3     ;CHECK IF MESSAGE A CORRECT
4551  021656  001401                          BEQ     8$              ;YES, CHECK MESSAGE B
4552  021660  104060                          ERROR   60              ;MESSAGE A INCORRECT
4553  021662  023737  004206  004146  8$:     CMP     E.MR2,T.MR2     ;CHECK IF MESSAGE B CORRECT
4554  021670  001401                          BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
4555  021672  104061                          ERROR   61              ;MESSAGE B INCORRECT
4556  021674  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
4557  021676  005237  004244                  INC     DRVCOD          ;INCREMENT DRIVE SELECT CODE
4558  021702  022737  000017  004244          CMP     #17,DRVCOD      ;CHECK IF FINISHED
4559  021710  103232                          BHIS    1$              ;NO, TRY NEXT CONFIGURATION
4560
4561
4562                                  .SBTTL  **CLASS A COMMAND EXECUTION
4563
4564                                  ;;*********************************************************************
4565                                  ;*TEST 42        RELEASE COMMAND IN DIAGNOSTIC MODE
4566                                  ;*
4567                                  ;*      CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
4568                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD COMMAND AND
4569                                  ;*      STATUS REGISTER 2 WITH DRIVE SELECT = 10. LOAD
4570                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A SELECT.
4571                                  ;*      CLOCK COMMAND TO COMPLETION. MAKE SURE UNIT
4572                                  ;*      FIELD ERROR DOES NOT SET (SACK HIGH). REPEAT FOR
4573                                  ;*      DRIVE SELECT = 11-17.
4574                                  ;*
4575                                  ;;*********************************************************************
4576  021712  000004                  TST42:  SCOPE
4577  021714  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
4578  021722  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
4579  021726  012737  000010  004244          MOV     #10,DRVCOD      ;INITIALIZE FOR DESELECT OF DRIVE 0
4580  021734  012737  021742  001170          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
4581                                                                  ;  SUBTEST LOOP
4582
4583  021742                          1$:
4584  021742  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
4585  021750  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
4586  021756  013762  004244  000010          MOV     DRVCOD,RKCS2(R2) ;LOAD DRIVE SELECTION
4587  021764  012762  000001  000000          MOV     #SELDRV,RKCS1(R2) ;ISSUE DESELECT
4588  021772  012700  000120                  MOV     #20.*4,R0       ;LOAD COUNT TO COMPLETE COMMAND
4589  021776  012762  000440  000026  2$:     MOV     #DMD!MCLK,RKMR1(R2) ;CLOCK THRU COMMAND
4590  022004  012762  000040  000026          MOV     #DMD,RKMR1(R2)
4591  022012  005300                          DEC     R0
4592  022014  001370                          BNE     2$
```

```
 4593  022016  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
 4594  022024  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
 4595  022032  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REGISTER
 4596  022040  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REGISTER
 4597  022046  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED COMMAND AND STATUS REG. 1
 4598  022054  013737  004244  004170          MOV     DRVCOD,E.CS2    ;GENERATE EXPECTED COMMAND AND
 4599  022062  052737  000100  004170          BIS     #IR,E.CS2       ;  STATUS REG. 2
 4600  022070  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REGISTER
 4601  022074  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REGISTER
 4602  022100  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
 4603  022106  001401                          BEQ     3$              ;YES, CHECK CS2
 4604  022110  104062                          ERROR   62              ;COMMAND AND STATUS REG. 1 INCORRECT
 4605  022112  023737  004170  004130  3$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
 4606  022120  001401                          BEQ     4$              ;YES, CHECK ERROR REGISTER
 4607  022122  104063                          ERROR   63              ;COMMAND AND STATUS REG. 2 INCORRECT
 4608  022124  023737  004174  004134  4$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
 4609  022132  001401                          BEQ     5$              ;YES, CHECK DRIVE STATUS REG
 4610  022134  104064                          ERROR   64              ;ERROR REGISTER INCORRECT
 4611  022136  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
 4612  022144  001401                          BEQ     6$              ;YES, CHECK IF LOOP ON ERROR
 4613  022146  104126                          ERROR   126             ;DRIVE STATUS REG INCORRECT
 4614  022150  104415                  6$:     SCOP1                   ;CHECK IF LOOP ON ERROR
 4615  022152  005237  004244                  INC     DRVCOD          ;INCREMENT DRIVE NUMBER
 4616  022156  022737  000017  004244          CMP     #17,DRVCOD      ;CHECK IF ALL DRIVE NUMBERS TESTED
 4617  022164  103266                          BHIS    1$              ;NO, DO IT FOR NEXT DRIVE NUMBER
 4618
 4619                                  ;;*********************************************************************
 4620                                  ;*TEST 43        SELECT COMMAND IN DIAGNOSTIC MODE
 4621                                  ;*
 4622                                  ;*      CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
 4623                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. LOAD COMMAND AND
 4624                                  ;*      STATUS REGISTER 2 WITH DRIVE SELECT = 0. LOAD
 4625                                  ;*      COMMAND AND STATUS REGISTER 1 WITH A SELECT.
 4626                                  ;*      CLOCK COMMAND TO COMPLETION. MAKE SURE MESSAGE SHIFT IS
 4627                                  ;*      NOT DONE DURING THE RECEIVE CYCLE OF DRIVE MESSAGE.
 4628                                  ;*      MAKE SURE NO ERRORS SET. REPEAT FOR DRIVE SELECT = 1-7.
 4629                                  ;*
 4630                                  ;;*********************************************************************
 4631  022166  000004                  TST43:  SCOPE
 4632  022170  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 4633  022176  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 4634  022202  005037  004244                  CLR     DRVCOD          ;INITIALIZE FOR SELECT OF DRIVE 0
 4635  022206  012737  022214  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
 4636                                                                  ;  SUBTEST LOOP
 4637
 4638  022214                          1$:
 4639  022214  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 4640  022222  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
 4641  022230  013762  004244  000010          MOV     DRVCOD,RKCS2(R2)        ;LOAD DRIVE SELECT
 4642  022236  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)       ;ISSUE DRIVE SELECT
 4643  022244  012700  000120                  MOV     #20.*4,R0       ;LOAD COUNT TO DESELECT COMPLETE
 4644  022250  012762  000440  000026  2$:     MOV     #DMD.MCLK,RKMR1(R2)     ;CLOCK UNTIL DESELECT FINISHED
 4645  022256  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 4646  022264  005300                          DEC     R0
 4647  022266  001370                          BNE     2$
 4648  022270  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
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```
 4649  022276  012737  000001  004160          MOV     #SELDRV,E.CS1   ;LOAD EXPECTED COMMAND AND STATUS REG. 1
 4650  022304  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF READY RESET
 4651  022312  001402                          BEQ     3$              ;YES, CONTINUE COMMAND
 4652  022314  104065                          ERROR   65              ;COMMAND AND STATUS REG. 1 INCORRECT
 4653  022316  000566                          BR      25$             ;GO CHECK IF LOOP ON ERROR
 4654
 4655  022320  013703  004244          3$:     MOV     DRVCOD,R3       ;GENERATE EXPECTED MAINT REG 3
 4656  022324  012701  000003                  MOV     #3,R1
 4657  022330  005000                          CLR     R0
 4658  022332  006003                  4$:     ROR     R3
 4659  022334  103001                          BCC     5$
 4660  022336  005200                          INC     R0
 4661  022340  005301                  5$:     DEC     R1
 4662  022342  001373                          BNE     4$
 4663  022344  013737  004244  004210          MOV     DRVCOD,E.MR3
 4664  022352  032700  000001                  BIT     #BIT0,R0
 4665  022356  001003                          BNE     6$
 4666  022360  052737  100000  004210          BIS     #BIT15,E.MR3
 4667  022366  012737  100000  004206  6$:     MOV     #BIT15,E.MR2    ;STORE EXPECTED MAINT REG 2
 4668  022374  012701  000003                  MOV     #3,R1           ;ISSUE 3 CONTROL CLOCKS
 4669  022400  012700  000004          7$:     MOV     #4,R0
 4670  022404  012762  000440  000026  8$:     MOV     #DMD!MCLK,RKMR1(R2)
 4671  022412  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 4672  022420  005300                          DEC     R0
 4673  022422  001370                          BNE     8$
 4674  022424  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
 4675  022432  016237  000034  004146          MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG 2
 4676  022440  016237  000036  004150          MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG 3
 4677  022446  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
 4678  022454  001402                          BEQ     9$              ;YES, CHECK MAINTENANCE REG. 2
 4679  022456  104066                          ERROR   66              ;CS1 INCORRECT
 4680  022460  000505                          BR      25$             ;CHECK IF LOOP ON ERROR
 4681
 4682  022462  023737  004206  004146  9$:     CMP     E.MR2,T.MR2     ;CHECK MAINT REG 2 CORRECT
 4683  022470  001402                          BEQ     10$             ;YES, CHECK MAINTENANCE REG 3
 4684  022472  104067                          ERROR   67              ;MR2 INCORRECT
 4685  022474  000477                          BR      25$             ;CHECK IF LOOP ON ERROR
 4686
 4687  022476  023737  004210  004150  10$:    CMP     E.MR3,T.MR3     ;CHECK IF MAINT REG 3 CORRECT
 4688  022504  001402                          BEQ     11$             ;YES, CHECK COMMAND COMPLETE
 4689  022506  104070                          ERROR   70              ;MR3 INCORRECT
 4690  022510  000471                          BR      25$             ;CHELK IF LOOP ON ERROR
 4691
 4692  022512  005301                  11$:    DEC     R1              ;CHECK IF COMMAND FINISHED
 4693  022514  001331                          BNE     7$              ;NO, ISSUE ANOTHER CONTROL CLOCK
 4694  022516  012700  000004                  MOV     #4,R0           ;ISSUE LAST CONTROL CLOCK FOR READY
 4695  022522  012762  000440  000026  12$:    MOV     #DMD.MCLK,RKMR1(R2)
 4696  022530  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 4697  022536  005300                          DEC     R0
 4698  022540  001370                          BNE     12$
 4699  022542  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
 4700  022550  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
 4701  022556  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REGISTER
 4702  022564  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REGISTER
 4703  022572  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED COMMAND AND STATUS REG 1
 4704  022600  013737  004244  004170          MOV     DRVCOD,E.CS2    ;GENERATE EXPECTED COMMAND AND STATUS REG. 2
```

```
4705  022606  052737  000100  004170          BIS     #IR,E.CS2
4706  022614  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REGISTER
4707  022620  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REGISTER
4708  022624  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
4709  022632  001401                          BEQ     13$             ;YES, CHECK CS2
4710  022634  104071                          ERROR   71              ;CS1 INCORRECT
4711  022636  023737  004170  004130  13$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
4712  022644  001401                          BEQ     14$             ;YES, CHECK ERROR REG
4713  022646  104072                          ERROR   72              ;CS2 INCORRECT
4714  022650  023737  004174  004134  14$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
4715  022656  001401                          BEQ     15$             ;YES, CHECK DRIVE STATUS REG CORRECT
4716  022660  104073                          ERROR   73              ;ERROR REG INCORRECT
4717  022662  023737  004172  004132  15$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
4718  022670  001401                          BEQ     25$             ;YES, CHECK IF LOOP ON ERROR
4719  022672  104127                          ERROR   127             ;DRIVE STATUS REGISTER INCORRECT
4720  022674  104415                  25$:    SCOP1                   ;CHECK IF LOOP ON ERROR
4721  022676  005237  004244                  INC     DRVCOD          ;INCREMENT DRIVE NUMBER
4722  022702  022737  000007  004244          CMP     #7,DRVCOD       ;CHECK IF ALL DRIVES TESTED
4723  022710  103402                          BLO     TST44           ;;YES, GO TO NEXT TEST
4724  022712  000137  022214                  JMP     1$              ;TRY NEXT DRIVE
4725
4726                                  ;;*******************************************************************
4727                                  ;*TEST 44       RELEASE COMMAND IN NORMAL MODE
4728                                  ;*
4729                                  ;*      CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
4730                                  ;*      LOAD COMMAND AND STATUS REGISTER 2 WITH DRIVE SELECT - 10.
4731                                  ;*      LOAD COMMAND AND STATUS REGISTER 1 WITH A SELECT.
4732                                  ;*      MAKE SURE NO ERRORS OCCUR. REPEAT FOR DRIVE
4733                                  ;*      SELECT - 11-17
4734                                  ;*
4735                                  ;;*******************************************************************
4736  022716  000004                  TST44:  SCOPE
4737  022720  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
4738  022726  013702  001270                  MOV     $BASE, R2       ;LOAD RK611 BASE
4739  022732  012737  000010  004244          MOV     #10,DRVCOD      ;INITIALIZE FOR DESELECT OF DRIVE 0
4740  022740  012737  022746  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
4741                                                                  ;  SUBTEST LOOP
4742
4743  022746                          1$:
4744  022746  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
4745  022754  013762  004244  000010          MOV     DRVCOD,RKCS2(R2)        ;LOAD DRIVE SELECTION
4746  022762  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)       ;ISSUE DESELECT
4747  022770  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
4748  022774  105762  000000          2$:     TSTB    RKCS1(R2)
4749  023000  100402                          BMI     3$
4750  023002  005300                          DEC     R0
4751  023004  001373                          BNE     2$
4752  023006  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
4753  023014  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
4754  023022  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REGISTER
4755  023030  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG.
4756  023036  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED COMMAND AND STATUS REG. 1
4757  023044  013737  004244  004170          MOV     DRVCOD,E.CS2    ;GENERATE EXPECTED COMMAND AND STATUS REG. 2
4758  023052  052737  000100  004170          BIS     #IR,E.CS2
4759  023060  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
4760  023064  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
```

```
 4761  023070  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
 4762  023076  001401                          BEQ     4$              ;YES, CHECK CS2
 4763  023100  104074                          ERROR   74              ;CS1 INCORRECT
 4764  023102  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
 4765  023110  001401                          BEQ     5$              ;YES, CHECK ERROR REGISTER
 4766  023112  104075                          ERROR   75              ;CS2 INCORRECT
 4767  023114  023737  004174  004134  5$:     CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
 4768  023122  001401                          BEQ     6$              ;YES, CHECK DRIVE STATUS REG CORRECT
 4769  023124  104076                          ERROR   76              ;ERROR REG INCORRECT
 4770  023126  023737  004172  004132  6$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
 4771  023134  001401                          BEQ     7$              ;YES, CHECK IF LOOP ON ERROR
 4772  023136  104130                          ERROR   130             ;DRIVE STATUS REGISTER INCORRECT
 4773  023140  104415                  7$:     SCOP1                   ;CHECK IF LOOP ON ERROR
 4774  023142  005237  004244                  INC     DRVCOD          ;INCREMENT DRIVE NUMBER
 4775  023146  022737  000017  004244          CMP     #17,DRVCOD      ;CHECK IF ALL DRIVE NUMBERS TESTED
 4776  023154  103274                          BHIS    1$              ;NO, DO IT FOR NEXT DRIVE
 4777
 4778                                  ;;*****************************************************************
 4779                                  ;*TEST 45       INTERRUPT AT COMMAND COMPLETION
 4780                                  ;*
 4781                                  ;*      CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
 4782                                  ;*      LOWER PROCESSOR PRIORITY TO ZERO. ISSUE A RELEASE
 4783                                  ;*      COMMAND WITH INTERRUPT ENABLE SET. MAKE SURE
 4784                                  ;*      INTERRUPT OCCURS  LOWER PRIORITY AFTER INTERRUPT
 4785                                  ;*      AND MAKE SURE INTERRUPT HAS CLEARED.
 4786                                  ;*
 4787                                  ;*      LOWER PROCESSOR PRIORITY TO ZERO.  REISSUE RELEASE
 4788                                  ;*      WITH INTERRUPT ENABLE RESET.  MAKE SURE NO INTERRUPT
 4789                                  ;*      OCCURS.  SET INTERRUPT ENABLE AND MAKE SURE NO
 4790                                  ;*      INTERRUPT OCCURS.
 4791                                  ;*
 4792                                  ;;*****************************************************************
 4793  023156  000004                  TST45:  SCOPE
 4794  023160  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 4795  023166  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 4796  023172  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 4797  023200  012762  000010  000010          MOV     #10,RKCS2(R2)   ;SET DESELECT BIT
 4798  023206  013701  004234                  MOV     RKVEC,R1        ;LOAD INTERRUPT VECTOR
 4799  023212  012721  023274                  MOV     #5$,(R1)+
 4800  023216  012711  000340                  MOV     #PR7,(R1)
 4801  023222  005046                          CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
 4802  023224  012746  023232                  MOV     #64$,-(SP)      ;LOAD NEXT ADDRESS
 4803  023230  000002                          RTI                     ;CLEAR PSW
 4804
 4805  023232                          64$:
 4806  023232  012762  000101  000000          MOV     #SELDRV!IF,RKCS1(R2)    ;ISSUE SELECT DRIVE
 4807  023240  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
 4808  023244  105762  000000          2$:     TSTB    RKCS1(R2)
 4809  023250  100402                          BMI     3$
 4810  023252  005300                          DEC     R0
 4811  023254  001373                          BNE     2$
 4812  023256  012746  000340          3$:     MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPTS
 4813  023262  012746  023270                  MOV     #4$,-(SP)
 4814  023266  000002                          RTI
 4815
 4816  023270  104100                  4$:     ERROR   100             ;INTERRUPT DID NOT OCCUR
```

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4817  023272  000522                          BR      25$
4818
4819  023274  062706  000004          5$:     ADD     #4,SP           ;ADJUST STACK
4820  023300  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
4821  023306  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
4822  023314  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG.
4823  023322  012737  000300  004160          MOV     #RDY!IE,E.CS1   ;LOAD EXPECTED CS1
4824  023330  012737  000110  004170          MOV     #IR!10,E.CS2    ;LOAD EXPECTED CS2
4825  023336  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR
4826  023342  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
4827  023350  001401                          BEQ     6$              ;YES, CHECK CS2
4828  023352  104101                          ERROR   101             ;CS1 INCORRECT
4829  023354  023737  004170  004130  6$:     CMP     E.CS2,T.CS2     ;CHECK IF CS2 INCORRECT
4830  023360  001401                          BEQ     7$              ;YES, CHECK IF ERROR REG CORRECT
4831  023364  104102                          ERROR   102             ;CS2 INCORRECT
4832  023366  023737  004174  004134  7$:     CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
4833  023374  001401                          BEQ     8$              ;YES, CHECK IF INTERRUPT CLEARED
4834  023376  104103                          ERROR   103             ;ERROR REG. INCORRECT
4835  023400  012777  023512  160626  8$:     MOV     #10$,@RKVEC     ;LOAD VECTOR FOR UNEXPECTED INTERRUPT
4836  023406  005046                          CLR     -(SP)           ;LOAD STACK TO ALLOW ALL INTERRUPTS
4837  023410  012746  023416                  MOV     #65$,-(SP)      ;LOAD NEXT ADDRESS
4838  023414  000002                          RTI                     ;CLEAR PSW
4839
4840  023416                          65$:
4841  023416  000240                          NOP                     ;WAIT FOR INTERRUPT
4842  023420  012777  023522  160606          MOV     #15$,@RKVEC     ;LOAD VECTOR ADDRESS FOR UNEXPECTED INTERRUPT
4843  023426  012762  000010  000010          MOV     #10,RKCS2(R2)   ;ISSUE DESELECT
4844  023434  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)
4845  023442  013700  004262                  MOV     WAITIM,R0
4846  023446  105762  000000          9$:     TSTB    RKCS1(R2)
4847  023452  100402                          BMI     11$
4848  023454  005300                          DEC     R0
4849  023456  001373                          BNE     9$
4850  023460  000240                  11$:    NOP                     ;WAIT FOR INTERRUPT
4851  023462  012777  023532  160544          MOV     #20$,@RKVEC     ;LOAD VECTOR ADDRESS FOR UNEXPECTED INTERRUPT
4852  023470  012762  000100  000000          MOV     #IE,RKCS1(R2)   ;SET INTERRUPT ENABLE
4853  023476  000240                          NOP                     ;ALLOW INTERRUPT TO OCCUR
4854  023500  012746  000340                  MOV     #PR7,-(SP)      ;LOCK OUT INTERRUPT
4855  023504  012746  023540                  MOV     #25$,-(SP)      ;RESTORE TRAP CATCHER
4856  023510  000002                          RTI
4857
4858  023512  062706  000004          10$:    ADD     #4,SP           ;ADJUST STACK
4859  023516  104104                          ERROR   104             ;UNEXPECTED INTERRUPT
4860  023520  000407                          BR      25$             ;RESTORE TRAP CATCHER
4861
4862  023522  062706  000004          15$:    ADD     #4,SP           ;ADJUST STACK
4863  023526  104254                          ERROR   254             ;UNEXPECTED INTERRUPT ON DESELECT
4864  023530  000403                          BR      25$             ;RESTORE TRAP CATCHER
4865
4866  023532  062706  000004          20$:    ADD     #4,SP           ;ADJUST STACK
4867  023536  104255                          ERROR   255             ;UNEXPECTED INTERRUPT WHEN SETTING
4868                                                                  ;  INTERRUPT ENABLE
4869  023540  012762  000040  000010  25$:    MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
4870  023546  013701  004234                  MOV     RKVEC,R1        ;RESTORE TRAP CATCHER
4871  023552  010111                          MOV     R1,(R1)
4872  023554  062721  000002                  ADD     #2,(R1)+
```

```
4873  023560  00501                          CLR     (R1)
4874
4875                                  ;;*****************************************************************
4876                                  ;*TEST 46       GO CLEAR OF SILO
4877                                  ;*
4878                                  ;*       CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
4879                                  ;*       WRITE ONE WORD INTO THE SILO.  ISSUE A RELEASF COMMAND
4880                                  ;*       WITH INTERRUPT ENABLE RESET.  WAIT FOR READY.
4881                                  ;*       READ THE DATA BUFFER TO MAKE SURE THE SILO HAS BEEN
4882                                  ;*       CLEARED. (DATA LATE SET AFTER READ OF DATA BUFFER)
4883                                  ;*
4884                                  ;;*****************************************************************
4885  023562  000004                  TST46:  SCOPE
4886  023564  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
4887  023572  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
4888  023576  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
4889  023604  005062  000024                  CLR     RKDB(R2)        ;LOAD 1 WORD IN SILO
4890  023610  012762  000010  000010          MOV     #10,RKCS2(R2)   ;LOAD DESELECT DRIVE 0
4891  023616  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)       ;ISSUE DESELECT
4892  023624  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
4893  023630  105762  000000          2$:     TSTB    RKCS1(R2)
4894  023634  100402                  BMI     3$
4895  023636  005300                  DEC     R0
4896  023640  001373                  BNE     2$
4897  023642  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
4898  023650  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
4899  023656  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REGISTER
4900  023664  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REGISTER
4901  023672  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
4902  023700  012737  000110  004170          MOV     #IR!10,E.CS2    ;LOAD EXPECTED CS2
4903  023706  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
4904  023712  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REGISTER
4905  023716  023737  004170  004130          CMP     E.CS2,T.CS2     ;CHECK IF CS1 CORRECT
4906  023724  001401                  BEQ     10$             ;YES, READ WORD FROM SILO
4907  023726  104105                  ERROR   105             ;CS2 INCORRECT
4908  023730  005762  000024          10$:    TST     RKDB(R2)        ;READ SILO TO MAKE IT IS CLEAR
4909  023734  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
4910  023742  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
4911  023750  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG.
4912  023756  012737  100200  004160          MOV     #CERR!RDY,E.CS1 ;LOAD EXPECTED CS1
4913  023764  012737  100110  004170          MOV     #DLT!IR!10,E.CS2 ;LOAD EXPECTED CS2
4914  023772  023737  004170  004130          CMP     E.CS2,T.CS2     ;CHECK IF DATA LATE SET
4915  024000  001401                  BEQ     11$             ;YES, CLEAR CONTROLLER REG. 1
4916  024002  104106                  ERROR   106             ;DATA LATE NOT SET
4917  024004  012762  100000  000000  11$:    MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
4918
4919                                  ;;*****************************************************************
4920                                  ;*TEST 47       SEEK COMMAND IN DIAGNOSTIC MODE
4921                                  ;*
4922                                  ;*       CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
4923                                  ;*       PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK WITH CDT SET
4924                                  ;*       24 SECTOR FORMAT TO CYLINDER 1714, HEAD 7, DRIVE 0.
4925                                  ;*       MAKE SURE NO STATUS BITS ARE SET AND NO ERROR
4926                                  ;*       BITS ARE SET.
4927                                  ;*
4928                                  ;;*****************************************************************
```

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 4929  024012  000004                    TST47:  SCOPE
 4930  024014  012737  000144  001200            MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 4931  024022  013702  001270                    MOV     $BASE,R2        ;LOAD RK611 BASE
 4932  024026  012762  000040  000010            MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 4933  024034  012762  000040  000026            MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
 4934  024042  012762  001714  000020            MOV     #1714,RKDCYL(R2)        ;LOAD CYLINDER ADDRESS
 4935  024050  012762  003400  000006            MOV     #3400,RKDA(R2)  ;LOAD HEAD 7
 4936  024056  012762  012017  000000            MOV     #SEEK!CFMT!CDT,RKCS1(R2)        ;ISSUE SEEK CDT SET,24 SECTOR
 4937  024064  012700  000120                    MOV     #20.*4,R0       ;LOAD COUNT TO DESELECT DECISION
 4938  024070  012762  000440  000026  2$:       MOV     #DMD!MCLK,RKMR1(R2)
 4939  024076  012762  000040  000026            MOV     #DMD,RKMR1(R2)
 4940  024104  005300                            DEC     R0
 4941  024106  001370                            BNE     2$
 4942  024110  016237  000000  004120            MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
 4943  024116  012737  012017  004160            MOV     #SEEK!CFMT!CDT,E.CS1    ;LOAD EXPECTED COMMAND AND STATUS REG 1
 4944  024124  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK IF READY RESET
 4945  024132  001402                            BEQ     3$              ;YES, CONTINUE COMMAND
 4946  024134  104107                            ERROR   107
 4947  024136  000543                            BR      TST50           ;;GO ON TO NEXT TEST
 4948
 4949  024140  012737  071020  004210  3$:       MOV     #S.SEEK!S.FMT!70000,E.MR3       ;LOAD EXPECTED MAINT REG. 3
 4950  024146  012737  136300  004206            MOV     #136300,E.MR2   ;LOAD EXPECTED MAINT REG. 2
 4951  024154  012701  000003                    MOV     #3,R1           ;ISSUE 3 CONTROL CLOCKS
 4952  024160  012700  000004            4$:     MOV     #4,R0
 4953  024164  012762  000440  000026  5$:       MOV     #DMD.MCLK,RKMR1(R2)
 4954  024172  012762  000040  000026            MOV     #DMD,RKMR1(R2)
 4955  024200  005300                            DEC     R0
 4956  024202  001370                            BNE     5$
 4957  024204  016237  000000  004120            MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
 4958  024212  016237  000034  004146            MOV     RKMR2(R2),T.MR2 ;STORE MAINT REG 2
 4959  024220  016237  000036  004150            MOV     RKMR3(R2),T.MR3 ;STORE MAINT REG 3
 4960  024226  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG. 1 CORRECT
 4961  024234  001402                            BEQ     6$              ;YES, CHECK MAINTENANCE REG. 2
 4962  024236  104110                            ERROR   110             ;CS1 INCORRECT
 4963  024240  000502                            BR      TST50           ;;GO TO NEXT TEST
 4964
 4965  024242  023737  004206  004146  6$:       CMP     E.MR2,T.MR2     ;CHECK MAINT REG 2 CORRECT
 4966  024250  001402                            BEQ     7$              ;YES, CHECK MAINTENANCE REG 3
 4967  024252  104111                            ERROR   111             ;MAINT REG 2 INCORRECT
 4968  024254  000474                            BR      TST50           ;;GO TO NEXT TEST
 4969
 4970  024256  023737  004210  004150  7$:       CMP     E.MR3,T.MR3     ;CHECK IF MAINT REG 3 CORRECT
 4971  024264  001402                            BEQ     8$              ;YES, CHECK COMMAND COMPLETE
 4972  024266  104112                            ERROR   112             ;MR3 INCORRECT
 4973  024270  000466                            BR      TST50           ;;GO TO NEXT TEST
 4974
 4975  024272  005301                    8$:     DEC     R1              ;CHECK IF COMMAND FINISHED
 4976  024274  001331                            BNE     4$              ;NO, ISSUE ANOTHER CONTROL CLOCK
 4977
 4978  024276  012700  000004                    MOV     #4,R0           ;ISSUE LAST CONTROL CLOCK FOR READY
 4979  024302  012762  000440  000026  9$:       MOV     #DMD!MCLK,RKMR1(R2)
 4980  024310  012762  000040  000026            MOV     #DMD,RKMR1(R2)
 4981  024316  005300                            DEC     R0
 4982  024320  001370                            BNE     9$
 4983  024322  016237  000000  004120            MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG. 1
 4984  024330  016237  000010  004130            MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG. 2
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 4985  024336  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REGISTER
 4986  024344  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REGISTER
 4987  024352  012737  012216  004160          MOV     #RDY.CFMT!CDT!<SEEK&^C<GO>>,E.CS1       ;LOAD EXPECTED CS1
 4988  024360  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
 4989  024366  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REGISTER
 4990  024372  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REGISTER
 4991  024376  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK IF COMMAND AND STATUS REG. 2
 4992  024404  001401                          BEQ     10$             ;YES, CHECK CS2
 4993  024406  104113                          ERROR   113             ;CS1 INCORRECT
 4994  024410  023737  004170  004130  10$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
 4995  024416  001401                          BEQ     11$             ;YES, CHECK ERROR REG
 4996  024420  104114                          ERROR   114             ;CS2 INCORRECT
 4997  024422  023737  004174  004134  11$:    CMP     E.ER,T.ER       ;CHECK ERROR REGISTER
 4998  024430  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
 4999  024432  104115                          ERROR   115             ;ERROR REG. INCORRECT
 5000  024434  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REGISTER CORRECT
 5001  024442  001401                          BEQ     TST50           ;;YES, GO ON TO NEXT TEST
 5002  024444  104131                          ERROR   131             ;DRIVE STATUS REGISTER INCORRECT
 5003
 5004                                  .SBTTL  **ERROR AND STATUS BIT FORCING WITH DRIVE MESSAGES
 5005
 5006                                  ;;*****************************************************************
 5007                                  ;*TEST 50       DRIVE STATUS FROM SHIFT REGISTER
 5008                                  ;*
 5009                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
 5010                                  ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
 5011                                  ;*      TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 757, HEAD 1,
 5012                                  ;*      DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS
 5013                                  ;*      6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE SPEED LOSS,
 5014                                  ;*      DRIVE AVAILABLE, VOLUME VALID, OFFSET, DRIVE READY,
 5015                                  ;*      AND WRITE LOCK ARE SET.
 5016                                  ;*
 5017                                  ;;*****************************************************************
 5018  024446  000004                  TST50:  SCOPE
 5019  024450  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 5020  024456  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 5021  024462  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 5022  024470  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
 5023  024476  012762  000757  000020          MOV     #757,RKDCYL(R2) ;LOAD CYLINDER ADDRESS
 5024  024504  012762  000400  000006          MOV     #400,RKDA(R2)   ;LOAD HEAD ADD =1
 5025  024512  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
 5026  024520  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
 5027  024524  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
 5028  024532  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 5029  024540  005300                          DEC     R0
 5030  024542  001370                          BNE     1$
 5031  024544  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
 5032  024550  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR FOR READY
 5033  024554  105762  000000          2$:     TSTB    RKCS1(R2)
 5034  024560  100412                          BMI     3$
 5035  024562  005300                          DEC     R0
 5036  024564  001373                          BNE     2$
 5037  024566  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
 5038  024574  012737  000216  004160          MOV     #RDY!SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
 5039  024602  104132                          ERROR   132             ;READY NOT SET
 5040  024604  000460                          BR      10$             ;CLEAR RK06 SUBSYSTEM
```

```
 5041
 5042  024606  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
 5043  024614  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
 5044  024622  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REF
 5045  024630  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG.
 5046  024636  012737  000216  004160          MOV     #RDY!SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECT CS1
 5047  024644  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
 5048  024652  012737  104325  004172          MOV     #DRA!OFST!SPDLSS!VV!DRDY!WRL!SVAL,E.DS ;LOAD EXPECTED DRIVE STATUS
 5049  024660  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REGESTER
 5050  024664  032737  004325  004132          BIT     #DRA!OFST.SPDLSS.VV!DRDY!WRL,T.DS ;CHECK LOAD STATUS SET
 5051  024672  001001                          BNE     4$              ;YES, CHECK REGISTERS
 5052  024674  104133                          ERROR   133             ;NO BIT IN DRIVE STATUS SET
 5053  024676  023737  004160  004120  4$:     CMP     E.CS1,T.CS1     ;CHECK CS1 CORRECT
 5054  024704  001401                          BEQ     5$              ;YES, CONTINUE
 5055  024706  104134                          ERROR   134             ;CS1 INCORRECT
 5056  024710  023737  004170  004130  5$:     CMP     E.CS2,T.CS2     ;CHECK CS2 CORRECT
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5057  024716  001403                        BEQ     6$              ;YES, CONTINUE
5058  024720  104135                        ERROR   135             ;CS2, INCORRECT
5059  024722  023737  004174  004134  6$:   CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
5060  024730  001401                        BEQ     7$              ;YES CONTINUE
5061  024732  104136                        ERROR   136             ;ERROR REG INCORRECT
5062  024734  023737  004172  004132  7$:   CMP     E.DS,T.DS       ;CHECK DRIVE STATUS CORRECT
5063  024742  001401                        BEQ     10$             ;CLEAR RK611
5064  024744  104137                        ERROR   137             ;DRIVE STATUS INCORRECT
5065  024746  013737  004120  004220  10$:  MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5066  024754  013737  004130  004222        MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5067  024762  013737  004132  004224        MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5068  024770  013737  004134  004226        MOV     T.ER,P.ER       ;  DRIVE STATUS REG
5069                                                                ;  AND ERROR REG
5070  024776  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5071  025004  016237  000000  004120        MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5072  025012  016237  000010  004130        MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5073  025020  016237  000012  004132        MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5074  025026  016237  000014  004134        MOV     RKER(R2),T.ER   ;STORE ERROR REG
5075  025034  012737  000200  004160        MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5076  025042  012737  000100  004170        MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5077  025050  005037  004172                CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5078  025054  005037  004174                CLR     E.ER            ;LOAD EXPECTED ERROR REG
5079  025060  023737  004160  004120        CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5080  025066  001401                        BEQ     11$             ;YES, CHECK CS2
5081  025070  104224                        ERROR   224             ;CS1 INCORRECT
5082  025072  023737  004170  004130  11$:  CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5083  025100  001401                        BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5084  025102  104225                        ERROR   225             ;CS2 INCORRECT
5085  025104  023737  004172  004132  12$:  CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5086  025112  001401                        BEQ     13$             ;YES, CHECK ERROR REG
5087  025114  104226                        ERROR   226             ;ERROR REG INCORRECT
5088  025116  023737  004174  004134  13$:  CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5089  025124  001401                        BEQ     TST51           ;;YES, GO ON TO NEXT TEST
5090  025126  104227                        ERROR   227             ;ERROR REG INCORRECT
5091
5092                                ;;*****************************************************************
5093                                ;*TEST 51        DRIVE AVAILABLE SETTING
5094                                ;*
5095                                ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
5096                                ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK TO A RK06,
5097                                ;*      26 SECTOR FORMAT TO CYLINDER 2, HEAD 0, DRIVE 0.
5098                                ;*      CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
5099                                ;*      TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE
5100                                ;*      AVAILIABLE SETS.
5101                                ;*
5102                                ;;*****************************************************************
5103  025130  000004                TST51:  SCOPE
5104  025132  012737  000144  001200        MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
5105  025140  013702  001270                MOV     $BASE,R2        ;LOAD RK611 BASE
5106  025144  012762  000040  000010        MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
5107  025152  012762  000040  000026        MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
5108  025160  012762  000002  000020        MOV     #2,RKDCYL(R2)   ;LOAD CYLINDER AND
5109  025166  012762  000000  000006        MOV     #0,RKDA(R2)     ;LOAD HEAD ADDRESS
5110  025174  012762  000017  000000        MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
5111  025202  012700  000132                MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
5112  025206  012762  000440  000026  $:    MOV     #DMD!MCLK,RKMR1(R2)
```

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5113  025214  012762  000040  000026          MOV     #DMD,RKMR1(R2)
5114  025222  005300                          DEC     R0
5115  025224  001370                          BNE     1$
5116  025226  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
5117  025232  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
5118  025236  105762  000000          2$:     TSTB    RKCS1(R2)
5119  025242  100402                          BMI     3$
5120  025244  005300                          DEC     R0
5121  025246  001373                          BNE     2$
5122  025250  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5123  025256  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5124  025264  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5125  025272  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5126  025300  012737  000216  004160          MOV     #RDY.SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
5127  025306  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5128  025314  012737  100001  004172          MOV     #SVAL!DRA,E.DS ;LOAD EXPECTED DRIVE STATUS REG
5129  025322  012737  000000  004174          MOV     #0,E.ER ;LOAD EXPECTED ERROR REG
5130  025330  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
5131  025336  001401                          BEQ     4$              ;YES, CONTINUE
5132  025340  104140                          ERROR   140
5133  025342  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
5134  025350  001401                          BEQ     5$              ;YES, CONTINUE
5135  025352  104141                          ERROR   141
5136  025354  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
5137  025362  001401                          BEQ     6$              ;YES, CONTINUE
5138  025364  104142                          ERROR   142
5139  025366  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
5140  025374  001401                          BEQ     7$              ;YES, CLEAR RK611
5141  025376  104143                          ERROR   143
5142  025400  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5143  025406  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5144  025414  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5145  025422  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
5146                                                                  ;  AND ERROR REG
5147  025430  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5148  025436  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5149  025444  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5150  025452  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5151  025460  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5152  025466  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5153  025474  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5154  025502  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5155  025506  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
5156  025512  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5157  025520  001401                          BEQ     11$             ;YES, CHECK CS2
5158  025522  104224                          ERROR   224             ;CS1 INCORRECT
5159  025524  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5160  025532  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5161  025534  104225                          ERROR   225             ;CS2 INCORRECT
5162  025536  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5163  025544  001401                          BEQ     13$             ;YES, CHECK ERROR REG
5164  025546  104226                          ERROR   226             ;ERROR REG INCORRECT
5165  025550  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5166  025556  001401                          BEQ     TST52           ;;YES, GO ON TO NEXT TEST
5167  025560  104227                          ERROR   227             ;ERROR REG INCORRECT
5168
```

```
                                ;;*****************************************************************
                                ;*TEST 52       DRIVE BUS PARITY ERROR
                                ;*
                                ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                                ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK
                                ;*      TO A RK06, 26 SECTOR FORMAT TO CYLINDER 3, HEAD 0,
                                ;*      DRIVE 0. CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
                                ;*      TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE BUS
                                ;*      PARITY, DRIVE AVAILIABLE, AND CONTROLLER ERROR ARE SET.
                                ;*
                                ;*****************************************************************
025562  000004                  TST52:  SCOPE
025564  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
025572  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
025576  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
025604  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
025612  012762  000003  000020          MOV     #3,RKDCYL(R2)   ;LOAD CYLINDER AND
025620  012762  000000  000006          MOV     #0,RKDA(R2)     ;LOAD HEAD ADDRESS
025626  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
025634  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
025640  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
025646  012762  000040  000026          MOV     #DMD,RKMR1(R2)
025654  005300                          DEC     R0
025656  001370                          BNE     1$
025660  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
025664  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
025670  105762  000000          2$:     TSTB    RKCS1(R2)
025674  100402                          BMI     3$
025676  005300                          DEC     R0
025700  001373                          BNE     2$
025702  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
025710  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
025716  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
025724  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
025732  012737  120216  004160          MOV     #CERR!SPAR!RDY!SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
025740  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
025746  012737  100001  004172          MOV     #SVAL!DRA,E.DS ;LOAD EXPECTED DRIVE STATUS REG
025754  012737  000000  004174          MOV     #0,E.ER ;LOAD EXPECTED ERROR REG
025762  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
025770  001401                          BEQ     4$              ;YES, CONTINUE
025772  104144                          ERROR   144
025774  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
026002  001401                          BEQ     5$              ;YES, CONTINUE
026004  104145                          ERROR   145
026006  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
026014  001401                          BEQ     6$              ;YES, CONTINUE
026016  104146                          ERROR   146
026020  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
026026  001401                          BEQ     7$              ;YES, CLEAR RK611
026030  104147                          ERROR   147
026032  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
026040  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
026046  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
026054  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
                                                                ;  AND ERROR REG
026062  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
```

```
5225  026070  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5226  026076  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORF COMMAND AND STATUS REG 2
5227  026104  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5228  026112  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5229  026120  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5230  026126  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5231  026134  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5232  026140  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR PEG
5233  026144  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5234  026152  001401                          BEQ     11$             ;YES, CHECK CS2
5235  026154  104224                          ERROR   224             ;CS1 INCORRECT
5236  026156  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5237  026164  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5238  026166  104225                          ERROR   225             ;CS2 INCORRECT
5239  026170  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5240  026176  001401                          BEQ     13$             ;YES, CHECK ERROR REG
5241  026200  104226                          ERROR   226             ;ERROR REG INCORRECT
5242  026202  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5243  026210  001401                          BEQ     TST53           ;;YES, GO ON TO NEXT TEST
5244  026212  104227                          ERROR   227             ;ERROR REG INCORRECT
5245
5246                                  ;;*****************************************************************
5247                                  ;*TEST 53       DRIVE AVAILABLE RESET ERROR
5248                                  ;*
5249                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
5250                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SELECT
5251                                  ;*      TO A RK06, 26 SECTOR FORMAT, AND DRIVE 0.
5252                                  ;*      CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
5253                                  ;*      TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE AVAILIABLE
5254                                  ;*      IS RESET AND CONTROLLER ERROR IS SET.
5255                                  ;*
5256                                  ;;*****************************************************************
5257  026214  000004                  TST53:  SCOPE
5258  026216  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
5259  026224  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
5260  026230  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
5261  026236  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
5262  026244  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)       ;ISSUE SELDRV
5263  026252  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
5264  026256  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
5265  026264  012762  000040  000026          MOV     #DMD,RKMR1(R2)
5266  026272  005300                          DEC     R0
5267  026274  001370                          BNE     1$
5268  026276  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
5269  026302  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
5270  026306  105762  000000          2$:     TSTB    RKCS1(R2)
5271  026312  100402                          BMI     3$
5272  026314  005300                          DEC     R0
5273  026316  001373                          BNE     2$
5274  026320  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5275  026326  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5276  026334  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5277  026342  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5278  026350  012737  100200  004160          MOV     #CERR!RDY!SELDRV&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
5279  026356  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5280  026364  012737  100000  004172          MOV     #SVAL.0,E.DS ;LOAD EXPECTED DRIVE STATUS REG
```

```
 5281  026372  012737  000000  004174          MOV     #0,E.ER ;LOAD EXPECTED ERROR REG
 5282  026400  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
 5283  026406  001401                          BEQ     4$              ;YES, CONTINUE
 5284  026410  104150                          ERROR   150
 5285  026412  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
 5286  026420  001401                          BEQ     5$              ;YES, CONTINUE
 5287  026422  104151                          ERROR   151
 5288  026424  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
 5289  026432  001401                          BEQ     6$              ;YES, CONTINUE
 5290  026434  104152                          ERROR   152
 5291  026436  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
 5292  026444  001401                          BEQ     7$              ;YES, CLEAR RK611
 5293  026446  104153                          ERROR   153
 5294  026450  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
 5295  026456  013737  004130  004222          MOV     T.CS2,P.CS2     ;   COMMAND AND STATUS REG 1
 5296  026464  013737  004132  004224          MOV     T.DS,P.DS       ;   COMMAND AND STATUS REG 2
 5297  026472  013737  004134  004226          MOV     T.ER,P.ER       ;   DRIVE STATUS REG
 5298                                                                  ;   AND ERROR REG
 5299  026500  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
 5300  026506  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
 5301  026514  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
 5302  026522  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
 5303  026530  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
 5304  026536  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
 5305  026544  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
 5306  026552  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
 5307  026556  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
 5308  026562  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
 5309  026570  001401                          BEQ     11$             ;YES, CHECK CS2
 5310  026572  104224                          ERROR   224             ;CS1 INCORRECT
 5311  026574  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
 5312  026602  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
 5313  026604  104225                          ERROR   225             ;CS2 INCORRECT
 5314  026606  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
 5315  026614  001401                          BEQ     13$             ;YES, CHECK ERROR REG
 5316  026616  104226                          ERROR   226             ;ERROR REG INCORRECT
 5317  026620  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
 5318  026626  001401                          BEQ     TST54           ;;YES, GO ON TO NEXT TEST
 5319  026630  104227                          ERROR   227             ;ERROR REG INCORRECT
 5320
 5321                                  ;;*****************************************************************
 5322                                  ;*TEST 54       CDT SET DRIVE TYPE
 5323                                  ;*
 5324                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
 5325                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK
 5326                                  ;*      WITH CDT SET, 26 SECTOR FORMAT, TO CYLINDER 23,
 5327                                  ;*      HEAD 0, DRIVE 0. CLOCK IN DIAGNOSTIC MODE
 5328                                  ;*      UNTIL PHASE ADDRESS 6. TURN OFF DIAGNOSTIC MODE
 5329                                  ;*      AND MAKE SURE ONLY DRIVE AVAILIABLE SETS.
 5330                                  ;*
 5331                                  ;;*****************************************************************
 5332  026632  000004                  TST54:  SCOPE
 5333  026634  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 5334  026642  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 5335  026646  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 5336  026654  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
```

```
5337  026662  012762  000023  000020          MOV     #23,RKDCYL(R2)  ;LOAD CYLINDER AND
5338  026670  012762  000000  000006          MOV     #0,RKDA(R2)     ;LOAD HEAD ADDRESS
5339  026676  012762  002017  000000          MOV     #CDT!SEEK,RKCS1(R2)     ;ISSUE CDT!SEEK
5340  026704  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
5341  026710  012762  000440  000026  1$:     MOV     #DMD.MCLK,RKMR1(R2)
5342  026716  012762  000040  000026          MOV     #DMD,RKMR1(R2)
5343  026724  005300                          DEC     R0
5344  026726  001370                          BNE     1$
5345  026730  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
5346  026734  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
5347  026740  105762  000000          2$:     TSTB    RKCS1(R2)
5348  026744  100402                          BMI     3$
5349  026746  005300                          DEC     R0
5350  026750  001373                          BNE     2$
5351  026752  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5352  026760  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5353  026766  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5354  026774  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5355  027002  012737  002216  004160          MOV     #CDT.RDY!CDT.SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
5356  027010  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5357  027016  012737  100401  004172          MOV     #SVAL!DRA!DDT,E.DS ;LOAD EXPECTED DRIVE STATUS REG
5358  027024  012737  000000  004174          MOV     #0,E.ER ;LOAD EXPECTED ERROR REG
5359  027032  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
5360  027040  001401                          BEQ     4$              ;YES, CONTINUE
5361  027042  104154                          ERROR   154
5362  027044  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
5363  027052  001401                          BEQ     5$              ;YES, CONTINUE
5364  027054  104155                          ERROR   155
5365  027056  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
5366  027064  001401                          BEQ     6$              ;YES, CONTINUE
5367  027066  104156                          ERROR   156
5368  027070  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
5369  027076  001401                          BEQ     7$              ;YES, CLEAR RK611
5370  027100  104157                          ERROR   157
5371  027102  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5372  027110  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5373  027116  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5374  027124  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
5375                                                                  ;  AND ERROR REG
5376  027132  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5377  027140  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5378  027146  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5379  027154  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5380  027162  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5381  027170  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5382  027176  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5383  027204  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5384  027210  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
5385  027214  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5386  027222  001401                          BEQ     11$             ;YES, CHECK CS2
5387  027224  104224                          ERROR   224             ;CS1 INCORRECT
5388  027226  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5389  027234  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5390  027236  104225                          ERROR   225             ;CS2 INCORRECT
5391  027240  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5392  027246  001401                          BEQ     13$             ;YES, CHECK ERROR REG
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                        ERROR   226             ;ERROR REG INCORRECT
027252  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
027260  001401                         BEQ     TST55           ;;YES, GO ON TO NEXT TEST
027262  104227                         ERROR   227             ;ERROR REG INCORRECT

                        ;;*****************************************************************
                        ;*TEST 55       CDT SET AND DRIVE TYPE ERROR
                        ;*
                        ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                        ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK
                        ;*      WITH CDT SET, 26 SECTOR FORMAT, TO CYLINDER 2,
                        ;*      HEAD 0, DRIVE 0. CLOCK IN DIAGNOSTIC MODE
                        ;*      UNTIL PHASE ADDRESS 6. TURN OFF DIAGNOSTIC MODE
                        ;*      AND MAKE SURE DRIVE AVAILIABLE, DRIVE TYPE ERROR,
                        ;*      AND CONTROLLER ERROR SET.
                        ;*
                        ;;*****************************************************************
027264  000004         TST55:  SCOPE
027266  012737  000144  001200         MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
027274  013702  001270                 MOV     $BASE,R2        ;LOAD RK611 BASE
027300  012762  000040  000010         MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
027306  012762  000040  000026         MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
027314  012762  000002  000020         MOV     #2,RKDCYL(R2)   ;LOAD CYLINDER AND
027322  012762  000000  000006         MOV     #0,RKDA(R2)     ;LOAD HEAD ADDRESS
027330  012762  002017  000000         MOV     #CDT!SEEK,RKCS1(R2)     ;ISSUE CDT!SEEK
027336  012700  000132                 MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
027342  012762  000440  000026  1$:    MOV     #DMD.MCLK,RKMR1(R2)
027350  012762  000040  000026         MOV     #DMD,RKMR1(R2)
027356  005300                         DEC     R0
027360  001370                         BNE     1$
027362  005062  000026                 CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
027366  013700  004262                 MOV     WAITIM,R0       ;WAIT FOR READY
027372  105762  000000         2$:     TSTB    RKCS1(R2)
027376  100402                         BMI     3$
027400  005300                         DEC     R0
027402  001373                         BNE     2$
027404  016237  000000  004120  3$:    MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
027412  016237  000010  004130         MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
027420  016237  000012  004132         MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
027426  016237  000014  004134         MOV     RKER(R2),T.ER   ;STORE ERROR REG
027434  012737  102216  004160         MOV     #CDT!CERR!RDY!CDT!SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
027442  012737  000100  004170         MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
027450  012737  100001  004172         MOV     #SVAL!DRA,E.DS ;LOAD EXPECTED DRIVE STATUS REG
027456  012737  000040  004174         MOV     #DTYE,E.ER      ;LOAD EXPECTED ERROR REG
027464  023737  004160  004120         CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
027472  001401                         BEQ     4$              ;YES, CONTINUE
027474  104160                         ERROR   160
027476  023737  004170  004130  4$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
027504  001401                         BEQ     5$              ;YES, CONTINUE
027506  104161                         ERROR   161
027510  023737  004172  004132  5$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
027516  001401                         BEQ     6$              ;YES, CONTINUE
027520  104162                         ERROR   162
027522  023737  004174  004134  6$:    CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
027530  001401                         BEQ     7$              ;YES, CLEAR RK611
027532  104163                         ERROR   163
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5449  027534  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5450  027542  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5451  027550  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5452  027556  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
5453                                                                  ;  AND ERROR REG
5454  027564  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5455  027572  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5456  027600  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5457  027606  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5458  027614  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5459  027622  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5460  027630  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5461  027636  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5462  027642  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
5463  027646  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5464  027654  001401                          BEQ     11$             ;YES, CHECK CS2
5465  027656  104224                          ERROR   224             ;CS1 INCORRECT
5466  027660  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5467  027666  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5468  027670  104225                          ERROR   225             ;CS2 INCORRECT
5469  027672  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5470  027700  001401                          BEQ     13$             ;YES, CHECK ERROR REG
5471  027702  104226                          ERROR   226             ;ERROR REG INCORRECT
5472  027704  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5473  027712  001401                          BEQ     TST56           ;;YES, GO ON TO NEXT TEST
5474  027714  104227                          ERROR   227             ;ERROR REG INCORPECT
5475
5476                                  ;;*****************************************************************
5477                                  ;*TEST 56       RK06 AND DRIVE TYPE ERROR
5478                                  ;*
5479                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR
5480                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK
5481                                  ;*      TO A RK06, 26 SECTOR FORMAT, TO CYLINDER 23,
5482                                  ;*      HEAD 0, DRIVE 0. CLOCK IN DIAGNOSTIC MODE
5483                                  ;*      UNTIL PHASE ADDRESS 6. TURN OFF DIAGNOSTIC
5484                                  ;*      MODE AND MAKE SURE DRIVE AVAILIABLE, DRIVE TYPE ERROR,
5485                                  ;*      AND CONTROLLER ERROR SETS.
5486                                  ;*
5487                                  ;;*****************************************************************
5488  027716  000004                  TST56:  SCOPE
5489  027720  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
5490  027726  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
5491  027732  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
5492  027740  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
5493  027746  012762  000023  000020          MOV     #23,RKDCYL(R2)  ;LOAD CYLINDER AND
5494  027754  012762  000000  000006          MOV     #0,RKDA(R2)     ;LOAD HEAD ADDRESS
5495  027762  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
5496  027770  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
5497  027774  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
5498  030002  012762  000040  000026          MOV     #DMD,RKMR1(R2)
5499  030010  005300                          DEC     R0
5500  030012  001370                          BNE     1$
5501  030014  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
5502  030020  013700  004262                  MOV     WAIT!M,R0       ;WAIT FOR READY
5503  030024  105762  000000          2$:     TSTB    RKCS1(R2)
5504  030030  100402                          BMI     3$
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```
5505  030032  005300                          DEC     R0
5506  030034  001373                          BNE     2$
5507  030036  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5508  030044  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5509  030052  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5510  030060  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5511  030066  012737  100216  004160          MOV     #CERR.RDY.SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
5512  030074  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5513  030102  012737  100401  004172          MOV     #SVAL!DRA.DDT,E.DS ;LOAD EXPECTED DRIVE STATUS REG
5514  030110  012737  000040  004174          MOV     #DTYE,E.ER      ;LOAD EXPECTED ERROR REG
5515  030116  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
5516  030124  001401                          BEQ     4$              ;YES, CONTINUE
5517  030126  104164                          ERROR   164
5518  030130  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
5519  030136  001401                          BEQ     5$              ;YES, CONTINUE
5520  030140  104165                          ERROR   165
5521  030142  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
5522  030150  001401                          BEQ     6$              ;YES, CONTINUE
5523  030152  104166                          ERROR   166
5524  030154  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
5525  030162  001401                          BEQ     7$              ;YES, CLEAR RK611
5526  030164  104167                          ERROR   167
5527  030166  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5528  030174  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5529  030202  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5530  030210  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
5531                                                                  ;  AND ERROR REG
5532  030216  012762  100000  000030          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5533  030224  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5534  030232  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5535  030240  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5536  030246  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5537  030254  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5538  030262  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5539  030270  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5540  030274  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
5541  030300  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5542  030306  001401                          BEQ     11$             ;YES, CHECK CS2
5543  030310  104224                          ERROR   224             ;CS1 INCORRECT
5544  030312  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5545  030320  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5546  030322  104225                          ERROR   225             ;CS2 INCORRECT
5547  030324  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5548  030332  001401                          BEQ     13$             ;YES, CHECK ERROR REG
5549  030334  104226                          ERROR   226             ;ERROR REG INCORRECT
5550  030336  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5551  030344  001401                          BEQ     TST57           ;;YES, GO ON TO NEXT TEST
5552  030346  104227                          ERROR   227             ;ERROR REG INCORRECT
5553
5554                                  ;;*****************************************************************
5555                                  ;*TEST 57       SPEED LOSS FROM SHIFT REG.
5556                                  ;*
5557                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
5558                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK TO A RK06,
5559                                  ;*      26 SECTOR FORMAT, TO CYLINDER 3, HEAD 1, DRIVE 0.
5560                                  ;*      CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6. TURN
```

```
                                        ;*      OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE AVAILIABLE AND
                                        ;*      SPEED LOSS ARE SET.
                                        ;*
                                        ;;*****************************************************************
030350  000004                  TST57:  SCOPE
030352  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
030360  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
030364  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
030372  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
030400  012762  000003  000020          MOV     #3,RKDCYL(R2)   ;LOAD CYLINDER AND
030406  012762  000400  000006          MOV     #400,RKDA(R2)   ;LOAD HEAD ADDRESS
030414  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
030422  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
030426  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
030434  012762  000040  000026          MOV     #DMD,RKMR1(R2)
030442  005300                          DEC     R0
030444  001370                          BNE     1$
030446  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
030452  012700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
030456  105762  000000          2$:     TSTB    RKCS1(R2)
030462  100402                          BMI     3$
030464  005300                          DEC     R0
030466  001373                          BNE     2$
030470  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
030476  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
030504  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
030512  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
030520  012737  000216  004160          MOV     #RDY!SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
030526  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
030534  012737  100021  004172          MOV     #SVAL!DRA!SPDLSS,E.DS ;LOAD EXPECTED DRIVE STATUS REG
030542  012737  000000  004174          MOV     #0,E.ER ;LOAD EXPECTED ERROR REG
030550  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
030556  001401                          BEQ     4$              ;YES, CONTINUE
030560  104170                          ERROR   170
030562  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
030570  001401                          BEQ     5$              ;YES, CONTINUE
030572  104171                          ERROR   171
030574  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CO  ECT
030602  001401                          BEQ     6$              ;YES, CONTINUE
030604  104172                          ERROR   172
030606  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
030614  001401                          BEQ     7$              ;YES, CLEAR RK611
030616  104173                          ERROR   173
030620  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
030626  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
030634  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
030642  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
                                                                ;  AND ERROR REG
030650  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
030656  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
030664  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
030672  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
030700  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
030706  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
030714  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
030722  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
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5617  030726  005037  004174                  CLR     E.ER              ;LOAD EXPECTED ERROR REG
5618  030732  023737  004160  004120          CMP     E.CS1,T.CS1       ;CHECK COMMAND AND STATUS REG 1 CORRECT
5619  030740  001401                          BEQ     11$               ;YES, CHECK CS2
5620  030742  104224                          ERROR   224               ;CS1 INCORRECT
5621  030744  023737  004170  004130  11$:    CMP     E.CS2,T.CS2       ;CHECK COMMAND AND STATUS REG 2 CORRECT
5622  030752  001401                          BEQ     12$               ;YES, CHECK DRIVE STATUS REG
5623  030754  104225                          ERROR   225               ;CS2 INCORRECT
5624  030756  023737  004172  004132  12$:    CMP     E.DS,T.DS         ;CHECK IF DRIVE STATUS REG CORRECT
5625  030764  001401                          BEQ     13$               ;YES, CHECK ERROR REG
5626  030766  104226                          ERROR   226               ;ERROR REG INCORRECT
5627  030770  023737  004174  004134  13$:    CMP     E.ER,T.ER         ;CHECK IF ERROR REG CORRECT
5628  030776  001401                          BEQ     TST60             ;;YES, GO ON TO NEXT TEST
5629  031000  104227                          ERROR   227               ;ERROR REG INCORRECT
5630
5631                                  ;;*****************************************************************
5632                                  ;*TEST 60       DRIVE OFF TRACK FROM SHIFT REG.
5633                                  ;*
5634                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
5635                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A SEEK TO A RK06,
5636                                  ;*      26 SECTOR FORMAT, TO CYLINDER 3, HEAD 2, DRIVE 0.
5637                                  ;*      CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
5638                                  ;*      TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE AVAILIABLE
5639                                  ;*      AND DRIVE OFF TRACK ARE SET.
5640                                  ;*
5641                                  ;*****************************************************************
5642  031002  000004                  TST60:  SCOPE
5643  031004  012737  000144  001200          MOV     #100.,$TIMES      ;;DO 100. ITERATIONS
5644  031012  013702  001270                  MOV     $BASE,R2          ;LOAD RK611 BASE
5645  031016  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
5646  031024  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
5647  031032  012762  000003  000020          MOV     #3,RKDCYL(R2)   ;LOAD CYLINDER AND
5648  031040  012762  001000  000006          MOV     #1000,RKDA(R2)  ;LOAD HEAD ADDRESS
5649  031046  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
5650  031054  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
5651  031060  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
5652  031066  012762  000040  000026          MOV     #DMD,RKMR1(R2)
5653  031074  005300                          DEC     R0
5654  031076  001370                          BNE     1$
5655  031100  005062  000026                  CLR     RKMR1(R2)         ;FINISH COMMAND IN NORMAL MODE
5656  031104  013700  004262                  MOV     WAITIM,R0         ;WAIT FOR READY
5657  031110  105762  000000          2$:     TSTB    RKCS1(R2)
5658  031114  100402                          BMI     3$
5659  031116  005300                          DEC     R0
5660  031120  001373                          BNE     2$
5661  031122  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5662  031130  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5663  031136  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5664  031144  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5665  031152  012737  000216  004160          MOV     #RDY!SEEK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
5666  031160  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5667  031166  012737  100041  004172          MOV     #SVAL!DRA!DROT,E.DS ;LOAD EXPECTED DRIVE STATUS REG
5668  031174  012737  000000  004174          MOV     #0,E.ER ;LOAD EXPECTED ERROR REG
5669  031202  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
5670  031210  001401                          BEQ     4$              ;YES, CONTINUE
5671  031212  104174                          ERROR   174
5672  031214  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
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5673  031222  001401                          BEQ     5$              ;YES, CONTINUE
5674  031224  104175                          ERROR   175
5675  031226  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
5676  031234  001401                          BEQ     6$              ;YES, CONTINUE
5677  031236  104176                          ERROR   176
5678  031240  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
5679  031246  001401                          BEQ     7$              ;YES, CLEAR RK611
5680  031250  104177                          ERROR   177
5681  031252  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5682  031260  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5683  031266  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5684  031274  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
5685                                                                  ;  AND ERROR REG
5686  031302  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5687  031310  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5688  031316  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5689  031324  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5690  031332  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5691  031340  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5692  031346  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5693  031354  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5694  031360  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
5695  031364  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5696  031372  001401                          BEQ     11$             ;YES, CHECK CS2
5697  031374  104224                          ERROR   224             ;CS1 INCORRECT
5698  031376  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5699  031404  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5700  031406  104225                          ERROR   225             ;CS2 INCORRECT
5701  031410  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5702  031416  001401                          BEQ     13$             ;YES, CHECK ERROR REG
5703  031420  104226                          ERROR   226             ;ERROR REG INCORRECT
5704  031422  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5705  031430  001401                          BEQ     TST61           ;;YES, GO ON TO NEXT TEST
5706  031432  104227                          ERROR   227             ;ERROR REG INCORRECT
5707
5708                                  ;;*****************************************************************
5709                                  ;*TEST 61        WRITE LOCK ERROR FROM SHIFT REG.
5710                                  ;*
5711                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
5712                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE A PACK ACKNOWLEDGE
5713                                  ;*      TO A RK06, 26 SECTOR FORMAT, WITH CYLINDER 0,
5714                                  ;*      HEAD 1, DRIVE 0. CLOCK IN DIAGNOSTIC MODE UNTIL
5715                                  ;*      PHASE ADDRESS 6. TURN OFF DIAGNOSTIC MODE AND MAKE
5716                                  ;*      SURE SPEED LOSS, WRITE LOCK ERROR AND CONTROLLER ERROR
5717                                  ;*      ARE SET WITH DRIVE AVAILIABLE RESET.
5718                                  ;*
5719                                  ;;*****************************************************************
5720  031434  000004                  TST61:  SCOPE
5721  031436  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
5722  031444  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
5723  031450  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
5724  031456  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
5725  031464  012762  000000  000020          MOV     #0,RKDCYL(R2)   ;LOAD CYLINDER AND
5726  031472  012762  000400  000006          MOV     #400,RKDA(R2)   ;LOAD HEAD ADDRESS
5727  031500  012762  000003  000000          MOV     #PACK,RKCS1(R2) ;ISSUE PACK
5728  031506  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
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5729  031512  012762  000440  000026  1$:   MOV   #DMD!MCLK,RKMR1(R2)
5730  031520  012762  000040  000026        MOV   #DMD,RKMR1(R2)
5731  031526  005300                        DEC   R0
5732  031530  001370                        BNE   1$
5733  031532  005062  000026                CLR   RKMR1(R2)        ;FINISH COMMAND IN NORMAL MODE
5734  031536  013700  004262                MOV   WAITIM,R0        ;WAIT FOR READY
5735  031542  105762  000000          2$:   TSTB  RKCS1(R2)
5736  031546  100402                        BMI   3$
5737  031550  005300                        DEC   R0
5738  031552  001373                        BNE   2$
5739  031554  016237  000000  004120  3$:   MOV   RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5740  031562  016237  000010  004130        MOV   RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REC 2
5741  031570  016237  000012  004132        MOV   RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5742  031576  016237  000014  004134        MOV   RKER(R2),T.ER   ;STORE ERROR REG
5743  031604  012737  100202  004160        MOV   #CERR!RDY!PACK&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
5744  031612  012737  000100  004170        MOV   #IR,E.CS2       ;LOAD EXPECTED CS2
5745  031620  012737  100020  004172        MOV   #SVAL!SPDLSS,E.DS ;LOAD EXPECTED DRIVE STATUS REG
5746  031626  012737  004000  004174        MOV   #WLE,E.ER       ;LOAD EXPECTED ERROR REG
5747  031634  023737  004160  004120        CMP   E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
5748  031642  001401                        BEQ   4$              ;YES, CONTINUE
5749  031644  104200                        ERROR 200
5750  031646  023737  004170  004130  4$:   CMP   E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
5751  031654  001401                        BEQ   5$              ;YES, CONTINUE
5752  031656  104201                        ERROR 201
5753  031660  023737  004172  004132  5$:   CMP   E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
5754  031666  001401                        BEQ   6$              ;YES, CONTINUE
5755  031670  104202                        ERROR 202
5756  031672  023737  004174  004134  6$:   CMP   E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
5757  031700  001401                        BEQ   7$              ;YES, CLEAR RK611
5758  031702  104203                        ERROR 203
5759  031704  013737  004120  004220  7$:   MOV   T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5760  031712  013737  004130  004222        MOV   T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5761  031720  013737  004132  004224        MOV   T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5762  031726  013737  004134  004226        MOV   T.ER,P.ER       ;  DRIVE STATUS REG
5763                                        ;  AND ERROR REG
5764  031734  012762  100000  000000        MOV   #CCLR,RKCS1(R2) ;CLEAR RK611
5765  031742  016237  000000  004120        MOV   RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5766  031750  016237  000010  004130        MOV   RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5767  031756  016237  000012  004132        MOV   RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5768  031764  016237  000014  004134        MOV   RKER(R2),T.ER   ;STORE ERROR REG
5769  031772  012737  000200  004160        MOV   #RDY,E.CS1      ;LOAD EXPECTED CS1
5770  032000  012737  000100  004170        MOV   #IR,E.CS2       ;LOAD EXPECTED CS2
5771  032006  005037  004172                CLR   E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5772  032012  005037  004174                CLR   E.ER            ;LOAD EXPECTED ERROR REG
5773  032016  023737  004160  004120        CMP   E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5774  032024  001401                        BEQ   11$             ;YES, CHECK CS2
5775  032026  104224                        ERROR 224             ;CS1 INCORRECT
5776  032030  023737  004170  004130  11$:  CMP   E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5777  032036  001401                        BEQ   12$             ;YES, CHECK DRIVE STATUS REG
5778  032040  104225                        ERROR 225             ;CS2 INCORRECT
5779  032042  023737  004172  004132  12$:  CMP   E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5780  032050  001401                        BEQ   13$             ;YES, CHECK ERROR REG
5781  032052  104226                        ERROR 226             ;ERROR REG INCORRECT
5782  032054  023737  004174  004134  13$:  CMP   E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5783  032062  001401                        BEQ   TST62           ;;YES, GO ON TO NEXT TEST
5784  032064  104227                        ERROR 227             ;ERROR REG INCORRECT
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                                ;;*****************************************************************
                                ;*TEST 62       SEEK INCOMPLETE
                                ;*
                                ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
                                ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE AN UNLOAD
                                ;*      TO A RK06, 26 SECTOR FORMAT, WITH CYLINDER 0,
                                ;*      HEAD 1, DRIVE 0, CLOCK IN DIAGNOSTIC MODE UNTIL
                                ;*      PHASE ADDRESS 6. TURN OFF DIAGNOSTIC MODE AND MAKE
                                ;*      SURE SPEED LOSS, SEEK INCOMPLETE, AND CONTROLLER ERROR
                                ;*      ARE SET WITH DRIVE AVAILIABLE RESET.
                                ;*
                                ;;*****************************************************************
032066  000004                TST62:  SCOPE
032070  012737  000144  001200        MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
032076  013702  001270              MOV     $BASE,R2        ;LOAD RK611 BASE
032102  012762  000040  000010      MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
032110  012762  000040  000026      MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
032116  012762  000000  000020      MOV     #0,RKDCYL(R2)   ;LOAD CYLINDER AND
032124  012762  000400  000006      MOV     #400,RKDA(R2)   ;LOAD HEAD ADDRESS
032132  012762  000007  000000      MOV     #UNLOAD,RKCS1(R2)       ;ISSUE UNLOAD
032140  012700  000132              MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
032144  012762  000440  000026  1$: MOV     #DMD!MCLK,RKMR1(R2)
032152  012762  000040  000026      MOV     #DMD,RKMR1(R2)
032160  005300                      DEC     R0
032162  001370                      BNE     1$
032164  005062  000026              CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
032170  013700  004262              MOV     WAITIM,R0       ;WAIT FOR READY
032174  105762  000000          2$: TSTB    RKCS1(R2)
032200  100402                      BMI     3$
032202  005300                      DEC     R0
032204  001373                      BNE     2$
032206  016237  000000  004120  3$: MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
032214  016237  000010  004130      MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
032222  016237  000012  004132      MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
032230  016237  000014  004134      MOV     RKER(R2),T.ER   ;STORE ERROR REG
032236  012737  100206  004160      MOV     #CERR!RDY!UNLOAD&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
032244  012737  000100  004170      MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
032252  012737  100020  004172      MOV     #SVAL!SPDLSS,E.DS ;LOAD EXPECTED DRIVE STATUS REG
032260  012737  000002  004174      MOV     #SKI,E.ER       ;LOAD EXPECTED ERROR REG
032266  023737  004160  004120      CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
032274  001401                      BEQ     4$              ;YES, CONTINUE
032276  104204                      ERROR   204
032300  023737  004170  004130  4$: CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
032306  001401                      BEQ     5$              ;YES, CONTINUE
032310  104205                      ERROR   205
032312  023737  004172  004132  5$: CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
032320  001401                      BEQ     6$              ;YES, CONTINUE
032322  104206                      ERROR   206
032324  023737  004174  004134  6$: CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
032332  001401                      BEQ     7$              ;YES, CLEAR RK611
032334  104207                      ERROR   207
032336  013737  004120  004220  7$: MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
032344  013737  004130  004222      MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
032352  013737  004132  004224      MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
032360  013737  004134  004226      MOV     T.ER,P.ER       ;  DRIVE STATUS REG
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5841                                                            ;  AND ERROR REG
5842  032366  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5843  032374  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5844  032402  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5845  032410  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5846  032416  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5847  032424  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5848  032432  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5849  032440  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5850  032444  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
5851  032450  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5852  032456  001401                          BEQ     11$             ;YES, CHECK CS2
5853  032460  104224                          ERROR   224             ;CS1 INCORRECT
5854  032462  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5855  032470  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5856  032472  104225                          ERROR   225             ;CS2 INCORRECT
5857  032474  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5858  032502  001401                          BEQ     13$             ;YES, CHECK ERROR REG
5859  032504  104226                          ERROR   226             ;ERROR REG INCORRECT
5860  032506  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5861  032514  001401                          BEQ     TST63           ;;YES, GO ON TO NEXT TEST
5862  032516  104227                          ERROR   227             ;ERROR REG INCORRECT
5863
5864                                  ;;*************************************************************
5865                                  ;*TEST 63       NON-EXECUTABLE DRIVE FUNCTION FROM SHIFT REG.
5866                                  ;*
5867                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR
5868                                  ;*      PUT CONTROLLER IN DIAGNOSTIC MODE. ISSUE
5869                                  ;*      A DRIVE CLEAR TO A RK06, 26 SECTOR FORMAT,
5870                                  ;*      WITH CYLINDER 0, HEAD 1, DRIVE 0. CLOCK IN DIAGNOSTIC
5871                                  ;*      MODE UNTIL PHASE ADDRESS 6. TURN OFF DIAGNOSTIC
5872                                  ;*      MODE AND MAKE SURE SPEED LOSS, NON-EXECUTABLE DRIVE FUNCTION, AND
5873                                  ;*      CONTROLLER ERROR ARE SET WITH DRIVE AVAILIABLE RESET.
5874                                  ;*
5875                                  ;;*************************************************************
5876  032520  000004                  TST63:  SCOPE
5877  032522  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
5878  032530  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
5879  032534  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
5880  032542  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
5881  032550  012762  000000  000020          MOV     #0,RKDCYL(R2)   ;LOAD CYLINDER AND
5882  032556  012762  000400  000006          MOV     #400,RKDA(R2)   ;LOAD HEAD ADDRESS
5883  032564  012762  000005  000000          MOV     #CLEAR,RKCS1(R2)        ;ISSUE CLEAR
5884  032572  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
5885  032576  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
5886  032604  012762  000040  000026          MOV     #DMD,RKMR1(R2)
5887  032612  005300                          DEC     R0
5888  032614  001370                          BNE     1$
5889  032616  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
5890  032622  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
5891  032626  105762  000000          2$:     TSTB    RKCS1(R2)
5892  032632  100402                          BMI     3$
5893  032634  005300                          DEC     R0
5894  032636  001373                          BNE     2$
5895  032640  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5896  032646  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
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5897  032654  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5898  032662  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5899  032670  012737  100204  004160          MOV     #CERR!RDY!CLEAR&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
5900  032676  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5901  032704  012737  100020  004172          MOV     #SVAL!SPDLSS,E.DS ;LOAD EXPECTED DRIVE STATUS REG
5902  032712  012737  000004  004174          MOV     #NXF,E.ER       ;LOAD EXPECTED ERROR REG
5903  032720  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
5904  032726  001401                          BEQ     4$              ;YES, CONTINUE
5905  032730  104210                          ERROR   210
5906  032732  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
5907  032740  001401                          BEQ     5$              ;YES, CONTINUE
5908  032742  104211                          ERROR   211
5909  032744  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
5910  032752  001401                          BEQ     6$              ;YES, CONTINUE
5911  032754  104212                          ERROR   212
5912  032756  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
5913  032764  001401                          BEQ     7$              ;YES, CLEAR RK611
5914  032766  104213                          ERROR   213
5915  032770  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5916  032776  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5917  033004  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5918  033012  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
5919                                                                  ;  AND ERROR REG
5920  033020  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5921  033026  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5922  033034  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5923  033042  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5924  033050  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
5925  033056  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
5926  033064  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5927  033072  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
5928  033076  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
5929  033102  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
5930  033110  001401                          BEQ     11$             ;YES, CHECK CS2
5931  033112  104224                          ERROR   224             ;CS1 INCORRECT
5932  033114  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
5933  033122  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
5934  033124  104225                          ERROR   225             ;CS2 INCORRECT
5935  033126  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
5936  033134  001401                          BEQ     13$             ;YES, CHECK ERROR REG
5937  033136  104226                          ERROR   226             ;ERROR REG INCORRECT
5938  033140  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
5939  033146  001401                          BEQ     TST64           ;;YES, GO ON TO NEXT TEST
5940  033150  104227                          ERROR   227             ;ERROR REG INCORRECT
5941
5942                                  ;;*****************************************************************
5943                                  ;*TEST 64        AC LOW AND C-D PARITY FROM SHIFT REG.
5944                                  ;*
5945                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR, PUT RK611
5946                                  ;*      CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A START SPINDLE
5947                                  ;*      TO AN RK06, IN 24 SECTOR FORMAT, CYLINDER 0, HEAD 0,
5948                                  ;*      DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
5949                                  ;*      TURN OFF DIAGNOSTIC MODE AND MAKE SURE AC LOW, DRIVE
5950                                  ;*      DETECTED SERCOM PARITY, AND CONTROLLER ERROR SET WITH
5951                                  ;*      DRIVE AVAILABLE RESET.
5952                                  ;*
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5953                                    ;;*****************************************************************
5954  033152  000004                    T$T64:  SCOPE
5955  033154  012737  000144  001200            MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
5956  033162  013702  001270                    MOV     $BASE,R2        ;LOAD RK611 BASE
5957  033166  012762  000040  000010            MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
5958  033174  012762  000040  000026            MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
5959  033202  012762  010011  000000            MOV     #SRTSPL!CFMT,RKCS1(R2)  ;ISSUE SRTSPL.CFMT
5960  033210  012700  000132                    MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
5961  033214  012762  000440  000026  1$:       MOV     #DMD.MCLK,RKMR1(R2)
5962  033222  012762  000040  000026            MOV     #DMD,RKMR1(R2)
5963  033230  005300                            DEC     R0
5964  033232  001370                            BNE     1$
5965  033234  005062  000026                    CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
5966  033240  013700  004262                    MOV     WAITIM,R0       ;WAIT FOR READY
5967  033244  105762  000000            2$:     TSTB    RKCS1(R2)
5968  033250  100402                            BMI     3$
5969  033252  005300                            DEC     R0
5970  033254  001373                            BNE     2$
5971  033256  016237  000000  004120  3$:       MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5972  033264  016237  000010  004130            MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5973  033272  016237  000012  004132            MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
5974  033300  016237  000014  004134            MOV     RKER(R2),T.ER   ;STORE ERROR REG
5975  033306  012737  110210  004160            MOV     #CERR!CFMT!RDY!SRTSPL!CFMT&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
5976  033314  012737  000100  004170            MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
5977  033322  012737  100010  004172            MOV     #SVAL.ACLO,E.DS ;LOAD EXPECTED DRIVE STATUS REG
5978  033330  012737  000010  004174            MOV     #DRPAR,E.ER     ;LOAD EXPECTED ERROR REG
5979  033336  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
5980  033344  001401                            BEQ     4$              ;YES, CONTINUE
5981  033346  104214                            ERROR   214
5982  033350  023737  004170  004130  4$:       CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
5983  033356  001401                            BEQ     5$              ;YES, CONTINUE
5984  033360  104215                            ERROR   215
5985  033362  023737  004172  004132  5$:       CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
5986  033370  001401                            BEQ     6$              ;YES, CONTINUE
5987  033372  104216                            ERROR   216
5988  033374  023737  004174  004134  6$:       CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
5989  033402  001401                            BEQ     7$              ;YES, CLEAR RK611
5990  033404  104217                            ERROR   217
5991  033406  013737  004120  004220  7$:       MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
5992  033414  013737  004130  004222            MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
5993  033422  013737  004132  004224            MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
5994  033430  013737  004134  004226            MOV     T.ER,P.ER       ;  DRIVE STATUS REG
5995                                                                    ;  AND ERROR REG
5996  033436  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
5997  033444  016237  000000  004120            MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
5998  033452  016237  000010  004130            MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
5999  033460  016237  000012  004132            MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
6000  033466  016237  000014  004134            MOV     RKER(R2),T.ER   ;STORE ERROR REG
6001  033474  012737  000200  004160            MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
6002  033502  012737  000100  004170            MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
6003  033510  005037  004172                    CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
6004  033514  005037  004174                    CLR     E.ER            ;LOAD EXPECTED ERROR REG
6005  033520  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
6006  033526  001401                            BEQ     11$             ;YES, CHECK CS2
6007  033530  104224                            ERROR   224             ;CS1 INCORRECT
6008  033532  023737  004170  004130  11$:      CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
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 6009  033540  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
 6010  033542  104225                          ERROR   225             ;CS2 INCORRECT
 6011  033544  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
 6012  033552  001401                          BEQ     13$             ;YES, CHECK ERROR REG
 6013  033554  104226                          ERROR   226             ;ERROR REG INCORRECT
 6014  033556  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
 6015  033564  001401                          BEQ     TST65           ;;YES, GO ON TO NEXT TEST
 6016  033566  104227                          ERROR   227             ;ERROR REG INCORRECT
 6017
 6018                                  ;;*****************************************************************
 6019                                  ;*TEST 65       ILLEGAL DISK ADDRESS ERROR FROM SHIFT REG.
 6020                                  ;*
 6021                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.   PUT
 6022                                  ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A RECALIBRATE
 6023                                  ;*      TO AN RK06, IN 26 SECTOR FORMAT, CYLINDER 0, HEAD 1,
 6024                                  ;*      DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE
 6025                                  ;*      ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE
 6026                                  ;*      SPEED LOSS, ILLEGAL DISK ADDRESS ERROR, AND CONTROLLER
 6027                                  ;*      ERROR ARE SET WITH DRIVE AVAILABLE RESET.
 6028                                  ;*
 6029                                  ;*****************************************************************
 6030  033570  000004                  TST65:  SCOPE
 6031  033572  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 6032  033600  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 6033  033604  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 6034  033612  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINT MODE
 6035  033620  012762  000000  000020          MOV     #0,RKDCYL(R2)   ;LOAD CYLINDER AND
 6036  033626  012762  000400  000006          MOV     #400,RKDA(R2)   ;LOAD HEAD ADDRESS
 6037  033634  012762  000013  000000          MOV     #RECAL,RKCS1(R2)        ;ISSUE RECAL
 6038  033642  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS UNTIL PHASE ADDRESS 6
 6039  033646  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
 6040  033654  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 6041  033662  005300                          DEC     R0
 6042  033664  001370                          BNE     1$
 6043  033666  005062  000026                  CLR     RKMR1(R2)       ;FINISH COMMAND IN NORMAL MODE
 6044  033672  013700  004262                  MOV     WAITIM,R0       ;WAIT FOR READY
 6045  033676  105762  000000          2$:     TSTB    RKCS1(R2)
 6046  033702  100402                          BMI     3$
 6047  033704  005300                          DEC     R0
 6048  033706  001373                          BNE     2$
 6049  033710  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
 6050  033716  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG 2
 6051  033724  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
 6052  033732  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
 6053  033740  012737  100212  004160          MOV     #CERR!RDY.RECAL&<^C<GO>>,E.CS1 ;LOAD EXPECTED CS1
 6054  033746  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
 6055  033754  012737  100020  004172          MOV     #SVAL!SPDLSS,E.DS ;LOAD EXPECTED DRIVE STATUS REG
 6056  033762  012737  002000  004174          MOV     #IDAE,E.ER      ;LOAD EXPECTED ERROR REG
 6057  033770  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
 6058  033776  001401                          BEQ     4$              ;YES, CONTINUE
 6059  034000  104220                          ERROR   220
 6060  034002  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG. 2 CORRECT
 6061  034010  001401                          BEQ     5$              ;YES, CONTINUE
 6062  034012  104221                          ERROR   221
 6063  034014  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
 6064  034022  001401                          BEQ     6$              ;YES, CONTINUE
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6065  034024  104222                          ERROR   222
6066  034026  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REGISTER CORRECT
6067  034034  001401                          BEQ     7$              ;YES, CLEAR RK611
6068  034036  104223                          ERROR   223
6069  034040  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CONTENTS OF
6070  034046  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG 1
6071  034054  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG 2
6072  034062  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG
6073                                                                  ;  AND ERROR REG
6074  034070  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
6075  034076  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
6076  034104  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REC 2
6077  034112  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
6078  034120  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
6079  034126  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
6080  034134  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
6081  034142  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG
6082  034146  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG
6083  034152  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG 1 CORRECT
6084  034160  001401                          BEQ     11$             ;YES, CHECK CS2
6085  034162  104224                          ERROR   224             ;CS1 INCORRECT
6086  034164  023737  004170  004130  11$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG 2 CORRECT
6087  034172  001401                          BEQ     12$             ;YES, CHECK DRIVE STATUS REG
6088  034174  104225                          ERROR   225             ;CS2 INCORRECT
6089  034176  023737  004172  004132  12$:    CMP     E.DS,T.DS       ;CHECK IF DRIVE STATUS REG CORRECT
6090  034204  001401                          BEQ     13$             ;YES, CHECK ERROR REG
6091  034206  104226                          ERROR   226             ;ERROR REG INCORRECT
6092  034210  023737  004174  004134  13$:    CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
6093  034216  001401                          BEQ     TST66           ;;YES, GO ON TO NEXT TEST
6094  034220  104227                          ERROR   227             ;ERROR REG INCORRECT
6095
6096                                  ;;*****************************************************************
6097                                  ;*TEST 66       IDAE DETECTION IN RK611 CONTROLLER (PART 1)
6098                                  ;*
6099                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
6100                                  ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A
6101                                  ;*      SEEK TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 1003,
6102                                  ;*      HEAD 0, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL
6103                                  ;*      PHASE ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE
6104                                  ;*      SURE DRIVE AVAILABLE, ILLEGAL DISK ADDRESS ERROR,
6105                                  ;*      AND CONTROLLER ERROR ARE SET.
6106                                  ;*
6107                                  ;;*****************************************************************
6108  034222  000004                  TST66:  SCOPE
6109  034224  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
6110  034232  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
6111  034236  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
6112  034244  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
6113  034252  012762  001002  000020          MOV     #1002,RKDCYL(R2)        ;LOAD CYLINDER ADDRESS
6114  034260  012737  001002  004252          MOV     #1002,CYLIN
6115  034266  012737  000000  004250          MOV     #0,HDCODE       ;LOAD HEAD ADDRESS
6116  034274  005046                          CLR     -(SP)
6117  034276  113766  004250  000001          MOVB    HDCODE,1(SP)
6118  034304  012662  000006                  MOV     (SP)+,RKDA(R2)
6119  034310  012737  000006  004266          MOV     #6,DRVTYP       ;LOAD DRIVE TYPE FOR PRINT OUT
6120  034316  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK TO RK06
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6121  034324  012700  000132                    MOV     #22.*4+2,R0     ;ISSUE CLOCK TO GET THROUGH PHASE 6
6122  034330  012762  000440  000026  1$:       MOV     #DMD.MCLK,RKMR1(R2)
6123  034336  012762  000040  000026            MOV     #DMD,RKMR1(R2)
6124  034344  005300                            DEC     R0
6125  034346  001370                            BNE     1$
6126  034350  005062  000026                    CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
6127  034354  013700  004262                    MOV     WAITIM,R0       ;LOAD WAIT TIME
6128  034360  105762  000000          2$:       TSTB    RKCS1(R2)       ;WAIT FOR READY
6129  034364  100402                            BMI     3$
6130  034366  005300                            DEC     R0
6131  034370  001373                            BNE     2$
6132  034372  016237  000000  004120  3$:       MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REC.1
6133  034400  016237  000010  004130            MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6134  034406  016237  000012  004132            MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
6135  034414  016237  000014  004134            MOV     RKER(R2),T.ER   ;STORE ERROR REG
6136  034422  012737  100216  004160            MOV     #CERR.RDY.<SEEK&^C<GO>>,E.CS1  ;LOAD EXPECTED CS1
6137
6138  034430  012737  000100  004170            MOV     #IR,E.CS2       ;LOAD EXPECTED COMMAND AND STATUS REG.2
6139  034436  012737  100001  004172            MOV     #SVAL!DRA,E.DS  ;LOAD EXPECTED DRIVE STATUS REG
6140  034444  012737  002000  004174            MOV     #IDAE,E.ER      ;LOAD EXPECTED ERROR REG
6141  034452  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG1 CORRECT
6142  034460  001401                            BEQ     4$              ;YES, CHECK CS2
6143  034462  104230                            ERROR   230             ;CS1 INCORRECT
6144  034464  023737  004170  004130  4$:       CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
6145
6146  034472  001401                            BEQ     5$              ;YES, CHECK DRIVE STATUS REG.
6147  034474  104231                            ERROR   231             ;CS2 INCORRECT
6148  034476  023737  004172  004132  5$:       CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
6149  034504  001401                            BEQ     6$              ;YES, CHECK ERROR REG
6150  034506  104232                            ERROR   232             ;DRIVE STATUS REG. INCORRECT
6151  034510  023737  004174  004134  6$:       CMP     E.ER,T.ER       ;CHECK ERROR REG. CORRECT
6152  034516  001401                            BEQ     7$              ;YES, CHECK CONTROLLER CLEAR
6153  034520  104233                            ERROR   233             ;ERROR REG. INCORRECT
6154  034522  013737  004120  004220  7$:       MOV     T.CS1,P.CS1     ;STORE PREVIOUS VALUES OF
6155  034530  013737  004130  004222            MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG.1
6156  034536  013737  004132  004224            MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG.2
6157  034544  013737  004134  004226            MOV     T.ER,P.ER       ;  DRIVE STATUS REG.
6158                                                                    ;  ERROR REG.
6159  034552  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;ISSUE CONTROLLER CLEAR
6160  034560  016237  000000  004120            MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6161  034566  016237  000010  004130            MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6162  034574  016237  000012  004132            MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
6163  034602  016237  000014  004134            MOV     RKER(R2),T.ER   ;STORE ERROR REG
6164  034610  012737  000200  004160            MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
6165  034616  012737  000100  004170            MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
6166  034624  005037  004172                    CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
6167  034630  005037  004174                    CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6168  034634  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
6169  034642  001401                            BEQ     10$             ;YES, CHECK CS2
6170  034644  104224                            ERROR   224             ;CS1 INCORRECT
6171  034646  023737  004170  004130  10$:      CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
6172  034654  001401                            BEQ     11$             ;YES, CHECK DRIVE STATUS REG
6173  034656  104225                            ERROR   225             ;CS2 INCORRECT
6174  034660  023737  004172  004132  11$:      CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6175  034666  001401                            BEQ     12$             ;YES, CHECK ERROR REGISTER
6176  034670  104226                            ERROR   226             ;DRIVE STATUS REG INCORRECT
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 6177  034672  023737  004174  004134  12$:    CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
 6178  034700  001401                          BEQ     TST67           ;;YES,GO ON TO NEXT TEST
 6179  034702  104227                          ERROR   227             ;ERROR REG. INCORRECT
 6180
 6181                                  ;;*****************************************************************
 6182                                  ;*TEST 67       IDAE DETECTION IN RK611 CONTROLLER (PART 2)
 6183                                  ;*
 6184                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR. PUT
 6185                                  ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
 6186                                  ;*      WITH CDT SET IN 26 SECTOR FORMAT, CYLINDER 1022, HEAD
 6187                                  ;*      0, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE
 6188                                  ;*      ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE
 6189                                  ;*      DRIVE AVAILABLE AND POSITIONING IN PROGRESS ARE SET
 6190                                  ;*      WITH ILLEGAL DISK ADDRESS ERROR RESET.
 6191                                  ;*
 6192                                  ;;*****************************************************************
 6193  034704  000004                  TST67:  SCOPE
 6194  034706  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 6195  034714  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 6196  034720  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 6197  034726  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
 6198  034734  012762  001022  000020          MOV     #1022,RKDCYL(R2)        ;LOAD CYLINDER ADDRESS
 6199  034742  012737  001022  004252          MOV     #1022,CYLIN
 6200  034750  012737  000000  004250          MOV     #0,HDCODE       ;LOAD HEAD ADDRESS
 6201  034756  005046                          CLR     -(SP)
 6202  034760  113766  004250  000001          MOVB    HDCODE,1(SP)
 6203  034766  012662  000006                  MOV     (SP)+,RKDA(R2)
 6204  034772  012737  000007  004266          MOV     #7,DRVTYP       ;LOAD DRIVE TYPE FOR PRINT OUT
 6205  035000  012762  002017  000000          MOV     #CDT!SEEK,RKCS1(R2)  ;ISSUE SEEK TO RK06
 6206  035006  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCK TO GET THROUGH PHASE 6
 6207  035012  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
 6208  035020  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 6209  035026  005300                          DEC     R0
 6210  035030  001370                          BNE     1$
 6211  035032  005062  000026                  CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
 6212  035036  013700  004262                  MOV     WAITIM,R0       ;LOAD WAIT TIME
 6213  035042  105762  000000          2$:     TSTB    RKCS1(R2)       ;WAIT FOR READY
 6214  035046  100402                          BMI     3$
 6215  035050  005300                          DEC     R0
 6216  035052  001373                          BNE     2$
 6217  035054  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
 6218  035062  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
 6219  035070  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
 6220  035076  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
 6221  035104  012737  002216  004160          MOV     #CDT!RDY!<SEEK&^C<GO>>,E.CS1  ;LOAD EXPECTED CS1
 6222
 6223  035112  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED COMMAND AND STATUS REG.2
 6224  035120  012737  120401  004172          MOV     #SVAL!DRA!PIP.DDT,E.DS  ;LOAD EXPECTED DRIVE STATUS REG
 6225  035126  012737  000000  004174          MOV     #0,E.ER ;LOAD EXPECTED ERROR REG
 6226  035134  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG1 CORRECT
 6227  035142  001401                          BEQ     4$              ;YES, CHECK CS2
 6228  035144  104230                          ERROR   230             ;CS1 INCORRECT
 6229  035146  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
 6230
 6231  035154  001401                          BEQ     5$              ;YES, CHECK DRIVE STATUS REG.
 6232  035156  104231                          ERROR   231             ;CS2 INCORRECT
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6233  035160  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
6234  035166  001401                          BEQ     6$              ;YES, CHECK ERROR REG
6235  035170  104232                          ERROR   232             ;DRIVE STATUS REG. INCORRECT
6236  035172  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REG. CORRECT
6237  035200  001401                          BEQ     7$              ;YES, CHECK CONTROLLER CLEAR
6238  035202  104233                          ERROR   233             ;ERROR REG. INCORRECT
6239  035204  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS VALUES OF
6240  035212  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG.1
6241  035220  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG.2
6242  035226  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG.
6243                                          ;  ERROR REG.
6244  035234  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;ISSUE CONTROLLER CLEAR
6245  035242  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6246  035250  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6247  035256  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
6248  035264  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
6249  035272  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
6250  035300  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
6251  035306  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
6252  035312  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6253  035316  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
6254  035324  001401                          BEQ     10$             ;YES, CHECK CS2
6255  035326  104224                          ERROR   224             ;CS1 INCORRECT
6256  035330  023737  004170  004130  10$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
6257  035336  001401                          BEQ     11$             ;YES, CHECK DRIVE STATUS REG
6258  035340  104225                          ERROR   225             ;CS2 INCORRECT
6259  035342  023737  004172  004132  11$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6260  035350  001401                          BEQ     12$             ;YES, CHECK ERROR REGISTER
6261  035352  104226                          ERROR   226             ;DRIVE STATUS REG INCORRECT
6262  035354  023737  004174  004134  12$:    CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
6263  035362  001401                          BEQ     TST70           ;;YES,GO ON TO NEXT TEST
6264  035364  104227                          ERROR   227             ;ERROR REG. INCORRECT
6265
6266                                  ;;*****************************************************************
6267                                  ;*TEST 70       IDAE DETECTION IN RK611 CONTROLLER (PART 3)
6268                                  ;*
6269                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR. PUT
6270                                  ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
6271                                  ;*      TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 2,
6272                                  ;*      HEAD 3, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL
6273                                  ;*      PHASE ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE
6274                                  ;*      SURE DRIVE AVAILABLE, DRIVE OFF TRACK, SPEED LOSS,
6275                                  ;*      ILLEGAL DISK ADDRESS ERROR, AND CONTROLLER ERROR ARE
6276                                  ;*      SET.
6277                                  ;*
6278                                  ;*****************************************************************
6279  035366  000004                  TST70:  SCOPE
6280  035370  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
6281  035376  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
6282  035402  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
6283  035410  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
6284  035416  012762  000002  000020          MOV     #2,RKDCYL(R2)   ;LOAD CYLINDER ADDRESS
6285  035424  012737  000002  004252          MOV     #2,CYLIN
6286  035432  012737  000003  004250          MOV     #3,HDCODE       ;LOAD HEAD ADDRESS
6287  035440  005046                          CLR     -(SP)
6288  035442  113766  004250  000001          MOVB    HDCODE,1(SP)
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 6289  035450  012662  000006                  MOV     (SP)+,RKDA(R2)
 6290  035454  012737  000006  004266          MOV     #6,DRVTYP       ;LOAD DRIVE TYPE FOR PRINT OUT
 6291  035462  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK TO RK06
 6292  035470  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCK TO GET THROUGH PHASE 6
 6293  035474  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
 6294  035502  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 6295  035510  005300                          DEC     R0
 6296  035512  001370                          BNE     1$
 6297  035514  005062  000026                  CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
 6298  035520  013700  004262                  MOV     WAITIM,R0       ;LOAD WAIT TIME
 6299  035524  105762  000000          2$:     TSTB    RKCS1(R2)       ;WAIT FOR READY
 6300  035530  100402                          BMI     3$
 6301  035532  005300                          DEC     R0
 6302  035534  001373                          BNE     2$
 6303  035536  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
 6304  035544  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
 6305  035552  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
 6306  035560  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
 6307  035566  012737  100216  004160          MOV     #CERR!RDY!<SEEK&^C<GO>>,E.CS1  ;LOAD EXPECTED CS1
 6308
 6309  035574  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED COMMAND AND STATUS REG.2
 6310  035602  012737  100061  004172          MOV     #SVAL!DRA!DROT!SPDLSS,E.DS  ;LOAD EXPECTED DRIVE STATUS REG
 6311  035610  012737  002000  004174          MOV     #IDAE,E.ER      ;LOAD EXPECTED ERROR REG
 6312  035616  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG1 CORRECT
 6313  035624  001401                          BEQ     4$              ;YES, CHECK CS2
 6314  035626  104230                          ERROR   230             ;CS1 INCORRECT
 6315  035630  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
 6316
 6317  035636  001401                          BEQ     5$              ;YES, CHECK DRIVE STATUS REG.
 6318  035640  104231                          ERROR   231             ;CS2 INCORRECT
 6319  035642  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
 6320  035650  001401                          BEQ     6$              ;YES, CHECK ERROR REG
 6321  035652  104232                          ERROR   232             ;DRIVE STATUS REG. INCORRECT
 6322  035654  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REG. CORRECT
 6323  035662  001401                          BEQ     7$              ;YES, CHECK CONTROLLER CLEAR
 6324  035664  104233                          ERROR   233             ;ERROR REG. INCORRECT
 6325  035666  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS VALUES OF
 6326  035674  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG.1
 6327  035702  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG.2
 6328  035710  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG.
 6329                                          ;  ERROR REG.
 6330  035716  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;ISSUE CONTROLLER CLEAR
 6331  035724  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
 6332  035732  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
 6333  035740  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
 6334  035746  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
 6335  035754  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
 6336  035762  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
 6337  035770  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
 6338  035774  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
 6339  036000  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
 6340  036006  001401                          BEQ     10$             ;YES, CHECK CS2
 6341  036010  104224                          ERROR   224             ;CS1 INCORRECT
 6342  036012  023737  004170  004130  10$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
 6343  036020  001401                          BEQ     11$             ;YES, CHECK DRIVE STATUS REG
 6344  036022  104225                          ERROR   225             ;CS2 INCORRECT
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 6345  036024  023737  004172  004132  11$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
 6346  036032  001401                          BEQ     12$             ;YES, CHECK ERROR REGISTER
 6347  036034  104226                          ERROR   226             ;DRIVE STATUS REG INCORRECT
 6348  036036  023737  004174  004134  12$:    CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
 6349  036044  001401                          BEQ     TST71           ;;YES,GO ON TO NEXT TEST
 6350  036046  104227                          ERROR   227             ;ERROR REG. INCORRECT
 6351
 6352                                  ;;*****************************************************************
 6353                                  ;*TEST 71       IDAE DETECTION IN RK611 CONTROLLER (PART 4)
 6354                                  ;*
 6355                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
 6356                                  ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
 6357                                  ;*      TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 3, HEAD
 6358                                  ;*      4, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE
 6359                                  ;*      ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE
 6360                                  ;*      DRIVE AVAILABLE, UNSAFE, ILLEGAL DISK ADDRESS ERROR
 6361                                  ;*      AND CONTROLLER ERROR ARE SET.
 6362                                  ;*
 6363                                  ;;*****************************************************************
 6364  036050  000004                  TST71:  SCOPE
 6365  036052  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 6366  036060  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
 6367  036064  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 6368  036072  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
 6369  036100  012762  000003  000020          MOV     #3,RKDCYL(R2)   ;LOAD CYLINDER ADDRESS
 6370  036106  012737  000003  004252          MOV     #3,CYLIN
 6371  036114  012737  000004  004250          MOV     #4,HDCODE       ;LOAD HEAD ADDRESS
 6372  036122  005046                          CLR     -(SP)
 6373  036124  113766  004250  000001          MOVB    HDCODE,1(SP)
 6374  036132  012662  000006                  MOV     (SP)+,RKDA(R2)
 6375  036136  012737  000006  004266          MOV     #6,DRVTYP       ;LOAD DRIVE TYPE FOR PRINT OUT
 6376  036144  012762  000017  000000          MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK TO RK06
 6377  036152  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCK TO GET THROUGH PHASE 6
 6378  036156  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
 6379  036164  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 6380  036172  005300                          DEC     R0
 6381  036174  001370                          BNE     1$
 6382  036176  005062  000026                  CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
 6383  036202  013700  004262                  MOV     WAITIM,R0       ;LOAD WAIT TIME
 6384  036206  105762  000000          2$:     TSTB    RKCS1(R2)       ;WAIT FOR READY
 6385  036212  100402                          BMI     3$
 6386  036214  005300                          DEC     R0
 6387  036216  001373                          BNE     2$
 6388  036220  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
 6389  036226  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
 6390  036234  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
 6391  036242  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
 6392  036250  012737  100216  004160          MOV     #CERR!RDY!<SEEK&^C<GO>>,E.CS1  ;LOAD EXPECTED CS1
 6393
 6394  036256  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED COMMAND AND STATUS REG.2
 6395  036264  012737  100001  004172          MOV     #SVAL!DRA,E.DS  ;LOAD EXPECTED DRIVE STATUS REG
 6396  036272  012737  042000  004174          MOV     #UNS!IDAE,E.ER  ;LOAD EXPECTED ERROR REG
 6397  036300  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG1 CORRECT
 6398  036306  001401                          BEQ     4$              ;YES, CHECK CS2
 6399  036310  104230                          ERROR   230             ;CS1 INCORRECT
 6400  036312  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
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```
6401
6402  036320  001407                        BEQ     5$              ;YES, CHECK DRIVE STATUS REG.
6403  036322  104231                        ERROR   231             ;CS2 INCORRECT
6404  036324  023737  004172  004132  5$:   CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
6405  036332  001401                        BEQ     6$              ;YES, CHECK ERROR REG
6406  036334  104232                        ERROR   232             ;DRIVE STATUS REG. INCORRECT
6407  036336  023737  004174  004134  6$:   CMP     E.ER,T.ER       ;CHECK ERROR REG. CORRECT
6408  036344  001401                        BEQ     7$              ;YES, CHECK CONTROLLER CLEAR
6409  036346  104233                        ERROR   233             ;ERROR REG. INCORRECT
6410  036350  013737  004120  004220  7$:   MOV     T.CS1,P.CS1     ;STORE PREVIOUS VALUES OF
6411  036356  013737  004130  004222        MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG.1
6412  036364  013737  004132  004224        MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG.2
6413  036372  013737  004134  004226        MOV     T.ER,P.ER       ;  DRIVE STATUS REG.
6414                                                                ;  ERROR REG.
6415  036400  012762  100000  000000        MOV     #CCLR,RKCS1(R2) ;ISSUE CONTROLLER CLEAR
6416  036406  016237  000000  004120        MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6417  036414  016237  000010  004130        MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6418  036422  016237  000012  004132        MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
6419  036430  016237  000014  004134        MOV     RKER(R2),T.ER   ;STORE ERROR REG
6420  036436  012737  000200  004160        MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
6421  036444  012737  000100  004170        MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
6422  036452  005037  004172                CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
6423  036456  005037  004174                CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6424  036462  023737  004160  004120        CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
6425  036470  001401                        BEQ     10$             ;YES, CHECK CS2
6426  036472  104224                        ERROR   224             ;CS1 INCORRECT
6427  036474  023737  004170  004130  10$:   CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
6428  036502  001401                        BEQ     11$             ;YES, CHECK DRIVE STATUS REG
6429  036504  104225                        ERROR   225             ;CS2 INCORRECT
6430  036506  023737  004172  004132  11$:   CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6431  036514  001401                        BEQ     12$             ;YES, CHECK ERROR REGISTER
6432  036516  104226                        ERROR   226             ;DRIVE STATUS REG INCORRECT
6433  036520  023737  004174  004134  12$:   CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
6434  036526  001401                        BEQ     TST72           ;;YES,GO ON TO NEXT TEST
6435  036530  104227                        ERROR   227             ;ERROR REG. INCORRECT
6436
6437                                  ;;*****************************************************************
6438                                  ;*TEST 72       IDAE DETECTION IN RK611 CONTROLLER (PART 5)
6439                                  ;*
6440                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
6441                                  ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
6442                                  ;*      WITH CDT SET IN 26 SECTOR FORMAT, CYLINDER 23, HEAD 5,
6443                                  ;*      DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS
6444                                  ;*      6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE
6445                                  ;*      AVAILABLE, UNSAFE, SPEED LOSS, ILLEGAL DISK ADDRESS
6446                                  ;*      ERROR, AND CONTROLLER ERROR ARE SET.
6447                                  ;*
6448                                  ;*****************************************************************
6449  036532  000004                  TST72:  SCOPE
6450  036534  012737  000144  001200        MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
6451  036542  013702  001270                MOV     $BASE,R2        ;LOAD RK611 BASE
6452  036546  012762  000040  000010        MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
6453  036554  012762  000040  000026        MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
6454  036562  012762  000023  000020        MOV     #23,RKDCYL(R2)  ;LOAD CYLINDER ADDRESS
6455  036570  012737  000023  004252        MOV     #23,CYLIN
6456  036576  012737  000005  004250        MOV     #5,HDCODE       ;LOAD HEAD ADDRESS
```

```
 6457  036604  005046                          CLR     -(SP)
 6458  036606  113766  004250  000001          MOVB    HDCODE,1(SP)
 6459  036614  012662  000006                  MOV     (SP)+,RKDA(R2)
 6460  036620  012737  000007  004266          MOV     #7,DRVTYP       ;LOAD DRIVE TYPE FOR PRINT OUT
 6461  036626  012762  002017  000000          MOV     #CDT!SEEK,RKCS1(R2)  ;ISSUE SEEK TO RK06
 6462  036634  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCK TO GET THROUGH PHASE 6
 6463  036640  012762  000440  000026  1$:     MOV     #DMD.MCLK,RKMR1(R2)
 6464  036646  012762  000040  000026          MOV     #DMD,RKMR1(R2)
 6465  036654  005300                          DEC     R0
 6466  036656  001370                          BNE     1$
 6467  036660  005062  000026                  CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
 6468  036664  013700  004262                  MOV     WAITIM,R0       ;LOAD WAIT TIME
 6469  036670  105762  000000          2$:     TSTB    RKCS1(R2)       ;WAIT FOR READY
 6470  036674  100402                          BMI     3$
 6471  036676  005300                          DEC     R0
 6472  036700  001373                          BNE     2$
 6473  036702  016237  000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
 6474  036710  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
 6475  036716  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
 6476  036724  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
 6477  036732  012737  102216  004160          MOV     #CERR!CDT!RDY!<SEEK&^C<GO>>,E.CS1  ;LOAD EXPECTED CS1
 6478
 6479  036740  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED COMMAND AND STATUS REG.2
 6480  036746  012737  100421  004172          MOV     #SVAL!DRA!SPDLSS!DDT,E.DS  ;LOAD EXPECTED DRIVE STATUS REG
 6481  036754  012737  042000  004174          MOV     #UNS!IDAE,E.ER  ;LOAD EXPECTED ERROR REG
 6482  036762  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG1 CORRECT
 6483  036770  001401                          BEQ     4$              ;YES, CHECK CS2
 6484  036772  104230                          ERROR   230             ;CS1 INCORRECT
 6485  036774  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
 6486
 6487  037002  001407                          BEQ     5$              ;YES, CHECK DRIVE STATUS REG.
 6488  037004  104231                          ERROR   231             ;CS2 INCORRECT
 6489  037006  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
 6490  037014  001401                          BEQ     6$              ;YES, CHECK ERROR REG
 6491  037016  104232                          ERROR   232             ;DRIVE STATUS REG. INCORRECT
 6492  037020  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REG. CORRECT
 6493  037026  001401                          BEQ     7$              ;YES, CHECK CONTROLLER CLEAR
 6494  037030  104233                          ERROR   233             ;ERROR REG. INCORRECT
 6495  037032  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS VALUES OF
 6496  037040  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG.1
 6497  037046  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG.2
 6498  037054  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG.
 6499                                                                  ;  ERROR REG.
 6500  037062  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;ISSUE CONTROLLER CLEAR
 6501  037070  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
 6502  037076  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
 6503  037104  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
 6504  037112  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
 6505  037120  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
 6506  037126  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
 6507  037134  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
 6508  037140  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
 6509  037144  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
 6510  037152  001401                          BEQ     10$             ;YES, CHECK CS2
 6511  037154  104224                          ERROR   224             ;CS1 INCORRECT
 6512  037156  023737  004170  004130  10$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
```

```
                                                BEQ     11$             ;YES, CHECK DRIVE STATUS REG
                                                ERROR   225             ;CS2 INCORRECT
004172  004132  11$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
                        BEQ     12$             ;YES, CHECK ERROR REGISTER
                        ERROR   226             ;DRIVE STATUS REG INCORRECT
004174  004134  12$:    CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
                        BEQ     TST73           ;;YES,GO ON TO NEXT TEST
                        ERROR   227             ;ERROR REG. INCORRECT

                ;;*************************************************************
                ;*TEST 73        IDAE DETECTION IN RK611 CONTROLLER (PART 6)
                ;*
                ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
                ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
                ;*      WITH CDT SET IN 26 SECTOR FORMAT, CYLINDER 23, HEAD 6,
                ;*      DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS
                ;*      6.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE DRIVE
                ;*      AVAILABLE, UNSAFE, DRIVE OFF TRACK, ILLEGAL
                ;*      DISK ADDRESS ERROR, AND CONTROLLER CLEAR ARE SET.
                ;*
                ;*************************************************************
000144  001200  TST73:  SCOPE
                        MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
000023  000020          MOV     #23,RKDCYL(R2)  ;LOAD CYLINDER ADDRESS
000023  004252          MOV     #23,CYLIN
000006  004250          MOV     #6,HDCODE       ;LOAD HEAD ADDRESS
                        CLR     -(SP)
004250  000001          MOVB    HDCODE,1(SP)
000006                  MOV     (SP)+,RKDA(R2)
004266                  MOV     #7,DRVTYP       ;LOAD DRIVE TYPE FOR PRINT OUT
002017  000000          MOV     #CDT!SEEK,RKCS1(R2)  ;ISSUE SEEK TO RK06
000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCK TO GET THROUGH PHASE 6
000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
000040  000026          MOV     #DMD,RKMR1(R2)
                        DEC     R0
                        BNE     1$
000026                  CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
004262                  MOV     WAITIM,R0       ;LOAD WAIT TIME
000000          2$:     TSTB    RKCS1(R2)       ;WAIT FOR READY
                        BMI     3$
                        DEC     R0
                        BNE     2$
000000  004120  3$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
102216  004160          MOV     #CERR!CDT!RDY.<SEEK&^C<GO>>,E.CS1  ;LOAD EXPECTED CS1

000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED COMMAND AND STATUS REG.2
100441  004172          MOV     #SVAL.DRA!DROT.DDT,E.DS  ;LOAD EXPECTED DRIVE STATUS REG
042000  004174          MOV     #UNS:IDAE,E.ER  ;LOAD EXPECTED ERROR REG
004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG1 CORRECT
                        BEQ     4$              ;YES, CHECK CS2
```

```
6569  037454  104230                          ERROR   230             ;CS1 INCORRECT
6570  037456  023737  004170  004130  4$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
6571
6572  037464  001401                          BEQ     5$              ;YES, CHECK DRIVE STATUS REG.
6573  037466  104231                          ERROR   231             ;CS2 INCORRECT
6574  037470  023737  004172  004132  5$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
6575  037476  001401                          BEQ     6$              ;YES, CHECK ERROR REG
6576  037500  104232                          ERROR   232             ;DRIVE STATUS REG. INCORRECT
6577  037502  023737  004174  004134  6$:     CMP     E.ER,T.ER       ;CHECK ERROR REG. CORRECT
6578  037510  001401                          BEQ     7$              ;YES, CHECK CONTROLLER CLEAR
6579  037512  104233                          ERROR   233             ;ERROR REG. INCORRECT
6580  037514  013737  004120  004220  7$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS VALUES OF
6581  037522  013737  004130  004222          MOV     T.CS2,P.CS2     ;  COMMAND AND STATUS REG.1
6582  037530  013737  004132  004224          MOV     T.DS,P.DS       ;  COMMAND AND STATUS REG.2
6583  037536  013737  004134  004226          MOV     T.ER,P.ER       ;  DRIVE STATUS REG.
6584                                                                  ;  ERROR REG.
6585  037544  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;ISSUE CONTROLLER CLEAR
6586  037552  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6587  037560  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6588  037566  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
6589  037574  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
6590  037602  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
6591  037610  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
6592  037616  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
6593  037622  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6594  037626  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
6595  037634  001401                          BEQ     10$             ;YES, CHECK CS2
6596  037636  104224                          ERROR   224             ;CS1 INCORRECT
6597  037640  023737  004170  004130  10$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG2 CORRECT
6598  037646  001401                          BEQ     11$             ;YES, CHECK DRIVE STATUS REG
6599  037650  104225                          ERROR   225             ;CS2 INCORRECT
6600  037652  023737  004172  004132  11$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6601  037660  001401                          BEQ     12$             ;YES, CHECK ERROR REGISTER
6602  037662  104226                          ERROR   226             ;DRIVE STATUS REG INCORRECT
6603  037664  023737  004174  004134  12$:    CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
6604  037672  001401                          BEQ     TST74           ;;YES,GO ON TO NEXT TEST
6605  037674  104227                          ERROR   227             ;ERROR REG. INCORRECT
6606
6607                                  ;;*****************************************************************
6608                                  ;*TEST 74        NON-STANDARD MESSAGE RECEIVING
6609                                  ;*
6610                                  ;*      CLEAR RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
6611                                  ;*      RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A SEEK
6612                                  ;*      WITH CDT SET IN 24 SECTOR FORMAT, CYLINDER 1757, HEAD 7,
6613                                  ;*      DRIVE 1.  CLOCK IN DIAGNOSTIC MODE UNTIL PHASE ADDRESS 6.
6614                                  ;*      TURN OFF DIAGNOSTIC MODE AND MAKE SURE NO ERRORS SET
6615                                  ;*      AND DRIVE STATUS IS NOT REPORTED.  REPEAT FOR DRIVES
6616                                  ;*      2 AND 4.
6617                                  ;*
6618                                  ;;*****************************************************************
6619  037676  000004                  TST74:  SCOPE
6620  037700  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
6621  037706  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
6622  037712  012737  000001  004244          MOV     #1,DRVCOD       ;LOAD INITIAL DRIVE CODE
6623  037720  012737  037726  001110          MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
6624                                                                  ;  SUBTEST LOOP
```

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6625
6626  037726                                  1$:
6627  037726  012762  000040  00001C          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
6628  037734  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
6629  037742  012762  001757  000020          MOV     #1757,RKDCYL(R2)  ;LOAD CYLINDER ADDRESS REG
6630  037750  012762  003400  000006          MOV     #3400,RKDA(R2)  ;LOAD HEAD 7
6631  037756  013762  004244  000010          MOV     DRVCOD,RKCS2(R2)  ;LOAD DRIVE NUMBER
6632  037764  012762  002017  000000          MOV     #CDT!SEEK,RKCS1(R2)  ;ISSUE A SEEK WITH CDT SET
6633  037772  012700  000132                  MOV     #22.*4+2,R0     ;ISSUE CLOCKS THROUGH PHASE 6
6634  037776  012762  000440  000026  2$:     MOV     #DMD!MCLK,RKMR1(R2)
6635  040004  012762  000040  000026          MOV     #DMD,RKMR1(R2)
6636  040012  005300                          DEC     R0
6637  040014  001370                          BNE     2$
6638  040016  005062  000026                  CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
6639  040022  013700  004262                  MOV     WAITIM,R0       ;LOAD WAIT TIME
6640  040026  105762  000000          3$:     TSTB    RKCS1(R2)       ;WAIT FOR READY
6641  040032  100402                          BMI     4$
6642  040034  005300                          DEC     R0
6643  040036  001373                          BNE     3$
6644  040040  016237  000000  004120  4$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6645  040046  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6646  040054  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
6647  040062  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
6648  040070  012737  002216  004160          MOV     #CDT!RDY.<SEEK&^C<GO>>,E.CS1  ;LOAD EXPECTED CS1
6649  040076  013737  004244  004170          MOV     DRVCOD,E.CS2    ;LOAD EXPECTED CS2
6650  040104  052737  000100  004170          BIS     #IR,E.CS2
6651  040112  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
6652  040116  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6653  040122  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
6654  040130  001401                          BEQ     5$              ;YES, CHECK CS2
6655  040132  104234                          ERROR   234             ;CS1 INCORRECT
6656  040134  023737  004170  004130  5$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG.2 CORRECT
6657  040142  001401                          BEQ     6$              ;YES, CHECK DRIVE STATUS REG.
6658  040144  104235                          ERROR   235             ;CS2 INCORRECT
6659  040146  023737  004172  004132  6$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6660  040154  001401                          BEQ     7$              ;YES, CHECK ERROR REG
6661  040156  104236                          ERROR   236             ;DRIVE STATUS REG INCORRECT
6662  040160  023737  004174  004134  7$:     CMP     E.ER,T.ER       ;CHECK IF ERROR CORRECT
6663  040166  001401                          BEQ     8$              ;YES, CHECK IF LOOP ON ERROR
6664  040170  104237                          ERROR   237             ;ERROR REG INCORRECT
6665  040172  104415                  8$:     SCOP1                   ;CHECK IF LOOP ON ERROR
6666  040174  006337  004244                  ASL     DRVCOD          ;GENERATE NEXT DRIVE CODE
6667  040200  032737  000010  004244          BIT     #BIT3,DRVCOD    ;CHECK IF FINISHED
6668  040206  001647                          BEQ     1$              ;NO, TRY NEXT CODE
6669
6670                                  ;;*****************************************************************
6671                                  ;*TEST 75       DRIVE BUS PARITY ON NON-STANDARD MESSAGE
6672                                  ;*
6673                                  ;*      CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
6674                                  ;*      PUT THE RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE
6675                                  ;*      A SEEK TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 2,
6676                                  ;*      HEAD 0, DRIVE 1.  CLOCK IN DIAGNOSTIC MODE UNTIL
6677                                  ;*      PHASE ADDRESS 6.  TURN OFF DIAGNOSTIC MODE AND MAKE
6678                                  ;*      SURE DRIVE BUS PARITY ERROR AND CONTROLLER ERROR SETS.
6679                                  ;*
6680                                  ;;*****************************************************************
```

```
 6681  040210  000004                    TST75:  SCOPE
 6682  040212  012737  000144  001200            MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
 6683  040220  013702  001270                    MOV     $BASE,R2        ;LOAD RK611 BASE
 6684  040224  012762  000040  000010            MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
 6685  040232  012762  000040  000026            MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
 6686  040240  012762  000002  000020            MOV     #2,RKDCYL(R2)   ;LOAD CYLINDER ADDRESS REG
 6687  040246  012762  000001  000010            MOV     #1,RKCS2(R2)    ;LOAD DRIVE NUMBER 1
 6688  040254  012762  000017  000000            MOV     #SEEK,RKCS1(R2) ;ISSUE SEEK
 6689  040262  012700  000132                    MOV     #22.*4+2,R0     ;ISSUE CLOCKS THROUGH PHASE 6
 6690  040266  012762  000440  000026  1$:       MOV     #DMD!MCLK,RKMR1(R2
 6691  040274  012762  000040  000026            MOV     #DMD,RKMR1(R2)
 6692  040302  005300                            DEC     R0
 6693  040304  001370                            BNE     1$
 6694  040306  005062  000026                    CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
 6695  040312  013700  004262                    MOV     WAITIM,R0       ;LOAD WAIT TIME
 6696  040316  105762  000000            3$:     TSTB    RKCS1(R2)       ;WAIT FOR READY
 6697  040322  100402                            BMI     4$
 6698  040324  005300                            DEC     R0
 6699  040326  001373                            BNE     3$
 6700  040330  016237  000000  004120  4$:       MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
 6701  040336  016237  000010  004130            MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
 6702  040344  016237  000012  004132            MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
 6703  040352  016237  000014  004134            MOV     RKER(R2),T.ER   ;STORE ERROR REG.
 6704  040360  012737  120216  004160            MOV     #CERR!SPAR!RDY!SEEK&^C<GO>,E.CS1  ;LOAD EXPECTED CS1
 6705  040366  012737  000101  004170            MOV     #IR.1,E.CS2     ;LOAD EXPECTED CS1
 6706  040374  005037  004172                    CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
 6707  040400  005037  004174                    CLR     E.ER            ;LOAD EXPECTED ERROR REG.
 6708  040404  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
 6709  040412  001401                            BEQ     5$              ;YES, CHECK CS2
 6710  040414  104240                            ERROR   240             ;CS1 INCORRECT
 6711  040416  023737  004170  004130  5$:       CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG.2 CORRECT
 6712  040424  001401                            BEQ     6$              ;YES, CHECK DRIVE STATUS REG
 6713  040426  104241                            ERROR   241             ;CS2 INCORRECT
 6714  040430  023737  004172  004132  6$:       CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG. CORRECT
 6715  040436  001401                            BEQ     7$              ;YES, CHECK ERROR REG.
 6716  040440  104242                            ERROR   242             ;DRIVE STATUS REG. INCORRECT
 6717  040442  023737  004174  004134  7$:       CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
 6718  040450  001401                            BEQ     8$              ;YES, CLEAR RK611
 6719  040452  104243                            ERROR   243             ;ERROR REG. INCORRECT
 6720  040454  013737  004120  004220  8$:       MOV     T.CS1,P.CS1     ;STORE PREVIOUS CS1, CS2,
 6721  040462  013737  004130  004222            MOV     T.CS2,P.CS2     ;  DRIVE STATUS REG.,
 6722  040470  013737  004132  004224            MOV     T.DS,P.DS       ;  AND ERROR REG.
 6723  040476  013737  004134  004226            MOV     T.ER,P.ER
 6724  040504  012762  100000  000000            MOV     #CCLR,RKCS1(R2) ;CLEAR RK611
 6725  040512  016237  000000  004120            MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
 6726  040520  016237  000010  004130            MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
 6727  040526  016237  000012  004132            MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
 6728  040534  016237  000014  004134            MOV     RKER(R2),T.ER   ;STORE ERROR REG:
 6729  040542  012737  000200  004160            MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
 6730  040550  012737  000100  004170            MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
 6731  040556  005037  004172                    CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
 6732  040562  005037  004174                    CLR     E.ER            ;LOAD EXPECTED ERROR REG.
 6733  040566  023737  004160  004120            CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
 6734  040574  001401                            BEQ     10$             ;YES, CHECK CS2
 6735  040576  104224                            ERROR   224             ;CS1 INCORRECT
 6736  040600  023737  004170  004130  10$:      CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG.2 CORRECT
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6737  040606  001401                          BEQ     11$             ;YES, CHECK DRIVE STATUS REG
6738  040610  104225                          ERROR   225             ;CS2 INCORRECT
6739  040612  023737  004172  004132  11$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6740  040620  001401                          BEQ     12$             ;YES, CHECK ERROR REG
6741  040622  104226                          ERROR   226             ;DRIVE STATUS REG. INCORRECT
6742  040624  023737  004174  004134  12$:    CMP     E.ER,T.ER       ;CHECK ERROR CORRECT
6743  040632  001401                          BEQ     TST76           ;;YES, GO ON TO NEXT TEST
6744  040634  104227                          ERROR   227             ;ERROR REG INCORRECT
6745
6746                                  ;;*****************************************************************
6747                                  ;*TEST 76       NON-EXISTENT DRIVE (DRIVE MESSAGE TIME OUT)
6748                                  ;*
6749                                  ;*      CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.
6750                                  ;*      PUT THE RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE
6751                                  ;*      A SELECT TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 0,
6752                                  ;*      HEAD 0, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL
6753                                  ;*      PHASE ADDRESS 5.  TURN OFF DIAGNOSTIC MODE
6754                                  ;*      AND MAKE SURE NON-EXISTENT DRIVE AND CONTROLLER
6755                                  ;*      ERROR ARE SET.  THIS TEST CHECKS NON-EXISTENT DRIVE
6756                                  ;*      DUE TO DRIVE MESSAGE TIME OUT.
6757                                  ;*
6758                                  ;*****************************************************************
6759  040636  000004                  TST76:  SCOPE
6760  040640  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
6761  040646  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
6762  040652  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
6763  040660  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
6764  040666  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)  ;ISSUE SELECT DRIVE
6765  040674  012700  000124                  MOV     #21.*4,R0       ;ISSUE CLOCKS THROUGH PHASE 4
6766  040700  012762  000440  000026   $:     MOV     #DMD!MCLK,RKMR1(R2)
6767  040706  012762  000040  000026          MOV     #DMD,RKMR1(R2)
6768  040714  005300                          DEC     R0
6769  040716  001370                          BNE     1$
6770  040720  005062  000026                  CLR     RKMR1(R2)       ;ALLOW COMMAND TO FINISH
6771  040724  013700  004262                  MOV     WAITIM,R0       ;LOAD WAIT TIME
6772  040730  105762  000000          2$:     TSTB    RKCS1(R2)       ;WAIT FOR READY
6773  040734  100402                          BMI     3$
6774  040736  005300                          DEC     R0
6775  040740  001373                          BNE     2$
6776  040742  013700  004264          3$:     MOV     STALL,R0        ;STALL 100 USEC FOR MESSAGE TIME OUT
6777  040746  005300                  4$:     DEC     R0
6778  040750  001376                          BNE     4$
6779  040752  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6780  040760  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6781  040766  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
6782  040774  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
6783  041002  012737  100200  004160          MOV     #CERR!RDY,E.CS1 ;LOAD EXPECTED CS1
6784  041010  032737  020000  004120          BIT     #SPAR,T.CS1     ;CHECK FOR BUS PARITY ERROR
6785  041016  001403                          BEQ     5$
6786  041020  052737  020000  004160          BIS     #SPAR,E.CS1     ;PUT BUS PARITY ERROR IN EXPECTED CS1
6787  041026  012737  010100  004170  5$:     MOV     #NED!IR,E.CS2   ;LOAD EXPECTED CS2
6788  041034  012737  100000  004172          MOV     #SVAL,E.DS      ;LOAD EXPECTED DRIVE STATUS REG.
6789  041042  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6790  041046  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
6791  041054  001401                          BEQ     6$              ;YES, CHECK CS2
6792  041056  104244                          ERROR   244             ;CS1 INCORRECT
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6793  041060  023737  004170  004130  6$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG.2 CORRECT
6794  041066  001401                          BEQ     7$              ;YES, CHECK DRIVE STATUS REG
6795  041070  104245                          ERROR   245             ;CS2 INCORRECT
6796  041072  023737  004172  004132  7$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6797  041100  001401                          BEQ     8$              ;YES, CHECK ERROR REG.
6798  041102  104246                          ERROR   246             ;DRIVE STATUS INCORRECT
6799  041104  023737  004174  004134  8$:     CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
6800  041112  001401                          BEQ     9$              ;YES, ISSUE CONTROLLER CLEAR
6801  041114  104247                          ERROR   247             ;ERROR REG INCORRECT
6802  041116  013737  004120  004220  9$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CS1,CS2
6803  041124  013737  004130  004222          MOV     T.CS2,P.CS2     ;  DRIVE STATUS REG.,
6804  041132  013737  004132  004224          MOV     T.DS,P.DS       ;  AND ERROR REG.
6805  041140  013737  004134  004226          MOV     T.ER,P.ER
6806  041146  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;ISSUE CONTROLLER CLEAR
6807  041154  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6808  041162  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6809  041170  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
6810  041176  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG.
6811  041204  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
6812  041212  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
6813  041220  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
6814  041224  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6815  041230  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG1 CORRECT
6816  041236  001401                          BEQ     10$             ;YES, CHECK CS2
6817  041240  104224                          ERROR   224             ;CS1 INCORRECT
6818  041242  023737  004170  004130  10$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG.2 CORRECT
6819  041250  001401                          BEQ     11$             ;YES, CHECK DRIVE STATUS REG.
6820  041252  104225                          ERROR   225             ;CS2 INCORRECT
6821  041254  023737  004172  004132  11$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6822  041262  001401                          BEQ     12$             ;YES, CHECK ERROR REG
6823  041264  104226                          ERROR   226             ;DRIVE STATUS INCORRECT
6824  041266  023737  004174  004134  12$:    CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
6825  041274  001401                          BEQ     TST77           ;;YES, GO ON TO NEXT TEST
6826  041276  104227                          ERROR   227             ;ERROR MESSAGE INCORRECT
6827
6828                                  ;;*****************************************************************
6829                                  ;*TEST 77       NON-EXISTENT DRIVE AND NO SACK
6830                                  ;*
6831                                  ;*      CLEAR THE RK06 SUBSYSTEM WITH A SUBSYSTEM CLEAR.  PUT
6832                                  ;*      THE RK611 CONTROLLER IN DIAGNOSTIC MODE.  ISSUE A
6833                                  ;*      SELECT TO AN RK06 IN 26 SECTOR FORMAT, CYLINDER 0,
6834                                  ;*      HEAD 0, DRIVE 0.  CLOCK IN DIAGNOSTIC MODE UNTIL
6835                                  ;*      PHASE ADDRESS 4.  TURN OFF DIAGNOSTIC MODE AND MAKE SURE
6836                                  ;*      NON-EXISTENT DRIVE AND CONTROLLER ERROR ARE SET.
6837                                  ;*
6838                                  ;*      THIS TEST EXERCISES THE NON-EXISTENT DRIVE LOGIC
6839                                  ;*      DUE TO RELEASE BIT RESET AND SACK RESET BUT THE PASSING
6840                                  ;*      OF THIS TEST DOES GUARENTEE THAT THIS SITUATION DID
6841                                  ;*      INDEED CAUSE A NON-EXISTENT DRIVE.
6842                                  ;*
6843                                  ;;*****************************************************************
6844  041300  000004                  TST77:  SCOPE
6845  041302  012737  000144  001200          MOV     #100.,$TIMES    ;;DO 100. ITERATIONS
6846  041310  013702  001270                  MOV     $BASE,R2        ;LOAD RK611 BASE
6847  041314  012762  000040  000010          MOV     #SCLR,RKCS2(R2) ;CLEAR RK06 SUBSYSTEM
6848  041322  012762  000040  000026          MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN MAINTENANCE MODE
```

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6849  041330  012762  000001  000000          MOV     #SELDRV,RKCS1(R2)  ;ISSUE SELECT DRIVE
6850  041336  012700  000116                  MOV     #19.*4+2,R0        ;ISSUE CLOCKS THROUGH PHASE 3
6851  041342  012762  000440  000026  1$:     MOV     #DMD!MCLK,RKMR1(R2)
6852  041350  012762  000040  000026          MOV     #DMD,RKMR1(R2)
6853  041356  005300                          DEC     R0
6854  041360  001370                          BNE     1$
6855  041362  005062  000026                  CLR     RKMR1(R2,          ;ALLOW COMMAND TO FINISH
6856  041366  013700  004262                  MOV     WAITIM,R0          ;LOAD WAIT TIMF
6857  041372  105762  000000          3$:     TSTB    RKCS1(R2)          ;WAIT FOR READY
6858  041376  100402                          BMI     4$
6859  041400  005300                          DEC     R0
6860  041402  001373                          BNE     3$
6861  041404  016237  000000  004120  4$:     MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6862  041412  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6863  041420  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG
6864  041426  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG
6865  041434  012737  100200  004160          MOV     #CERR!RDY,E.CS1 ;LOAD EXPECTED CS1
6866  041442  012737  010100  004170          MOV     #NED!IR,E.CS2   ;LOAD EXPECTED CS2
6867  041450  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
6868  041454  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6869  041460  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG.1 CORRECT
6870  041466  001401                          BEQ     5$              ;YES, CHECK CS2
6871  041470  104250                          ERROR   250             ;CS1 INCORRECT
6872  041472  023737  004170  004130  5$:     CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG.2 CORRECT
6873  041500  001401                          BEQ     6$              ;YES, CHECK DRIVE STATUS REG
6874  041502  104251                          ERROR   251             ;CS2 INCORRECT
6875  041504  023737  004172  004132  6$:     CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6876  041512  001401                          BEQ     7$              ;YES, CHECK ERROR REG.
6877  041514  104252                          ERROR   252             ;DRIVE STATUS INCORRECT
6878  041516  023737  004174  004134  7$:     CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
6879  041524  001401                          BEQ     8$              ;YES, ISSUE CONTROLLER CLEAR
6880  041526  104253                          ERROR   253             ;ERROR REG INCORRECT
6881  041530  013737  004120  004220  8$:     MOV     T.CS1,P.CS1     ;STORE PREVIOUS CS1,CS2
6882  041536  013737  004130  004222          MOV     T.CS2,P.CS2     ;  DRIVE STATUS REG.,
6883  041544  013737  004132  004224          MOV     T.DS,P.DS       ;  AND ERROR REG.
6884  041552  013737  004134  004226          MOV     T.ER,P.ER
6885  041560  012762  100000  000000          MOV     #CCLR,RKCS1(R2) ;ISSUE CONTROLLER CLEAR
6886  041566  016237  000000  004120          MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.1
6887  041574  016237  000010  004130          MOV     RKCS2(R2),T.CS2 ;STORE COMMAND AND STATUS REG.2
6888  041602  016237  000012  004132          MOV     RKDS(R2),T.DS   ;STORE DRIVE STATUS REG.
6889  041610  016237  000014  004134          MOV     RKER(R2),T.ER   ;STORE ERROR REG.
6890  041616  012737  000200  004160          MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
6891  041624  012737  000100  004170          MOV     #IR,E.CS2       ;LOAD EXPECTED CS2
6892  041632  005037  004172                  CLR     E.DS            ;LOAD EXPECTED DRIVE STATUS REG.
6893  041636  005037  004174                  CLR     E.ER            ;LOAD EXPECTED ERROR REG.
6894  041642  023737  004160  004120          CMP     E.CS1,T.CS1     ;CHECK COMMAND AND STATUS REG1 CORRECT
6895  041650  001401                          BEQ     10$             ;YES, CHECK CS2
6896  041652  104224                          ERROR   224             ;CS1 INCORRECT
6897  041654  023737  004170  004130  10$:    CMP     E.CS2,T.CS2     ;CHECK COMMAND AND STATUS REG.2 CORRECT
6898  041662  001401                          BEQ     11$             ;YES, CHECK DRIVE STATUS REG.
6899  041664  104225                          ERROR   225             ;CS2 INCORRECT
6900  041666  023737  004172  004132  11$:    CMP     E.DS,T.DS       ;CHECK DRIVE STATUS REG CORRECT
6901  041674  001401                          BEQ     12$             ;YES, CHECK ERROR REG
6902  041676  104226                          ERROR   226             ;DRIVE STATUS INCORRECT
6903  041700  023737  004174  004134  12$:    CMP     E.ER,T.ER       ;CHECK ERROR REG CORRECT
6904  041706  001401                          BEQ     TST100          ;;YES, GO ON TO NEXT TEST
```

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                                        ERROR   227             ;ERROR MESSAGE INCORRECT

                                .SBTTL  **ILLEGAL FUNCTION CODE TEST

                                ;;*****************************************************************
                                ;*TEST 100       ILLEGAL FUNCTION CODE
                                ;*
                                ;*      CLEAR RK611 WITH A CONTROLLER CLEAR.  ISSUE AN ILLEGAL
                                ;*      COMMAND IN NORMAL MODE AND MAKE SURE COMMAND FINISHES
                                ;*      SETTING CONTROLLER READY WITH PROPER ERROR CONDITIONS.
                                ;*
                                ;;*****************************************************************
041712  000004                 TST100: SCOPE
041714  012737  000764  001200         MOV     #500.,$TIMES    ;;DO 500. ITERATIONS
041722  012737  000033  004270         MOV     #33,ILLFUN      ;SET ILLEGAL FUNCTION
041730  012737  041736  001110         MOV     #1$,$LPERR      ;LOAD LOOP ON ERROR LOCATION FOR
                                                                ;  SUBTEST LOOP
041736                          1$:
041736  012762  100000  000000         MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
041744  013737  004270  004160         MOV     ILLFUN,E.CS1    ;GENERATE EXPECTED CS1
041752  042737  000001  004160         BIC     #GO,E.CS1
041760  052737  100200  004160         BIS     #CERR!RDY,E.CS1
041766  012737  000001  004174         MOV     #ILF,E.ER       ;LOAD EXPECTED ERROR REG
041774  012762  000040  000026         MOV     #DMD,RKMR1(R2)  ;PUT RK611 IN DIAGNOSTIC MODE
042002  013762  004270  000000         MOV     ILLFUN,RKCS1(R2) ;ISSUE ILLEGAL FUNCTION
042010  016237  000000  004120         MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG 1
042016  016237  000014  004134         MOV     RKER(R2),T.ER   ;STORE ERROR REG
042024  023737  004160  004120         CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT
042032  001401                       BEQ     3$              ;YES, CHECK ERROR REG
042034  104256                       ERROR   256             ;CS1 INCORRECT AFTER ILL FUNCT
042036  023737  004174  004134  3$:  CMP     E.ER,T.ER       ;CHECK IF ERROR REG CORRECT
042044  001401                       BEQ     4$              ;YES, CLEAR CONTROLLER
042046  104257                       ERROR   257             ;ERROR REG INCORRECT AFTER ILL FUNCT
042050  012762  100000  000000  4$:  MOV     #CCLR,RKCS1(R2) ;CLEAR RK611 CONTROLLER
042056  016237  000000  004120         MOV     RKCS1(R2),T.CS1 ;STORE COMMAND AND STATUS REG.
042064  016237  000014  004134         MOV     RKER(R2),T.ER   ;STORE ERROR REG
042072  012737  000200  004160         MOV     #RDY,E.CS1      ;LOAD EXPECTED CS1
042100  005037  004174                 CLR     E.ER            ;LOAD EXPECTED ERROR REG
042104  023737  004160  004120         CMP     E.CS1,T.CS1     ;CHECK IF CS1 CORRECT (CERR CLEAR)
042112  001401                       BEQ     6$              ;YES, CHECK IF ERROR REG CORRECT
042114  104260                       ERROR   260             ;CONTROL CLEAR DID NOT CLEAR CERR
042116  023737  004174  004134  6$:  CMP     E.ER,T.ER       ;CHECK IF ILF CLEARED
042124  001401                       BEQ     7$              ;YES, GO ON TO NEXT CONFIGURATION
042126  104261                       ERROR   261             ;CONTROLLER CLEAR DID NOT CLEAR ILF
042130  104415                  7$:  SCOP1                   ;CHECK IF LOOP ON ERROR
042132  062737  000002  004270         ADD     #2,ILLFUN       ;GENERATE NEXT ILLEGAL FUNCTION
042140  022737  000041  004270         CMP     #41,ILLFUN      ;CHECK IF FINISHED
042146  101273                       BHI     1$              ;NO, USE NEXT CONFIGURATION
```

```
                        .SBTTL  END OF PASS ROUTINE

                        ;;*****************************************************************
                        ;*INCREMENT THE PASS NUMBER ($PASS)
                        ;*TYPE "END PASS #XXXXX TOTAL NUMBER OF ERRORS SINCE LAST REPORT YYYYY"
                        ;*WHERE XXXXX AND YYYYY ARE DECIMAL NUMBERS
                        ;*IF THERES A MONITOR GO TO IT
                        ;*IF THERE ISN'T JUMP TO NEWPAS

042150                  $EOP:
042150  000004                SCOPE
042152  005037  001102        CLR     $TSTNM          ;;ZERO THE TEST NUMBER
042156  005037  001200        CLR     $TIMES          ;;ZERO THE NUMBER OF ITERATIONS
042162  005237  001222        INC     $PASS           ;;INCREMENT THE PASS NUMBER
042166  042737  100000  001222    BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
042174  005327                DEC     (PC)+           ;;LOOP?
042176  000001          $EOPCT: .WORD   1
042200  003063                BGT     $DOAGN          ;;YES
042202  012737                MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
042204  000001          $ENDCT: .WORD   1
042206  042176                $FOPCT
042210  104401  042216        TYPE    ,65$            ;;TYPE ASCIZ STRING
042214  000407                BR      64$             ;;GET OVER THE ASCIZ
                        ;;65$:  .ASCIZ  <12><15>/END PASS #/
042234                  64$:
042234  013746  001222        MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
                                                        ;;TYPE PASS NUMBER
042240  104405                TYPDS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
042242  104401  042250        TYPE    ,67$            ;;TYPE ASCIZ STRING
042246  000421                BR      66$             ;;GET OVER THE ASCIZ
                        ;;67$:  .ASCIZ  /  TOTAL ERRORS SINCE LAST REPORT /
042312                  66$:
042312  013746  001112        MOV     $ERTTL,-(SP)    ;;SAVE $ERTTL FOR TYPEOUT
                                                        ;;TOTAL NUMBER OF ERRORS
042316  104405                TYPDS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
042320  104401  001211        TYPE    ,$CRLF          ;;TYPE CARRIAGE RETURN, LINE FEED
042324  005037  001112        CLR     $ERTTL          ;;CLEAR ERROR TOTAL
042330  013700  000042  $GET42: MOV     @#42,R0         ;;GET MONITOR ADDRESS
042334  001405                BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
042336  000005                RESET                   ;;CLEAR THE WORLD
042340  004710          $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
042342  000240                NOP                     ;;SAVE ROOM
042344  000240                NOP                     ;;FOR
042346  000240                NOP                     ;;ACT11
042350                  $DOAGN:
042350  000137                JMP     @(PC)+          ;;RETURN
042352  005254          $RTNAD: .WORD   NEWPAS
042354     377     377  000  $ENULL: .BYTE   -1,-1,0      ;;NULL CHARACTER STRING
042360                           .EVEN

                        .SBTTL  CHECK FOR MEMORY CHECK ENABLE OPTION

042360  012737  042432  000004  CHKPAR: MOV     #20$,ERRVEC     ;SET VECTOR FOR MEMORY PARITY CHECK
042366  012737  000340  000006          MOV     #PR7,ERRVEC+2
042374  012703  172100                  MOV     #MEMBAS,R3      ;LOAD REGISTER TO DETERMINE IF
                                                                ;  MEMORY CHECK ENABLE AVAILIABLE
```

```
7011  042400  012704  000020            MOV     #16.,R4          ;LOAD COUNT
7012  042404  012723  000001     16$:   MOV     #PAR.EN,(R3)+    ;EMABLE MEMORY CHECK
7013  042410  012737  042450  000114    MOV     #MEMERR,MEMVEC   ;LOAD MEMORY CHECK VECTOR
7014  042416  012737  000340  000116    MOV     #PR7,MEMVEC+2
7015  042424  005304                    DEC     R4               ;CHECK IF FINISHED
7016  042426  001366                    BNE     16$              ;NO, SET UP NEXT MEMORY PARITY MODULE
7017  042430  000401                    BR      22$              ;RESTORE TRAP VECTOR
7018
7019  042432  022626            20$:    CMP     (SP)+,(SP)+      ;ADJUST STACK
7020  042434  012737  000006  000004  22$:    MOV     #ERRVEC+2,ERRVEC  ;RESTORE TRAP CATCHER
7021  042442  005037  000006            CLR     ERRVEC+2
7022  042446  000207                    RTS     PC               ;RETURN
7023
7024                            .SBTTL  MEMORY CHECK ENABLE TRAP
7025
7026  042450  012737  042464  001202  MEMERR: MOV     #10$,$ESCAPE     ;LOAD ESCAPE
7027  042456  011637  004272            MOV     (SP),TRAPPC      ;STORE PC
7028  042462  104262                    ERROR   262              ;REPORT MEM PARITY ERROR
7029  042464  005037  001202     10$:   CLR     $ESCAPE          ;CLEAR ESCAPE
7030  042470  032777  001000  136442    BIT     #SW9,@SWR        ;CHECK IF LOOP ON ERROR
7031  042476  001001                    BNE     15$              ;YES, FORCE STACK AND TRY AGAIN
7032  042500  000002                    RTI                      ;NO, RETURN
7033
7034  042502  012706  001100     15$:   MOV     #STACK,SP        ;INITIALIZE STACK
7035  042506  000177  136376            JMP     @$LPERR          ;LOOP ON ERROR
7036
7037                            .SBTTL  SCOPE HANDLER ROUTINE
7038
7039                            ;;**********************************************************************
7040                            ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTEST. IT WILL INCREMENT
7041                            ;*AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
7042                            ;*AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
7043                            ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
7044                            ;*SW14=1         LOOP ON TEST
7045                            ;*SW11=1         INHIBIT ITERATIONS
7046                            ;*SW09=1         LOOP ON ERROR
7047                            ;*SW08=1         LOOP ON TEST IN SWR<7:0>
7048                            ;*CALL
7049                            ;*      SCOPE            ;;SCOPE=IOT
7050
7051  042512                    $SCOPE:
7052  042512  104407                    CKSWR                    ;;TEST  FOR CHANGE IN SOFT-SWR
7053  042514  032777  040000  136416  1$:     BIT     #BIT14,@SWR      ;;LOOP ON PRESENT TEST?
7054  042522  001131                    BNE     $OVER            ;;YES IF SW14-1
7055                            ;#####START OF CODE FOR THE XOR TESTER#####
7056  042524  000416            $XTSTR: BR      6$               ;;IF RUNNING ON THE "XOR" TESTER CHANGE
7057                                                             ;;THIS INSTRUCTION TO A "NOP" (NOP=240)
7058  042526  013746  000004            MOV     @#ERRVEC,-(SP)   ;;SAVE THE CONTENTS OF THE ERROR VECTOR
7059  042532  012737  042552  000004    MOV     #5$,@#ERRVEC     ;;SET FOR TIMEOUT
7060  042540  005737  177060            TST     @#177060         ;;TIME OUT ON XOR?
7061  042544  012637  000004            MOV     (SP)+,@#ERRVEC   ;;RESTORE THE ERROR VECTOR
7062  042550  000500                    BR      $SVLAD           ;;GO TO THE NEXT TEST
7063  042552  022626            5$:     CMP     (SP)+,(SP)+      ;;CLEAR THE STACK AFTER A TIME OUT
7064  042554  012637  000004            MOV     (SP)+,@#ERRVEC   ;;RESTORE THE ERROR VECTOR
7065  042560  000440                    BR      7$               ;;LOOP ON THE PRESENT TEST
7066  042562                    6$:;#####END OF CODE FOR THE XOR TESTER#####
```

```
7067  042562  032777  000400  136350          BIT     #BIT08,@SWR      ;;LOOP ON SPEC. TEST?
7068  042570  001421                          BEQ     2$               ;;BR IF NO
7069  042572  005046                          CLR     -(SP)            ;;CLEAR A TEMP. LOCATION
7070  042574  117716  136340                  MOVB    @SWR,(SP)        ;;PICKUP THE DESIRED TEST NUMBER
7071  042600  001414                          BEQ     8$               ;;BRANCH IF BAD TEST NUMBER IN SWR
7072  042602  022716  000100                  CMP     #100,(SP)        ;;CHECK THE NUMBER IN THE SWR
7073  042606  002411                          BLT     8$               ;;BRANCH IF TEST NUMBER IS OUT OF RANGE
7074  042610  011637  001102                  MOV     (SP),$TSTNM      ;;UPDATE THE TEST NUMBER
7075  042614  005316                          DEC     (SP)             ;;BACKUP BY ONE
7076  042616  006316                          ASL     (SP)             ;;SCALE THE TEST NUMBER AS AN INDEX
7077  042620  062716  043024                  ADD     #$SW08TBL,(SP)   ;;FORM THE ADDRESS OF TEST POINTER
7078  042624  013637  001106                  MOV     @(SP)+,$LPADR    ;;SET LOOP ADDRESS TO DESIRED TEST
7079  042630  000466                          BR      $OVER            ;;GO LOOP ON THE TEST
7080  042632  005726                  8$:     TST     (SP)+            ;;CLEAN THE BAD TEST NUMBER OFF OF THE STACK
7081  042634  105737  001103          2$:     TSTB    $ERFLG           ;;HAS AN ERROR OCCURRED?
7082  042640  001421                          BEQ     3$               ;;BR IF NO
7083  042642  123737  001115  001103          CMPB    $ERMAX,$ERFLG    ;;MAX. ERRORS FOR THIS TEST OCCURRED?
7084  042650  101015                          BHI     3$               ;;BR IF NO
7085  042652  032777  001000  136260          BIT     #BIT09,@SWR      ;;LOOP ON ERROR?
7086  042660  001404                          BEQ     4$               ;;BR IF NO
7087  042662  013737  001110  001106  7$:     MOV     $LPERR,$LPADR    ;;SET LOOP ADDRESS TO LAST SCOPE
7088  042670  000446                          BR      $OVER
7089  042672  105037  001103          4$:     CLRB    $ERFLG           ;;ZERO THE ERROR FLAG
7090  042676  005037  001200                  CLR     $TIMES           ;;CLEAR THE NUMBER OF ITERATIONS TO MAKE
7091  042702  000415                          BR      1$               ;;ESCAPE TO THE NEXT TEST
7092  042704  032777  004000  136226  3$:     BIT     #BIT11,@SWR      ;;INHIBIT ITERATIONS?
7093  042712  001011                          BNE     1$               ;;BR IF YES
7094  042714  005737  001222                  TST     $PASS            ;;IF FIRST PASS OF PROGRAM
7095  042720  001406                          BEQ     1$               ;;      INHIBIT ITERATIONS
7096  042722  005237  001104                  INC     $ICNT            ;;INCREMENT ITERATION COUNT
7097  042726  023737  001200  001104          CMP     $TIMES,$ICNT     ;;CHECK THE NUMBER OF ITERATIONS MADE
7098  042734  002024                          BGE     $OVER            ;;BR IF MORE ITERATION REQUIRED
7099  042736  012737  000001  001104  1$:     MOV     #1,$ICNT         ;;REINITIALIZE THE ITERATION COUNTER
7100  042744  013737  043022  001200          MOV     $MXCNT,$TIMES    ;;SET NUMBER OF ITERATIONS TO DO
7101  042752  105237  001102          $SVLAD: INCB    $TSTNM           ;;COUNT TEST NUMBERS
7102  042756  113737  001102  001220          MOVB    $TSTNM,$TESTN    ;;SET TEST NUMBER IN APT MAILBOX
7103  042764  011637  001106                  MOV     (SP),$LPADR      ;;SAVE SCOPE LOOP ADDRESS
7104  042770  011637  001110                  MOV     (SP),$LPERR      ;;SAVE ERROR LOOP ADDRESS
7105  042774  005037  001202                  CLR     $ESCAPE          ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
7106  043000  112737  000001  001115          MOVB    #1,$ERMAX        ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
7107  043006  013777  001102  136126  $OVER:  MOV     $TSTNM,@DISPLAY  ;;DISPLAY TEST NUMBER
7108  043014  013716  001106                  MOV     $LPADR,(SP)      ;;FUDGE RETURN ADDRESS
7109  043020  000002                          RTI                      ;;FIXES PS
7110  043022  003720                  $MXCNT: 2000.                    ;;MAX. NUMBER OF ITERATIONS
7111  043024                          $SW08TBL:
7112  043024  005274                          .WORD   TST1+2           ;;STARTING ADDRESS OF TEST 1
7113  043026  005600                          .WORD   TST2+2           ;;STARTING ADDRESS OF TEST 2
7114  043030  006060                          .WORD   TST3+2           ;;STARTING ADDRESS OF TEST 3
7115  043032  006324                          .WORD   TST4+2           ;;STARTING ADDRESS OF TEST 4
7116  043034  006636                          .WORD   TST5+2           ;;STARTING ADDRESS OF TEST 5
7117  043036  007200                          .WORD   TST6+2           ;;STARTING ADDRESS OF TEST 6
7118  043040  007516                          .WORD   TST7+2           ;;STARTING ADDRESS OF TEST 7
7119  043042  010034                          .WORD   TST10+2          ;;STARTING ADDRESS OF TEST 10
7120  043044  010352                          .WORD   TST11+2          ;;STARTING ADDRESS OF TEST 11
7121  043046  010616                          .WORD   TST12+2          ;;STARTING ADDRESS OF TEST 12
7122  043050  011062                          .WORD   TST13+2          ;;STARTING ADDRESS OF TEST 13
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7123  043052  011400                .WORD   TST14+2         ;;STARTING ADDRESS OF TEST 14
7124  043054  011710                .WORD   TST15+2         ;;STARTING ADDRESS OF TEST 15
7125  043056  012242                .WORD   TST16+2         ;;STARTING ADDRESS OF TEST 16
7126  043060  012604                .WORD   TST17+2         ;;STARTING ADDRESS OF TEST 17
7127  043062  013050                .WORD   TST20+2         ;;STARTING ADDRESS OF TEST 20
7128  043064  013330                .WORD   TST21+2         ;;STARTING ADDRESS OF TEST 21
7129  043066  013610                .WORD   TST22+2         ;;STARTING ADDRESS OF TEST 22
7130  043070  014070                .WORD   TST23+2         ;;STARTING ADDRESS OF TEST 23
7131  043072  014350                .WORD   TST24+2         ;;STARTING ADDRESS OF TEST 24
7132  043074  014630                .WORD   TST25+2         ;;STARTING ADDRESS OF TEST 25
7133  043076  015142                .WORD   TST26+2         ;;STARTING ADDRESS OF TEST 26
7134  043100  015454                .WORD   TST27+2         ;;STARTING ADDRESS OF TEST 27
7135  043102  015766                .WORD   TST30+2         ;;STARTING ADDRESS OF TEST 30
7136  043104  016300                .WORD   TST31+2         ;;STARTING ADDRESS OF TEST 31
7137  043106  016612                .WORD   TST32+2         ;;STARTING ADDRESS OF TEST 32
7138  043110  017110                .WORD   TST33+2         ;;STARTING ADDRESS OF TEST 33
7139  043112  017422                .WORD   TST34+2         ;;STARTING ADDRESS OF TEST 34
7140  043114  017660                .WORD   TST35+2         ;;STARTING ADDRESS OF TEST 35
7141  043116  020124                .WORD   TST36+2         ;;STARTING ADDRESS OF TEST 36
7142  043120  020460                .WORD   TST37+2         ;;STARTING ADDRESS OF TEST 37
7143  043122  021024                .WORD   TST40+2         ;;STARTING ADDRESS OF TEST 40
7144  043124  021350                .WORD   TST41+2         ;;STARTING ADDRESS OF TEST 41
7145  043126  021714                .WORD   TST42+2         ;;STARTING ADDRESS OF TEST 42
7146  043130  022170                .WORD   TST43+2         ;;STARTING ADDRESS OF TEST 43
7147  043132  022720                .WORD   TST44+2         ;;STARTING ADDRESS OF TEST 44
7148  043134  023160                .WORD   TST45+2         ;;STARTING ADDRESS OF TEST 45
7149  043136  023564                .WORD   TST46+2         ;;STARTING ADDRESS OF TEST 46
7150  043140  024014                .WORD   TST47+2         ;;STARTING ADDRESS OF TEST 47
7151  043142  024450                .WORD   TST50+2         ;;STARTING ADDRESS OF TEST 50
7152  043144  025132                .WORD   TST51+2         ;;STARTING ADDRESS OF TEST 51
7153  043146  025564                .WORD   TST52+2         ;;STARTING ADDRESS OF TEST 52
7154  043150  026216                .WORD   TST53+2         ;;STARTING ADDRESS OF TEST 53
7155  043152  026634                .WORD   TST54+2         ;;STARTING ADDRESS OF TEST 54
7156  043154  027266                .WORD   TST55+2         ;;STARTING ADDRESS OF TEST 55
7157  043156  027720                .WORD   TST56+2         ;;STARTING ADDRESS OF TEST 56
7158  043160  030352                .WORD   TST57+2         ;;STARTING ADDRESS OF TEST 57
7159  043162  031004                .WORD   TST60+2         ;;STARTING ADDRESS OF TEST 60
7160  043164  031436                .WORD   TST61+2         ;;STARTING ADDRESS OF TEST 61
7161  043166  032070                .WORD   TST62+2         ;;STARTING ADDRESS OF TEST 62
7162  043170  032522                .WORD   TST63+2         ;;STARTING ADDRESS OF TEST 63
7163  043172  033154                .WORD   TST64+2         ;;STARTING ADDRESS OF TEST 64
7164  043174  033572                .WORD   TST65+2         ;;STARTING ADDRESS OF TEST 65
7165  043176  034224                .WORD   TST66+2         ;;STARTING ADDRESS OF TEST 66
7166  043200  034706                .WORD   TST67+2         ;;STARTING ADDRESS OF TEST 67
7167  043202  035370                .WORD   TST70+2         ;;STARTING ADDRESS OF TEST 70
7168  043204  036052                .WORD   TST71+2         ;;STARTING ADDRESS OF TEST 71
7169  043206  036534                .WORD   TST72+2         ;;STARTING ADDRESS OF TEST 72
7170  043210  037216                .WORD   TST73+2         ;;STARTING ADDRESS OF TEST 73
7171  043212  037700                .WORD   TST74+2         ;;STARTING ADDRESS OF TEST 74
7172  043214  040212                .WORD   TST75+2         ;;STARTING ADDRESS OF TEST 75
7173  043216  040640                .WORD   TST76+2         ;;STARTING ADDRESS OF TEST 76
7174  043220  041302                .WORD   TST77+2         ;;STARTING ADDRESS OF TEST 77
7175  043222  041714                .WORD   TST100+2                ;;STARTING ADDRESS OF TEST 100
7176                        ;;**************************************************************
7177                        .SBTTL  LOOP ON INTERNAL ERROR
7178
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 7179  043224  032777  001000  135706  SCOP1$: BIT     #SW9,@SWR               ;CHECK IF LOOP ON ERROR
 7180  043232  001405                          BEQ     5$                      ;NO, CONTINUE
 7181  043234  105737  001103                  TSTB    $ERFLG                  ;CHECK IF ERROR OCCURRED
 7182  043240  001402                          BEQ     5$                      ;NO, CONTINUE
 7183  043242  013716  001110                  MOV     $LPERR,(SP)             ;LOAD ERROR RETURN
 7184  043246  000002                  5$:     RTI                             ;RETURN
 7185                                  .SBTTL  APT COMMUNICATIONS ROUTINE
 7186
 7187                                  ;;**************************************************************************
 7188  043250  112737  000001  043514  $ATY1:  MOVB    #1,$FFLG        ;;TO REPORT FATAL ERROR
 7189  043256  112737  000001  043512  $ATY3:  MOVB    #1,$MFLG        ;;TO TYPE A MESSAGE
 7190  043264  000403                          BR      $ATYC
 7191  043266  112737  000001  043514  $ATY4:  MOVB    #1,$FFLG        ;;TO ONLY REPORT FATAL ERROR
 7192  043274                          $ATYC:
 7193  043274  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
 7194  043276  010146                          MOV     R1,-(SP)        ;;PUSH R1 ON STACK
 7195  043300  105737  043512                  TSTB    $MFLG           ;;SHOULD TYPE A MESSAGE?
 7196  043304  001450                          BEQ     5$              ;;IF NOT:  BR
 7197  043306  122737  000001  001234          CMPB    #APTENV,$ENV    ;;OPERATING UNDER APT?
 7198  043314  001031                          BNE     3$              ;;IF NOT:  BR
 7199  043316  132737  000100  001235          BITB    #APTSPOOL,$ENVM ;;SHOULD SPOOL MESSAGES?
 7200  043324  001425                          BEQ     3$              ;;IF NOT:  BR
 7201  043326  017600  000004                  MOV     @4(SP),R0       ;;GET MESSAGE ADDR.
 7202  043332  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
 7203  043340  005737  001214          1$:     TST     $MSGTYPE        ;;SEE IF DONE W/ LAST XMISSION?
 7204  043344  001375                          BNE     1$              ;;IF NOT:  WAIT
 7205  043346  010037  001230                  MOV     R0,$MSGAD       ;;PUT ADDR IN MAILBOX
 7206  043352  105720                  2$:     TSTB    (R0)+           ;;FIND END OF MESSAGE
 7207  043354  001376                          BNE     2$
 7208  043356  163700  001230                  SUB     $MSGAD,R0       ;;SUB START OF MESSAGE
 7209  043362  006200                          ASR     R0              ;;GET MESSAGE LNGTH IN WORDS
 7210  043364  010037  001232                  MOV     R0,$MSGLGT      ;;PUT LENGTH IN MAILBOX
 7211  043370  012737  000004  001214          MOV     #4,$MSGTYPE     ;;TELL APT TO TAKE MSG.
 7212  043376  000413                          BR      5$
 7213  043400  017637  000004  043424  3$:     MOV     @4(SP),4$       ;;PUT MSG ADDR IN JSR LINKAGE
 7214  043406  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDRESS
 7215  043414  013746  177776                  MOV     177776,-(SP)    ;;PUSH 177776 ON STACK
 7216  043420  004737  044200                  JSR     PC,$TYPE        ;;CALL TYPE MACRO
 7217  043424  000000                  4$:     .WORD   0
 7218  043426                          5$:
 7219  043426  105737  043514          10$:    TSTB    $FFLG           ;;SHOULD REPORT FATAL ERROR?
 7220  043432  001416                          BEQ     12$             ;;IF NOT:  BR
 7221  043434  005737  001234                  TST     $ENV            ;;RUNNING UNDER APT?
 7222  043440  001413                          BEQ     12$             ;;IF NOT:  BR
 7223  043442  005737  001214          11$:    TST     $MSGTYPE        ;;FINISHED LAST MESSAGE?
 7224  043446  001375                          BNE     11$             ;;IF NOT:  WAIT
 7225  043450  017637  000004  001216          MOV     @4(SP),$FATAL   ;;GET ERROR #
 7226  043456  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
 7227  043464  005237  001214                  INC     $MSGTYPE        ;;TELL APT TO TAKE ERROR
 7228  043470  105037  043514          12$:    CLRB    $FFLG           ;;CLEAR FATAL FLAG
 7229  043474  105037  043513                  CLRB    $LFLG           ;;CLEAR LOG FLAG
 7230  043500  105037  043512                  CLRB    $MFLG           ;;CLEAR MESSAGE FLAG
 7231  043504  012601                          MOV     (SP)+,R1        ;;POP STACK INTO R1
 7232  043506  012600                          MOV     (SP)+,R0        ;;POP STACK INTO R0
 7233  043510  000207                          RTS     PC              ;;RETURN
 7234  043512     000          $MFLG:  .BYTE   0               ;;MESSG. FLAG
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7235  043513  000                    $LFLG:  .BYTE   0               ;;LOG FLAG
7236  043514  000                    $FFLG:  .BYTE   0               ;;FATAL FLAG
7237          043516                         .EVEN
7238          000200                 APTSIZE=200
7239          000001                 APTENV=001
7240          000100                 APTSPOOL=100
7241          000040                 APTCSUP=040
7242                                 .SBTTL  ERROR HANDLER ROUTINE
7243
7244                                 ;;**********************************************************************
7245                                 ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
7246                                 ;*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CAL.
7247                                 ;*AND GO TO TYPERR ON ERROR
7248                                 ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
7249                                 ;*SW15=1        HALT ON ERROR
7250                                 ;*SW13=1        INHIBIT ERROR TYPEOUTS
7251                                 ;*SW10=1        BELL ON ERROR
7252                                 ;*SW09=1        LOOP ON ERROR
7253                                 ;*CALL
7254                                 ;*      ERROR   N       ;;ERROR EMT AND N=ERROR ITEM NUMBER
7255
7256  043516                         $ERROR:
7257  043516  104407                         CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
7258  043520  105237  001103         7$:     INCB    $ERFLG          ;;SET THE ERROR FLAG
7259  043524  001775                         BEQ     7$              ;;DON'T LET THE FLAG GO TO ZERO
7260  043526  013777  001102  135406         MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
7261  043534  032777  002000  135376         BIT     #BIT10,@SWR     ;;BELL ON ERROR?
7262  043542  001402                         BEQ     1$              ;;NO - SKIP
7263  043544  104401  001204                 TYPE    ,$BELL          ;;RING BELL
7264  043550  005237  001112         1$:     INC     $ERTTL          ;;COUNT THE NUMBER OF ERRORS
7265  043554  011637  001116                 MOV     (SP),$ERRPC     ;;GET ADDRESS OF ERROR INSTRUCTION
7266  043560  162737  000002  001116         SUB     #2,$ERRPC
7267  043566  117737  135324  001114         MOVB    @$ERRPC,$ITEMB  ;;STRIP AND SAVE THE ERROR ITEM CODE
7268  043574  032777  020000  135336         BIT     #BIT13,@SWR     ;;SKIP TYPEOUT IF SET
7269  043602  001004                         BNE     20$             ;;SKIP TYPEOUTS
7270  043604  004737  043716                 JSR     PC,TYPERR       ;;GO TO USER ERROR ROUTINE
7271  043610  104401  001211                 TYPE    ,$CRLF
7272  043614                         20$:
7273  043614  122737  000001  001234         CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
7274  043622  001007                         BNE     2$              ;;NO,SKIP APT ERROR REPORT
7275  043624  113737  001114  043636         MOVB    $ITEMB,21$      ;;SET ITEM NUMBER AS ERROR NUMBER
7276  043632  004737  043266                 JSR     PC,$ATY4        ;;REPORT FATAL ERROR TO APT
7277  043636     000                 21$:    .BYTE   0
7278  043637     000                         .BYTE   0
7279  043640  000777                 22$:    BR      22$             ;;APT ERROR LOOP
7280  043642  005777  135272         2$:     TST     @SWR            ;;HALT ON ERROR
7281  043646  100002                         BPL     3$              ;;SKIP IF CONTINUE
7282  043650  000000                         HALT                    ;;HALT ON ERROR.
7283  043652  104407                         CKSWR                   ;;TEST FOR CHANGE IN SOFT-SWR
7284  043654  032777  001000  135256 3$:     BIT     #BIT09,@SWR     ;;LOOP ON ERROR SWITCH SET?
7285  043662  001402                         BEQ     4$              ;;BR IF NO
7286  043664  013716  001110                 MOV     $LPERR,(SP)     ;;FUDGE RETURN FOR LOOPING
7287  043670  005737  001202         4$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
7288  043674  001402                         BEQ     5$              ;;BR IF NONE
7289  043676  013716  001202                 MOV     $ESCAPE,(SP)    ;;FUDGE RETURN ADDRESS FOR ESCAPE
7290  043702                         5$:
```

```
7291  043702  022737  042340  000042          CMP     #$ENDAD,@#42    ;;ACT-11 AUTO-ACCEPT?
7292  043710  00100'                          BNE     6$              ;;BRANCH IF NO
7293  043712  000000                          HALT                    ;;YES
7294  043714                          6$:
7295  043714  000002                          RTI                     ;;RETURN
7296
7297                                  ;;*****************************************************************
7298                                  .SBTTL  TYPE ERROR ROUTINE
7299                                  ;*ENTRY JSR PC,TYPERR
7300                                  ;*RETURN RTS PC
7301                                  ;*
7302                                  ;*THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE WHICH
7303                                  ;*ERROR IS TO BE REPORTED. IT THEN USES THE "ERROR TABLE" ($ERRTB)
7304                                  ;*ENTRY TO DEFINE WHAT INFORMATION IS TO BE REPORTED CONCERNING
7305                                  ;*THE ERROR.
7306                                  ;;*****************************************************************
7307  043716  104413                  TYPERR: SAVREG
7308  043720  113700  001114                  MOVB    $ITEMB,R0       ;ENTER ERROR NUMBER
7309  043724  042700  177400                  BIC     #177400,R0      ;CLEAR UNUSED BITS
7310  043730  005300                          DEC     R0              ;FORM INDEX FOR ERROR TABLE
7311  043732  006300                          ASL     R0
7312  043734  006300                          ASL     R0
7313  043736  006300                          ASL     R0
7314  043740  062700  001300          1$:     ADD     #$ERRTB,R0      ;FORM ADDRESS OF EPROR ENTRY
7315  043744  012037  043760                  MOV     (R0)+,2$        ;GET EM POINTER
7316  043750  001404                          BEQ     3$              ;BRANCH IF THERE ISN'T ONE
7317  043752  104401  001211                  TYPE    ,$CRLF          ;TYPE CARRIAGE RETURN LINE FEED
7318  043756  104401                          TYPE                    ;TYPE ERROR MESSAGE (EM)
7319  043760  000000                  2$:     .WORD   0               ;EM POINTER GOES HERE
7320  043762  012037  043776          3$:     MOV     (R0)+,4$        ;GET DH POINTER
7321  043766  001404                          BEQ     5$              ;BRANCH IF THERE ISN'T ONE
7322  043770  104401  001211                  TYPE    ,$CRLF          ;TYPE CR-LF
7323  043774  104401                          TYPE                    ;TYPE DATA HEADER
7324  043776  000000                  4$:     .WORD   0               ;DH POINTER GOES HERE
7325  044000  012001                  5$:     MOV     (R0)+,R1        ;GET DT POINTER
7326  044002  001445                          BEQ     20$             ;BRANCH IF THERE ARE NONE
7327  044004  005004                          CLR     R4              ;RESET INDENT SWITCH
7328  044006  012000                          MOV     (R0)+,R0        ;GET DF POINTER
7329  044010  012002                          MOV     (R0)+,R2        ;STORE NUMBER OF DH'S
7330  044012  104401  001211                  TYPE    ,$CRLF          ;TYPE <CR><LF>
7331  044016  112003                  10$:    MOVB    (R0)+,R3        ;GET & STORE NUMBER OF DATA WORDS
7332  044020  105720                          TSTB    (R0)+           ;BUMP PAST FORMAT WORD
7333  044022  005703                          TST     R3              ;TEST IF ANY DATA FOR THIS HEADER
7334  044024  001416                          BEQ     14$             ;NO - SKIP DATA PRINT
7335  044026  005704                          TST     R4              ;CHECK FOR INDENT
7336  044030  001004                          BNE     12$             ;YES, GO INDENT
7337  044032  013146                  11$:    MOV     @(R1)+,-(SP)    ;PUT FIRST DATA WORD ON STACK
7338  044034  104402                          TYPOC                   ;TYPE IT
7339  044036  005303                          DEC     R3              ;MORE DATA WORDS
7340  044040  001403                          BEQ     13$             ;NO-BRANCH
7341  044042  104401  050201          12$:    TYPE    ,SPACE2         ;TYPE SEPARATORS
7342  044046  000771                          BR      11$             ;LOOP
7343  044050  104401  001211          13$:    TYPE    ,$CRLF          ;TYPE <CR><LF>
7344  044054  005710                          TST     (R0)            ;CHECK IF NEXT HEADER AVAILIBLE
7345  044056  001401                          BEQ     14$             ;NO, DO NOT CHANGE INDENT
7346  044060  005104                          COM     R4              ;CHANGE INDENT
```

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7347  044062  005302                  14$:    DEC     R2              ;MORE DH'S?
7348  044064  003414                          BLE     20$             ;NO-BRANCH
7349  044066  012037  044106          15$:    MOV     (R0)+,18$       ;GET NEXT DH POINTER
7350  044072  001751                          BEQ     10$             ;IF NO HEADER GO GET DATA
7351  044074  005704                          TST     R4              ;INDENT?
7352  044076  001402                          BEQ     17$             ;NO-BRANCH
7353  044100  104401  050201                  TYPE    ,SPACE2         ;YES-TYPE SPACES
7354  044104  104401                  17$:    TYPE                    ;TYPE DH
7355  044106  000000                  18$:    .WORD   0               ;DH POINTER GOES HERE
7356  044110  104401  001211                  TYPE    ,$CRLF
7357  044114  000740                          BR      10$             ;GO TYPE OUT DATA
7358  044116  104414                  20$:    RESREG
7359  044120  005237  004242                  INC     ERRCNT          ;INCREMENT THE ERROR COUNT
7360  044124  032777  010000  135006          BIT     #SW12,@SWR      ;CHECK IF SWITCH 12 SET
7361  044132  001421                          BEQ     25$             ;NO, RETURN
7362  044134  022737  000024  004242          CMP     #20.,ERRCNT     ;CHECK IF ERROR THRESHOLD EXCEEDED
7363  044142  103015                          BHIS    25$             ;NO, RETURN
7364  044144  104401  050204                  TYPE    ,ABORT          ;TYPE "PROGRAM ABORTED BECAUSE ERROR
7365                                                                  ;  THRESHOLD EXCEEDED"
7366  044150  005737  000042                  TST     42              ;CHECK IF IN CHAIN MODE
7367  044154  001407                          BEQ     22$             ;NO, HALT PROCESSOR
7368  044156  012737  000001  042176          MOV     #1,$EOPCT       ;FOR PASS COUNT FOR ABORT
7369  044164  012706  001100                  MOV     #STACK,SP       ;INITIALIZE STACK
7370  044170  000137  042150                  JMP     $EOP            ;BRING IN NEXT PROGRAM
7371
7372  044174  000000                  22$:    HALT
7373  044176  000207                  25$:    RTS     PC
7374                                  .SBTTL  TYPE ROUTINE
7375
7376                                  ;;**********************************************************************
7377                                  ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
7378                                  ;*THE POUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
7379                                  ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
7380                                  ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
7381                                  ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
7382                                  ;*
7383                                  ;*CALL:
7384                                  ;*1) USING A TRAP INSTRUCTION
7385                                  ;*      TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
7386                                  ;*OR
7387                                  ;*      TYPE
7388                                  ;*      MESADR
7389                                  ;*
7390
7391  044200  105737  001157          $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
7392  044204  100002                          BPL     1$              ;;BR IF YES
7393  044206  000000                          HALT                    ;;HALT HERE IF NO TERMINAL
7394  044210  000430                          BR      3$              ;;LEAVE
7395  044212  010046                  1$:     MOV     R0,-(SP)        ;;SAVE R0
7396  044214  017600  000002                  MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
7397  044220  122737  000001  001234          CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
7398  044226  001011                          BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
7399  044230  132737  000100  001235          BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
7400  044236  001405                          BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
7401  044240  010037  044250                  MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
7402  044244  004737  043256                  JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
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7403  044250  000000                  61$:    .WORD   0                       ;;MESSAGE ADDRESS
7404  044252  132737  000040  001235  62$:    BITB    #APTCSUP,$ENVM          ;;APT CONSOLE SUPPRESSED
7405  044260  001003                          BNE     60$                     ;;YES,SKIP TYPE OUT
7406  044262  112046                  2$:     MOVB    (R0)+,-(SP)             ;;PUSH CHARACTER TO BE TYPED ONTO STACK
7407  044264  001005                          BNE     4$                      ;;BR IF IT ISN'T THE TERMINATOR
7408  044266  005726                          TST     (SP)+                   ;;IF TERMINATOR POP IT OFF THE STACK
7409  044270  012600                  60$:    MOV     (SP)+,R0                ;;RESTORE R0
7410  044272  062716  000002          3$:     ADD     #2,(SP)                 ;;ADJUST RETURN PC
7411  044276  000002                          RTI                             ;;RETURN
7412  044300  122716  000011          4$:     CMPB    #HT,(SP)                ;;BRANCH IF <HT>
7413  044304  001430                          BEQ     8$
7414  044306  122716  000200                  CMPB    #CRLF,(SP)              ;;BRANCH IF NOT <CRLF>
7415  044312  001006                          BNE     5$
7416  044314  005726                          TST     (SP)+                   ;;POP  <CR><LF> EQUIV
7417  044316  104401                          TYPE                            ;;TYPE A CR AND LF
7418  044320  001211                          $CRLF
7419  044322  105037  044530                  CLRB    $CHARCNT                ;;CLEAR CHARACTER COUNT
7420  044326  000755                          BR      2$                      ;;GET NEXT CHARACTER
7421  044330  004737  044412          5$:     JSR     PC,$TYPEC               ;;GO TYPE THIS CHARACTER
7422  044334  123726  001156          6$:     CMPB    $FILLC,(SP)+            ;;IS IT TIME FOR FILLER CHARS.?
7423  044340  001350                          BNE     2$                      ;;IF NO GO GET NEXT CHAR.
7424  044342  013746  001154                  MOV     $NULL,-(SP)             ;;GET # OF FILLER CHARS. NEEDED
7425                                                                          ;;AND THE NULL CHAR.
7426  044346  105366  000001          7$:     DECB    1(SP)                   ;;DOES A NULL NEED TO BE TYPED?
7427  044352  002770                          BLT     6$                      ;;BR IF NO--GO POP THE NULL OFF OF STACK
7428  044354  004737  044412                  JSR     PC,$TYPEC               ;;GO TYPE A NULL
7429  044360  105337  044530                  DECB    $CHARCNT                ;;DO NOT COUNT AS A COUNT
7430  044364  000770                          BR      7$                      ;;LOOP
7431
7432                                  ;HORIZONTAL TAB PROCESSOR
7433
7434  044366  112716  000040          8$:     MOVB    #' ,(SP)                ;;REPLACE TAB WITH SPACE
7435  044372  004737  044412          9$:     JSR     PC,$TYPEC               ;;TYPE A SPACE
7436  044376  132737  000007  044530          BITB    #7,$CHARCNT             ;;BRANCH IF NOT AT
7437  044404  001372                          BNE     9$                      ;;TAB STOP
7438  044406  005726                          TST     (SP)+                   ;;POP SPACE OFF STACK
7439  044410  000724                          BR      2$                      ;;GET NEXT CHARACTER
7440  044412                          $TYPEC:
7441  044412  105777  134526                  TSTB    @$TKS                   ;;CHAR IN KYBD BUFFER?                  ;MJD001
7442  044416  100022                          BPL     10$                     ;;BR IF NOT                             ;MJD001
7443  044420  017746  134522                  MOV     @$TKB,-(SP)             ;;GET CHAR                              ;MJD001
7444  044424  042716  177600                  BIC     #177600,(SP)            ;;STRIP EXTRANEOUS BITS                 ;MJD001
7445  044430  122716  000023                  CMPB    #$XOFF,(SP)             ;;WAS CHAR XOFF                         ;MJD001
7446  044434  001012                          BNE     102$                    ;;BR IF NOT                             ;MJD001
7447  044436                          101$:                                                                           ;MJD001
7448  044436  105777  134502                  TSTB    @$TKS                   ;;WAIT FOR CHAR                         ;MJD001
7449  044442  100375                          BPL     101$                                                            ;MJD001
7450  044444  117716  134476                  MOVB    @$TKB,(SP)              ;;GET CHAR                              ;MJD001
7451  044450  042716  177600                  BIC     #177600,(SP)            ;;STRIP IT                              ;MJD001
7452  044454  122716  000021                  CMPB    #$XON,(SP)              ;;WAS IT XON?                           ;MJD001
7453  044460  001366                          BNE     101$                    ;;BR IF NOT                             ;MJD001
7454  044462                          102$:                                                                           ;MJD001
7455  044462  005726                          TST     (SP)+                   ;;FIX STACK                             ;MJD001
7456  044464                          10$:                                                                            ;MJD001
7457  044464  105777  134460                  TSTB    @$TPS                   ;;WAIT UNTIL PRINTER IS READY
7458  044470  100375                          BPL     10$                                                             ;MJD001
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7459  044472  116677  000002  134452          MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
7460  044500  122766  000015  000002          CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
7461  044506  001003                          BNE     1$              ;;BRANCH IF NO
7462  044510  105037  044530                  CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
7463  044514  000406                          BR      $TYPEX          ;;EXIT
7464  044516  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
7465  044524  001402                          BEQ     $TYPEX          ;;BRANCH IF YES
7466  044526  105227                          INCB    (PC)+           ;;COUNT THE CHARACTER
7467  044530  000000                  $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
7468  044532  000207                  $TYPEX: RTS     PC
7469
7470                                  .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
7471
7472                                  ;;**********************************************************************
7473                                  ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
7474                                  ;*OCTAL (ASCII) NUMBER AND TYPE IT.
7475                                  ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
7476                                  ;*CALL:
7477                                  ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
7478                                  ;*      TYPOS                   ;;CALL FOR TYPEOUT
7479                                  ;*      .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
7480                                  ;*      .BYTE   M               ;;M=1 OR 0
7481                                  ;*                                      ;;1=TYPE LEADING ZEROS
7482                                  ;*                                      ;;0=SUPPRESS LEADING ZEROS
7483                                  ;*
7484                                  ;*$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
7485                                  ;*$TYPOS OR $TYPOC
7486                                  ;*CALL:
7487                                  ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
7488                                  ;*      TYPON                   ;;CALL FOR TYPEOUT
7489                                  ;*
7490                                  ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
7491                                  ;*CALL:
7492                                  ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
7493                                  ;*      TYPOC                   ;;CALL FOR TYPEOUT
7494
7495  044534  017646  000000          $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
7496  044540  116637  000001  044757          MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
7497  044546  112637  044761                  MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
7498  044552  062716  000002                  ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
7499  044556  000406                          BR      $TYPON
7500  044560  112737  000001  044757  $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
7501  044566  112737  000006  044761          MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
7502  044574  112737  000005  044756  $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
7503  044602  010346                          MOV     R3,-(SP)        ;;SAVE R3
7504  044604  010446                          MOV     R4,-(SP)        ;;SAVE R4
7505  044606  010546                          MOV     R5,-(SP)        ;;SAVE R5
7506  044610  113704  044761                  MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
7507  044614  005404                          NEG     R4
7508  044616  062704  000006                  ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
7509  044622  110437  044760                  MOVB    R4,$OMODE       ;;SAVE IT FOR USE
7510  044626  113704  044757                  MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
7511  044632  016605  000012                  MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
7512  044636  005003                          CLR     R3              ;;CLEAR THE OUTPUT WORD
7513  044640  006105                  1$:     ROL     R5              ;;ROTATE MSB INTO "C"
7514  044642  000404                          BR      3$              ;;GO DO MSB
```

```
 7515  044644  006105                2$:     ROL     R5              ;;FORM THIS DIGIT
 7516  044646  006105                        ROL     R5
 7517  044650  006105                        ROL     R5
 7518  044652  010503                        MOV     R5,R3
 7519  044654  006103                3$:     ROL     R3              ;;GET LSB OF THIS DIGIT
 7520  044656  105337  044760              DECB    $OMODE          ;;TYPE THIS DIGIT?
 7521  044662  100016                        BPL     7$              ;;BR IF NO
 7522  044664  042703  177770              BIC     #177770,R3      ;;GET RID OF JUNK
 7523  044670  001002                        BNE     4$              ;;TEST FOR 0
 7524  044672  005704                        TST     R4              ;;SUPPRESS THIS 0?
 7525  044674  001403                        BEQ     5$              ;;BR IF YES
 7526  044676  005204                4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
 7527  044700  052703  000060              BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
 7528  044704  052703  000040        5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
 7529  044710  110337  044754              MOVB    R3,8$           ;;SAVE FOR TYPING
 7530  044714  104401  044754              TYPE    ,8$             ;;GO TYPE THIS DIGIT
 7531  044720  105337  044756        7$:     DECB    $OCNT           ;;COUNT BY 1
 7532  044724  003347                        BGT     2$              ;;BR IF MORE TO DO
 7533  044726  002402                        BLT     6$              ;;BR IF DONE
 7534  044730  005204                        INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
 7535  044732  000744                        BR      2$              ;;GO DO THE LAST DIGIT
 7536  044734  012605                6$:     MOV     (SP)+,R5        ;;RESTORE R5
 7537  044736  012604                        MOV     (SP)+,R4        ;;RESTORE R4
 7538  044740  012603                        MOV     (SP)+,R3        ;;RESTORE R3
 7539  044742  016666  000002  000004        MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
 7540  044750  012616                        MOV     (SP)+,(SP)
 7541  044752  000002                        RTI                     ;;RETURN
 7542  044754     000                8$:     .BYTE   0               ;;STORAGE FOR ASCII DIGIT
 7543  044755     000                        .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
 7544  044756     000                $OCNT:  .BYTE   0               ;;OCTAL DIGIT COUNTER
 7545  044757     000                $OFILL: .BYTE   0               ;;ZERO FILL SWITCH
 7546  044760  000000                $OMODE: .WORD   0               ;;NUMBER OF DIGITS TO TYPE
 7547                                .SBTTL  CONVERT BINARY TO DECIMAL AND TYPE ROUTINE
 7548
 7549                                ;;**************************************************************************
 7550                                ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
 7551                                ;*SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
 7552                                ;*NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
 7553                                ;*BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
 7554                                ;*REPLACED WITH SPACES.
 7555                                ;*CALL:
 7556                                ;*      MOV     NUM,-(SP)       ;;PUT THE BINARY NUMBER ON THE STACK
 7557                                ;*      TYPDS                   ;;GO TO THE ROUTINE
 7558
 7559  044762                        $TYPDS:
 7560  044762  010046                        MOV     R0,-(SP)        ;;PUSH R0 ON STACK
 7561  044764  010146                        MOV     R1,-(SP)        ;;PUSH R1 ON STACK
 7562  044766  010246                        MOV     R2,-(SP)        ;;PUSH R2 ON STACK
 7563  044770  010346                        MOV     R3,-(SP)        ;;PUSH R3 ON STACK
 7564  044772  010546                        MOV     R5,-(SP)        ;;PUSH R5 ON STACK
 7565  044774  012746  020200              MOV     #20200,-(SP)    ;;SET BLANK SWITCH AND SIGN
 7566  045000  016605  000020              MOV     20(SP),R5       ;;GET THE INPUT NUMBER
 7567  045004  100004                        BPL     1$              ;;BR IF INPUT IS POS.
 7568  045006  005405                        NEG     R5              ;;MAKE THE BINARY NUMBER POS.
 7569  045010  112766  000055  000001        MOVB    #'-,1(SP)       ;;MAKE THE ASCII NUMBER NEG.
 7570  045016  005000                1$:     CLR     R0              ;;ZERO THE CONSTANTS INDEX
```

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7571  045020  012703  045176            MOV     #$DBLK,R3       ;;SETUP THE OUTPUT POINTER
7572  045024  112723  000040            MOVB    #' ,(R3)+       ;;SET THE FIRST CHARACTER TO A BLANK
7573  045030  005002                2$:  CLR     R2              ;;CLEAR THE BCD NUMBER
7574  045032  016001  045166            MOV     $DTBL(R0),R1    ;;GET THE CONSTANT
7575  045036  160105                3$:  SUB     R1,R5           ;;FORM THIS BCD DIGIT
7576  045040  002402                     BLT     4$              ;;BR IF DONE
7577  045042  005202                     INC     R2              ;;INCREASE THE BCD DIGIT BY 1
7578  045044  000774                     BR      3$
7579  045046  060105                4$:  ADD     R1,R5           ;;ADD BACK THE CONSTANT
7580  045050  005702                     TST     R2              ;;CHECK IF BCD DIGIT=0
7581  045052  001002                     BNE     5$              ;;FALL THROUGH IF 0
7582  045054  105716                     TSTB    (SP)            ;;STILL DOING LEADING 0'S?
7583  045056  100407                     BMI     7$              ;;BR IF YES
7584  045060  106316                5$:  ASLB    (SP)            ;;MSD?
7585  045062  103003                     BLC     6$              ;;BR IF NO
7586  045064  116663  000001  177777     MOVB    1(SP),-1(R3)    ;;YES--SET THE SIGN
7587  045072  052702  000060        6$:  BIS     #'0,R2          ;;MAKE THE BCD DIGIT ASCII
7588  045076  052702  000040        7$:  BIS     #' ,R2          ;;MAKE IT A SPACE IF NOT ALREADY A DIGIT
7589  045102  110223                     MOVB    R2,(R3)+        ;;PUT THIS CHARACTER IN THE OUTPUT BUFFER
7590  045104  005720                     TST     (R0)+           ;;JUST INCREMENTING
7591  045106  020027  000010            CMP     R0,#10          ;;CHECK THE TABLE INDEX
7592  045112  002746                     BLT     2$              ;;GO DO THE NEXT DIGIT
7593  045114  003002                     BGT     8$              ;;GO TO EXIT
7594  045116  010502                     MOV     R5,R2           ;;GET THE LSD
7595  045120  000764                     BR      6$              ;;GO CHANGE TO ASCII
7596  045122  105726                8$:  TSTB    (SP)+           ;;WAS THE LSD THE FIRST NON-ZERO?
7597  045124  100003                     BPL     9$              ;;BR IF NO
7598  045126  116663  177777  177776     MOVB    -1(SP),-2(R3)   ;;YES--SET THE SIGN FOR TYPING
7599  045134  105013                9$:  CLRB    (R3)            ;;SET THE TERMINATOR
7600  045136  012605                     MOV     (SP)+,R5        ;;POP STACK INTO R5
7601  045140  012603                     MOV     (SP)+,R3        ;;POP STACK INTO R3
7602  045142  012602                     MOV     (SP)+,R2        ;;POP STACK INTO R2
7603  045144  012601                     MOV     (SP)+,R1        ;;POP STACK INTO R1
7604  045146  012600                     MOV     (SP)+,R0        ;;POP STACK INTO R0
7605  045150  104401  045176            TYPE    ,$DBLK          ;;NOW TYPE THE NUMBER
7606  045154  016666  000002  000004     MOV     2(SP),4(SP)     ;;ADJUST THE STACK
7607  045162  012616                     MOV     (SP)+,(SP)
7608  045164  000002                     RTI                     ;;RETURN TO USER
7609  045166  023420            $DTBL:   10000.
7610  045170  001750                     1000.
7611  045172  000144                     100.
7612  045174  000012                     10.
7613  045176  000004            $DBLK:   .BLKW   4
7614                            .SBTTL   TTY INPUT ROUTINE
7615
7616                            ;;*****************************************************************
7617                            .ENABL   LSB
7618
7619                            ;;*****************************************************************
7620                            ;*SOFTWARE SWITCH REGISTER CHANGE ROUTINE.
7621                            ;*ROUTINE IS ENTERED FROM THE TRAP HANDLER, AND WILL
7622                            ;*SERVICE THE TEST FOR CHANGE IN SOFTWARE SWITCH REGISTER TRAP CALL
7623                            ;*WHEN OPERATING IN TTY FLAG MODE.
7624  045206  022737  000176  001140  $CKSWR: CMP     #SWREG,SWR      ;;IS THE SOFT-SWR SELECTED?
7625  045214  001074                     BNE     15$             ;;BRANCH IF NO
7626  045216  105777  133722            TSTB    @$TKS           ;;CHAR THERE?
```

```
7627  045222  100071                        BPL     15$             ;;IF NO, DON'T WAIT AROUND
7628  045224  117746  133716                MOVB    @$TKB,-(SP)     ;;SAVE THE CHAR
7629  045230  042716  177600                BIC     #^C177,(SP)     ;;STRIP-OFF THE ASCII
7630  045234  022726  000007                CMP     #7,(SP)+        ;;IS IT A CONTROL G?
7631  045240  001062                        BNE     15$             ;;NO, RETURN TO USER
7632  045242  123727  001134  000001        CMPB    $AUTOB,#1       ;;ARE WE RUNNING IN AUTO-MODE?
7633  045250  001456                        BEQ     15$             ;;BRANCH IF YES
7634
7635  045252  104401  046071          $GTSWR: TYPE    ,$CNTLG         ;;ECHO THE CONTROL-G (^G)
7636  045256  104401  046076                  TYPE    ,$MSWR          ;;TYPE CURRENT CONTENTS
7637  045262  013746  000176                  MOV     SWREG,-(SP)     ;;SAVE SWREG FOR TYPEOUT
7638  045266  104402                        TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
7639  045270  104401  046107                TYPE    ,$MNEW          ;;PROMPT FOR NEW SWR
7640  045274  005046                  19$:  CLR     -(SP)           ;;CLEAR COUNTER
7641  045276  005046                        CLR     -(SP)           ;;THE NEW SWR
7642  045300  105777  133640          7$:   TSTB    @$TKS           ;;CHAR THERE?
7643  045304  100375                        BPL     7$              ;;IF NOT TRY AGAIN
7644
7645  045306  117746  133634                MOVB    @$TKB,-(SP)     ;;PICK UP CHAR
7646  045312  042716  177600                BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
7647
7648
7649
7650  045316  021627  000025          9$:   CMP     (SP),#25        ;;IS IT A CONTROL-U?
7651  045322  001005                        BNE     10$             ;;BRANCH IF NOT
7652  045324  104401  046064                TYPE    ,$CNTLU         ;;YES, ECHO CONTROL-U (^U)
7653  045330  062706  000006          20$:  ADD     #6,SP           ;;IGNORE PREVIOUS INPUT
7654  045334  000757                        BR      19$             ;;LET'S TRY IT AGAIN
7655
7656
7657  045336  021627  000015          10$:  CMP     (SP),#15        ;;IS IT A <CR>?
7658  045342  001022                        BNE     16$             ;;BRANCH IF NO
7659  045344  005766  000004                TST     4(SP)           ;;YES, IS IT THE FIRST CHAR?
7660  045350  001403                        BEQ     11$             ;;BRANCH IF YES
7661  045352  016677  000002  133560        MOV     2(SP),@SWR      ;;SAVE NEW SWR
7662  045360  062706  000006          11$:  ADD     #6,SP           ;;CLEAR UP STACK
7663  045364  104401  001211          14$:  TYPE    ,$CRLF          ;;ECHO <CR> AND <LF>
7664  045370  123727  001135  000001        CMPB    $INTAG,#1       ;;RE-ENABLE TTY KBD INTERRUPTS?
7665  045376  001003                        BNE     15$             ;;BRANCH IF NOT
7666  045400  012777  000100  133536        MOV     #100,@$TKS      ;;RE-ENABLE TTY KBD INTERRUPTS
7667  045406  000002                  15$:  RTI                     ;;RETURN
7668  045410  004737  044412          16$:  JSR     PC,$TYPEC       ;;ECHO CHAR
7669  045414  021627  000060                CMP     (SP),#60        ;;CHAR < 0?
7670  045420  002420                        BLT     18$             ;;BRANCH IF YES
7671  045422  021627  000067                CMP     (SP),#67        ;;CHAR > 7?
7672  045426  003015                        BGT     18$             ;;BRANCH IF YES
7673  045430  042726  000060                BIC     #60,(SP)+       ;;STRIP-OFF ASCII
7674  045434  005766  000002                TST     2(SP)           ;;IS THIS THE FIRST CHAR
7675  045440  001403                        BEQ     17$             ;;BRANCH IF YES
7676  045442  006316                        ASL     (SP)            ;;NO, SHIFT PRESENT
7677  045444  006316                        ASL     (SP)            ;;    CHAR OVER TO MAKE
7678  045446  006316                        ASL     (SP)            ;;    ROOM FOR NEW ONE.
7679  045450  005266  000002          17$:  INC     2(SP)           ;;KEEP COUNT OF CHAR
7680  045454  056616  177776                BIS     -2(SP),(SP)     ;;SET IN NEW CHAR
7681  045460  000707                        BR      7$              ;;GET THE NEXT ONE
7682  045462  104401  001210          18$:  TYPE    ,$QUES          ;;TYPE ?<CR><LF>
```

```
 7683  045466  000720                          BR      20$             ;;SIMULATE CONTROL-U
 7684                                .DSABL  LSB
 7685
 7686
 7687                                ;;*****************************************************************
 7688                                ;*THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY
 7689                                ;*CALL:
 7690                                ;*      RDCHR                   ;;INPUT A SINGLE CHARACTER FROM THE TTY
 7691                                ;*      RETURN HERE             ;;CHARACTER IS ON THE STACK
 7692                                ;*                              ;;WITH PARITY BIT STRIPPED OFF
 7693                                ;
 7694
 7695  045470  011646                $RDCHR: MOV     (SP),-(SP)      ;;PUSH DOWN THE PC
 7696  045472  016666  000004  000002        MOV     4(SP),2(SP)     ;;SAVE THE PS
 7697  045500  105777  133440        1$:     TSTB    @$TKS           ;;WAIT FOR
 7698  045504  100375                        BPL     1$              ;;A CHARACTER
 7699  045506  117766  133434  000004        MOVB    @$TKB,4(SP)     ;;READ THE TTY
 7700  045514  042766  177600  000004        BIC     #^C<177>,4(SP)  ;;GET RID OF JUNK IF ANY
 7701  045522  026627  000004  000023        CMP     4(SP),#23       ;;IS IT A CONTROL-S?
 7702  045530  001013                        BNE     3$              ;;BRANCH IF NO
 7703  045532  105777  133406        2$:     TSTB    @$TKS           ;;WAIT FOR A CHARACTER
 7704  045536  100375                        BPL     2$              ;;LOOP UNTIL ITS THERE
 7705  045540  117746  133402                MOVB    @$TKB,-(SP)     ;;GET CHARACTER
 7706  045544  042716  177600                BIC     #^C177,(SP)     ;;MAKE IT 7-BIT ASCII
 7707  045550  022627  000021                CMP     (SP)+,#21       ;;IS IT A CONTROL-Q?
 7708  045554  001366                        BNE     2$              ;;IF NOT DISCARD IT
 7709  045556  000750                        BR      1$              ;;YES, RESUME
 7710  045560  026627  000004  000021  3$:   CMP     4(SP),#$XON     ;;IS IT A RANDOM XON?                   ;RAN001
 7711  045566  001744                        BEQ     1$              ;;BRANCH IF YES                         ;RAN001
 7712  045570  026627  000004  000140        CMP     4(SP),#140      ;;IS IT UPPER CASE?
 7713  045576  002407                        BLT     4$              ;;BRANCH IF YES
 7714  045600  026627  000004  000175        CMP     4(SP),#175      ;;IS IT A SPECIAL CHAR?
 7715  045606  003003                        BGT     4$              ;;BRANCH IF YES
 7716  045610  042766  000040  000004        BIC     #40,4(SP)       ;;MAKE IT UPPER CASE
 7717  045616  000002                4$:     RTI                     ;;GO BACK TO USER
 7718                                ;;*****************************************************************
 7719                                ;*THIS ROUTINE WILL INPUT A STRING FROM THE TTY
 7720                                ;*CALL:
 7721                                ;*      RDLIN                   ;;INPUT A STRING FROM THE TTY
 7722                                ;*      RETURN HERE             ;;ADDRESS OF FIRST CHARACTER WILL BE ON THE STACK
 7723                                ;*                              ;;TERMINATOR WILL BE A BYTE OF ALL 0'S
 7724
 7725  045620  010346                $RDLIN: MOV     R3,-(SP)        ;;SAVE R3
 7726  045622  005046                        CLR     -(SP)           ;;CLEAR THE RUBOUT KEY
 7727  045624  012703  046054        1$:     MOV     #$TTYIN,R3      ;;GET ADDRESS
 7728  045630  022703  046064        2$:     CMP     #$TTYIN+8.,R3   ;;BUFFER FULL?
 7729  045634  101456                        BLOS    4$              ;;BR IF YES
 7730  045636  104410                        RDCHR                   ;;GO READ ONE CHARACTER FROM THE TTY
 7731  045640  112613                        MOVB    (SP)+,(R3)      ;;GET CHARACTER
 7732  045642  122713  000177        10$:    CMPB    #177,(R3)       ;;IS IT A RUBOUT
 7733  045646  001022                        BNE     5$              ;;BR IF NO
 7734  045650  005716                        TST     (SP)            ;;IS THIS THE FIRST RUBOUT?
 7735  045652  001007                        BNE     6$              ;;BR IF NO
 7736  045654  112737  000134  046052        MOVB    #'\,9$          ;;TYPE A BACK SLASH
 7737  045662  104401  046052                TYPE    ,9$
 7738  045666  012716  177777                MOV     #-1,(SP)        ;;SET THE RUBOUT KEY
```

```
7739  045672  005303                  6$:     DEC     R3              ;;BACKUP BY ONE
7740  045674  020327  046054                  CMP     R3,#$TTYIN      ;;STACK EMPTY?
7741  045700  103434                  BLO     4$              ;;BR IF YES
7742  045702  111337  046052          MOVB    (R3),9$         ;;SETUP TO TYPEOUT THE DELETED CHAR.
7743  045706  104401  046052          TYPE    .9$             ;;GO TYPE
7744  045712  000746                  BR      2$              ;;GO READ ANOTHER CHAR.
7745  045714  005716                  5$:     TST     (SP)            ;;RUBOUT KEY SET?
7746  045716  001406                  BEQ     7$              ;;BR IF NO
7747  045720  112737  000134  046052          MOVB    #'\,9$          ;;TYPE A BACK SLASH
7748  045726  104401  046052          TYPE    ,9$
7749  045732  005016                  CLR     (SP)            ;;CLEAR THE RUBOUT KEY
7750  045734  122713  000025          7$:     CMPB    #25,(R3)        ;;IS CHARACTER A CTRL U?
7751  045740  001003                  BNE     8$              ;;BR IF NO
7752  045742  104401  046064          TYPE    ,$CNTLU         ;;TYPE A CONTROL 'U'
7753  045746  000726                  BR      1$              ;;GO START OVER
7754  045750  122713  000022          8$:     CMPB    #22,(R3)        ;;IS CHARACTER A '^R'?
7755  045754  001011                  BNE     3$              ;;BRANCH IF NO
7756  045756  105013                  CLRB    (R3)            ;;CLEAR THE CHARACTER
7757  045760  104401  001211          TYPE    ,$CRLF          ;;TYPE A 'CR' & 'LF'
7758  045764  104401  046054          TYPE    ,$TTYIN         ;;TYPE THE INPUT STRING
7759  045770  000717                  BR      2$              ;;GO PICKUP ANOTHER CHACTER
7760  045772  104401  001210          4$:     TYPE    ,$QUES          ;;TYPE A '?'
7761  045776  000712                  BR      1$              ;;CLEAR THE BUFFER AND LOOP
7762  046000  111337  046052          3$:     MOVB    (R3),9$         ;;ECHO THE CHARACTER
7763  046004  104401  046052          TYPE    ,9$
7764  046010  122723  000015          CMPB    #15,(R3)+       ;;CHECK FOR RETURN
7765  046014  001305                  BNE     2$              ;;LOOP IF NOT RETURN
7766  046016  105063  177777          CLRB    -1(R3)          ;;CLEAR RETURN (THE 15)
7767  046022  104401  001212          TYPE    ,$LF            ;;TYPE A LINE FEED
7768  046026  005726                  TST     (SP)+           ;;CLEAN RUBOUT KEY FROM THE STACK
7769  046030  012603                  MOV     (SP)+,R3        ;;RESTORE R3
7770  046032  011646                  MOV     (SP),-(SP)      ;;ADJUST THE STACK AND PUT ADDRESS OF THE
7771  046034  016666  000004  000002          MOV     4(SP),2(SP)     ;;      FIRST ASCII CHARACTER ON IT
7772  046042  012766  046054  000004          MOV     #$TTYIN,4(SP)
7773  046050  000002                  RTI                     ;;RETURN
7774  046052     000                  9$:     .BYTE   0               ;;STORAGE FOR ASCII CHAR. TO TYPE
7775  046053     000                          .BYTE   0               ;;TERMINATOR
7776  046054  000010                  $TTYIN: .BLKB   8.              ;;RESERVE 8 BYTES FOR TTY INPUT
7777  046064  052536  005015     000  $CNTLU: .ASCIZ  /^U/<15><12>    ;;CONTROL 'U'
7778  046071     136  006507  000012  $CNTLG: .ASCIZ  /^G/<15><12>    ;;CONTROL 'G'
7779  046076  005015  053523  020122  $MSWR:  .ASCIZ  <15><12>/SWR = /
7780  046104  020075     000
7781  046107     040  047040  053505  $MNEW:  .ASCIZ  /  NEW = /
7782  046114  036440  000040
7783                                  .SBTTL  READ AN OCTAL NUMBER FROM THE TTY
7784
7785                                  ;;**********************************************************************
7786                                  ;*THIS ROUTINE WILL READ AN OCTAL (ASCII) NUMBER FROM THE TTY AND
7787                                  ;*CHANGE IT TO BINARY.
7788                                  ;*THE INPUT CHARACTERS WILL BE CHECKED TO INSURED THEY ARE LEGAL
7789                                  ;*OCTAL DIGITS. IF AN ILLEGAL CHARACTER IS READ A '?' WILL BE TYPED
7790                                  ;*FOLLOWED BY A CARRIAGE RETURN-LINE FEED. THE COMPLETE NUMBER MUST
7791                                  ;*THEN BE RETYPED. THE INPUT IS TERMINATED BY TYPING A CARRIAGE RETURN.
7792                                  ;*CALL:
7793                                  ;*      RDOCT                   ;;READ AN OCTAL NUMBER
7794                                  ;*      RETURN HERE             ;;LOW ORDER BITS ARE ON TOP OF THE STACK
```

```
                                        ;*                              ;;HIGH ORDER BITS ARE IN $HIOCT
                                        $RDOCT: MOV     (SP),-(SP)      ;;PROVIDE SPACE FOR THE
                                                MOV     4(SP),2(SP)     ;;INPUT NUMBER
                                                MOV     R0,-(SP)        ;;PUSH R0 ON STACK
                                                MOV     R1,-(SP)        ;;PUSH R1 ON STACK
                                                MOV     R2,-(SP)        ;;PUSH R2 ON STACK
                                        1$:     RDLIN                   ;;READ AN ASCIZ LINE
                                                MOV     (SP)+,R0        ;;GET ADDRESS OF 1ST CHARACTER
                                                MOV     R0,5$           ;;AND SAVE IT
                                                CLR     R1              ;;CLEAR DATA WORD
                                                CLR     R2
                                        2$:     MOVB    (R0)+,-(SP)     ;;PICKUP THIS CHARACTER
                                                BEQ     3$              ;;IF ZERO GET OUT
                                                CMPB    #'0,(SP)        ;;MAKE SURE THIS CHARACTER
                                                BGT     4$              ;;IS AN OCTAL DIGIT
                                                CMPB    #'7,(SP)
                                                BLT     4$
                                                ASL     R1              ;;*2
                                                ROL     R2
                                                ASL     R1              ;;*4
                                                ROL     R2
                                                ASL     R1              ;;*8
                                                ROL     R2
                                                BIC     #^C7,(SP)       ;;STRIP THE ASCII JUNK
                                                ADD     (SP)+,R1        ;;ADD IN THIS DICIT
                                                BR      2$              ;;LOOP
                                        3$:     TST     (SP)+           ;;CLEAN TERMINATOR FROM STACK
                                                MOV     R1,12(SP)       ;;SAVE THE RESULT
                                                MOV     R2,$HIOCT
                                                MOV     (SP)+,R2        ;;POP STACK INTO R2
                                                MOV     (SP)+,R1        ;;POP STACK INTO R1
                                                MOV     (SP)+,R0        ;;POP STACK INTO R0
                                                RTI                     ;;RETURN
                                        4$:     TST     (SP)+           ;;CLEAN PARTIAL FROM STACK
                                                CLRB    (R0)            ;;SET A TERMINATOR
                                                TYPE                    ;;TYPE UP THRU THE BAD CHAR.
                                        5$:     .WORD   0
                                                TYPE    ,$QUES          ;;''?'' ''CR'' & ''LF''
                                                BR      1$              ;;TRY AGAIN
                                        $HIOCT: .WORD   0               ;;HIGH ORDER BITS GO HERE
                                        .SBTTL  SAVE AND RESTORE R0-R5 ROUTINES

                                        ;;******************************************************************
                                        ;*SAVE R0-R5
                                        ;*CALL:
                                        ;*      SAVREG
                                        ;*UPON RETURN FROM $SAVREG THE STACK WILL LOOK LIKE:
                                        ;*
                                        ;*TOP---(+16)
                                        ;* +2---(+18)
                                        ;* +4---R5
                                        ;* +6---R4
                                        ;* +8---R3
                                        ;*+10---R2
                                        ;*+12---R1
```

```
                                        ;**14---R0

                                        $SAVREG:
046260                                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
046260  010046                                 MOV     R1,-(SP)        ;;PUSH R1 ON STACK
046262  010146                                 MOV     R2,-(SP)        ;;PUSH R2 ON STACK
046264  010246                                 MOV     R3,-(SP)        ;;PUSH R3 ON STACK
046266  010346                                 MOV     R4,-(SP)        ;;PUSH R4 ON STACK
046270  010446                                 MOV     R5,-(SP)        ;;PUSH R5 ON STACK
046272  010546                                 MOV     22(SP),-(SP)    ;;SAVE PS OF MAIN FLOW
046274  016646  000022                        MOV     22(SP),-(SP)    ;;SAVE PC OF MAIN FLOW
046300  016646  000022                        MOV     22(SP),-(SP)    ;;SAVE PS OF CALL
046304  016646  000022                        MOV     22(SP),-(SP)    ;;SAVE PC OF CALL
046310  016646  000022                        RTI
046314  000002

                                        ;*RESTORE R0-R5
                                        ;*CALL:
                                        ;*      RESREG
046316                                  $RESREG:
046316  012666  000022                        MOV     (SP)+,22(SP)    ;;RESTORE PC OF CALL
046322  012666  000022                        MOV     (SP)+,22(SP)    ;;RESTORE PS OF CALL
046326  012666  000022                        MOV     (SP)+,22(SP)    ;;RESTORE PC OF MAIN FLOW
046332  012666  000022                        MOV     (SP)+,22(SP)    ;;RESTORE PS OF MAIN FLOW
046336  012605                                 MOV     (SP)+,R5        ;;POP STACK INTO R5
046340  012604                                 MOV     (SP)+,R4        ;;POP STACK INTO R4
046342  012603                                 MOV     (SP)+,R3        ;;POP STACK INTO R3
046344  012602                                 MOV     (SP)+,R2        ;;POP STACK INTO R2
046346  012601                                 MOV     (SP)+,R1        ;;POP STACK INTO R1
046350  012600                                 MOV     (SP)+,R0        ;;POP STACK INTO R0
046352  000002                                 RTI

                                        .SBTTL  POWER DOWN AND UP ROUTINES

                                        ;;**************************************************************
                                        ;POWER DOWN ROUTINE
046354  017737  132560  004274         $PWRDN: MOV     @SWR,SAVSWR     ;SAVE SWITCH REG
046362  012737  046402  000024                 MOV     #$PWRUP,PWRVEC  ;SET UP VECTOR
046370  012737  000340  000026                 MOV     #PR7,PWRVEC+2
046376  000000                                 HALT
046400  000776                                 BR      .-2             ;HANG UP

                                        ;;**************************************************************
                                        ;POWER UP ROUTINE
046402  005037  046472                 $PWRUP: CLR     $PWRCT          ;LOOP LOOP TIMER
046406  012737  000144  046474                 MOV     #100.,$PWRCT+2
046414  005237  046472                 1$:     INC     $PWRCT          ;WAIT FOR TELETYPE
046420  001375                                 BNE     1$
046422  005337  046474                         DEC     $PWRCT+2
046426  001372                                 BNE     1$
046430  012737  046354  000024                 MOV     #$PWRDN,PWRVEC  ;SET UP THE POWER DOWN VECTOR
046436  012737  000340  000026                 MOV     #PR7,PWRVEC+2
046444  012706  001100                         MOV     #STACK,SP       ;FORCE STACK POINTER
046450  104401  046476                         TYPE    ,$POWER         ;TYPE POWER
046454  004737  042360                         JSR     PC,CHKPAR       ;CHECK FOR MEMORY CHECK ENABLE OPTION
046460  013777  004274  132452                 MOV     SAVSWR,@SWR     ;RESTORE SWITCH REG
046466  000177  132414                         JMP     @$LPADR         ;START TEST AGAIN
```

```
                                        ;
046472  000000  000000          $PWRCT: .WORD   0,0              ;COUNTER FOR TELETYPE
046476  005015  047520  042527  $POWER: .ASCIZ  <15><12>/POWER/
046504  000122
                                        .EVEN
                                .SBTTL  TRAP DECODER

                                ;;**********************************************************************
                                ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE 'TRAP' INSTRUCTION
                                ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
                                ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
                                ;*GO TO THAT ROUTINE.

046506  010046                  $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
046510  016600  000002                  MOV     2(SP),R0        ;;GET TRAP ADDRESS
046514  005740                          TST     -(R0)           ;;BACKUP BY 2
046516  111000                          MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
046520  006300                          ASL     R0              ;;POSITION FOR INDEXING
046522  016000  046542                  MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
046526  000200                          RTS     R0              ;;GO TO ROUTINE

                                ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO

046530  011646                  $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
046532  016666  000004  000002          MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
046540  000002                          RTI                     ;;RESTORE THE PSW

                                .SBTTL  TRAP TABLE

                                ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
                                ;*BY THE "TRAP" INSTRUCTION.

                                ;       ROUTINE
                                ;       -------
046542  046530          $TRPAD: .WORD   $TRAP2
046544  044200                  $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
046546  044560                  $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
046550  044534                  $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
046552  044574                  $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
046554  044762                  $TYPDS  ;;CALL=TYPDS    TRAP+5(104405)  TYPE DECIMAL NUMBER (WITH SIGN)

046556  045256                  $GTSWR  ;;CALL=GTSWR    TRAP+6(104406)  GET SOFT-SWR SETTING

046560  045206                  $CKSWR  ;;CALL=CKSWR    TRAP+7(104407)  TEST FOR CHANGE IN SOFT-SWR
046562  045470                  $RDCHR  ;;CALL=RDCHR    TRAP+10(104410) TTY TYPEIN CHARACTER ROUTINE
046564  045620                  $RDLIN  ;;CALL=RDLIN    TRAP+11(104411) TTY TYPEIN STRING ROUTINE
046566  046120                  $RDOCT  ;;CALL=RDOCT    TRAP+12(104412) READ AN OCTAL NUMBER FROM TTY
046570  046260                  $SAVREG ;;CALL=SAVREG   TRAP+13(104413) SAVE R0-R5 ROUTINE
046572  046316                  $RESREG ;;CALL=RESREG   TRAP+14(104414) RESTORE R0-R5 ROUTINE
046574  043224                  SCOP1$  ;;CALL=SCOP1    TRAP+15(104415) INTERNAL LOOP ON ERROR
```

```
                                        .SBTTL  DATA PRINTED BY ERROR ROUTINES
                                
046576  001220  004272          DT000:  .WORD   $TESTN,TRAPPC
046602  001220  001116  004160  DT001:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,E.MR2,T.MR2,E.MR3,T.MR3
046610  004120  004206  004146
046616  004210  004150
046622  001220  001116  004160  DT002:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,DRVCOD,E.MR2,T.MR2,E.MR3,T.MR3
046630  004120  004244  004206
046636  004146  004210  004150
046644  001220  001116  004160  DT006:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,HDCODE,E.MR2,T.MR2,E.MR3,T.MR3
046652  004120  004250  004206
046660  004146  004210  004150
046666  001220  001116  004160  DT012:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,E.MR1,T.MR1,MSGCOD
046674  004120  004204  004144
046702  004246
046704  004206  004146  004210          .WORD   E.MR2,T.MR2,E.MR3,T.MR3
046712  004150
046714  001220  001116  004160  DT017:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,CYLIN,E.MR2,T.MR2,E.MR3,T.MR3
046722  004120  004252  004206
046730  004146  004210  004150
046736  001220  001116  004160  DT031:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,OFFVAL,E.MR2,T.MR2,E.MR3,T.MR3
046744  004120  004254  004206
046752  004146  004210  004150
046760  001220  001116  004160  DT035:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,CYLIN,OFFVAL
046766  004120  004252  004254
046774  004206  004146  004210          .WORD   E.MR2,T.MR2,E.MR3,T.MR3
047002  004150
047004  001220  001116  004230  DT050:  .WORD   $TESTN,$ERRPC,U.MR2,U.MR3,SFTCNT,E.MR2,T.MR2,E.MR3,T.MR3
047012  004232  004256  004206
047020  004146  004210  004150
047026  001220  001116  004210  DT052:  .WORD   $TESTN,$ERRPC,E.MR3,T.MR3,E.MR2,T.MR2
047034  004150  004206  004146
047042  001220  001116  004160  DT062:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,E.CS2,T.CS2,E.DS,T.DS,E.ER,T.ER
047050  004120  004170  004130
047056  004172  004132  004174
047064  004134
047066  001220  001116  004160  DT065:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1
047074  004120
047076  001220  001116  004206  DT067:  .WORD   $TESTN,$ERRPC,E.MR2,T.MR2,E.MR3,T.MR3
047104  004146  004210  004150
047112  001220  001116          DT100:  .WORD   $TESTN,$ERRPC
047116  001220  001116  004160  DT126:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1
047124  004120
047126  001220  001116  004160  DT224:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,E.CS2,T.CS2,E.DS,T.DS
047134  004120  004170  004130
047142  004172  004132
047146  004174  004134  004220          .WORD   E.ER,T.ER,P.CS1,P.CS2,P.DS,P.ER
047154  004222  004224  004226
047162  001220  001116  004266  DT230:  .WORD   $TESTN,$ERRPC,DRVTYP,CYLIN,HDCODE,E.CS1,T.CS1,E.CS2,T.CS2
047170  004252  004250  004160
047176  004120  004170  004130
047204  004172  004132  004174          .WORD   E.DS,T.DS,E.ER,T.ER
047212  004134
047214  001220  001116  004160  DT256:  .WORD   $TESTN,$ERRPC,E.CS1,T.CS1,E.ER,T.ER,ILLFUN
047222  004120  004174  004134
047230  004270
```

```
8014                                    .SBTTL  DATA FORMATS
8015
8016  047232  000001                    DF000:  .WORD   1
8017  047234      002       000                 .BYTE   2,0
8018  047236  000007                    DF001:  .WORD   7                       ;ERROR 1
8019  047240      000       000                 .BYTE   0,0
8020  047242  050271                            .WORD   DH000A
8021  047244      000       000                 .BYTE   0,0
8022  047246  050307                            .WORD   DH000B
8023  047250      002       000                 .BYTE   2,0
8024  047252  050353                            .WORD   DH001A
8025  047254      000       000                 .BYTE   0,0
8026  047256  050372                            .WORD   DH001B
8027  047260      002       000                 .BYTE   2,0
8028  047262  050410                            .WORD   DH001C
8029  047264      000       000                 .BYTE   0,0
8030  047266  050447                            .WORD   DH001D
8031  047270      004       000                 .BYTE   4,0
8032  047272  000007                    DF002:  .WORD   7                       ;ERRORS 2-5
8033  047274      000       000                 .BYTE   0,0
8034  047276  050271                            .WORD   DH000A
8035  047300      000       000                 .BYTE   0,0
8036  047302  050307                            .WORD   DH000B
8037  047304      002       000                 .BYTE   2,0
8038  047306  050506                            .WORD   DH002A
8039  047310      000       000                 .BYTE   0,0
8040  047312  050534                            .WORD   DH002B
8041  047314      003       000                 .BYTE   3,0
8042  047316  050410                            .WORD   DH001C
8043  047320      000       000                 .BYTE   0,0
8044  047322  050447                            .WORD   DH001D
8045  047324      004       000                 .BYTE   4,0
8046  047326  000007                    DF006:  .WORD   7                       ;ERRORS 6-11
8047  047330      000       000                 .BYTE   0,0
8048  047332  050271                            .WORD   DH000A
8049  047334      000       000                 .BYTE   0,0
8050  047336  050307                            .WORD   DH000B
8051  047340      002       000                 .BYTE   2,0
8052  047342  050563                            .WORD   DH006A
8053  047344      000       000                 .BYTE   0,0
8054  047346  050610                            .WORD   DH006B
8055  047350      003       000                 .BYTE   3,0
8056  047352  050410                            .WORD   DH001C
8057  047354      000       000                 .BYTE   0,0
8058  047356  050447                            .WORD   DH001D
8059  047360      004       000                 .BYTE   4,0
8060  047362  000007                    DF012:  .WORD   7                       ;ERRORS12-16
8061  047364      000       000                 .BYTE   0,0
8062  047366  050271                            .WORD   DH000A
8063  047370      000       000                 .BYTE   0,0
8064  047372  050307                            .WORD   DH000B
8065  047374      002       000                 .BYTE   2,0
8066  047376  050634                            .WORD   DH012A
8067  047400      000       000                 .BYTE   0,0
8068  047402  050701                            .WORD   DH012B
8069  047404      005       000                 .BYTE   5,0
```

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8070  047406  050410                  .WORD   DH001C
8071  047410     000      000         .BYTE   0,0
8072  047412  050447                  .WORD   DH001D
8073  047414     004      000         .BYTE   4,0
8074  047416  000007          DF017:  .WORD   7                       ;ERRORS 17-30
8075  047420     000      000         .BYTE   0,0
8076  047422  050271                  .WORD   DH000A
8077  047424     000      000         .BYTE   0,0
8078  047426  050307                  .WORD   DH000B
8079  047430     002      000         .BYTE   2,0
8080  047432  050747                  .WORD   DH017A
8081  047434     000      000         .BYTE   0,0
8082  047436  050775                  .WORD   DH017B
8083  047440     003      000         .BYTE   3,0
8084  047442  050410                  .WORD   DH001C
8085  047444     000      000         .BYTE   0,0
8086  047446  050447                  .WORD   DH001D
8087  047450     004      000         .BYTE   4,0
8088  047452  000007          DF031:  .WORD   7                       ;ERRORS 31-34
8089  047454     000      000         .BYTE   0,0
8090  047456  050271                  .WORD   DH000A
8091  047460     000      000         .BYTE   0,0
8092  047462  050307                  .WORD   DH000B
8093  047464     002      000         .BYTE   2,0
8094  047466  051021                  .WORD   DH031A
8095  047470     000      000         .BYTE   0,0
8096  047472  051050                  .WORD   DH031B
8097  047474     003      000         .BYTE   3,0
8098  047476  050410                  .WORD   DH001C
8099  047500     000      000         .BYTE   0,0
8100  047502  050447                  .WORD   DH001D
8101  047504     004      000         .BYTE   4,0
8102  047506  000007          DF035:  .WORD   7                       ;ERROR 35-41
8103  047510     000      000         .BYTE   0,0
8104  047512  050271                  .WORD   DH000A
8105  047514     000      000         .BYTE   0,0
8106  047516  050307                  .WORD   DH000B
8107  047520     002      000         .BYTE   2,0
8108  047522  051076                  .WORD   DH035A
8109  047524     000      000         .BYTE   0,0
8110  047526  051135                  .WORD   DH035B
8111  047530     004      000         .BYTE   4,0
8112  047532  050410                  .WORD   DH001C
8113  047534     000      000         .BYTE   0,0
8114  047536  050447                  .WORD   DH001D
8115  047540     004      000         .BYTE   4,0
8116  047542  000007          DF050:  .WORD   7                       ;ERRORS 50 & 51
8117  047544     000      000         .BYTE   0,0
8118  047546  050271                  .WORD   DH000A
8119  047550     000      000         .BYTE   0,0
8120  047552  050307                  .WORD   DH000B
8121  047554     002      000         .BYTE   2,0
8122  047556  051173                  .WORD   DH050A
8123  047560     000      000         .BYTE   0,0
8124  047562  051221                  .WORD   DH050B
8125  047564     003      000         .BYTE   3,0
```

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8126  047566  050410                        .WORD   DH001C
8127  047570     000      000               .BYTE   0,0
8128  047572  050447                        .WORD   DH001D
8129  047574     004      000               .BYTE   4,0
8130  047576  000005                DF052:  .WORD   5               ;ERRORS 52-61
8131  047600     000      000               .BYTE   0,0
8132  047602  050271                        .WORD   DH000A
8133  047604     000      000               .BYTE   0,0
8134  047606  050307                        .WORD   DH000B
8135  047610     002      000               .BYTE   2,0
8136  047612  050410                        .WORD   DH001C
8137  047614     000      000               .BYTE   0,0
8138  047616  050447                        .WORD   DH001D
8139  047620     004      000               .BYTE   4,0
8140  047622  000005                DF062:  .WORD   5               ;ERRORS 62-64
8141  047624     000      000               .BYTE   0,0
8142  047626  050271                        .WORD   DH000A
8143  047630     000      000               .BYTE   0,0
8144  047632  050307                        .WORD   DH000B
8145  047634     002      000               .BYTE   2,0
8146  047636  051247                        .WORD   DH062A
8147  047640     000      000               .BYTE   0,0
8148  047642  051346                        .WORD   DH062B
8149  047644     010      000               .BYTE   8.,0
8150  047646  000005                DF065:  .WORD   5               ;ERRORS-65-66
8151  047650     000      000               .BYTE   0,0
8152  047652  050271                        .WORD   DH000A
8153  047654     000      000               .BYTE   0,0
8154  047656  050307                        .WORD   DH000B
8155  047660     002      000               .BYTE   2,0
8156  047662  050353                        .WORD   DH001A
8157  047664     000      000               .BYTE   0,0
8158  047666  050372                        .WORD   DH001B
8159  047670     002      000               .BYTE   2,0
8160  047672  000005                DF067:  .WORD   5               ;ERRORS 67-70
8161  047674     000      000               .BYTE   0,0
8162  047676  050271                        .WORD   DH000A
8163  047700     000      000               .BYTE   0,0
8164  047702  050307                        .WORD   DH000B
8165  047704     002      000               .BYTE   2,0
8166  047706  051443                        .WORD   DH067A
8167  047710     000      000               .BYTE   0,0
8168  047712  051502                        .WORD   DH067B
8169  047714     004      000               .BYTE   4,0
8170  047716  000003                DF100:  .WORD   3               ;ERROR 100
8171  047720     000      000               .BYTE   0,0
8172  047722  050271                        .WORD   DH000A
8173  047724     000      000               .BYTE   0,0
8174  047726  050307                        .WORD   DH000B
8175  047730     002      000               .BYTE   2,0
8176  047732  000005                DF126:  .WORD   5               ;ERROR 126
8177  047734     000      000               .BYTE   0,0
8178  047736  050271                        .WORD   DH000A
8179  047740     000      000               .BYTE   0,0
8180  047742  050307                        .WORD   DH000B
8181  047744     002      000               .BYTE   2,0
```

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8182  047746  051540                      .WORD   DH126A
8183  047750     000     000              .BYTE   0,0
8184  047752  051557                      .WORD   DH126B
8185  047754     002     .. 000           .BYTE   2,0
8186  047756  000007              DF224:  .WORD   7                       ;ERRORS 224-227
8187  047760     000     000              .BYTE   0,0
8188  047762  050271                      .WORD   DH000A
8189  047764     000     000              .BYTE   0,0
8190  047766  050307                      .WORD   DH000B
8191  047770     002     000              .BYTE   2,0
8192  047772  051247                      .WORD   DH062A
8193  047774     000     000              .BYTE   0,0
8194  047776  051346                      .WORD   DH062B
8195  050000     010     000              .BYTE   8.,0
8196  050002  051575                      .WORD   DH224A
8197  050004     000     000              .BYTE   0,0
8198  050006  051630                      .WORD   DH224B
8199  050010     004     000              .BYTE   4,0
8200  050012  000007              DF230:  .WORD   7                   ;ERRORS 230-233
8201  050014     000     000              .BYTE   0,0
8202  050016  050271                      .WORD   DH000A
8203  050020     000     000              .BYTE   0,0
8204  050022  050307                      .WORD   DH000B
8205  050024     002     000              .BYTE   2,0
8206  050026  051665                      .WORD   DH230A
8207  050030     000     000              .BYTE   0,0
8208  050032  051712                      .WORD   DH230B
8209  050034     003     000              .BYTE   3,0
8210  050036  051247                      .WORD   DH062A
8211  050040     000     000              .BYTE   0,0
8212  050042  051346                      .WORD   DH062B
8213  050044     010     000              .BYTE   8.,0
8214  050046  000005              DF256:  .WORD   5               ;ERROR 256
```

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 8215  050050      000      000                .BYTE   0,0
 8216  050052  050274                         .WORD   DH000A
 8217  050054      000      000                .BYTE   0,0
 8218  050056  050307                         .WORD   DH000B
 8219  050060      002      000                .BYTE   2,0
 8220  050062  051736                         .WORD   DH256A
 8221  050064      000      000                .BYTE   0,0
 8222  050066  052002                         .WORD   DH256B
 8223  050070      005      000                .BYTE   5,0
```

```
8224                                    .SBTTL  ASCII MESSAGES
8225
8226  050072  005015  045522  030466    OPR001: .ASCIZ  <15><12>/Rk611 BUS ADDRESS ( /
8227  050100  020061  052502  020123
8228  050106  042101  051104  051505
8229  050114  020123  020050     000
8230  050121     040  020051  020075    OPR002: .ASCIZ  / ) = /
8231  050126     000
8232  050127     122  033113  030461    OPR003: .ASCIZ  /RK611 VECTOR ADDRESS ( /
8233  050134  053040  041505  047524
8234  050142  020122  042101  051104
8235  050150  051505  020123  020050
8236  050156     000
8237  050157     122  033113  030461    OPR004: .ASCIZ  /RK611 PRIORITY ( /
8238  050164  050040  044522  051117
8239  050172  052111  020131  020050
8240  050200     000
8241  050201     040  000040            SPACE2: .ASCIZ  /  /
8242  050204  005015  051120  043517    ABORT:  .ASCIZ  <15><12>/PROGRAM ABORTED BECAUSE ERROR THRESHOLD EXCEEDED/<15><12>
8243  050212  040522  020115  041101
8244  050220  051117  042524  020104
8245  050226  042502  040503  051525
8246  050234  020105  051105  047522
8247  050242  020122  044124  042522
8248  050250  044123  046117  020104
8249  050256  054105  042503  042105
8250  050264  042105  005015     000
```

```
                                        .SBTTL  DATA HEADERS

050271  000124  051505  020124  DH000A: .ASCIZ  /TEST    ERROR/
050276  020040  042440  051122
050304  051117  000000
050307  000116  046525  020040  DH000B: .ASCIZ  /NUM     PC/
050314  020040  050040  000103
050322  042524  052123  020040  DH000C: .ASCII  /TEST    TRAP/<15><12>
050330  020040  051124  050101
050336  005015
050340  052516  020115  020040          .ASCIZ  /NUM     PC/
050346  020040  041520  000000
050353  000105  050130  041505  DH001A: .ASCIZ  /EXPECT  ACTUAL/
050360  020124  040440  052103
050366  040525  000114
050372  045522  051503  020061  DH001B: .ASCIZ  /RKCS1   RKCS1/
050400  020040  045522  051503
050406  000061
050410  054105  042520  052103  DH001C: .ASCIZ  /EXPECT  ACTUAL  EXPECT  ACTUAL/
050416  020040  041501  052524
050424  046101  020040  054105
050432  042520  052103  020040
050440  041501  052524  046101
050446  000000
050447  000115  051505  020123  DH001D: .ASCIZ  /MESS A  MESS A  MESS B  MESS B/
050454  020101  046440  051505
050462  020123  020101  046440
050470  051505  020123  020102
050476  046440  051505  020123
050504  000102

050506  054105  042520  052103  DH002A: .ASCIZ  /EXPECT  ACTUAL  DRIVE/
050514  020040  041501  052524
050522  046101  020040  051104
050530  053111  000105
050534  045522  051503  020061  DH002B: .ASCIZ  /RKCS1   RKCS1   SELECT/
050542  020040  045522  051503
050550  020061  020040  042523
050556  042514  052103  000000
050563  000105  050130  041505  DH006A: .ASCIZ  /EXPECT  ACTUAL  HEAD/
050570  020124  040440  052103
050576  040525  020114  044040
050604  040505  000104
050610  045522  051503  020061  DH006B: .ASCIZ  /RKCS1   RKCS1   ADD/
050616  020040  045522  051503
050624  020061  020040  042101
050632  000104
050634  054105  042520  052103  DH012A: .ASCIZ  /EXPECT  ACTUAL  EXPECT  ACTUAL  MESS/
050642  020040  041501  052524
050650  046101  020040  054105
050656  042520  052103  020040
050664  041501  052524  046101
050672  020040  042515  051523
050700  000000
050701  000122  041513  030523  DH012B: .ASCIZ  /RKCS1   RKCS1   RKMR1   RKMR1   SELECT/
050706  020040  051040  041513
050714  030523  020040  051040
```

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8307  050722  046513  030522  020040
8308  050730  051040  046513  030522
8309  050736  020040  042523  042514
8310  050744  052103     000
8311  050747     105  050130  041505  DH017A: .ASCIZ  /EXPECT  ACTUAL  CYLIN/
8312  050754  020124  040440  052103
8313  050762  040525  020114  041440
8314  050770  046131  047111     000
8315  050775     122  041513  030523  DH017B: .ASCIZ  /RKCS1   RKCS1   ADD/
8316  051002  020040  051040  041513
8317  051010  030523  020040  040440
8318  051016  042104     000
8319  051021     105  050130  041505  DH031A: .ASCIZ  /EXPECT  ACTUAL  OFFSET/
8320  051026  020124  040440  052103
8321  051034  040525  020114  042440
8322  051042  043106  042523  000124
8323  051050  045522  051503  020061  DH031B: .ASCIZ  /RKCS1   RKCS1   VALUE/
8324  051056  020040  045522  051503
8325  051064  020061  020040  040526
8326  051072  052514  000105
8327  051076  054105  042520  052103  DH035A: .ASCIZ  /EXPECT  ACTUAL  CYLIN   OFFSET/
8328  051104  020040  041501  052524
8329  051112  046101  020040  054503
8330  051120  044514  020116  020040
8331  051126  043117  051506  052105
8332  051134     000
8333  051135     122  041513  030523  DH035B: .ASCIZ  /RKCS1   RKCS1   ADD     VALUE/
8334  051142  020040  051040  041513
8335  051150  030523  020040  040440
8336  051156  042104  020040  020040
8337  051164  053040  046101  042525
8338  051172     000
8339  051173     102  043105  051117  DH050A: .ASCIZ  /BEFORE SHIFTING SHIFT/
8340  051200  020105  044123  043111
8341  051206  044524  043516  051440
8342  051214  044510  052106     000
8343  051221     115  051505  020123  DH050B: .ASCIZ  /MESS A  MESS B  COUNT/
8344  051226  020101  046440  051505
8345  051234  020123  020102  041440
8346  051242  052517  052116     000
8347  051247     105  050130  041505  DH062A: .ASCIZ  /EXPECT  ACTUAL  EXPECT  ACTUAL  EXPECT  ACTUAL  EXPECT  ACTUAL/
8348  051254  020124  040440  052103
8349  051262  040525  020114  042440
8350  051270  050130  041505  020124
8351  051276  040440  052103  040525
8352  051304  020114  042440  050130
8353  051312  041505  020124  040440
8354  051320  052103  040525  020114
8355  051326  042440  050130  041505
8356  051334  020124  040440  052103
8357  051342  040525  000114
8358  051346  045522  051503  020061  DH062B: .ASCIZ  /RKCS1   RKCS1   RKCS2   RKCS2   RKDS    RKDS    RKER    RKER/
8359  051354  020040  045522  051503
8360  051362  020061  020040  045522
8361  051370  051503  020062  020040
8362  051376  045522  051503  020062
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8363  051404  020040  045522  051504
8364  051412  020040  020040  045522
8365  051420  051504  020040  020040
8366  051426  045522  051105  020040
8367  051434  020040  045522  051105
8368  051442     000
8369  051443     105  050130  041505  DH067A: .ASCIZ  /EXPECT  ACTUAL  EXPECT  ACTUAL/
8370  051450  020124  040440  052103
8371  051456  040525  020114  042440
8372  051464  050130  041505  020124
8373  051472  040440  052103  040525
8374  051500  000114
8375  051502  045522  051115  020062  DH067B: .ASCIZ  /RKMR2   RKMR2   RKMR3   RKMR3/
8376  051510  020040  045522  051115
8377  051514  020062  020040  045522
8378  051524  051115  020063  020040
8379  051532  045522  051115  000063
8380  051540  054105  042520  052103  DH126A: .ASCIZ  /EXPECT  ACTUAL/
8381  051546  020040  041501  052524
8382  051554  046101     000
8383  051557     122  041513  030523  DH126B: .ASCIZ  /RKCS1   RKCS1/
8384  051564  020040  051040  041513
8385  051572  030523     000
8386  051575     120  042522  044526  DH224A: .ASCIZ  /PREVIOUS REGISTER CONTENTS/
8387  051602  052517  020123  042522
8388  051610  044507  052123  051105
8389  051616  041440  047117  042524
8390  051624  052116  000123
8391  051630  045522  051503  020061  DH224B: .ASCIZ  /RKCS1   RKCS2   RKDS    RKER/
8392  051636  020040  045522  051503
8393  051644  020062  020040  045522
8394  051652  051504  020040  020040
8395  051660  045522  051105     000
8396  051665     104  044522  042526  DH230A: .ASCIZ  /DRIVE   CYLIN   HEAD/
8397  051672  020040  041440  046131
8398  051700  047111  020040  044040
8399  051706  040505  000104
8400  051712  054524  042520  020040  DH230B: .ASCIZ  /TYPE    ADD     ADD/
8401  051720  020040  042101  020104
8402  051726  020040  020040  042101
8403  051734  000104
8404  051736  054105  042520  052103  DH256A: .ASCIZ  /EXPECT  ACTUAL  EXPECT  ACTUAL  ILL/
8405  051744  020040  041501  052524
8406  051752  046101  020040  054105
8407  051760  042520  052103  020040
8408  051766  041501  052524  046101
8409  051774  020040  046111  000114
8410  052002  045522  051503  020061  DH256B: .ASCIZ  /RKCS1   RKCS1   RKER    RKER    FUNCT/
8411  052010  020040  045522  051503
8412  052016  020061  020040  045522
8413  052024  051105  020040  020040
8414  052032  045522  051105  020040
8415  052040  020040  052506  041516
8416  052046  000124
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8417                                    .SBTTL  ERROR MESSAGES
8418
8419  052050  047125  054105  042520  EM000:  .ASCIZ  /UNEXPECTED MEMORY PARITY ENABLE TRAP/
8420  052056  052103  042103  046440
8421  052064  046505  051117  020131
8422  052072  040520  044522  054524
8423  052100  042440  040516  046102
8424  052106  020105  051124  050101
8425  052114     000
8426  052115     101  052124  046505  EM*00:  .ASCIZ  /ATTEMPTING A SELECT IN 24 SECTOR FORMAT IN MAINT MODE/
8427  052122  052120  047111  020107
8428  052130  020101  042523  042524
8429  052136  052103  044440  020116
8430  052144  032062  051440  041505
8431  052152  047524  020122  047506
8432  052160  046522  052101  044440
8433  052166  020116  040515  047111
8434  052174  020124  047515  042504
8435  052202     000
8436  052203     101  052124  046505  EM10*:  .ASCIZ  /ATTEMPTING A DRIVE CLEAR IN MAINT MODE/
8437  052210  052120  047111  020107
8438  052216  020101  051104  053111
8439  052224  020105  046103  040505
8440  052232  020122  047111  046440
8441  052240  044501  052116  046440
8442  052246  042117  000105
8443  052252  052101  042524  050115  EM102:  .ASCIZ  /ATTEMPTING A UNLOAD IN MAINT MODE/
8444  052260  044524  043516  040440
8445  052266  052440  046116  040517
8446  052274  020104  047111  046440
8447  052302  044501  052116  046440
8448  052310  042117  000105
8449  052314  052101  042524  050*15  EM103:  .ASCIZ  /ATTEMPTING A PACK ACKNOWLEDGE IN MAINT MODE/
8450  052322  044524  043516  040440
8451  052330  050040  041501  020113
8452  052336  041501  047113  053517
8453  052344  042514  043504  020105
8454  052352  047111  046440  044501
8455  052360  052116  046440  042117
8456  052366  000105
8457  052370  052101  042524  050115  EM104:  .ASCIZ  /ATTEMPTING A RECALIBRATE IN MAINT MODE/
8458  052376  044524  043516  040440
8459  052404  051040  041505  046101
8460  052412  041111  040522  042524
8461  052420  044440  020116  040515
8462  052426  047111  020124  047515
8463  052434  042504     000
8464  052437     101  052124  046505  EM105:  .ASCIZ  /ATTEMPTING A START SPINDLE/
8465  052444  052120  047111  020107
8466  052452  020101  052123  051101
8467  052460  020124  050123  047111
8468  052466  046104  000105
8469  052472  052101  042524  050115  EM106:  .ASCIZ  /ATTEMPTING A SELECT USING ALL DRIVE SELECTION CONFIGS IN MAINT MODE/
8470  052500  044524  043516  040440
8471  052506  051440  046105  041505
8472  052514  020124  051525  047111
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 8473  052522  020107  046101  020114
 8474  052530  051104  053111  020105
 8475  052536  042523  042514  052103
 8476  052544  047511  020116  047503
 8477  052552  043116  043511  020123
 8478  052560  047111  046440  044501
 8479  052566  052116  046440  042117
 8480  052574  000105
 8481  052576  052101  042524  050115  EM107:  .ASCIZ  /ATTEMPTING A SELECT USING ALL HEAD ADD CONFIGS IN MAINT MODE/
 8482  052604  044524  043516  040440
 8483  052612  051440  046105  041505
 8484  052620  020124  051525  047101
 8485  052626  020107  046101  020114
 8486  052634  042510  042101  040440
 8487  052642  042104  041440  047117
 8488  052650  044506  051507  044440
 8489  052656  020116  040515  047111
 8490  052664  020124  047515  042504
 8491  052672     000
 8492  052673     101  052124  046505  EM108:  .ASCIZ  /ATTEMPTING A SELECT USING ALL MESS SELECT CONFIGS IN MAINT MODE/
 8493  052700  052120  047111  020107
 8494  052706  020101  042523  042514
 8495  052714  052103  052440  044523
 8496  052722  043516  040440  046114
 8497  052730  046440  051505  020123
 8498  052736  042523  042514  052103
 8499  052744  041440  047117  044506
 8500  052752  051507  044440  020116
 8501  052760  040515  047111  020124
 8502  052766  047515  042504     000
 8503  052773     101  052124  046505  EM109:  .ASCIZ  /ATTEMPTING A SEEK TO AN RK06 IN MAINT MODE/
 8504  053000  052120  047111  020107
 8505  053006  020101  042523  045505
 8506  053014  052040  020117  047101
 8507  053022  051040  030113  020066
 8508  053030  047111  046440  044501
 8509  053036  052116  046440  042117
 8510  053044  000105
 8511  053046  052101  042524  050115  EM110:  .ASCIZ  /ATTEMPTING A SEEK WITH CDT SET IN MAINT MODE/
 8512  053054  044524  043516  040440
 8513  053062  051440  042505  020113
 8514  053070  044527  044124  041440
 8515  053076  052104  051440  052105
 8516  053104  044440  020116  040515
 8517  053112  047111  020124  047515
 8518  053120  042504     000
 8519  053123     101  052124  046505  EM111:  .ASCIZ  /ATTEMPTING AN OFFSET IN MAINT MODE/
 8520  053130  052120  047111  020107
 8521  053136  047101  047440  043106
 8522  053144  042523  020124  047111
 8523  053152  046440  044501  052116
 8524  053160  046440  042117  000105
 8525  053166  052101  042524  050115  EM112:  .ASCII  /ATTEMPTING COMMAND WITH NON-ZERO CYLINDER ADDRESS AND/<15><12>
 8526  053174  044524  043516  041440
 8527  053202  046517  040515  042116
 8528  053210  053440  052111  020110
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 8529  053216  047516  026516  042532
 8530  053224  047522  041440  046131
 8531  053232  047111  042504  020122
 8532  053240  042101  051104  051505
 8533  053246  020123  047101  006504
 8534  053254     012
 8535  053255     116  047117  055055          .ASCIZ  /NON-ZERO OFFSET IN MAINTENANCE MODE/
 8536  053262  051105  020117  043117
 8537  053270  051506  052105  044440
 8538  053276  020116  040515  047111
 8539  053304  042524  040516  041516
 8540  053312  020105  047515  042504
 8541  053320     000
 8542  053321     101  052124  046505  EM113:  .ASCII  /ATTEMPTING COMMAND WITH NON-ZERO MESSAGE SELECT CODE/<15><12>
 8543  053326  052120  047111  020107
 8544  053334  047503  046515  047101
 8545  053342  020104  044527  044124
 8546  053350  047040  047117  055055
 8547  053356  051105  020117  042515
 8548  053364  051523  043501  020105
 8549  053372  042523  042514  052103
 8550  053400  041440  042117  006505
 8551  053406     012
 8552  053407     111  020116  040515          .ASCIZ  /IN MAINTENANCE MODE/
 8553  053414  047111  042524  040516
 8554  053422  041516  020105  047515
 8555  053430  042504     000
 8556  053433     101  052124  046505  EM114:  .ASCIZ  /ATTEMPTING TO SHIFT DRIVE MESSAGES/
 8557  053440  052120  047111  020107
 8558  053446  047524  051440  044510
 8559  053454  052106  042040  047522
 8560  053462  042526  046440  051505
 8561  053470  040523  042507  000123
 8562  053476  052101  042524  050115  EM115:  .ASCIZ  /ATTEMPTING TO GENERATE ODD PARITY ON SELECT DRIVE MESSAGE/
 8563  053504  044524  043516  052040
 8564  053512  020117  042507  042516
 8565  053520  040522  042524  047440
 8566  053526  042104  050040  051101
 8567  053534  052111  020131  047117
 8568  053542  051440  046105  041505
 8569  053550  020124  051104  053111
 8570  053556  020105  042515  051523
 8571  053564  043501  000105
 8572  053570  052101  042524  050115  EM116:  .ASCIZ  /ATTEMPTING TO GENERATE EVEN PARITY ON SELECT DRIVE MESSAGE/
 8573  053576  044524  043516  052040
 8574  053604  020117  042507  042516
 8575  053612  040522  042524  042440
 8576  053620  042526  020116  040520
 8577  053626  044522  054524  047440
 8578  053634  020116  042523  042514
 8579  053642  052103  042040  044522
 8580  053650  042526  046440  051505
 8581  053656  040523  042507     000
 8582  053663     101  052124  046505  EM117:  .ASCII  /ATTEMPTING COMPLETE EXECUTION OF DESELECT DRIVE COMMAND/
 8583  053670  052120  047111  020107
 8584  053676  047503  050115  042514
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8585  053704  042524  042440  042530
8586  053712  052503  044524  047117
8587  053720  047440  020106  042504
8588  053726  042523  042514  052103
8589  053734  042040  044522  042526
8590  053742  041440  046517  040515
8591  053750  042116
8592  053752  005015  047111  046440          .ASCIZ  <15><12>/IN MAINTENANCE MODE/
8593  053760  044501  052116  047105
8594  053766  047101  042503  046440
8595  053774  042117  000105
8596  054000  052101  042524  050115  EM118:  .ASCII  /ATTEMPTING COMPLETE EXECUTION OF SELECT DRIVE COMMAND/
8597  054006  044524  043516  041440
8598  054014  046517  046120  052105
8599  054022  020105  054105  041505
8600  054030  052125  047511  020116
8601  054036  043117  051440  046105
8602  054044  041505  020124  051104
8603  054052  053111  020105  047503
8604  054060  046515  047101     104
8605  054065     015  044412  020116          .ASCIZ  <15><12>/IN MAINTENANCE MODE/
8606  054072  040515  047111  042524
8607  054100  040516  041516  020105
8608  054106  047515  042504     000
8609  054113     101  052124  046505  EM119:  .ASCIZ  /ATTEMPTING EXECUTION OF DESELECT DRIVE AT NORMAL SPEED/
8610  054120  052120  047111  020107
8611  054126  054105  041505  052125
8612  054134  047511  020116  043117
8613  054142  042040  051505  046105
8614  054150  041505  020124  051104
8615  054156  053111  020105  052101
8616  054164  047040  051117  040515
8617  054172  020114  050123  042505
8618  054200  000104
8619  054202  052101  042524  050115  EM120:  .ASCIZ  /ATTEMPTING TO WRITE COMMAND AND STATUS REG. 1 IN MAINT MODE/
8620  054210  044524  043516  052040
8621  054216  020117  051127  052111
8622  054224  020105  047503  046515
8623  054232  047101  020104  047101
8624  054240  020104  052123  052101
8625  054246  051525  051040  043505
8626  054254  020056  020061  047111
8627  054262  046440  044501  052116
8628  054270  046440  042117  000105
8629  054276  052101  042524  050115  EM121:  .ASCIZ  /ATTEMPTING EXECUTION OF DESELECT DRIVE WITH INTERRUPT ENABLE SET/
8630  054304  044524  043516  042440
8631  054312  042530  052503  044524
8632  054320  047117  047440  020106
8633  054326  042504  042523  042514
8634  054334  052103  042040  044522
8635  054342  042526  053440  052111
8636  054350  020110  047111  042524
8637  054356  051122  050125  020124
8638  054364  047105  041101  042514
8639  054372  051440  052105     000
8640  054377     101  052124  046505  EM122:  .ASCII  /ATTEMPTING DESELECT COMMAND AFTER WRITING SILO /
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8641  054404  052120  047111  020107
8642  054412  042504  042523  042514
8643  054420  052103  041440  046517
8644  054426  040515  042116  040440
8645  054434  052106  051105  053440
8646  054442  044522  044524  043516
8647  054450  051440  046111  020117
8648  054456  047524  041440  042510          .ASCIZ  /TO CHECK SO CLEAR/
8649  054464  045503  043440  020117
8650  054472  046103  040505  000122
8651  054500  052101  042524  050115  EM123:  .ASCIZ  /ATTEMPTING COMPLETE EXECUTION OF SEEK IN MAINT MODE/
8652  054506  044524  043516  041440
8653  054514  046517  046120  052105
8654  054522  020105  054107  041505
8655  054530  052125  047511  020116
8656  054536  043117  051440  042505
8657  054544  020113  047111  046440
8658  054552  044501  052116  046440
8659  054560  042117  000105
8660  054564  052101  042524  050115  EM124:  .ASCIZ  /ATTEMPTING SELECT DRIVE IN MAINT MODE/
8661  054572  044524  043516  051440
8662  054600  046105  041505  020124
8663  054606  051104  053111  020105
8664  054614  047111  046440  044507
8665  054622  052116  046440  042117
8666  054630  000105
8667  054632  052101  042524  050115  EM125:  .ASCII  /ATTEMPTING CHECK "LOAD STATUS" BY FORCING/<15><12>
8668  054640  044524  043516  041440
8669  054646  042510  045503  021040
8670  054654  047514  042101  051440
8671  054662  040524  052524  021123
8672  054670  041040  020131  047506
8673  054676  041522  047111  006507
8674  054704     012
8675  054705     104  044522  042526          .ASCII  /DRIVE AVAILIABLE, SPEED LOSS, VOLUME VALID,/<15><12>
8676  054712  040440  040526  046111
8677  054720  040511  046102  026105
8678  054726  051440  042520  042105
8679  054734  046040  051517  026123
8680  054742  053040  046117  046525
8681  054750  020105  040526  044514
8682  054756  026104  005015
8683  054762  043117  051506  052105          .ASCII  /OFFSET, DRIVE READY, AND WRITE LOCK/<15><12>
8684  054770  020054  051104  053111
8685  054776  020105  042522  042101
8686  055004  026131  040440  042116
8687  055012  053440  044522  042524
8688  055020  046040  041517  006513
8689  055026     012
8690  055027     104  044522  042526          .ASCIZ  /DRIVE STATUS REG./
8691  055034  051440  040524  052524
8692  055042  020123  042522  027107
8693  055050     000
8694  055051     101  052124  046505  EM126:  .ASCIZ  /ATTEMPTING TO FORCE DRIVE AVAILIABLE/
8695  055056  052120  047111  020107
8696  055064  047524  043040  051117
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8697  055072  042503  042040  044522
8698  055100  042526  040440  040526
8699  055106  046111  040511  046102
8700  055114  000105
8701  055116  052101  042524  050115  EM127:  .ASCII  /ATTEMPTING TO FORCE DRIVE BUS PARITY ERROR/<15><12>
8702  055124  044524  043516  052040
8703  055132  020117  047506  041522
8704  055140  020105  051104  053111
8705  055146  020105  052502  020123
8706  055154  040520  044522  054524
8707  055162  042440  051122  051117
8708  055170  005015
8709  055172  042504  042524  052103          .ASCIZ  /DETECTED BY RK611/
8710  055200  042105  041040  020131
8711  055206  045522  030466  000061
8712  055214  052101  042524  050115  EM128:  .ASCIZ  /ATTEMPTING TO FORCE DRIVE AVAILIABLE RESET ERROR/
8713  055222  044524  043516  052040
8714  055230  020117  047506  041522
8715  055236  020105  051104  053111
8716  055244  020105  053101  044501
8717  055252  044514  041101  042514
8718  055260  051040  051505  052105
8719  055266  042440  051122  051117
8720  055274     000
8721  055275     124  051505  044524  EM129:  .ASCIZ  /TESTING CDT SET DRIVE TYPE DETECTION/
8722  055302  043516  041440  052104
8723  055310  051440  052105  042040
8724  055316  044522  042526  052040
8725  055324  050131  020105  042504
8726  055332  042524  052103  047511
8727  055340  000116
8728  055342  052101  042524  050115  EM130:  .ASCIZ  /ATTEMPTING TO FORCE DRIVE TYPE ERROR WITH CDT SET/
8729  055350  044524  043516  052040
8730  055356  020117  047506  041522
8731  055364  020105  051104  053111
8732  055372  020105  054524  042520
8733  055400  042440  051122  051117
8734  055406  053440  052111  020110
8735  055414  042103  020124  042523
8736  055422  000124
8737  055424  052101  042524  050115  EM131:  .ASCIZ  /ATTEMPTING TO FORCE DRIVE TYPE ERROR ADDRESSING RK06/
8738  055432  044524  043516  052040
8739  055440  020117  047506  041522
8740  055446  020105  051104  053111
8741  055454  020105  054524  042520
8742  055462  042440  051122  051117
8743  055470  040440  042104  042522
8744  055476  051523  047111  020107
8745  055504  045522  033060     000
8746  055511     101  052124  046505  EM132:  .ASCIZ  /ATTEMPTING TO FORCE SPEED LOSS/
8747  055516  052120  047111  020107
8748  055524  047524  043040  051117
8749  055532  042503  051440  042520
8750  055540  042105  046040  051517
8751  055546  000123
8752  055550  052101  042524  050115  EM133:  .ASCIZ  /ATTEMPTING TO FORCE DRIVE OFF TRACK/
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 8753  055556  044524  043516  052040
 8754  055564  020117  047506  041522
 8755  055572  020105  051104  053111
 8756  055600  020105  043117  020106
 8757  055606  051124  041501  000113
 8758  055614  052101  042524  050115  EM134:  .ASCIZ  /ATTEMPTING TO FORCE WRITE LOCK ERROR/
 8759  055622  044524  043516  052040
 8760  055630  020117  047506  041522
 8761  055636  020105  051127  052111
 8762  055644  020105  047514  045503
 8763  055652  042440  051122  051117
 8764  055660     000
 8765  055661     101  052124  046505  EM135:  .ASCIZ  /ATTEMPTING TO FORCE SEEK INCOMPLETE/
 8766  055666  052120  047111  020107
 8767  055674  047524  043040  051117
 8768  055702  042503  051440  042505
 8769  055710  020113  047111  047503
 8770  055716  050115  042514  042524
 8771  055724     000
 8772  055725     101  052124  046505  EM136:  .ASCIZ  /ATTEMPTING TO FORCE NON-EXECUTABLE FUNCTION/
 8773  055732  052120  047111  020107
 8774  055740  047524  043040  051117
 8775  055746  042503  047040  047117
 8776  055754  042455  042530  052503
 8777  055762  040524  046102  020105
 8778  055770  052506  041516  044524
 8779  055776  047117     000
 8780  056001     101  052124  046505  EM137:  .ASCIZ  /ATTEMPTING TO FORCE AC LOW AND C-D PARITY ERROR/
 8781  056006  052120  047111  020107
 8782  056014  047524  043040  051117
 8783  056022  042503  040440  020103
 8784  056030  047514  020127  047101
 8785  056036  020104  026503  020104
 8786  056044  040520  044522  054524
 8787  056052  042440  051122  051117
 8788  056060     000
 8789  056061     101  052124  046505  EM138:  .ASCII  /ATTEMPTING TO FORCE ILLECAL DISK ADDRESS ERROR/
 8790  056066  052120  047111  020107
 8791  056074  047524  043040  051117
 8792  056102  042503  044440  046114
 8793  056110  043505  046101  042040
 8794  056116  051511  020113  042101
 8795  056124  051104  051505  020123
 8796  056132  051105  047522     122
 8797  056137     015  043012  047522          .ASCIZ  <15><12>/FROM DRIVE MESSAGE BITS/
 8798  056144  020115  051104  053111
 8799  056152  020105  042515  051523
 8800  056160  043501  020105  044502
 8801  056166  051524     000
 8802  056171     101  052124  046505  EM139:  .ASCIZ  /ATTEMPTING TO CLEAR RK611 WITH A CONTROLLER CLEAR/
 8803  056176  052120  047111  020107
 8804  056204  047524  041440  042514
 8805  056212  051101  051040  033113
 8806  056220  030461  053440  052111
 8807  056226  020110  020101  047503
 8808  056234  052116  047522  046114
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 8809  056242  051105  041440  042514
 8810  056250  051101     000
 8811  056253     124  051505  044524  EM140:  .ASCIZ  /TESTING ILLEGAL DISK ADDRESS ERROR LOGIC IN RK611/
 8812  056260  043516  044440  046114
 8813  056266  043505  046101  042040
 8814  056274  051511  020113  042101
 8815  056302  051104  051505  020123
 8816  056310  051105  047522  020122
 8817  056316  047514  044507  020103
 8818  056324  047111  051040  033113
 8819  056332  030461     000
 8820  056335     101  052124  046505  EM141:  .ASCIZ  /ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES/
 8821  056342  052120  047111  020107
 8822  056350  047524  051040  041505
 8823  056356  044505  042526  047040
 8824  056364  047117  051455  040524
 8825  056372  042116  051101  020104
 8826  056400  042515  051523  043501
 8827  056406  051505     000
 8828  056411     101  052124  046505  EM142:  .ASCII  /ATTEMPTING TO RECEIVE NON-STANDARD MESSAGES/
 8829  056416  052120  047111  020107
 8830  056424  047524  051040  041505
 8831  056432  044505  042526  047040
 8832  056440  047117  051455  040524
 8833  056446  042116  051101  020104
 8834  056454  042515  051523  043501
 8835  056462  051505
 8836  056464  053440  052111  020110          .ASCIZ  / WITH PARITY ERROR/
 8837  056472  040520  044522  054524
 8838  056500  042440  051122  051117
 8839  056506     000
 8840  056507     101  052124  046505  EM143:  .ASCIZ  /ATTEMPTING TO FORCE NON-EXISTENT DRIVE (DRIVE BUS TIMEOUT)/
 8841  056514  052120  047111  020107
 8842  056522  047524  043040  051117
 8843  056530  042503  047040  047117
 8844  056536  042455  044530  052123
 8845  056544  047105  020124  051104
 8846  056552  053111  020105  042050
 8847  056560  044522  042526  041040
 8848  056566  051525  052040  046511
 8849  056574  047505  052125  000051
 8850  056602  052101  042524  050115  EM144:  .ASCIZ  /ATTEMPTING TO FORCE NON-EXISTENT DRIVE (NO SACK)/
 8851  056610  044524  043516  052040
 8852  056616  020117  047506  041522
 8853  056624  020105  047516  026516
 8854  056632  054105  051511  042524
 8855  056640  052116  042040  044522
 8856  056646  042526  024040  047516
 8857  056654  051440  041501  024513
 8858  056662     000
 8859  056663     101  052124  046505  EM145:  .ASCIZ  /ATTEMPTING EXECUTION OF DESELECT DRIVE WITH IE RESET/
 8860  056670  052120  047111  020107
 8861  056676  054105  041505  052125
 8862  056704  047511  020116  043117
 8863  056712  042040  051505  046105
 8864  056720  041505  020124  051104
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8865  056726  053111  020105  044527
8866  056734  044124  044440  020105
8867  056742  042522  042523  000124
8868  056750  052101  042524  050115  EM146:  .ASCIZ  /ATTEMPTING TO EXECUTE AN ILLEGAL FUNCTION/
8869  056756  044524  043516  052040
8870  056764  020117  054105  041505
8871  056772  052125  020105  047101
8872  057000  044440  046114  043505
8873  057006  046101  043040  047125
8874  057014  052103  047511  000116
8875  057022  052101  042524  050115  EM147:  .ASCIZ  /ATTEMPTINC TO CLEAR ILLEGAL FUNCTION/
8876  057030  044524  043516  052040
8877  057036  020117  046103  040505
8878  057044  020122  046111  042514
8879  057052  040507  020114  052506
8880  057060  041516  044524  047117
8881  057066     000
8882  057067     104  044522  042526  EM2000: .ASCIZ  /DRIVE COMMAND BIT DID NOT SET IN DRIVE MESS A/
8883  057074  041440  046517  040515
8884  057102  042116  041040  052111
8885  057110  042040  042111  047040
8886  057116  052117  051440  052105
8887  057124  044440  020116  051104
8888  057132  053111  020105  042515
8889  057140  051523  040440     000
8890  057145     104  044522  042526  EM2001: .ASCIZ  /DRIVE MESS A INCORRECT/
8891  057152  046440  051505  020123
8892  057160  020101  047111  047503
8893  057166  051122  041505  000124
8894  057174  051104  053111  020105  EM2002: .ASCIZ  /DRIVE MESS B INCORRECT/
8895  057202  042515  051523  041040
8896  057210  044440  041516  051117
8897  057216  042522  052103     000
8898  057223     103  046517  040515  EM2003: .ASCIZ  /COMMAND AND STAUS REG. 1 INCORRECT/
8899  057230  042116  040440  042116
8900  057236  051440  040524  051525
8901  057244  051040  043505  020056
8902  057252  020061  047111  047503
8903  057260  051122  041505  000124
8904  057266  051104  053111  020105  EM2004: .ASCIZ  /DRIVE SELECT CODE IN MESSAGE A INCORRECT/
8905  057274  042523  042514  052103
8906  057302  041440  042117  020105
8907  057310  047111  046440  051505
8908  057316  040523  042507  040440
8909  057324  044440  041516  051117
8910  057332  042522  052103     000
8911  057337     110  040505  020104  EM2005: .ASCIZ  /HEAD ADD CODE IN MESSAGE A INCORRECT/
8912  057344  042101  020104  047503
8913  057352  042504  044440  020116
8914  057360  042515  051523  043501
8915  057366  020105  020101  047111
8916  057374  047503  051122  041505
8917  057402  000124
8918  057404  040515  047111  020124  EM2006: .ASCIZ  /MAINT REG. 1 INCORRECT/
8919  057412  042522  027107  030440
8920  057420  044440  041516  051117
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8921  057426  042522  052103     000
8922  057433     115  051505  020123  EM2007: .ASCIZ  /MESS SELECT CODE IN MESSAGE B INCORRECT/
8923  057440  042523  042514  052103
8924  057446  041440  042117  020105
8925  057454  047111  046440  051505
8926  057462  040523  042507  041040
8927  057470  044440  041516  051117
8928  057476  042522  052103     000
8929  057503     103  046131  047111  EM2008: .ASCIZ  /CYLINDER ADD BITS IN MESSAGE B INCORRECT/
8930  057510  042504  020122  042101
8931  057516  020104  044502  051524
8932  057524  044440  020116  042515
8933  057532  051523  043501  020105
8934  057540  020102  047111  047503
8935  057546  051122  041505  000124
8936  057554  043117  051506  052105  EM2009: .ASCIZ  /OFFSET VALUE BITS IN MESSAGE B INCORRECT/
8937  057562  053040  046101  042525
8938  057570  041040  052111  020123
8939  057576  047111  046440  051505
8940  057604  040523  042507  041040
8941  057612  044440  041516  051117
8942  057620  042522  052103     000
8943  057625     120  051101  052111  EM2010: .ASCIZ  /PARITY BIT IN MESSAGE A INCORRECT/
8944  057632  020131  044502  020124
8945  057640  047111  046440  051505
8946  057646  040523  042507  040440
8947  057654  044440  041516  051117
8948  057662  042522  052103     000
8949  057667     120  051101  052111  EM2011: .ASCIZ  /PARITY BIT IN MESSAGE B INCORRECT/
8950  057674  020131  044502  020124
8951  057702  047111  046440  051505
8952  057710  040523  042507  041040
8953  057716  044440  041516  051117
8954  057724  042522  052103     000
8955  057731     103  046517  040515  EM2012: .ASCIZ  /COMMAND AND STATUS REG 2 INCORRECT/
8956  057736  042116  040440  042116
8957  057744  051440  040524  052524
8958  057752  020123  042522  020107
8959  057760  020062  047111  047503
8960  057766  051122  041505  000124
8961  057774  051105  047522  020122  EM2013: .ASCIZ  /ERROR REG INCORRECT/
8962  060002  042522  020107  047111
8963  060010  047503  051122  041505
8964  060016  000124
8965  060020  047503  046515  047101  EM2014: .ASCIZ  /COMMAND AND STATUS REG 1 INCORRECT AT PHASE ADDRESS 4/
8966  060026  020104  047101  020104
8967  060034  052123  052101  051525
8968  060042  051040  043505  030440
8969  060050  044440  041516  051117
8970  060056  042522  052103  040440
8971  060064  020124  044120  051501
8972  060072  020105  042101  051104
8973  060100  051505  020123  000064
8974  060106  047503  046515  047101  EM2015: .ASCIZ  /COMMAND AND STATUS REG 1 INVALID DURING COMMAND EXECUTION/
8975  060114  020104  047101  020104
8976  060122  052123  052101  051525
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 8977  060130  051040  043505  030440
 8978  060136  044440  053116  046101
 8979  060144  042111  042040  051125
 8980  060152  047111  020107  047503
 8981  060160  046515  047101  020104
 8982  060166  054105  041505  052125
 8983  060174  047511  000116
 8984  060200  040515  047111  042524  EM2016: .ASCIZ  /MAINTENANCE REG 2 UNEXPECTEDLY CHANGED DURING COMMAND EXECUTION/
 8985  060206  040516  041516  020105
 8986  060214  042522  020107  020062
 8987  060222  047125  054105  042520
 8988  060230  052103  042105  054514
 8989  060236  041440  040510  043516
 8990  060244  042105  042040  051125
 8991  060252  047111  020107  047503
 8992  060260  046515  047101  020104
 8993  060266  054105  041505  052125
 8994  060274  047511  000116
 8995  060300  040515  047111  042524  EM2017: .ASCIZ  /MAINTENANCE REG 3 UNEXPECTEDLY CHANGED DURING COMMAND EXECUTION/
 8996  060306  040516  041516  020105
 8997  060314  042522  020107  020063
 8998  060322  047125  054105  042520
 8999  060330  052103  042105  054514
 9000  060336  041440  040510  043516
 9001  060344  042105  042040  051125
 9002  060352  047111  020107  047503
 9003  060360  046515  047101  020104
 9004  060366  054105  041505  052125
 9005  060374  047511  000116
 9006  060400  047111  042524  051122  EM2018: .ASCIZ  /INTERRUPT DID NOT OCCUR/
 9007  060406  050125  020124  044504
 9008  060414  020104  047516  020124
 9009  060422  041517  052503  000122
 9010  060430  047503  046515  047101  EM2019: .ASCIZ  /COMMAND AND STATUS REG 1 INCORRECT AFTER INTERRUPT/
 9011  060436  020104  047101  020104
 9012  060444  052123  052101  051525
 9013  060452  051040  043505  030440
 9014  060460  044440  041516  051117
 9015  060466  042522  052103  040440
 9016  060474  052106  051105  044440
 9017  060502  052116  051105  052522
 9018  060510  052120     000
 9019  060513     103  046517  040515  EM2020: .ASCIZ  /COMMAND AND STATUS REG 2 INCORRECT AFTER INTERRUPT/
 9020  060520  042116  040440  042116
 9021  060526  051440  040524  052524
 9022  060534  020123  042522  020107
 9023  060542  020062  047111  047503
 9024  060550  051122  041505  020124
 9025  060556  043101  042524  020122
 9026  060564  047111  042524  051122
 9027  060572  050125  000124
 9028  060576  051105  047522  020122  EM2021: .ASCIZ  /ERROR REGISTER INCORRECT AFTER INTERRUPT/
 9029  060604  042522  044507  052123
 9030  060612  051105  044440  041516
 9031  060620  051117  042522  052103
 9032  060626  040440  052106  051105
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9033  060634  044440  052116  051105
9034  060642  052522  052120     000
9035  060647     111  052116  051105  EM2022: .ASCIZ  /INTERRLPT DID NOT CLEAR IN RK611/
9036  060654  052522  052120  042040
9037  060662  042111  047040  052117
9038  060670  041440  042514  051101
9039  060676  044440  020116  045522
9040  060704  030466  000061
9041  060710  040504  040524  046040  EM2023: .ASCIZ  /DATA LATE DID NOT OCCUR WHEN LEAVING SILO/
9042  060716  052101  020105  044504
9043  060724  020104  047516  020124
9044  060732  041517  052503  020122
9045  060740  044127  047105  046040
9046  060746  040505  044526  043516
9047  060754  051440  046111  000117
9048  060762  051104  053111  020105  EM2024: .ASCIZ  /DRIVE COMMAND BITS IN MESSAGE INCORRECT/
9049  060770  047503  046515  047101
9050  060776  020104  044502  051524
9051  061004  044440  020116  042515
9052  061012  051523  043501  020105
9053  061020  047111  047503  051122
9054  061026  041505  000124
9055  061032  051104  053111  020105  EM2025: .ASCIZ  /DRIVE STATUS REGISTER INCORRECT/
9056  061040  052123  052101  051525
9057  061046  051040  043505  051511
9058  061054  042524  020122  047111
9059  061062  047503  051122  041505
9060  061070  000124
9061  061072  047503  052116  047522  EM2026: .ASCIZ  /CONTROLLER READY DID NOT SET/
9062  061100  046114  051105  051040
9063  061106  040505  054504  042040
9064  061114  042111  047040  052117
9065  061122  051440  052105     000
9066  061127     114  040517  020104  EM2027: .ASCIZ  /LOAD STATUS DID NOT LOAD DRIVE STATUS REG./
9067  061134  052123  052101  051525
9068  061142  042040  042111  047040
9069  061150  052117  046040  040517
9070  061156  020104  051104  053111
9071  061164  020105  052123  052101
9072  061172  051525  051040  043505
9073  061200  000056
9074  061202  047125  054105  042520  EM2028: .ASCIZ  /UNEXPECTED INTERRUPT OCCURRED/
9075  061210  052103  042105  044440
9076  061216  052116  051105  052522
9077  061224  052120  047440  041503
9078  061232  051125  042522  000104
9079  061240  047111  042524  051122  EM2029: .ASCIZ  /INTERRUPT OCCURRED WHEN INTERRUPT ENABLE SET/
9080  061246  050125  020124  041517
9081  061254  052503  051122  042105
9082  061262  053440  042510  020116
9083  061270  047111  042524  051122
9084  061276  050125  020124  047105
9085  061304  041101  042514  051440
9086  061312  052105     000
9087          000001                  .END
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ABASE = 177440            937#   1172    1213
ABORT   050204           7364    8242#
ACDW1 = 000000           1172    1215
ACDW2 = 000000           1172    1216
ACLO  = 000010           1032#   5977
ACPUOP= 000000           1172    1187
ADDW0 = 000000           1172
ADDW1 = 000000           1172
ADDW10= 000000           1172
ADDW11= 000000           1172
ADDW12= 000000           1172
ADDW13= 000000           1172
ADDW14= 000000           1172
ADDW15= 000000           1172
ADDW2 = 000000           1172
ADDW3 = 000000           1172
ADDW4 = 000000           1172
ADDW5 = 000000           1172
ADDW6 = 000000           1172
ADDW7 = 000000           1172
ADDW8 = 000000           1172
ADDW9 = 000000           1172
ADEVCT= 000000           1172    1178
ADEVM = 000000           1172    1214
AENV  = 000000           1172    1183
AENVM = 000000           1172    1184
AFATAL= 000000           1172    1175
AMADR1= 000000           1172    1200
AMADR2= 000000           1172    1204
AMADR3= 000000           1172    1207
AMADR4= 000000           1172    1210
AMAMS1= 000000           1172    1194
AMAMS2= 000000           1172    1202
AMAMS3= 000000           1172    1205
AMAMS4= 000000           1172    1208
AMSGAD= 000000           1172    1180
AMSGLG= 000000           1172    1181
AMSGTY= 000000           1172    1174
AMTYP1- 000000           1172    1195
AMTYP2- 000000           1172    1203
AMTYP3- 000000           1172    1206
AMTYP4= 000000           1172    1209
APASS = 000000           1172    1177
APRIOR= 000005            936#   1172
APTCSU= 000040           7241#   7404
APTENV= 000001           7197    7239#   7273    7397
APTSIZ= 000200           2401    7238#
APTSPO= 000100           7199    7240#   7399
ASWREG= 000000           1172    1185
ATESTN- 000000           1172    1176
AUNIT = 000000           1172    1179
AUSWR - 000000           1172    1186
AVECT1= 120210            935#   1172    1211
AVECT2= 000000           1172    1212
BAI     000020            995#
BA16  - 000400            980#
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```
BA17  = 001000  981#
BIT0  = 000001  917#  977  1010  1029  4206  4262  4392  4439  4482  4531  4664
BIT00 = 000001  907#  917
BIT01 = 000002  906#  916
BIT02 = 000004  905#  915
BIT03 = 000010  904#  914
BIT04 = 000020  903#  913
BIT05 = 000040  902#  912
BIT06 = 000100  901#  911
BIT07 = 000200  900#  910
BIT08 = 000400  899#  909  7067
BIT09 = 001000  898#  908  7085  7284
BIT1  = 000002  916#  1011
BIT10 = 002000  897#  982  1001  1020  1053  1068  3322  7261
BIT11 = 004000  896#  983  1002  1021  1038  1054  1069  7092
BIT12 = 010000  895#  985  1003  1022  1055  4236  4237
BIT13 = 020000  894#  986  1004  1023  1039  1056  7268
BIT14 = 040000  893#  987  1005  1024  1040  1057  7053
BIT15 = 100000  892#  988  989  1006  1025  1041  1058  2537  2546  4301  4307  4332  4337
                4394  4395  4396  4438  4440  4483  4533  4534  4535  4666  4667
BIT2  = 000004  915#  1012  1031
BIT3  = 000010  914#  994  1013  1032  6667
BIT4  = 000020  913#  995  1014  1033  1047  1062
BIT5  = 000040  912#  996  1015  1034  1048  1063
BIT6  = 000100  911#  978  997  1016  1035  1049  1064
BIT7  = 000200  910#  979  998  1017  1036  1050  1065  3320
BIT8  = 000400  909#  980  999  1018  1037  1051  1066
BIT9  = 001000  908#  981  1000  1019  1052  1067
BPTVEC= 000014  924#
BSE   = 000200  1017#
CCLR  = 100000  989#  2498  2570  2587  2621  2639  2677  2701  2741  2764  2770  2811  2827
                2874  2890  2937  2953  2993  3011  3042  3060  3097  3118  3165  3181  3228
                3249  3299  3326  3365  3383  3418  3436  3478  3496  3538  3556  3598  3616
                3658  3676  3715  3737  3743  3782  3804  3810  3849  3871  3877  3916  3938
                3944  3983  4005  4011  4050  4072  4078  4110  4132  4138  4179  4234  4289
                4318  4369  4445  4507  4917  5070  5147  5224  5299  5376  5454  5532  5609
                5586  5764  5842  5920  5996  6074  6159  6244  6330  6415  6500  6585  6724
                6806  6885  6924  6939
CDT   = 002000  982#  3223  3231  4936  4943  4987  5339  5355  5417  5433  6205  6221  6461
                6477  6546  6562  6632  6648
CERR  = 100000  988#  4912  5203  5278  5433  5511  5743  5821  5899  5975  6053  6136  6307
                6392  6477  6562  6704  6783  6865  6927
CFMT  = 010000  985#  2623  2624  2848  2850  2911  2913  2974  2976  4243  4936  4943  4987
                5959  5975
CHKPAR= 042360  2479  7007#  7904
CKSWR = 104407  7052  7257  7283  7951#
CLEAR = 000005  962#  2805  3477  3482  3781  3785  5883  5899
COE   = 001000  1019#
CR    = 000015  832#  7460  7470
CRLF  = 000200  833#  2426  7414  7470
CTO   = 004000  983#
CYLIN = 004252  2336#  3091*  3099  3110  3140*  3141  3158*  3167  3203  3205*  3222*  3230  3241
                3271  3273*  3274*  3275  3362*  3415*  3475*  3535*  3595*  3655*  6114*  6199*  6285*
                6370*  6455*  6540*  7975  7981  8006
DCK   = 100000  1025#
DDISP = 177570  839#  1145  2389
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DDT    = 000400  1037#  5357  5513  6224  6480  6565
DF000    047232  2277  8016#
DF001    047236  1238  1680  1686  1692  1698  1704  1710  1716  1722  8018#
DF002    047272  1243  1248  1253  1258  8032#
DF006    047326  1263  1268  1273  1278  8046#
DF012    047362  1283  1288  1293  1298  1303  1410  1416  1428  1434  1440  8060#
DF017    047416  1308  1313  1318  1323  1333  1338  1344  1349  1354  8074#
DF031    047452  1359  1364  1369  1374  8088#
DF035    047506  1380  1386  1392  1398  1404  8102#
DF050    047542  1446  1452  8116#
DF052    047576  1458  1464  1470  1476  1482  1488  1494  1500  8130#
DF062    047622  1506  1512  1518  1552  1558  1564  1570  1576  1582  1599  1605  1611  1624
                 1631  1662  1668  1674  1728  1734  1740  1746  1758  1764  1770  1776  1782
                 1788  1794  1800  1806  1812  1818  1824  1830  1836  1842  1848  1854  1860
                 1866  1872  1878  1884  1890  1896  1902  1908  1914  1920  1926  1932  1938
                 1944  1950  1956  1962  1968  1974  1980  1986  1992  1998  2004  2010  2016
                 2022  2028  2034  2040  2046  2052  2058  2064  2070  2076  2082  2088  2094
                 2148  2154  2160  2166  2172  2178  2184  2190  2196  2202  2208  2214  2220
                 2226  2232  2238  8140#
DF065    047646  1525  1532  1587  1637  1643  8150#
DF067    047672  1539  1546  1650  1656  8160#
DF100    047716  1593  1617  1752  2244  2250  8170#
DF126    047732  8176#
DF224    047756  2100  2106  2112  2118  8186#
DF230    050012  2124  2130  2136  2142  8200#
DF256    050046  2256  2262  2267  2272  8214#
DH000A   050271  8020  8034  8048  8062  8076  8090  8104  8118  8132  8142  8152  8162  8172
                 8178  8188  8202  8216  8253#
DH000B   050307  8022  8036  8050  8064  8078  8092  8106  8120  8134  8144  8154  8164  8174
                 8180  8190  8204  8218  8256#
DH000C   050322  2275  8258#
DH001A   050353  8024  8156  8263#
DH001B   050372  8026  8158  8266#
DH001C   050410  8028  8042  8056  8070  8084  8098  8112  8126  8136  8269#
DH001D   050447  8030  8044  8058  8072  8086  8100  8114  8128  8138  8275#
DH002A   050506  8038  8281#
DH002B   050534  8040  8285#
DH006A   050563  8052  8289#
DH006B   050610  8054  8293#
DH012A   050634  8066  8297#
DH012B   050701  8068  8304#
DH017A   050747  8080  8311#
DH017B   050775  8082  8315#
DH031A   051021  8094  8319#
DH031B   051050  8096  8323#
DH035A   051076  8108  8327#
DH035B   051135  8110  8333#
DH050A   051173  8122  8339#
DH050B   051221  8124  8343#
DH062A   051247  8146  8192  8210  8347#
DH062B   051346  8148  8194  8212  8358#
DH067A   051443  8166  8369#
DH067B   051502  8168  8375#
DH126A   051540  8182  8380#
DH126B   051557  8184  8383#
DH224A   051575  8196  8386#
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DH224B  051630  8198  8391#
DH230A  051665  8206  8396#
DH230B  051712  8208  8400#
DH256A  051736  8220  8404#
DH256B  052002  8222  8410#
DI    = 040000   987#
DISPLA  001142  1145#  2389*  2397*  7107*  7260*
DISPRE  000174  1077#  2397
DLT   = 100000  1006#  4913
DMD   = 000040  1048#  2499  2512  2513  2571  2575  2576  2622  2626  2627  2678  2684  2685
                2743  2755  2812  2815  2816  2875  2878  2879  2938  2941  2942  2994  2998
                2999  3043  3047  3048  3098  3102  3103  3166  3170  3171  3229  3233  3234
                3300  3304  3305  3366  3371  3372  3419  3424  3425  3479  3484  3485  3539
                3544  3545  3599  3604  3605  3659  3664  3665  3716  3728  3783  3795  3850
                3862  3917  3929  3984  3996  4051  4063  4111  4123  4185  4240  4290  4293
                4294  4319  4323  4324  4371  4447  4509  4585  4589  4590  4640  4644  4645
                4670  4671  4695  4696  4933  4938  4939  4953  4954  4979  4980  5022  5027
                5028  5107  5112  5113  5184  5189  5190  5261  5264  5265  5336  5341  5342
                5414  5419  5420  5492  5497  5498  5569  5574  5575  5646  5651  5652  5724
                5729  5730  5802  5807  5808  5880  5885  5886  5958  5961  5962  6034  6039
                6040  6112  6122  6123  6197  6207  6208  6283  6293  6294  6368  6378  6379
                6453  6463  6464  6538  6548  6549  6628  6634  6635  6685  6690  6691  6763
                6766  6767  6848  6851  6852  6929
DRA   - 000001  1029#  5048  5050  5128  5205  5357  5435  5513  5590  5667  6139  6224  6310
                6395  6480  6565
DRDY  - 000200  1036#  5048  5050
DROT  = 000040  1034#  5667  6310  6565
DRPAR = 000010  1013#  5978
DRVCOD  004244  2333#  2564*  2572  2582  2592  2604*  2605  4364*  4370  4372  4381  4389  4390
                4418*  4419  4436*  4448  4478  4480*  4502*  4508  4511  4520  4528  4529  4557*
                4558  4579*  4586  4598  4615*  4616  4634*  4641  4655  4663  4704  4721*  4722
                4739*  4745  4757  4774*  4775  6622*  6631  6649  6666*  6667  7964
DRVMSK= 000007   993#
DRVTYP  007266  2342#  6119*  6204*  6290*  6375*  6460*  6545*  8006
DSC   = 040000  1040#
DSWR  = 177570   838#  1144  2388
DTE   = 010000  1022#
DTYE  = 000040  1015#  5436  5514
DT000   046576  2276  7960#
DT001   046602  1237  1679  1685  1691  1697  1703  1709  1715  1721  7961#
DT002   046622  1242  1247  1252  1257  7964#
DT006   046644  1262  1267  1272  1277  7967#
DT012   046666  1282  1287  1292  1297  1302  1409  1415  1421  1422  1427  1433  1439  7970#
DT017   046714  1307  1312  1317  1322  1327  1328  1332  1337  1343  1348  1353  7975#
DT031   046736  1358  1363  1368  1373  7978#
DT035   046760  1379  1385  1391  1397  1403  7981#
DT050   047004  1445  1451  7985#
DT052   047026  1457  1463  1469  1475  1481  1487  1493  1499  7988#
DT062   047042  1505  1511  1517  1551  1557  1563  1569  1575  1581  1598  1604  1610  1623
                1630  1661  1667  1673  1727  1733  1739  1745  1757  1763  1769  1775  1781
                1787  1793  1799  1805  1811  1817  1823  1829  1835  1841  1847  1853  1859
                1865  1871  1877  1883  1889  1895  1901  1907  1913  1919  1925  1931  1937
                1943  1949  1955  1961  1967  1973  1979  1985  1991  1997  2003  2009  2015
                2021  2027  2033  2039  2045  2051  2057  2063  2069  2075  2081  2087  2093
                2147  2153  2159  2165  2171  2177  2183  2189  2195  2201  2207  2213  2219
                2225  2231  2237  7990#
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DT065   047066          1524    1531    1586    1636    1642    7994#
DT067   047076          1538    1545    1649    1655    7996#
DT100   047112          1592    1616    1751    2243    2249    7998#
DT126   047116          7999#
DT224   047126          2099    2105    2111    2117    8001#
DT230   047162          2123    2129    2135    2141    8006#
DT256   047214          2255    2261    2266    2271    8011#
ECCW  = 020000          1056#   2756    2758    3729    3731    3796    3798    3863    3865    3930    3932    3997    3999
                        4064    4066    4124    4126
ECH   = 000100          1016#
EMTVEC= 000030           927#   2372*   2373*
EM000   052050          2274    8419#
EM1N    001300          1235#   2620*   2637*   2644*   2650*   2654*   2804*   2825*   2835*   2841*   2845*   2867*   2888*
                        2898*   2904*   2908*   2930*   2951*   2961*   2967*   2971*   2992*   3009*   3016*   3022*   3026*
                        3041*   3058*   3065*   3071*   3075*
EM100   052115          2620    8426#
EM101   052203          2804    8436#
EM102   052252          2867    8443#
EM103   052314          2930    8449#
EM104   052370          2992    8457#
EM105   052437          3041    8464#
EM106   052472          1240    1245    1250    1255    8469#
EM107   052576          1260    1265    1270    1275    8481#
EM108   052673          1280    1285    1290    1295    1300    8492#
EM109   052773          1305    1310    1315    1320    1325    8503#
EM110   053046          1330    1335    1341    1346    1351    8511#
EM111   053123          1356    1361    1366    1371    8519#
EM112   053166          1377    1383    1389    1395    1401    8525#
EM113   053321          1407    1413    1419    1425    1431    1437    8542#
EM114   053433          1443    1449    8556#
EM115   053476          1455    1461    1467    1473    8562#
EM116   053570          1479    1485    1491    1497    8572#
EM117   053663          1503    1509    1515    1725    8582#
EM118   054000          1522    1529    1536    1543    1549    1555    1561    1731    8596#
EM119   054113          1567    1573    1579    1737    8609#
EM120   054202          1584    8619#
EM121   054276          1590    1596    1602    1608    1614    8629#
EM122   054377          1621    1628    8640#
EM123   054500          1634    1640    1647    1653    1659    1665    1671    1743    8651#
EM124   054564          1677    1683    1689    1695    1701    1707    1713    1719    8660#
EM125   054632          1749    1755    1761    1767    1773    1779    8667#
EM126   055051          1785    1791    1797    1803    8694#
EM127   055116          1809    1815    1821    1827    8701#
EM128   055214          1833    1839    1845    1851    8712#
EM129   055275          1857    1863    1869    1875    8721#
EM130   055342          1881    1887    1893    1899    8728#
EM131   055424          1905    1911    1917    1923    8737#
EM132   055511          1929    1935    1941    1947    8746#
EM133   055550          1953    1959    1965    1971    8752#
EM134   055614          1977    1983    1989    1995    8758#
EM135   055661          2001    2007    2013    2019    8765#
EM136   055725          2025    2031    2037    2043    8772#
EM137   056001          2049    2055    2061    2067    8780#
EM138   056061          2073    2079    2085    2091    8789#
EM139   056171          2097    2103    2109    2115    8802#
EM140   056253          2121    2127    2133    2139    8811#
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EM141	056335	2145	2151	2157	2163	8820#								
EM142	05641'	2169	2175	2181	218'	8828#								
EM'43	056507	2193	2199	2205	2211	8840#								
EM144	056602	2217	2223	2229	2235	8850#								
EM'45	056663	2241	2247	8859#										
EM'46	056750	2253	2259	8868#										
EM147	057022	2264	2269	8875#										
EM2000	057067	1311	1336	1384	1420	2644	2835	2898	2961	3016	3065	8882#		
M2001	057145	1251	1271	1296	1321	1347	1367	1372	1396	1432	1444	1468	1492	1568
		2650	2841	2904	2967	3022	3071	8890#						
EM2002	057174	1256	1276	1301	1326	1352	1402	1438	1450	1474	1498	2654	2845	2908
		2971	3026	3075	8894#									
EM2003	057223	1241	1261	1281	1306	1331	1357	1378	1408	1504	1550	1585	1660	1678
		1762	1786	1810	1834	1858	1882	1906	1930	1954	1978	2002	2026	2050
		2074	2098	2122	2146	2170	2194	2218	2254	2265	2637	2825	2888	2951
		3009	3058	8898#										
EM2004	057266	1246	1684	8904#										
EM2005	057337	1266	1696	8911#										
EM2006	057404	1286	1414	8918#										
EM2007	057433	1291	1426	1708	8922#									
EM2008	057503	1316	1342	1390	1714	8929#								
EM2009	057554	1362	8936#											
EM2010	057625	1456	1480	1702	8943#									
EM2011	057667	1462	1486	1720	8949#									
EM2012	057731	1510	1556	1574	1622	1666	1768	1792	1816	1340	1864	1888	1912	1936
		1960	1984	2008	2032	2056	2080	2104	2128	2152	2176	2200	2224	8955#
EM2013	057774	1516	1562	1580	1672	1774	1804	1828	1852	1876	1900	1924	1948	1972
		1996	2020	2044	2068	2092	2116	2140	2164	2188	2212	2236	2260	2270
		8961#												
EM2014	060020	1523	1635	8965#										
EM2015	060106	1530	1641	8974#										
EM2016	060200	1537	1648	8984#										
EM2017	060300	1544	1654	8995#										
EM2018	060400	1591	9006#											
EM2019	060430	1597	9010#											
EM2020	060513	1603	9019#											
EM2021	060576	1609	9028#											
EM2022	060647	1615	9035#											
EM2023	060710	1629	9041#											
EM2024	060762	1690	9048#											
EM2025	061032	1726	1732	1738	1744	1780	1798	1822	1846	1870	1894	1918	1942	1966
		1990	2014	2038	2062	2086	2110	2134	2158	2182	2206	2230	9055#	
EM2026	061072	1750	9061#											
EM2027	061127	1756	9066#											
EM2028	061202	2242	9074#											
EM2029	061240	2248	9079#											
ERRCNT	004242	2332#	2405*	7359*	7362									
ERRVEC=	000004	920#	2386	2387*	2398*	7007*	7008*	7020*	7021*	7058	7059*	7061*	7064*	
E.ASOF	004176	2306#												
E.BA	004164	2301#												
E.CSR	004160	2299#	2305*	2506	2519*	2522	2565*	2584	2624*	2635	2672*	2698	2736*	2761
		2805*	2813	2823	2848	2850*	2868*	2876	2886	2911	2913*	2931*	2939	2949
		2974	2976*	2996*	3007	3045*	3056	3092*	3115	3160*	3178	3223*	3246	3293*
		3323	3364*	3380	3417*	3433	3477*	3493	3537*	3553	3597*	3613	3657*	3673
		3714*	3734	3781*	3801	3848*	3868	3915*	3935	3982*	4002	4049*	4069	4109*
		4129	4597*	4602	4649*	4650	4677	4703*	4708	4756*	4761	4823*	4826	4901*

		4912* 4943* 4944 4960 4987* 4991 5038* 5046* 5053 5075* 5079 5126* 5130
		5152* 5156 5203* 5207 5229* 5233 5278* 5282 5304* 5308 5355* 5359 5381*
		5385 5433* 5437 5459* 5463 5511* 5515 5537* 5541 5588* 5592 5614* 5618
		5665* 5669 5691* 5695 5743* 5747 5769* 5773 5821* 5825 5847* 5851 5899*
		5903 5925* 5929 5975* 5979 6001* 6005 6053* 6057 6079* 6083 6136* 6141
		6164* 6168 6221* 6226 6249* 6253 6307* 6312 6335* 6339 6392* 6397 6420*
		6424 6477* 6482 6505* 6509 6562* 6567 6590* 6594 6648* 6653 6704* 6708
		6729* 6733 6783* 6786* 6790 6811* 6815 6865* 6869 6890* 6894 6925* 6926*
		6927* 6933 6942* 6944 7961 7964 7967 7970 7975 7978 7981 7990 7994
		7999 8001 8006 8011
E.CS2	004170	2303# 4598* 4599* 4605 4704* 4705* 4711 4757* 4758* 4764 4824* 4829 4902*
		4905 4913* 4914 4988* 4994 5047* 5056 5076* 5082 5127* 5133 5153* 5159
		5204* 5210 5230* 5236 5279* 5285 5305* 5311 5356* 5362 5382* 5388 5434*
		5440 5460* 5466 5512* 5518 5538* 5544 5589* 5595 5615* 5621 5666* 5672
		5692* 5698 5744* 5750 5770* 5776 5822* 5828 5848* 5854 5900* 5906 5926*
		5932 5976* 5982 6002* 6008 6054* 6060 6080* 6086 6138* 6144 6165* 6171
		6223* 6229 6250* 6256 6309* 6315 6336* 6342 6394* 6400 6421* 6427 6479*
		6485 6506* 6512 6564* 6570 6591* 6597 6649* 6650* 6656 6705* 6711 6730*
		6736 6787* 6793 6812* 6818 6866* 6872 6891* 6897 7990 8001 8006
E.DA	004166	2302#
E.DB	004202	2308#
E.DCYL	004200	2307#
E.DS	004172	2304# 4600* 4611 4706* 4717 4759* 4770 4903* 4989* 5000 5048* 5062 5077*
		5085 5128* 5136 5154* 5162 5205* 5213 5231* 5239 5280* 5288 5306* 5314
		5357* 5365 5383* 5391 5435* 5443 5461* 5469 5513* 5521 5539* 5547 5590*
		5598 5616* 5624 5667* 5675 5693* 5701 5745* 5753 5771* 5779 5823* 5831
		5849* 5857 5901* 5909 5927* 5935 5977* 5985 6003* 6011 6055* 6063 6081*
		6089 6139* 6148 6166* 6174 6224* 6233 6251* 6259 6310* 6319 6337* 6345
		6395* 6404 6422* 6430 6480* 6489 6507* 6515 6565* 6574 6592* 6600 6651*
		6659 6706* 6714 6731* 6739 6788* 6796 6913* 6821 6867* 6875 6892* 6900
		7990 8001 8009
E.ECPS	004212	2312#
E.ECPT	004214	2313#
E.ER	004174	2305# 4601* 4608 4707* 4714 4760* 4767 4825* 4832 4904* 4990* 4997 5049*
		5059 5078* 5088 5129* 5139 5155* 5165 5206* 5216 5232* 5242 5281* 5291
		5307* 5317 5358* 5368 5384* 5394 5436* 5446 5462* 5472 5514* 5524 5540*
		5550 5591* 5601 5617* 5627 5668* 5678 5694* 5704 5746* 5756 5772* 5782
		5824* 5834 5850* 5860 5902* 5912 5928* 5938 5978* 5988 6004* 6014 6056*
		6066 6082* 6092 6140* 6151 6167* 6177 6225* 6236 6252* 6262 6311* 6322
		6338* 6348 6396* 6407 6423* 6433 6481* 6492 6508* 6518 6566* 6577 6593*
		6603 6652* 6662 6707* 6717 6732* 6742 6789* 6799 6814* 6824 6868* 6878
		6893* 6903 6928* 6936 6943* 6947 7990 8004 8009 8011
E.MR1	004204	2309# 2754* 2755* 2758* 2767 3728* 3731* 3740 3795* 3798* 3807 3862* 3865*
		3874 3929* 3932* 3941 3996* 3999* 4008 4063* 4066* 4075 4123* 4126* 4135
		7970
E.MR2	004206	2310# 2520* 2582* 2597 2633* 2648 2691* 2692* 2693* 2694* 2695* 2696* 2706
		2711 2759* 2780 2806* 2832 2839 2851* 2869* 2895 2902 2914* 2932* 2958
		2965 2977* 3005* 3020 3054* 3069 3109* 3133 3177* 3196 3240* 3264 3284*
		3336 3378* 3393 3431* 3453 3491* 3513 3551* 3573 3611* 3633 3671* 3693
		3732* 3760 3799* 3827 3866* 3894 3933* 3961 4000* 4028 4067* 4088 4127*
		4155 4181* 4196 4213* 4236* 4252 4269* 4299* 4315 4330* 4345 4389* 4395*
		4414 4436* 4474 4482* 4528* 4534* 4553 4667* 4682 4950* 4965 7961 7964
		7967 7973 7975 7978 7983 7985 7988 7996
E.MR3	004210	2311# 2521* 2583* 2600 2634* 2652 2697* 2714 2760* 2783 2822* 2843 2885*
		2906 2948* 2969 3006* 3024 3055* 3073 3110* 3111* 3112* 3113* 3114* 3128
		3136 3159* 3191 3199 3206* 3241* 3242* 3243* 3244* 3245* 3259 3287 3311*

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                    3312* 3313* 3314* 3315* 3316* 3317* 3318* 3319* 3322* 3331  3339  3379* 3396
                    3432* 3456  3492* 3516  3552* 3576  3612* 3636  3672* 3696  3733* 3763  3800*
                    3830  3867* 3897  3934* 3964  4001* 4031  4068* 4091  4128* 4158  4183* 4201
                    4206  4214* 4238* 4257  4262  4270* 4300* 4312  4331* 4342  4390* 4396* 4411
                    4439* 4471  4483* 4529* 4535* 4550  4663* 4666* 4687  4949* 4970  7961  7964
                    7967  7973  7975  7978  7983  7985  7988  7996
E.SPAR  004216      2314#
E.WC    004162      2300#
FMTE  = 000020      1014#
GNS   = ******      1076  2425  6978  6985  7943  7944  7945  7946  7947  7949  7951  7952  7953
                    7954  7955  7956  7957
GO    = 000001       977# 4987  5038  5046  5126  5203  5278  5355  5433  5511  5588  5665  5743
                    5821  5899  5975  6053  6136  6221  6307  6392  6477  6562  6648  6704  6926
GTSWR = 104406      2420  7949#
HDCODE  004250      2335# 2671* 2680  2692  2718* 2719  6115* 6117  6200* 6202  6286* 6288  6371*
                    6373  6456* 6458  6541* 6543  7967  8006
HT    = 000011       830# 7412  7470
HVRC  = 000400      1018#
IDAE  = 002000      1020# 6056  6140  6311  6396  6481  6566
IE    = 000100       978# 4806  4823  4852
ILF   = 000001      1010# 6928
ILLFUN  004270      2343# 6919* 6925  6930  6951* 6952  8011
INTR  = 000300       973#
IOTVEC= 000020       925# 2370* 2371*
IR    = 000100       997# 4599  4705  4758  4824  4902  4913  4988  5047  5076  5127  5153  5204
                    5230  5279  5305  5356  5382  5434  5460  5512  5538  5589  5615  5666  5692
                    5744  5770  5822  5848  5900  5926  5976  6002  6054  6080  6138  6165  6223
                    6250  6309  6336  6394  6421  6479  6506  6564  6591  6650  6705  6730  6787
                    6812  6866  6891
LF    = 000012       831# 7464  7470
MCLK  = 000400      1051# 2512  2575  2626  2684  2746  2747  2815  2878  2941  2998  3047  3102
                    3170  3233  3304  3371  3424  3484  3544  3604  3664  3720  3721  3787  3788
                    3854  3855  3921  3922  3988  3989  4055  4056  4115  4116  4190  4191  4246
                    4247  4293  4323  4375  4376  4451  4452  4514  4515  4589  4644  4670  4695
                    4938  4953  4979  5027  5112  5189  5264  5341  5419  5497  5574  5651  5729
                    5807  5885  5961  6039  6122  6207  6293  6378  6463  6548  6634  6690  6766
                    6851
MDS   = 001000      1000#
MEMBAS= 172100       933# 7009
MEMERR  042450      7013  7026#
MEMVEC= 000114       932# 7013* 7014*
MERD  = 001000      1052#
MESMSK= 000017      1045#
MEWD  = 002000      1053# 2755  3728  3795  3862  3929  3996  4063  4123
MIND  = 000200      1050#
MSGCOD  004246    - 2334# 2735* 2742  2754  2760  2775  2787* 2788  3713* 3780* 3847* 3914* 3981*
                    4048* 4108* 4437* 4446  4481* 7970
MSP   = 000100      1049#
NED   = 010000      1003# 6787  6866
NEM   = 004000      1002#
NEWPAS  005254      2479# 7001
NXF   = 000004      1012# 5902
OFFSET= 000015       966# 3293  3302  4049  4053
OFFVAL  004254      2337# 3292* 3301  3312  3320  3343* 3344  3363* 3416* 3476* 3536* 3596* 3656*
                    7978  7981
OFST  = 000004      1031# 5048  5050
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OPI    = 020000          1023#
OPR001  050072           2429    8226#
OPR002  050121           2432    2443    2460    8230#
OPR003  050127           2439    8232#
OPR004  050157           2451    8237#
OR     = 000200           998#
PACK   = 000003           961#   2931    3417    3422    3714    3718    5727    5743
PARBIT  004260           2339#   4391*   4394*   4399    4406    4440*   4459    4466    4484*   4530*   4533*   4538    4545
PARM    004276           1083    2348#
PAR.EN= 000001            934#   7012
PAT    = 000020          1047#   4319    4323    4324    4509
PCA    = 004000          1054#
PCD    = 010000          1055#
PGE    = 002000          1001#
PIP    = 020000          1039#   6224
PIRQ   = 177772           837#
PIRQVE= 000240            931#
PR0    = 000000           854#
PR1    = 000040           855#
PR2    = 000100           856#
PR3    = 000140           857#
PR4    = 000200           858#
PR5    = 000240           859#   2327
PR6    = 000300           860#
PR7    = 000340           861#   2357    2480    4800    4812    4854    7008    7014    7888    7901
PS     = 177776           834#    835
PSW    = 177776           835#
PWRVEC= 000024            926#   2376*   2377*   7887*   7888*   7900*   7901*
P.CS1   004220           2318#   5065*   5142*   5219*   5294*   5371*   5449*   5527*   5604*   5681*   5759*   5837*   5915*
                         5991*   6069*   6154*   6239*   6325*   6410*   6495*   6580*   6720*   6802*   6881*   8004
P.CS2   004222           2319#   5066*   5143*   5220*   5295*   5372*   5450*   5528*   5605*   5682*   5760*   5838*   5916*
                         5992*   6070*   6155*   6240*   6326*   6411*   6496*   6581*   6721*   6803*   6882*   8004
P.DS    004224           2320#   5067*   5144*   5221*   5296*   5373*   5451*   5529*   5606*   5683*   5761*   5839*   5917*
                         5993*   6071*   6156*   6241*   6327*   6412*   6497*   6582*   6722*   6804*   6883*   8004
P.ER    004226           2321#   5068*   5145*   5222*   5297*   5374*   5452*   5530*   5607*   5684*   5762*   5840*   5918*
                         5994*   6072*   6157*   6242*   6328*   6413*   6498*   6583*   6723*   6805*   6884*   8004
RDCHR  = 104410          7730    7952#
RLDATA= 000021            968#
RDGATE= 100000           1058#
RDHEAD= 000025            970#
RDLIN  = 104411          7802    7953#
RDOCT  = 104412          2433    2444    2461    7954#
RDY    = 000200           979#   4597    4703    4756    4823    4901    4912    4987    5038    5046    5075    5126    5152
                         5203    5229    5278    5304    5355    5381    5433    5459    5511    5537    5588    5614    5665
                         5691    5743    5769    5821    5847    5899    5925    5975    6001    6053    6079    6136    6164
                         6221    6249    6307    6335    6392    6420    6477    6505    6562    6590    6648    6704    6729
                         6783    6811    6865    6890    6927    6942
RECAL  = 000013           965#   2995    2996    3657    3662    3982    3986    6037    6053
RESREG= 104414           7358    7956#
RESTRT  004306           1081    2351#
RESVEC= 000010            921#
RKASOF= 000010            948#   3301*   3368*   3421*   3481*   3541*   3601*   3661*
RKBA   = 000004           943#
RKCS1  = 000000           941#   2498*   2500*   2504    2516    2570*   2573*   2579    2587*   2621*   2623*   2630    2639*
                         2677*   2682*   2688    2701*   2741*   2744*   2750    2764*   2770*   2811*   2813*   2819    2827*
                         2874*   2876*   2882    2890*   2937*   2939*   2945    2953*   2993*   2995*   3002    3011*   3042*
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                    3044*  3051   3060*  3097*  3100*  3106   3118*  3165*  3168*  3174   3181*  3228*  3231*
                    3237   3249*  3299*  3302*  3308   3326*  3365*  3369*  3375   3383*  3418*  3422*  3428
                    3436*  3478*  3482*  3488   3496*  3538*  3542*  3548   3556*  3598*  3602*  3608   3616*
                    3658*  3662*  3668   3676*  3715*  3718*  3724   3737*  3743*  3782*  3785*  3791   3804*
                    3810*  3849*  3852*  3858   3871*  3877*  3916*  3919*  3925   3938*  3944*  3983*  3986*
                    3992   4005*  4011*  4050*  4053*  4059   4072*  4078*  4110*  4113*  4119   4132*  4138*
                    4179*  4188*  4234*  4243*  4289*  4291*  4318*  4321*  4369*  4373*  4445*  4449*  4507*
                    4512*  4587*  4593   4642*  4648   4674   4699   4746*  4748   4752   4806*  4808   4820
                    4844*  4846   4852*  4891*  4893   4897   4909   4917*  4936*  4942   4957   4983   5025*
                    5033   5037   5042   5070*  5071   5110*  5118   5122   5147*  5148   5187*  5195   5199
                    5224*  5225   5262*  5270   5274   5299*  5300   5339*  5347   5351   5376*  5377   5417*
                    5425   5429   5454*  5455   5495*  5503   5507   5532*  5533   5572*  5580   5584   5609*
                    5610   5649*  5657   5661   5686*  5687   5727*  5735   5739   5764*  5765   5805*  5813
                    5817   5842*  5843   5883*  5891   5895   5920*  5921   5959*  5967   5971   5996*  5997
                    6037*  6045   6049   6074*  6075   6120*  6128   6132   6159*  6160   6205*  6213   6217
                    6244*  6245   6291*  6299   6303   6330*  6331   6376*  6384   6388   6415*  6416   6461*
                    6469   6473   6500*  6501   6546*  6554   6558   6585*  6586   6632*  6640   6644   6688*
                    6696   6700   6724*  6725   6764*  6772   6779   6806*  6807   6849*  6857   6861   6885*
                    6886   6924*  6930*  6931   6939*  6940
RKCS2  = 000010      945#   2572*  4187*  4372*  4448*  4511*  4584*  4586*  4594   4639*  4641*  4700   4744*
                    4745*  4753   4796*  4797*  4821   4843*  4869*  4888*  4890*  4898   4910   4932*  4984
                    5021*  5043   5072   5106*  5123   5149   5183*  5200   5226   5260*  5275   5301   5335*
                    5352   5378   5413*  5430   5456   5491*  5508   5534   5568*  5585   5611   5645*  5662
                    5688   5723*  5740   5766   5801*  5818   5844   5879*  5896   5922   5957*  5972   5998
                    6033*  6050   6076   6111*  6133   6161   6196*  6218   6246   6282*  6304   6332   6367*
                    6389   6417   6452*  6474   6502   6537*  6559   6587   6627*  6631*  6645   6684*  6687*
                    6701   6726   6762*  6780   6808   6847*  6862   6887
RKDA   = 000006      944#   2681*  4242*  4935*  5024*  5109*  5186*  5338*  5416*  5494*  5571*  5648*  5726*
                    5804*  5882*  6036*  6118*  6203*  6289*  6374*  6459*  6544*  6630*
RKDB   = 000024      950#   4889*  4908
RKDCYL = 000020      949#   3099*  3167*  3230*  3367*  3420*  3480*  3540*  3600*  3660*  4241*  4934*  5023*
                    5108*  5185*  5337*  5415*  5493*  5570*  5647*  5725*  5803*  5881*  6035*  6113*  6198*
                    6284*  6369*  6454*  6539*  6629*  6686*
RKDS   = 000012      946#   4595   4701   4754   4899   4985   5044   5073   5124   5150   5201   5227   5276
                    5302   5353   5379   5431   5457   5509   5535   5586   5612   5663   5689   5741   5767
                    5819   5845   5897   5923   5973   5999   6051   6077   6134   6162   6219   6247   6305
                    6333   6390   6418   6475   6503   6560   6588   6646   6702   6727   6781   6809   6863
                    6888
RKECPS = 000030      954#
RKECPT = 000032      955#
RKER   = 000014      947#   4596   4702   4755   4822   4900   4911   4986   5045   5074   5125   5151   5202
                    5228   5277   5303   5354   5380   5432   5458   5510   5536   5587   5613   5664   5690
                    5742   5768   5820   5846   5898   5924   5974   6000   6052   6078   6135   6163   6220
                    6248   6306   6334   6391   6419   6476   6504   6561   6589   6647   6703   6728   6782
                    6810   6864   6889   6932   6941
RKMR1  = 000026      951#   2499*  2512*  2513*  2571*  2575*  2576*  2622*  2626*  2627*  2678*  2684*  2685*
                    2742*  2743*  2746*  2747*  2751   2812*  2815*  2816*  2875*  2878*  2879*  2938*  2941*
                    2942*  2994*  2998*  2999*  3043*  3047*  3048*  3098*  3102*  3103*  3166*  3170*  3171*
                    3229*  3233*  3234*  3300*  3304*  3305*  3366*  3371*  3372*  3419*  3424*  3425*  3479*
                    3484*  3485*  3539*  3544*  3545*  3599*  3604*  3605*  3659*  3664*  3665*  3716*  3720*
                    3721*  3725   3783*  3787*  3788*  3792   3850*  3854*  3855*  3859   3917*  3921*  3922*
                    3926   3984*  3988*  3989*  3993   4051*  4055*  4056*  4060   4111*  4115*  4116*  4120
                    4185*  4190*  4191*  4240*  4246*  4247*  4290*  4293*  4294*  4319*  4323*  4324*  4370*
                    4371*  4375*  4376*  4446*  4447*  4451*  4452*  4508*  4509*  4514*  4515*  4585*  4589*
                    4590*  4640*  4644*  4645*  4670*  4671*  4695*  4696*  4933*  4938*  4939*  4953*  4954*
                    4979*  4980*  5022*  5027*  5028*  5031*  5107*  5112*  5113*  5116*  5184*  5189*  5190*
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                5193* 5261* 5264* 5265* 5268* 5336* 5341* 5342* 5345* 5414* 5419* 5420* 5423*
                5492* 5497* 5498* 5501* 5569* 5574* 5575* 5578* 5646* 5651* 5652* 5655* 5724*
                5729* 5730* 5733* 5802* 5807* 5808* 5811* 5880* 5885* 5886* 5889* 5958* 5961*
                5962* 5965* 6034* 6039* 6040* 6043* 6112* 6122* 6123* 6126* 6197* 6207* 6208*
                6211* 6283* 6293* 6294* 6297* 6368* 6378* 6379* 6382* 6453* 6463* 6464* 6467*
                6538* 6548* 6549* 6552* 6628* 6634* 6635* 6638* 6685* 6690* 6691* 6694* 6767*
                6766* 6767* 6770* 6848* 6851* 6852* 6855* 6929*
RKMR2  = 000034  952# 2517  2580  2631  2689  2752  2820  2883  2946  3003  3052  3107  3175
                3238  3309  3376  3429  3489  3549  3609  3669  3726  3793  3860  3927  3994
                4061  4121  4194  4250  4297  4328  4379  4455  4518  4675  4958
RKMR3  = 000036  953# 2518  2581  2632  2690  2753  2821  2884  2947  3004  3053  3108  3176
                3239  3310  3377  3430  3490  3550  3610  3670  3727  3794  3861  3928  3995
                4062  4122  4195  4251  4298  4329  4380  4456  4519  4676  4959
RKPRI    004236 2327# 2477*
RKSPAR= 000022  956#
RKVEC    004234 2326# 2475*  2476*  4798  4835*  4842*  4851*  4870
RKWC   = 000002  942#
RLS    = 000010  994#
SAVREG= 104413  7307  7955#
SAVSWR   004274 2345# 7886*  7905
SCLR   = 000040  996# 4584  4639  4744  4796  4869  4888  4932  5021  5106  5183  5260  5335
                5413  5491  5568  5645  5723  5801  5879  5957  6033  6111  6196  6282  6367
                6452  6537  6627  6684  6762  6847
SCOP1  = 104415  2603  2717  2786  2847  2910  2973  3139  3202  3270  3342  4417  4477  4556
                4614  4720  4773  6665  6950  7957#
SCOP1$   043224 7179# 7957
SEEK   = 000017  967# 3092  3100  3160  3168  3223  3231  4109  4113  4243  4936  4943  4987
                5025  5038  5046  5110  5126  5187  5203  5339  5355  5417  5433  5495  5511
                5572  5588  5649  5665  6120  6136  6205  6221  6291  6307  6376  6392  6461
                6477  6546  6562  6632  6648  6688  6704
SELDRV= 000001  960# 2500  2505  2519  2565  2573  2623  2624  2672  2682  2736  2744  3364
                3369  4188  4291  4321  4373  4449  4512  4587  4642  4649  4746  4806  4844
                4891  5262  5278  5764  6849
SFTCNT   004256 2338# 4180* 4216* 4217  4235* 4272* 4273  7985
SKI    = 000002 1011# 5824
SPACE2   050201 7341  7553  8241#
SPAR   = 020000  986# 5203  6704  6784  6786
SPDLSS= 000020  1033# 5048  5050  5590  5745  5823  5901  6055  6310  6480
SRTFLG   004240 2328# 2348* 2351* 2354* 2427
SRTSPL= 000011  964# 3044  3045  3597  3602  3915  3919  5959  5975
STACK  = 001100  825# 2356  2368  7034  7369  7902
STALL    004264 2341# 6776
START    004316 1080  2354#
START1   004322 2349  2352  2355#
STKLMT= 177774  836#
SVAL   = 100000 1041# 5048  5128  5205  5280  5357  5435  5513  5590  5667  5745  5823  5901
                5977  6055  6139  6224  6310  6395  6480  6565  6788
SWR      001140 1144# 2366  2388* 2390  2396* 2403* 2418  7030  7053  7067  7070  7085  7092
                7179  7261  7268  7280  7284  7360  7624  7661* 7886  7905*
SWREG    000176 1078# 2396  2418  7624  7637
SW0    = 000001  889#
SW00   = 000001  879#  889
SW01   = 000002  878#  888
SW02   = 000004  877#  887
SW03   = 000010  876#  886
SW04   = 000020  875#  885
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SW06  = 000100              873#    883
SW07  = 000200              872#    882
SW08  = 000400              871#    881
SW09  = 001000              870#    880
SW1   = 000002              888#
SW10  = 002000              869#
SW11  = 004000              868#
SW12  = 010000              867#   7360
SW13  = 020000              866#
SW14  = 040000              865#
SW15  = 100000              864#
SW2   = 000004              887#
SW3   = 000010              886#
SW4   = 000020              885#
SW5   = 000040              884#
SW6   = 000100              883#
SW7   = 000200              882#
SW8   = 000400              881#
SW9   = 001000              880#   7030   7179
S.CLR = 000400             1066#   2806   2831   3491   3500   3799   3814
S.FMT = 001000             1067#   2633   2642   2831   2851   2894   2914   2957   2977   4236   4237   4949
S.PACK= 004000             1069#   2932   2957   3431   3440   3732   3747
S.RECL= 000040             1063#   3005   3014   3671   3680   4000   4015
S.RTC = 000200             1065#
S.SEEK= 000020             1062#   3109   3121   3177   3184   3240   3252   4127   4142   4236   4237   4949
S.STSP= 000100             1064#   3054   3063   3611   3620   3933   3948
S.UNLD= 002C00             1068#   2869   2894   3551   3560   3866   3881
TBITVE= 000014              922#
TKVEC = 000060              929#
TPVEC = 000064              930#
TRAPPC  004272             2344#   7027*  7960
TRAPVE= 000034              928#   2374*  2375*
TRTVEC= 000014              923#
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TST10   010032             2912    2927#  7119
TST100  041712             6904    6917#  7175
TST11   010350             2975    2989#  7120
TST12   010614             3012    3018   3025   3038#  7121
TST13   011060             3061    3067   3074   3088#  7122
TST14   011376             3155#   7123
TST15   011706             3204    3219#  7124
TST16   012240             3289#   7125
TST17   012602             3359#   7126
TST2    005576             2509    2525   2547   2561#  7113
TST20   013046             3384    3391   3397   3412#  7127
TST21   013326             3437    3444   3451   3457   3472#  7128
TST22   013606             3497    3504   3511   3517   3532#  7129
TST23   014066             3557    3564   3571   3577   3592#  7130
TST24   014346             3617    3624   3631   3637   3652#  7131
TST25   014626             3677    3684   3691   3697   3710#  7132
TST26   015140             3738    3744   3751   3758   3764   3777#  7133
TST27   015452             3805    3811   3818   3825   3831   3844#  7134
TST3    006056             2617#   7114
TST30   015764             3872    3878   3885   3892   3898   3911#  7135
TST31   016276             3939    3945   3952   3959   3965   3978#  7136
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TST35	017656	4199	4204	4231#	7140			
TST36	020122	4255	4260	4286#	7141			
TST37	020456	4335	4340	4346	4361#	7142		
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TST40	021022	4433#	7143					
TST41	021346	4479	4499#	7144				
TST42	021712	4576#	7145					
TST43	022166	4631#	7146					
TST44	022716	4723	4736#	7147				
TST45	023156	4793#	7148					
TST46	023562	4885#	7149					
TST47	024012	4929#	7150					
TST5	006634	2732#	7116					
TST50	024446	4947	4963	4968	4973	5001	5018#	7151
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TST64	033152	5939	5954#	7163				
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TST7	007514	2849	2864#	7119				
TST70	035366	6263	6279#	7167				
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TST75	040210	6681#	7172					
TST76	040636	6743	6759#	7173				
TST77	041300	6825	6844#	7174				
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		7322	7323	7330	7341	7343	7353	7354
		7356	7364	7417	7530	7605	7635	7636
		7639	7652	7663	7682	7737	7743	7748
		7752	7757	7758	7760	7763	7767	7831
		7833	7903	7943#				
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TYPON =	104404	7946#						
TYPOS =	104403	7945#						
T.ASOF	004136	2287#						
T.BA	004124	2282#						
T.CS1	004120	2280#	2504*	2506	2516*	2522	2579*	2584
		2630*	2635	2688*	2698	2750*	2761	2819*
		2823	2882*	2886	2945*	2949	3002*	3007
		3051*	3056	3106*	3115	3174*	3178	3237*
		3246	3308*	3323	3375*	3380	3428*	3433
		3488*	3493	3548*	3553			

			3608*	3613	3668*	3673	3724*	3734	3791*	3801	3858*	3868	3925*	3935	3992*
			4002	4059*	4069	4119*	4129	4593*	4602	4648*	4650	4674*	4677	4699*	4708
			4756*	4761	4820*	4826	4897*	4909*	4942*	4944	4957*	4960	4983*	4991	5037*
			5042*	5053	5065	5071*	5079	5122*	5130	5142	5148*	5156	5199*	5207	5219
			5225*	5233	5274*	5282	5294	5300*	5308	5351*	5359	5371	5377*	5385	5429*
			5437	5449	5455*	5463	5507*	5515	5527	5533*	5541	5584*	5592	5604	5610*
			5618	5661*	5669	5681	5687*	5695	5739*	5747	5759	5765*	5773	5817*	5825
			5837	5843*	5851	5895*	5903	5915	5921*	5929	5971*	5979	5991	5997*	6005
			6049*	6057	6069	6075*	6083	6132*	6141	6154	6160*	6168	6217*	6226	6239
			6245*	6253	6303*	6312	6325	6331*	6339	6388*	6397	6410	6416*	6424	6473*
			6482	6495	6501*	6509	6558*	6567	6580	6586*	6594	6644*	6653	6700*	6708
			6720	6725*	6733	6779*	6784	6790	6802	6807*	6815	6861*	6869	6881	6886*
			6894	6931*	6933	6940*	6944	7961	7964	7967	7970	7975	7978	7981	7990
			7994	7999	8001	8006	8011								
T.CS2	004130		2284#	4594*	4605	4700*	4711	4753*	4764	4821*	4829	4898*	4905	4910*	4914
			4984*	4994	5043*	5056	5066	5072*	5082	5123*	5133	5143	5149*	5159	5200*
			5210	5220	5226*	5236	5275*	5285	5295	5301*	5311	5352*	5362	5372	5378*
			5388	5430*	5440	5450	5456*	5466	5508*	5518	5528	5534*	5544	5585*	5595
			5605	5611*	5621	5662*	5672	5682	5688*	5698	5740*	5750	5760	5766*	5776
			5818*	5828	5838	5844*	5854	5896*	5906	5916	5922*	5932	5972*	5982	5992
			5998*	6008	6050*	6060	6070	6076*	6086	6133*	6144	6155	6161*	6171	6218*
			6229	6240	6246*	6256	6304*	6315	6326	6332*	6342	6389*	6400	6411	6417*
			6427	6474*	6485	6496	6502*	6512	6559*	6570	6581	6587*	6597	6645*	6656
			6701*	6711	6721	6726*	6736	6780*	6793	6803	6808*	6818	6862*	6872	6882
			6887*	6897	7990	8001	8006								
T.DA	004126		2283#												
T.DB	004142		2289#												
T.DCYL	004140		2288#												
T.DS	004132		2285#	4595*	4611	4701*	4717	4754*	4770	4899*	4985*	5000	5044*	5050	5062
			5067	5073*	5085	5124*	5136	5144	5150*	5162	5201*	5213	5221	5227*	5239
			5276*	5288	5296	5302*	5314	5353*	5365	5373	5379*	5391	5431*	5443	5451
			5457*	5469	5509*	5521	5529	5535*	5547	5586*	5598	5606	5612*	5624	5663*
			5675	5683	5689*	5701	5741*	5753	5761	5767*	5779	5819*	5831	5839	5845*
			5857	5897*	5909	5917	5923*	5935	5973*	5985	5993	5999*	6011	6051*	6063
			6071	6077*	6089	6134*	6148	6156	6162*	6174	6219*	6233	6241	6247*	6259
			6305*	6319	6327	6333*	6345	6390*	6404	6412	6418*	6430	6475*	6489	6497
			6503*	6515	6560*	6574	6582	6588*	6600	6646*	6659	6702*	6714	6722	6727*
			6739	6781*	6796	6804	6809*	6821	6863*	6875	6883	6888*	6900	7990	8001
			8009												
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T.ER	004134		2286#	4596*	4608	4702*	4714	4755*	4767	4822*	4832	4900*	4911*	4986*	4997
			5045*	5059	5068	5074*	5088	5125*	5139	5145	5151*	5165	5202*	5216	5222
			5228*	5242	5277*	5291	5297	5303*	5317	5354*	5368	5374	5380*	5394	5432*
			5446	5452	5458*	5472	5510*	5524	5530	5536*	5550	5587*	5601	5607	5613*
			5627	5664*	5678	5684	5690*	5704	5742*	5756	5762	5768*	5782	5820*	5834
			5840	5846*	5860	5898*	5912	5918	5924*	5938	5974*	5988	5994	6000*	6014
			6052*	6066	6072	6078*	6092	6135*	6151	6157	6163*	6177	6220*	6236	6242
			6248*	6262	6306*	6322	6328	6334*	6348	6391*	6407	6413	6419*	6433	6476*
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			6723	6728*	6742	6782*	6799	6805	6810*	6824	6864*	6878	6884	6889*	6903
			6932*	6936	6941*	6947	7990	8004	8009	8011					
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			3926*	3930	3941	3993*	3997	4008	4060*	4064	4075	4120*	4124	4135	7970
T.MR2	004146		2291#	2517*	2527	2530	2534	2537	2580*	2590	2597	2631*	2642	2648	2689*
			2704	2711	2752*	2780	2820*	2830	2839	2883*	2893	2902	2946*	2956	2965

		3003*	3014	3020	3052*	3063	3069	3107*	3121	3133	3175*	3184	3196	3238*
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		3827	3860*	3881	3894	3927*	3948	3961	3994*	4015	4028	4061*	4088	4121*
		4142	4155	4194*	4196	4250*	4252	4297*	4307	4315	4328*	4337	4345	4379*
		4404	4414	4455*	4464	4474	4518*	4543	4553	4675*	4682	4958*	4965	7961
		7964	7967	7973	7975	7978	7983	7985	7988	7996				
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		2783	2821*	2843	2884*	2906	2947*	2969	3004*	3024	3053*	3073	3108*	3126
		3136	3176*	3189	3199	3239*	3257	3267	3310*	3329	3339	3377*	3387	3396
		3430*	3447	3456	3490*	3507	3516	3550*	3567	3576	3610*	3627	3636	3670*
		3687	3696	3727*	3754	3763	3794*	3821	3830	3861*	3888	3897	3928*	3955
		3964	3995*	4022	4031	4062*	4082	4091	4122*	4149	4158	4195*	4201	4251*
		4257	4298*	4301	4312	4329*	4332	4342	4380*	4397	4411	4456*	4457	4471
		4519*	4536	4550	4676*	4687	4959*	4970	7961	7964	7967	7973	7975	7978
		7983	7985	7988	7996									
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T.WC	004122	2281#												
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UNLOAD=	000007	963#	2868	3537	3542	3848	3852	5805	5821					
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UPE =	020000	1004#												
U.MR2	004230	2322#	4182*	4237*	7985									
U.MR3	004232	2323#	4184*	4239*	7985									
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		5656	5734	5812	5890	5966	6044	6127	6212	6298	6383	6468	6553	6639
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WLE =	004000	1021#	5746											
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WRL =	004000	1038#	5048	5050										
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		3913	3980	4047	4107	4178	4233	4288	4363	4435	4501	4578	4633	4738
		4795	4887	4931	5020	5105	5182	5259	5334	5412	5490	5567	5644	5722
		5800	5878	5956	6032	6110	6195	6281	6366	6451	6536	6621	6683	6761
		6846												
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3072 3076 3117 3123 3130 3135 3138 3180 3186 3193 3198 3201 3248 3254 3261
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LDLPER 1117# 2566 2673 2737 2807 2870 2933 3093 3161 3224 3295 4365 4441 4503 4580
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MESSFT 1117# 4178 4233
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MSG 2485# 2487 2550# 2552 2608# 2610 2657# 2659 2722# 2724 2791# 2793 2854# 2856 2917#
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4220 4276 4349 4422 4487 4564 4619 4726 4778 4875 4919 5006 5092 5169 5246
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.HEADE	1#	800#													
.KT11	1#														
.SETUP	1#	800#	2348												
.SWRHI	1#	800#	810												
.SWRLO	800#	822#													
.$ACTI	1#	800#	1084												
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.$CATC	1#	800#	1070												
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.$DB2D	1#														
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.$ERRO	1#	800#	7242												
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. ABS. 061315 000

ERRORS DETECTED: 0

CZR6BD,CZR6BD.LST/SOL/CRF/NL:TOC-SYSMAC.SML,CZR6BD.P11
RUN-TIME: 32 37 3 SECONDS
RUN-TIME RATIO: 141/73=1.9
CORE USED: 42K (84 PAGES)