RH70

CONTROLLER DIAGNOSTIC

MD-11-DERHA-C

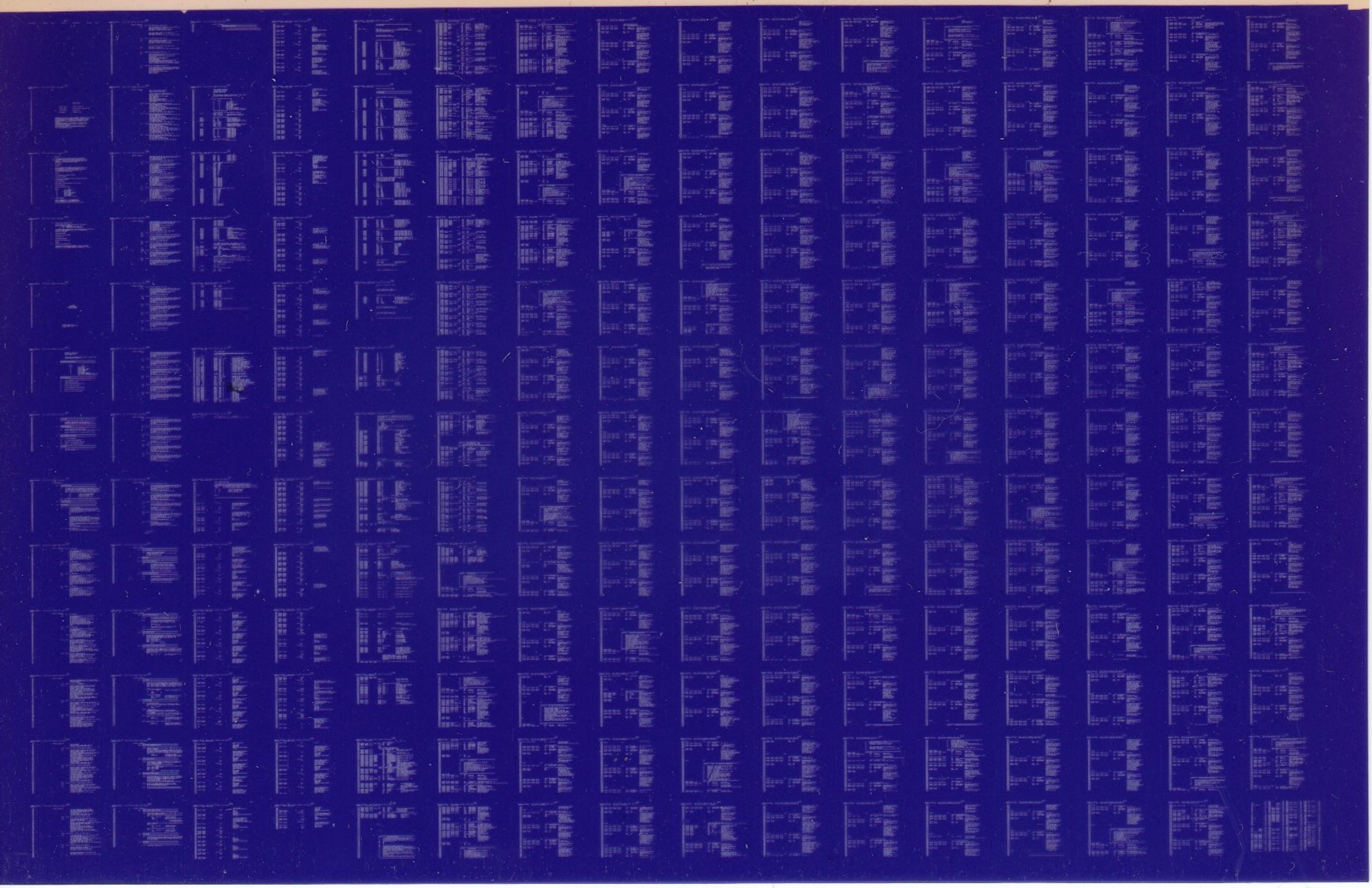
EP DERHA C DL B

FICHE 1 OF 2

MAR 1977

digital

MADE IN USA



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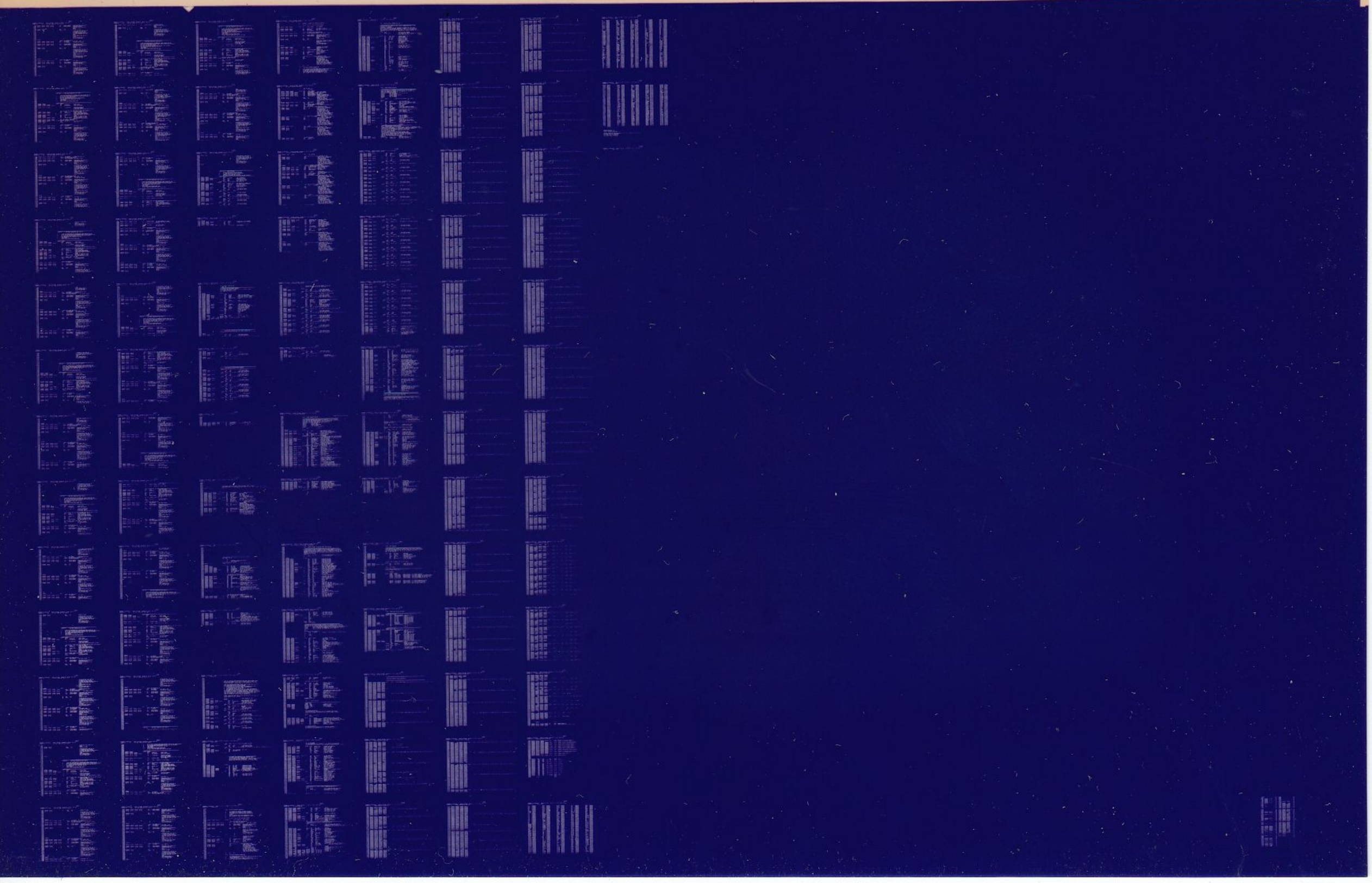

EOF1DDGTBDSEQ	00010000	770224	PDP10 411	HDR1DERHACSEQ	00010000	770224

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                        .REM %
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IDENTIFICATION

PRODUCT CODE:	MAINDEC-11-DERHA-C-D
PRODUCT NAME:	RH70 FUNCTIONAL CONTROLLER TEST
DATE RELEASED:	JANUARY 1977
MAINTAINER:	DIAGNOSTIC GROUP

```
                                1.      ABSTRACT

                                        THIS PROGRAM TESTS THE RH70 IN THE PDP11/70 SUBSYSTEM.
                                        IT USES ANY WORKING RH70 PERIPHERAL CONNECTED TO THE RH70
                                        UNDER TEST. IT CAN TEST UP TO FOUR RH70S CONNECTED ON THE
                                        SUBSYSTEM. ALTHOUGH THE PERIPHERAL CONNECTED IS USED, THE
                                        PERIPHERAL IS NOT TESTED BY THIS PROGRAM.

                                2.      REQUIREMENTS

                                2.1     EQUIPMENT

                                        PDP11/70 COMPUTER WITH CONSOLE TELETYPE, AND ANY ONE OF THE
                                        RH70 PERIPHERALS, (FOR EXAMPLE RP04,RS03,RS04,TU16).
                                        THE PERIPHERAL MUST BE COMPLETE AND WORKING. FOR EXAMPLE
                                        THE RP04,RS03,RS04 MUST HAVE A SCRATCH PACK ON IT.
                                        THE TU MUST HAVE A SCRATCH TAPE.

                                2.2     STORAGE

                                        THIS PROGRAM HAS 16K WORDS OF MEMORY.

                                2.3     PRELIMINARY PROGRAMS

                                        ALL PDP11/70 CPU DIAGNOSTICS MUST BE RUN ERROR FREE BEFORE
                                        THIS DIAGNOSTIC IS RUN.

                                3.      LOADING PROCEDURE

                                        USE STANDARD LOADING PROCEDURES FOR .BIN TAPES.

                                4.      STARTING PROCEDURE

                                4.1     OPERATIONAL SWITCH SETTINGS

                                        SWITCH                  USE
                                        ------          --------------------
                                          15            HALT ON ERROR
                                          14            LOOP ON TEST
                                          13            INHIBIT ERROR TYPEOUTS
                                          11            INHIBIT ITERATIONS
                                          10            BELL ON ERROR
                                           9            LOOP ON ERROR
                                           8            LOOP ON TEST IN SWR<7:0>

                                4.2     STARTING ADDRESS

                                        START AT ADDRESS 200 --- FOR STANDARD RH70.
                                        START AT ADDRESS 210 --- FOR NONSTANDARD RH70.
                                        STARTING ADDRESS 210 SHOULD BE USED TO TEST
                                        ANY ONE RH INSTEAD OF ALL THE RH GIVEN BY 200 START
```

```
                                4.3     PROGRAM AND/OR OPERATOR ACTION

                                        BEFORE STARTING THE PROGRAM, MAKE SURE THAT THE MAGNETIC
                                        MEDIUM IS PROPERLY POSITIONED:
                                                1.)  TU16 - MAGTAPE MUST BE AT LOAD POINT.
                                                2.)  RP   - HEADS MUST BE IN HOME POSITION.

                                        ON STARTING FROM 210 OPERATOR MUST CHOOSE BETWEEN THE RH70 PERIPHERALS
                                        AND TYPE THE BASE ADDRESS OF ANY OR ALL OF THE PERIPHERALS
                                        CONNECTED TO THE RH70.

                                5.      OPERATING PROCEDURE

                                5.1     OPERATIONAL SWITCH SETTINGS

                                        SEE SECTION 4.1

                                5.2     SUB-ROUTINE ABSTRACTS

                                        SEE SECTION 9 "SUBROUTINES"

                                6.      ERRORS

                                6.1     ERROR HALTS AND DESCRIPTION

                                        ON DETECTION OF AN ERROR THE PROGRAM WILL PRINT ALL RELEVENT
                                        INFORMATION AND THEN PROCEDE ACCORDING TO THE SWITCH SETTINGS
                                        GIVEN IN 4.1. IF ALL SWITCHES ARE DOWN THE PROGRAM WILL CONTINUE.
```

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                                DOCUMENT
                                **********
                            MAINDEC-11-DERHAC-A
                                **********
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                                        2       COPYRIGHT (C) 1975, 1977
                                                DIGITAL EQUIPMENT CORP.
                                                MAYNARD, MASS. 01754


                                                THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                                                PACKAGE (MAINDEC-11-DZQAC-A4).


                                        ;*********************************************************************
                                    13  ; OPERATIONAL SWITCH SETTINGS
                                        ;*********************************************************************

                                        14
                                                        SWITCH          USE
                                                        ------          ---
                                                          15            HALT ON ERROR
                                                          14            LOOP ON TEST
                                                          13            INHIBIT ERROR TYPEOUTS
                                                          11            INHIBIT ITERATIONS
                                                          10            BELL ON ERROR
                                                           9            LOOP ON ERROR
                                                           8            LOOP ON TEST IN SWR<7:0>
                                                           7            STOP FURTHER COMPARES IF SW08 IS LOW
                                                           6            TYPE ALL REG. WITH ERROR IF SW8 LOW
                                        ;*********************************************************************
                                    27  ; BASIC DEFINITIONS
                                        ;*********************************************************************

                                        29      INITIAL ADDRESS OF THE STACK POINTER *** 1000 ***

                                        40      MISCELLANEOUS DEFINITIONS

                                        46      GENERAL PURPOSE REGISTER DEFINITIONS

                                        58      PRIORITY LEVEL DEFINITIONS

                                        68      "SWITCH REGISTER" SWITCH DEFINITIONS

                                        96      DATA BIT DEFINITIONS (BIT00 TO BIT15)

                                        124     BASIC "CPU" TRAP VECTOR ADDRESSES
```

```
                        ;*********************************************************************
                        ;TRAP CATCHER
                        ;*********************************************************************
                        ;
                        ;       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
                        ;
                        ;*********************************************************************
                        ;STARTING ADDRESS(ES)
                        ;*********************************************************************
                        ;
                        ;       STARTING ADDRESS 200 FOR NORMAL STARTS
                        ;       THIS WILL TEST ALL RP04'S ON THE SYSTEM A SINGLE DRIVE AT A TIME
                        ;
                        ;       STARTING ADDRESS 210 WILL TEST ONLY ONE SPECIFIED DRIVE
                        ;
                        ;
                        ;*********************************************************************
                        ;MEMORY MANAGEMENT DEFINITIONS
                        ;*********************************************************************
                        ;
                        ;       KT11 VECTOR ADDRESS
                        ;
                        ;       KT11 STATUS REGISTER ADDRESSES
                        ;
                        ;       KERNEL "I" PAGE DESCRIPTOR REGISTERS
                        ;
                        ;       KERNEL "I" PAGE ADDRESS REGISTERS
                        ;
                        ;*********************************************************************
                        ;COMMON TAGS
                        ;*********************************************************************
                        ;
                        ;       THIS TABLE CONTAINS VARIOUS COMMON STORAGE LOCATIONS
                        ;       USED IN THE PROGRAM.
```

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                                MAINDEC-11-DERHAC-A

                                ;*********************************************************************
                        252     ;ERROR POINTER TABLE
                                ;*********************************************************************
                                ;
                        254     ;THIS TABLE CONTAINS THE INFORMATION FOR EACH ERROR THAT CAN OCCU
                                ;THE INFORMATION IS OBTAINED BY USING THE INDEX NUMBER FOUND IN
                                ;LOCATION $ITEMB. THIS NUMBER INDICATES WHICH ITEM IN THE TABLE I
                                ;NOTE1:  IF $ITEMB IS 0 THE ONLY PERTINENT DATA IS ($ERRPC).
                                ;NOTE2:  EACH ITEM IN THE TABLE CONTAINS 4 POINTERS EXPLAINED AS
                                ;
                        260             EM              ;;POINTS TO THE ERROR MESSAGE
                                        DH              ;;POINTS TO THE DATA HEADER
                                        DT              ;;POINTS TO THE DATA
                                        DF              ;;POINTS TO THE DATA FORMAT
                                ;
                        269     ;*********************************************************************
                                ;
                                ;*********************************************************************
                        1587    ;REGISTER ADDRESSES
                                ;*********************************************************************
                                ;
                                ;*********************************************************************
                        1834    ;REGISTER TEST
                                ;*********************************************************************
                                ;
                        1899    TEST 1  ;SIZE FOR RH DEVICES
                                        ;THIS TEST DETERMINS WHICH RH DEVICE IS ON THE SYSTEM.
                                        ;IF THE SYSTEM HAS MORE THAN ONE RH DEVICE THEN ONLY ONE
                                        ;THE DEVICES WILL BE USED IN THE FOLLOWING TESTS.
                                        ;THE ONE THAT WILL BE USED IS THE FIRST ONE THAT IS PRESE
                                        ;IN THE FOLLOWING LIST
                                        ;RS
                                        ;RP
                                        ;TM
                                        ;
                                        ;THE WAY THE TEST WORKS IS AS FOLLOWS:-
                                        ;A REFRENCE IS MADE TO THE CONTROL AND STATUS REGISTER 1
                                        ;FOR THE RS BY A TST INSTRUCTION. IF IT RESPONDS THEN IT
                                        ;ASSUMED PRESENT AND THE LOCATIONS FOR THE I/O REGISTERS
                                        ;FILLED WITH THE APPROPIATE ADDRESSES.
                                        ;THEN THE DRIVE TYPE REGISTER IS CHECKED TO HAVE GOOD
                                        ;VALUES.
                                        ;IF THE TST INSTRUCTION TRAPS TO A NON EXISTANT VECTOR
                                        ;THEN A SIMILAR ATTEMPT IS MADE TO A RP CONTROL AND STATU
                                        ;REGISTER 1.
                                        ;THEN A TM IS TRYED.
                                        ;THEN A MIXED SYSTEM WITH MORE THAN ONE RH DEVICS IS TRYE
                                ;
                        2195    TEST 2  ;UNIT UNDER TEST
                                        ;THIS TYPES THE UNIT TO BE TESTED
                                        ;AND IS THE FIRST TEST AFTER THE END OF THE PROGRAM
```

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                                MAINDEC-11-DERHAC-A
                        2302    TEST 3  BIT BANG RHCS1

                        2304            TEST LOADING AND READING OF ALL POSSIBLE BITS
                                        IN RHCS1 REGISTER.
                                        USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                                        AND WALKING 0'S (-2,-3,-5 ETC)
                                        IN THIS TEST SC!TRE!MCPE!DVA!BIT12!BIT10!RDY!GO BITS WIL
                                        AND RDY!DVA BITS WILL ALWAYS BE SET
                                        AND BIT10 BITS WILL ALWAYS BE CLEARED
                                        IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                                        THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                                        GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                                        SIGNAL.

                        2383    TEST 4  BIT BANG RHCS2

                        2385            TEST LOADING AND READING OF ALL POSSIBLE BITS
                                        IN RHCS2 REGISTER.
                                        USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                                        AND WALKING 0'S (-2,-3,-5 ETC)
                                        IN THIS TEST 177740 BITS WILL NOT BE WRITTEN INTO
                                        AND IR BITS WILL ALWAYS BE SET
                                        IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                                        THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                                        GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                                        SIGNAL.

                        2460    TEST 5  BIT BANG RHCS3

                        2462            TEST LOADING AND READING OF ALL POSSIBLE BITS
                                        IN RHCS3 REGISTER.
                                        USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                                        AND WALKING 0'S (-2,-3,-5 ETC)
                                        IN THIS TEST 177660 BITS WILL NOT BE WRITTEN INTO
                                        AND 0 BITS WILL ALWAYS BE SET
                                        AND BIT9!BIT8!BIT7!BIT5!BIT4 BITS WILL ALWAYS BE CLEARED
                                        IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                                        THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                                        GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                                        SIGNAL.

                        2541    TEST 6  BIT BANG RHWC

                        2543            TEST LOADING AND READING OF ALL POSSIBLE BITS
                                        IN RHWC REGISTER.
                                        USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                                        AND WALKING 0'S (-2,-3,-5 ETC)
                                        IN THIS TEST 0 BITS WILL NOT BE WRITTEN INTO
                                        AND 0 BITS WILL ALWAYS BE SET
                                        IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                                        THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                                        GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                                        SIGNAL.
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                                MAINDEC-11-DERHAC-A
                                2618    TEST 7  BIT BANG RHBA

                                2620            TEST LOADING AND READING OF ALL POSSIBLE BITS
                                                IN RHBA REGISTER.
                                                USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                                                AND WALKING 0'S (-2,-3,-5 ETC)
                                                IN THIS TEST 0 BITS WILL NOT BE WRITTEN INTO
                                                AND 0 BITS WILL ALWAYS BE SET
                                                AND BIT00 BITS WILL ALWAYS BE CLEARED
                                                IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                                                THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                                                GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                                                SIGNAL.

                                2699    TEST 10 BIT BANG RHBAE

                                2701            TEST LOADING AND READING OF ALL POSSIBLE BITS
                                                IN RHBAE REGISTER.
                                                USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                                                AND WALKING 0'S (-2,-3,-5 ETC)
                                                IN THIS TEST 177700 BITS WILL NOT BE WRITTEN INTO
                                                AND 0 BITS WILL ALWAYS BE SET
                                                AND 177700 BITS WILL ALWAYS BE CLEARED
                                                IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                                                THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                                                GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                                                SIGNAL.

                                2784    TEST 11 SILO TEST 1 (ONE WORD WRITE)
                                                AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                                RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH
                                                TOGETHER WITH UNIT NUMBER
                                                ONE WORD OF ALL ZEROS IS WRITTEN INTO RHDB
                                                BY "CLR"
                                                "OR" (BIT #7) IS WAITED FOR BY A TRAP INSTRUCTION
                                                CALLED "WAT" (NO TIMING IS DONE)
                                                HOWEVER IF "OR" DOES NOT SET WITHIN "WAT" COUNT
                                                DOWN AN ERROR IS REPORTED
                                                RHDB IS READ AND CHECKED TO CONTAIN ZEROS
                                                RHCS2 WILL BE CHECKED TO HAVE "IR" AND UNIT NUMBER
                                                RHCS1,RHCS3,RHBA,RHBAE,RHWC, WILL BE CHECKED TO HAVE
                                                APPROPIATE VALUES

                                2973    TEST 12 SILO TEST 2 (ONE WORD WRITE)
                                                AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                                RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH
                                                TOGETHER WITH UNIT NUMBER
                                                ONE WORD OF ALL ONES IS WRITTEN INTO RHDB
                                                BY "CLR"
                                                "OR" (BIT #7) IS WAITED FOR BY A TRAP INSTRUCTION
                                                CALLED "WAT" (NO TIMING IS DONE)
                                                HOWEVER IF "OR" DOES NOT SET WITHIN "WAT" COUNT
                                                DOWN AN ERROR IS REPORTED
                                                RHDB IS READ AND CHECKED TO CONTAIN ALL ONES
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                                        RHCS2 WILL BE CHECKED TO HAVE "IR" AND UNIT NUMBER
                                        RHCS1,RHCS3,RHBA,RHBAE,RHWC, WILL BE CHECKED TO HAVE
                                        APPROPIATE VALUES

                             3144   TEST 13 SILO TEST 3 (TWO WORD WRITE)

                             3146           AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                            RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
                                            TOGETHER WITH UNIT NUMBER
                                            ONE WORD = 52525 IS WRITTEN INTO RHDB
                                            RHCS2 IS CHECKED TO HAVE "IR" AND UNIT NUMBER
                                            A SECOND WORD = 12525 IS WRITTEN INTO RHDB
                                            "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                            INSTRUCTION CALLED "WAT"
                                            RHDB IS READ AND CHECKED TO CONTAIN 52525
                                            RHCS2 IS CHECKED TO HAVE "IR", "OR" AND UNIT NUMBER
                                            RHDB IS READ A SECOND TIME AND CHECKED TO
                                            CONTAIN 125252
                                            RHCS2 IS CHECKED TO HAVE "IR" AND UNIT NUMBER
                                            THEN ALL REGISTERS RHCS1, RHCS3, RHBA, RHBAE, RHWC
                                            ARE CHECKED TO HAVE APPROPIATE VALUE

                             3416   TEST 14 SILO TEST 4 (COUNT PATTERN)

                             3418           AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                            RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH, TOGETHER
                                            WITH UNIT NUMBER
                                            EIGHT WORDS, A COUNT PATTERN 0 THRU 7 IS WRITTEN
                                            INTO RHDB
                                            "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                            INSTRUCTION CALLED "WAT"
                                            THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
                                            "OR" HIGH TOGETHER WITH THE UNIT NUMBER
                                            THEN RHBIS READ AND COMPARED TO HAVE THE RIGHT VALUE
                                            EIGHT TIES
                                            THEN RHCS2, RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
                                            CHECKED TO HAVE THE APPROPIATE VALUE

                             3808   TEST 15 SILO TEST 5 (FLOATING ONES)

                             3810           AFTER ARH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                            RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
                                            TOGETHER WITH UNIT NUMBER
                                            EIGHT WORDS, A PATTERN OF FLOATING ONES (1,2,4,10,20,40,
                                            IS WRITTEN INTO RHDB
                                            "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                            INSTRUCTION CALLED "WAT"
                                            THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
                                            "OR" HIGH TOGETHER WITH THE UNIT NUMBER
                                            THEN RHDB IS READ AND COMPARED TO HAVE THE
                                            RIGHT VALUE AFTER EACH OF THE EIGHT READS.
                                            THEN RHCS2 IS CHECKED TO HAVE "IR"
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                                MAINDEC-11-DERHAC-A
                                                        AND UNIT NUMBER
                                                        THEN RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
                                                        CHECKED TO HAVE THE APPROPIATE VALUE

                                        4227    TEST 16 SILO TEST 6 (FLOATING ONES IN UPPER BYTE)

                                        4229            AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                                        RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
                                                        TOGETHER WITH UNIT NUMBER
                                                        EIGHT WORDS, A PATTERN OF FLOATING ONES IN UPPER BYTE
                                                        400,1000,2000,4000,10000,20000,40000,100000
                                                        IS WRITTEN INTO RHDB
                                                        "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                                        INSTRUCTION CALLED "WAT"
                                                        THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
                                                        "OR" HIGH TOGETHER WITH THE UNIT NUMBER
                                                        THEN RHDB IS READ AND COMPARED TO HAVE THE
                                                        RIGHT VALUE AFTER EACH OF THE EIGHT READS.
                                                        THEN RHCS2 IS CHECKED TO HAVE "IR"
                                                        AND UNIT NUMBER
                                                        THEN RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
                                                        CHECKED TO HAVE THE APPROPIATE VALUE

                                        4649    TEST 17 SILO TEST 7 (FLOATING 0 IN LOWER BYTE)

                                        4651            AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                                        RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
                                                        TOGETHER WITH UNIT NUMBER
                                                        EIGHT WORDS OF FLOATING ZEROS 177776, 177775, 177773,
                                                        177767, 177757, 177737, 177677, 177577
                                                        IS WRITTEN INTO RHDB
                                                        "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                                        INSTRUCTION CALLED "WAT"
                                                        THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
                                                        "OR" HIGH TOGETHER WITH THE UNIT NUMBER
                                                        THEN RHDB IS READ AND COMPARED TO HAVE THE
                                                        RIGHT VALUE AFTER EACH OF THE EIGHT READS.
                                                        THEN RHCS2 IS CHECKED TO HAVE "IR"
                                                        AND UNIT NUMBER
                                                        THEN RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
                                                        CHECKED TO HAVE THE APPROPIATE VALUE

                                        5070    TEST 20 SILO TEST 8 (FLOATING ZEROS IN UPPER BYTE)

                                        5072            AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                                        RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
                                        5074            TOGETHER WITH UNIT NUMBER
                                                        EIGHT WORDS, A PATTERN OF FLOATING ZEROS IN UPPER BYTE
                                                        177377, 177677, 175777, 173777, 167777, 157777, 137777,
                                                        IS WRITTEN INTO RHDB
                                                        "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                                        INSTRUCTION CALLED "WAT"
                                                        THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
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                        MAINDEC-11-DERHAC-A

                                "OR" HIGH TOGETHER WITH THE UNIT NUMBER
                                THEN RHDB IS READ AND COMPARED TO HAVE THE
                                RIGHT VALUE AFTER EACH OF THE EIGHT READS.
                                THEN RHCS2 IS CHECKED TO HAVE "IR"
                                AND UNIT NUMBER
                                THEN RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
                                CHECKED TO HAVE THE APPROPIATE VALUE

                        5508    TEST 21 RHCS1 - MCPE BIT #13 (PARITY LINE = 0)

                        5510            AN RH CLEAR (SET BIT #5 IN RHCS2) IS GIVEN TO
                                        CLEAR ALL DEVICE REGISTERS
                                        THEN RHER1 (ERROR REGISTER 1) IS CHECKED TO HAVE
                                        ZEROS
                                        SET "PAT" (BIT #4 IN RHCS2) TO INVERT PARITY CHECKING
                                        READ ANY DEVICE REGISTER - HERE RHER1
                                        READ AND CHECK RHCS1 TO CONTAIN SC (BIT #15)
                                        AND MCPE (BIT #13)
                                        WRITE "1" INTO TRE (BIT #14 IN RHCS1)
                                        READ RHCS1 SC, MCPE, AND RDY SHOULD BE SET
                                        GIVE AN RH CLEAR (CLR - BIT #5 IN RHCS2)
                                        CHECK RHCS1 TO HAVE RDY
                                        CHECK RHCS2 TO HAVE ONLY IR AND UNIT NUMBER
                                        CHECK RHCS3, RHBA, RHBAE, RHWC TO HAVE APPROPIATE
                                        VALUES.

                        5785    TEST 22 RHCS1 - MCPE BIT #13 (PARITY LINE = 1)

                        5787            AN RH CLEAR (SET BIT #5 IN RHCS2) IS GIVEN TO CLEAR
                                        ALL DEVICE REGISTERS
                                        WRITE A ONE INTO DISK ADDRESS REGISTER (RHDA)
                                        (IN TAPE DRIVES CALLED REGISTER)
                                        SET "PAT" (RHCS2 BIT #4) THIS WILL INVERT THE PARITY CHE
                                        READ RHDA AND COMPARE IT HAS ONE IN IT
                                        THIS READING SHOULD SET SC, MCPE IN RHCS1
                                        CHECK RHCS1 TO HAVE ONLY RDY SET
                                        CHECK RHCS2, RHCS3, RHBA, RHBAE, RHWC TO HAVE APPROPIATE
                                        VALUES

                        5959    TEST 23 TEST DUPLICATED A16 (RHCS1 BIT #8)

                        5961            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        MOVE 400 (ONE INTO A16) IN RHCS1
                                        READ RHCS1 TO CONTAIN 600 (BIT #8 AND RDY)
                                        READ RHBAE TO CONTAIN "1" (BIT #0 HIGH)


                                        MOVE 0 INTO RHBAE (WRITING 0 INTO RHBAE BIT #0)
                                        READ RHBAE TO CONTAIN 0
                                        READ RHCS1 TO CONTAIN ONLY RDY (BIT #8 IN RHCS1 IS ZERO)
```

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                                MAINDEC-11-DERHAC-A
                        6079    TEST 24 TEST DUPLICATED A17 (RHCS1 BIT #9)
                        6081            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        MOVE 400 (ONE INTO A17) IN RHCS1
                                        READ RHCS1 TO CONTAIN 1200 (BIT #9 AND RDY)
                                        READ RHBAE TO CONTAIN "2" (BIT #1 HIGH)


                                        MOVE 0 INTO RHBAE (WRITING 0 INTO RHBAE BIT #1)
                                        READ RHBAE TO CONTAIN 2
                                        READ RHCS1 TO CONTAIN ONLY RDY (BIT #9 IN RHCS1 IS ZERO)


                        6199    TEST 25 TEST DUPLICATED IE (RHCS1 BIT #6)
                        6201            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        MOVE 100 (ONE INTO IE) IN RHCS1
                                        READ RHCS1 TO CONTAIN 300 (BIT #6 AND RDY)
                                        READ RHCS3 TO CONTAIN "100" (BIT #6 HIGH)


                                        MOVE 0 INTO RHCS3 (WRITING 0 INTO RHCS3 BIT #6)

                        6208            READ RHCS3 TO CONTAIN 100
                                        READ RHCS1 TO CONTAIN ONLY RDY (BIT #6 IN RHCS1 IS ZERO)


                        6319    TEST 26 RHCS1 PROGRAM ERROR (PGE BIT #10)
                        6321            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        SET UP FOR A 10 WORD WRITE
                                        SET "GO" (RHCS1 BIT #0) TWICE IN TWO SUCCESSIVE
                                        INSTRUCTIONS
                                        THIS SHOULD SET, SC AND TRE IN RHCS1
                                        AND PGE SHOULD BE SET IN RHCS2
                                        RHCS3, ARE CHECKED
                                        THE NUMBER OF WORDS ARE LARGE ENOUGH SO THAT AFTER
                                        ONE "BIS" INSTRUCTION TO SET "GO" IN RHCS1
                                        THERE IS SUFFICIENT TIME TO GIVE ANOTHER "BIS" INSTRUCTI
                                        TO SET "GO" BEFORE THE FIRST "GO" HAS TIME TO COMPLETE


                        6415    TEST 27 RHCS2 - BUS ADDRESS INHIBIT BIT #3
                        6417            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #6)
                                        SET UP FOR A 2 WORD WRITE FROM A BUFFER TAGGED "WRFROM"
                                        SET BUS ADDRESS INHIBIT RHCS2 BIT #3 "BAI"
                                        AT THE END OF WRITE CHECK
                                        RHCS1 TO HAVE ONLY RDY AND COMMAND
                                        RHCS2 TO HAVE BAI
                                        RHCS3 TO HAVE 0
```

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                                MAINDEC-11-DERHAC-A
                                                6424            RHBA TO HAVE ADDRESS OF "WRFROM"
                                                                RHBAE AND RHWC TO HAVE ZEROS

                                                                NOW SET UP READ FOR THE SAME DATA WITH
                                                                BAI SET TO READ INTO A BUFFER TAGGED "REINTO"
                                                                AFTER READ CHECK
                                                                RHCS1 TO HAVE ONLY RDY AND COMMAND
                                                                RHCS2 TO HAVE BAI
                                                                RHCS3 TO HAVE 0
                                                                RHBA TO HAVE ADDRESS OF "REINTO"
                                                                RHBAE AND RHWC TO HAVE ZEROS
                                                                DATA IN REINTO BUFFER IS CHECKED WITH DATA IN
                                                                WRFROM BUFFER

                                                6571    TEST 30 RHSC2 MDPE BIT #8 AND RHCS3 IPCK0 BIT #0
                                                                CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET IPCK0 (RHCS3 BIT #0)
                                                                MOVE ALL ZEROS INTO RHDB ONCE
                                                                THIS SHOULD SET TRE SC IN RHCS1
                                                                READ RHDB ONCE THIS SHOULD SET MDPE (RHCS2 BIT #8)
                                                                CHECK RHCS1 FOR RDY (BIT #7), TRE (BIT #14), SC (BIT #15
                                                                "CLR" (RHCS2 BIT #5) IS GIVEN
                                                                ALL ERRORS ARE CLEARED
                                                                CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                                6807    TEST 31 RHSC2 MDPE BIT #8 AND RHCS3 IPCK1 BIT #1
                                                                CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET IPCK1 (RHCS3 BIT #1)
                                                                MOVE ALL ZEROS INTO RHDB ONCE
                                                                THIS SHOULD SET TRE SC IN RHCS1
                                                                READ RHDB ONCE THIS SHOULD SET MDPE (RHCS2 BIT #8)
                                                                CHECK RHCS1 FOR RDY (BIT #7), TRE (BIT #14), SC (BIT #15
                                                                "CLR" (RHCS2 BIT #5) IS GIVEN
                                                                ALL ERRORS ARE CLEARED
                                                                CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                                7043    TEST 32 RHSC2 MDPE BIT #8 AND RHCS3 IPCK2 BIT #2
                                                                CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET IPCK2 (RHCS3 BIT #2)
                                                                MOVE ALL ZEROS INTO RHDB TWICE
                                                                THIS SHOULD NOT SET TRE SC IN RHCS1
                                                                READ RHDB ONCE THIS SHOULD SET MDPE (RHCS2 BIT #8)
                                                                CHECK RHCS1 FOR RDY (BIT #7), TRE (BIT #14), SC (BIT #15
                                                                READ RHDB A SECOND TIME. CHECK RHCS1, RHCS2, RHCS3
                                                                "CLR" (RHCS2 BIT #5) IS GIVEN
                                                                ALL ERRORS ARE CLEARED
                                                                CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                                7345    TEST 33 RHSC2 MDPE BIT #8 AND RHCS3 IPCK3 BIT #3
                                                                CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET IPCK3 (RHCS3 BIT #3)
                                                                MOVE ALL ZEROS INTO RHDB TWICE
                                                                THIS SHOULD NOT SET TRE SC IN RHCS1
                                                                READ RHDB ONCE THIS SHOULD SET MDPE (RHCS2 BIT #8)
```

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                                MAINDEC-11-DERHAC-A
                                                        CHECK RHCS1 FOR RDY (BIT #7), TRE (BIT #14), SC (BIT #15
                                                        READ RHDB A SECOND TIME. CHECK RHCS1, RHCS2, RHCS3
                                                        "CLR" (RHCS2 BIT #5) IS GIVEN
                                                        ALL ERRORS ARE CLEARED
                                                        CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                7648    TEST 34 RHCS2-WCE BIT #14 AND RHCS3-WCE OW BIT #12

                                7650            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                WRITE NINE WORD OF ALL NINES ON TO THE DEVICE
                                                SET UP TO DO WRITE CHECK ON THAT WORD FROM AN
                                                ODD WORD BOUNDARY
                                                DO A ONE WORD WRITE CHECK WITH RHBA FROM AN
                                                ODD WORD BOUNDARY
                                                THIS SHOULD SET WCE OW (RHCS3 BIT #12)
                                                AND WCE (RHCS2 BIT #14)
                                                "CLR" (RHCS2 BIT #5) IS GIVEN
                                                ALL ERRORS ARE CLEARED
                                                CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                7881    TEST 35 RHCS2-WCE BIT #14 AND RHCS3-WCE OW BIT #12

                                7883            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                WRITE NINE WORD OF ALL NINES ON TO THE DEVICE
                                                SET UP TO DO WRITE CHECK ON THAT WORD FROM AN
                                                ODD WORD BOUNDARY
                                                DO A ONE WORD WRITE CHECK WITH RHBA FROM AN
                                                ODD WORD BOUNDARY
                                                THIS SHOULD SET WCE OW (RHCS3 BIT #12)
                                                AND WCE (RHCS2 BIT #14)
                                                "CLR" (RHCS2 BIT #5) IS GIVEN
                                                ALL ERRORS ARE CLEARED
                                                CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                8114    TEST 36 RHCS2-WCE BIT #14 AND RHCS3-WCE EW BIT #11

                                8116            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                WRITE NINE WORD OF ALL NINES ON TO THE DEVICE
                                                SET UP TO DO WRITE CHECK ON THAT WORD FROM AN
                                                EVEN WORD BOUNDARY
                                                DO A ONE WORD WRITE CHECK WITH RHBA FROM AN
                                                EVEN WORD BOUNDARY
                                                THIS SHOULD SET WCE EW (RHCS3 BIT #11)
                                                AND WCE (RHCS2 BIT #14)
                                                "CLR" (RHCS2 BIT #5) IS GIVEN
                                                ALL ERRORS ARE CLEARED
                                                CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                8347    TEST 37 RHCS2-WCE BIT #14 AND RHCS3-WCE EW BIT #11
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                                MAINDEC-11-DERHAC-A
                                8349            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                WRITE NINE WORD OF ALL NINES ON TO THE DEVICE
                                                SET UP TO DO WRITE CHECK ON THAT WORD FROM AN
                                                EVEN WORD BOUNDARY
                                                DO A ONE WORD WRITE CHECK WITH RHBA FROM AN
                                                EVEN WORD BOUNDARY
                                                THIS SHOULD SET WCE EW (RHCS3 BIT #11)
                                                AND WCE (RHCS2 BIT #14)
                                                "CLR" (RHCS2 BIT #5) IS GIVEN
                                                ALL ERRORS ARE CLEARED
                                                CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                8581    TEST 40 TEST DBL (RHCS3 BIT #10) TEST A

                                8583            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)

                                8584            SET UP FOR A NINE WORD WRITE FROM AN EVEN WORD BOUNDARY
                                                DO A NINE WORD WRITE FROM AN EVEN WORD BOUNDARY
                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                9694    TEST 41 TEST DBL (RHCS3 BIT #10) TEST B

                                8696            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                SET UP FOR A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
                                                DO A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
                                                THIS SHOULD SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                8808    TEST 42 TEST DBL (RHCS3 BIT #10) TEST C

                                8810            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                SET UP FOR A TEN WORD WRITE FROM AN ODD WORD BOUNDARY
                                                DO A TEN WORD WRITE FROM AN ODD WORD BOUNDARY
                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                8921    TEST 43 TEST DBL (RHCS3 BIT #10) TEST D

                                8923            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                SET UP FOR A ELEVEN WORD WRITE FROM AN EVEN WORD BOUNDAR
                                                DO A ELEVEN WORD WRITE FROM AN EVEN WORD BOUNDARY
                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
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                                MAINDEC-11-DERHAC-A
                                                9034    TEST 44 TEST DBL (RHCS3 BIT #10) TEST E

                                                9036            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
                                                                WITH BAI IN RHCS2 BIT #3 SET
                                                                DO A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
                                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                9153    TEST 45 TEST DBL (RHCS3 BIT #10) TEST F

                                                9155            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A ELEVEN WORD WRITE FROM AN ODD WORD BOUNDARY
                                                                DO A ELEVEN WORD WRITE FROM AN ODD WORD BOUNDARY
                                                                THIS SHOULD SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                9268    TEST 46 TEST DBL (RHCS3 BIT #10) TEST G

                                                9270            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A NINE WORD READ FROM AN EVEN WORD BOUNDARY
                                                                DO A NINE WORD READ FROM AN EVEN WORD BOUNDARY
                                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                9381    TEST 47 TEST DBL (RHCS3 BIT #10) TEST H

                                                9383            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A TEN WORD READ FROM AN EVEN WORD BOUNDARY
                                                                DO A TEN WORD READ FROM AN EVEN WORD BOUNDARY
                                                                THIS SHOULD SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                9495    TEST 50 TEST DBL (RHCS3 BIT #10) TEST I

                                                9497            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A TEN WORD READ FROM AN ODD WORD BOUNDARY
                                                                DO A TEN WORD READ FROM AN ODD WORD BOUNDARY
                                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3

                                                9502            CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                9608    TEST 51 TEST DBL (RHCS3 BIT #10) TEST J
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                                MAINDEC-11-DERHAC-A
                                                9610            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A ELEVEN WORD READ FROM AN EVEN WORD BOUNDARY
                                                                DO A ELEVEN WORD READ FROM AN EVEN WORD BOUNDARY
                                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                9721    TEST 52 TEST DBL (RHCS3 BIT #10) TEST K

                                                9723            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A ELEVEN WORD READ FROM AN ODD WORD BOUNDARY
                                                                DO A ELEVEN WORD READ FROM AN ODD WORD BOUNDARY
                                                                THIS SHOULD SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                9835    TEST 53 TEST DBL (RHCS3 BIT #10) TEST L

                                                9837            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A TEN WORD READ FROM AN EVEN WORD BOUNDARY
                                                                WITH BAI IN RHCS2 BIT #3 SET
                                                                DO A TEN WORD READ FROM AN EVEN WORD BOUNDARY
                                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                9955    TEST 54 TEST DBL (RHCS3 BIT #10) TEST M

                                                9957            CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A ONE WORD WRITE REVERSE FROM AN EVEN WORD BO
                                                                DO A ONE WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
                                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                10068   TEST 55 TEST DBL (RHCS3 BIT #10) TEST N

                                                10070           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A TWO WORD WRITE REVERSE FROM AN EVEN WORD BO
                                                                DO A TWO WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
                                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                                10181   TEST 56 TEST DBL (RHCS3 BIT #10) TEST O

                                                10183           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                                SET UP FOR A TWO WORD WRITE REVERSE FROM AN ODD WORD BOU
                                                                DO A TWO WORD WRITE REVERSE FROM AN ODD WORD BOUNDARY
                                                                THIS SHOULD SET RHCS3 BIT #10 DBL
                                                                CHECK RHCS3
                                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
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                                MAINDEC-11-DERHAC-A
                                10295   TEST 57 TEST DBL (RHCS3 BIT #10) TEST P

                                10297           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                SET UP FOR A THREE WORD WRITE REVERSE FROM AN EVEN WORD
                                                DO A THREE WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
                                                THIS SHOULD SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                10409   TEST 60 TEST DBL (RHCS3 BIT #10) TEST Q

                                10411           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                SET UP FOR A THREE WORD WRITE REVERSE FROM AN ODD WORD B
                                                DO A THREE WORD WRITE REVERSE FROM AN ODD WORD BOUNDARY
                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                10522   TEST 61 TEST DBL (RHCS3 BIT #10) TEST R

                                10524           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                SET UP FOR A TWO WORD WRITE REVERSE FROM AN EVEN WORD BO
                                                WITH BAI IN RHCS2 BIT #3 SET
                                                DO A TWO WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY

                                10528           THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                10642   TEST 62 TEST DBL (RHCS3 BIT #10) TEST S

                                10644           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                SET UP FOR A NINE WORD READ REVERSE FROM AN EVEN WORD BO
                                                DO A NINE WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
                                                THIS SHOULD SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
                                                IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE

                                10761   TEST 63 TEST DBL (RHCS3 BIT #10) TEST T

                                10763           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                                SET UP FOR A TEN WORD READ REVERSE FROM AN EVEN WORD BOU
                                                DO A TEN WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
                                                THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                                CHECK RHCS3
                                                CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
                                                IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE
```

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                                MAINDEC-11-DERHAC-A
                        10879   TEST 64 TEST DBL (RHCS3 BIT #10) TEST U

                        10881           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        SET UP FOR A TEN WORD READ REVERSE FROM AN ODD WORD BOUN
                                        DO A TEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
                                        THIS SHOULD SET RHCS3 BIT #10 DBL
                                        CHECK RHCS3
                                        CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
                                        IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE

                        10998   TEST 65 TEST DBL (RHCS3 BIT #10) TEST V

                        11000           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        SET UP FOR A ELEVEN WORD READ REVERSE FROM AN EVEN WORD
                                        DO A ELEVEN WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
                                        THIS SHOULD SET RHCS3 BIT #10 DBL
                                        CHECK RHCS3
                                        CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
                                        IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE

                        11117   TEST 66 TEST DBL (RHCS3 BIT #10) TEST W

                        11119           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        SET UP FOR A ELEVEN WORD READ REVERSE FROM AN ODD WORD B
                                        DO A ELEVEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY

                        11122           THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                        CHECK RHCS3
                                        CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
                                        IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE

                        11235   TEST 67 TEST DBL (RHCS3 BIT #10) TEST X

                        11237           CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        SET UP FOR A TEN WORD READ REVERSE FROM AN ODD WORD BOUN
                                        WITH BAI IN RHCS2 BIT #3 SET
                                        DO A TEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
                                        THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                        CHECK RHCS3
                                        CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
                                        IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE

                        11362   TEST 70 END OF ONE RH
                                        THIS IS THE END OF TEST FOR ONE RH
                                        IF THERE ARE MORE RH THEN THE PROGRAM
                                        JUMPS TO TEST 2 FOR NEXT RH TEST
                                        END PASS IS REACHED ONLY AFTER ALL RH ARE COMPLETE
```

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                                MAINDEC-11-DERHAC-A
                                ;*********************************************************************
                        11400   ;END OF PASS ROUTINE
                                ;*********************************************************************
                                ;
                                ;11402  INCREMENT THE PASS NUMBER ($PASS)
                                ;       TYPE "END PASS #XXXXX" (WHERE XXXXX IS A DECIMAL NUMBER)
                                ;       IF THERES A MONITOR GO TO IT
                                ;       IF THERE ISN'T JUMP TO TST2
                                ;
                                ;*********************************************************************
                        11439   ;SUBROUTINES
                                ;*********************************************************************
                                ;
                                ;*********************************************************************
                        11655   ;RS DATA TRANSFER SUBROUTINE
                                ;*********************************************************************
                                ;
                                ;11657          THIS SUBROUTINE WRITES OR READS OR DOES A
                                ;               WRITE CHECK ON CYLINDER 0 TRACK 0 SECTOR 0
                                ;               IT ASSUMES THE RH REGISTERS ARE APPROPRIATELY
                                ;               FILLED
                                ;               WHEN IT RETURNS FROM THIS SUBROUTINE TO THE
                                ;               MAIN PROGRAM IT MEANS THE TRANSFER IS COMPLETE
                                ;
                                ;               THE CALL IS BY A JSR R0,@COMND COMAND
                                ;
                                ;*********************************************************************
                        11704   ;RP04 DATA TRANSFER SUBROUTINE
                                ;*********************************************************************
                                ;
                                ;11706          THIS SUBROUTINE WRITE/READ/WRITE CHECK ON THE RP04 CYLIN
                                ;               TRACK 0, SECTOR 0.
                                ;
                                ;11708          IT ASSUMES THE RH REGISTERS ARE APPROPRIATELY FILLED.
                                ;               WHEN IT RETURNS FROM THIS SUBROUTINE TO THE MAIN
                                ;               PROGRAM IT MEANS THE COMMAND IS COMPLETE
                                ;
                                ;               THE CALL IS BY A JSR R0,@COMND COMMAND.
```

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                                MAINDEC-11-DERHAC-A
                                ;*********************************************************************
                        11758   ;TM02 DATA TRANSFER SUBROUTINE
                                ;*********************************************************************
                                ;
                        11760   ;       THIS SUBROUTINE WRITES/READS/WRITE CHECKS ON THE TM02-TU
                                ;       ON THE FIRST BLOCK FROM BEGINNING OF TAPE (BOT)
                                ;
                        11762   ;       IT ASSUMES THE RH REGISTERS ARE APPROPRIATELY FILLED.
                                ;       WHEN IT RETURNS FROM THIS SUBROUTINE TO THE
                                ;       MAIN PROGRAM IT MEANS THE COMMAND IS COMPLETE.
                                ;
                                ;       THE CALL IS
                                ;       JSR     R0,@COMND
                                ;
                        11915   ;       THIS ROUTINE WILL ALLOW THE CHANGE OF THE BASE
                                ;       ADDRESS FROM 176700 TO ANY TYPED VALUE
                                ;
                        11982   ;*************************
                                ;
                                ;*********************************************************************
                        11985   ;SCOPE HANDLER ROUTINE
                                ;*********************************************************************
                                ;
                        11987   ;THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
                                ;AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7
                                ;AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
                                ;THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
                                ;SW14=1  LOOP ON TEST
                                ;SW11=1  INHIBIT ITERATIONS
                                ;SW09=1  LOOP ON ERROR
                                ;SW08=1  LOOP ON TEST IN SWR<7:0>
                                ;CALL
                                ;       SCOPE           ;;SCOPE=IOT

                                ;*********************************************************************
                        12051   ;CONVERT BINARY TO DECIMAL AND TYPE ROUTINE
                                ;*********************************************************************
                                ;
                        12053   ;THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIG
                                ;SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER
                                ;NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE T
                                ;BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS
                                ;REPLACED WITH SPACES.
                                ;CALL:
                                ;       MOV     NUM,-(SP)       ;;PUT THE BINARY NUMBER ON THE S
                                ;       TYPDS                   ;;GO TO THE ROUTINE
```

```
                                MAINDEC-11-DERHAC-A
                                ;*********************************************************************
                        12119   ;TYPE ROUTINE
                                ;*********************************************************************

                        12121   ;ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 B
                                ;THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE
                                ;NOTE1:  $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CH
                                ;NOTE2:  $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED
                                ;NOTE3:  $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
                                ;
                                ;CALL:
                                ;1) USING A TRAP INSTRUCTION
                                ;       TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN
                                ;OR
                                ;       TYPE
                                ;       MESADR
                                ;
                                ;2) USING A JSR INSTRUCTION
                                ;       MOV     PS,-(SP)        ;;PUSH PROCESSOR STATUS WORD ON
                                ;       JSR     PC,$TYPE        ;;CALL TYPE ROUTINE
                                ;       MESADDR                 ;;FIRST ADRESS OF MESSAGE
                                ;
                                ;*********************************************************************
                        12192   ;TTY INPUT ROUTINE
                                ;*********************************************************************

                        12201   ;TK INITIALIZE ROUTINE
                                ;THIS ROUTINE WILL INITIALIZE THE TTY KEYBOARD INPUT QUEUE
                                ;SETUP THE INTERRUPT VECTOR AND TURN ON THE KEYBOARD INTERRUPT
                                ;CALL:
                                ;       JSR     PC,$TKINT
                                ;       RETURN

                        12218   ;TK SERVICE ROUTINE
                                ;THIS ROUTINE WILL SERVICE THE TTY KEYBOARD INTERRUPT
                                ;BY READING THE CHARACTER FROM THE INPUT BUFFER AND PUTTING
                                ;IT IN THE QUEUE.
                                ;IF THE CHARACTER IS A "CONTROL-C" (↑C) $TKINT IS CALLED AND
                                ;UPON RETURN EXIT IS MADE TO THE "CONTROL-C" RESTART ADDRESS (OPE

                        12245   ;THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY
                                ;CALL:
                                ;       RDCHR                   ;;GET A CHARACTER FROM THE QUEUE
                                ;       RETURN HERE             ;;CHARACTER IS ON THE STACK
                                ;                               ;;WITH PARITY BIT STRIPPED OFF

                        12266   ;THIS ROUTINE WILL INPUT A STRING FROM THE TTY
                                ;CALL:
                                ;       RDLIN                   ;;INPUT A STRING FROM THE TTY
                                ;       RETURN HERE             ;;ADDRESS OF FIRST CHARACTER WIL
                                ;                               ;;TERMINATOR WILL BE A BYTE OF A
```

```
                                MAINDEC-11-DERHAC-A
                                ;*******************************************************************
                        12303   ;READ AN OCTAL NUMBER FROM THE TTY
                                ;*******************************************************************

                        12305   ;THIS ROUTINE WILL READ AN OCTAL (ASCII) NUMBER FROM THE TTY AND
                                ;CHANGE IT TO BINARY.
                                ;THE INPUT CHARACTERS WILL BE CHECKED TO INSURED THEY ARE LEGAL
                                ;OCTAL DIGITS. IF AN ILLEGAL CHARACTER IS READ A "?" WILL BE TYPE
                                ;FOLLOWED BY A CARRIAGE RETURN-LINE FEED. THE COMPLETE NUMBER MUS
                                ;THEN BE RETYPED. THE INPUT IS TERMINATED BY TYPING A CARRIAGE RE
                                ;CALL:
                                ;       RDOCT                   ;;READ AN OCTAL NUMBER
                                ;       RETURN HERE             ;;LOW ORDER BITS ARE ON TOP OF T
                                ;                               ;;HIGH ORDER BITS ARE IN $HIOCT

                                ;*******************************************************************
                        12357   ;ERROR HANDLER ROUTINE
                                ;*******************************************************************

                        12359   ;THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
                                ;SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
                                ;AND GO TO $ERRTYP ON ERROR
                                ;THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
                                ;SW15=1  HALT ON ERROR
                                ;               HALT CAN OCCUR BEFORE AND AFTER THE ERROR TYPEOU
                                ;SW13=1  INHIBIT ERROR TYPEOUTS
                                ;SW10=1  BELL ON ERROR
                                ;SW09=1  LOOP ON ERROR
                                ;CALL
                                ;       ERROR   N       ;;ERROR=EMT AND N=ERROR ITEM NUMBER

                                ;*******************************************************************
                        12401   ;ERROR MESSAGE TYPEOUT ROUTINE
                                ;*******************************************************************

                        12402   ;THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE
                                ;ERROR IS TO BE REPORTED.  IT THEN OBTAINS, FROM THE "ERROR TABLE
                                ;AND REPORTS THE APPROPRIATE INFORMATION CONCERNING THE ERROR.
                                ;IT IS A COPY OF THE $ERRTYP SUBROUTINE FROM SYSMAC.
                                ;WITH ONLY MINOR CHANGES
                                ;FIRST IF SWITCH 6 IS SET AND SWITCH 8 RESET THEN
                                ;ALL REGISTER CONTENTS WILL BE TYPED BEFOR REPORTING THE ERROR

                        12409   ;SECOND IF THE CURRENT ERROR HAS THE SAME ITEM NUMBER
                                ;AS THE PREVIOUS ERROR THEN ONLY THE DATA WILL BE TYPED
                                ;AND NOT THE ERROR MESSAGE AND HEADER.

                        12627   ;*******************************************************************
                                ;*******************************************************************
```

```
1194                                    MAINDEC-11-DERHAC-A
1195                                    ;*********************************************************************
1196                            12631   ;BINARY TO OCTAL (ASCII) AND TYPE
1197                                    ;*********************************************************************
1198
1199                                    12633   ;THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIG
1200                                            ;OCTAL (ASCII) NUMBER AND TYPE IT.
1201                                            ;$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS
1202                                            ;CALL:
1203                                                    MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
1204                                                    TYPOS                   ;;CALL FOR TYPEOUT
1205                                                    .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS
1206                                                    .BYTE   M               ;;M=1 OR 0
1207                                                                            ;;1=TYPE LEADING ZEROS
1208                                                                            ;;0=SUPPRESS LEADING ZER
1209
1210                                            ;$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE
1211                                            ;$TYPOS OR $TYPOC
1212                                            ;CALL:
1213                                                    MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
1214                                                    TYPON                   ;;CALL FOR TYPEOUT
1215
1216                                            ;$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
1217                                            ;CALL:
1218                                                    MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
1219                                                    TYPOC                   ;;CALL FOR TYPEOUT
1220
1221                                    ;*********************************************************************
1222                            12709   ;TRAP DECODER
1223                                    ;*********************************************************************
1224
1225                                    12711   ;THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTIO
1226                                            ;AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDR
1227                                            ;OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
1228                                            ;GO TO THAT ROUTINE.
1229
1230                                    ;*********************************************************************
1231                            12724   ;TRAP TABLE
1232                                    ;*********************************************************************
1233
1234                                    12726   ;THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLE
1235                                            ;BY THE "TRAP" INSTRUCTION.
1236
```

```
                                MAINDEC-11-DERHAC-A
                                ;*******************************************************************
                        12746   ;POWER DOWN AND UP ROUTINES
                                ;*******************************************************************
                                ;
                        12786   ;*******************************************************************
                                ;*******************************************************************
                                ;
                                %
```

```
                                .TITLE  MAINDEC-11-DERHAC-A
                                ;*COPYRIGHT (C) 1975-1976
                                ;*DIGITAL EQUIPMENT CORP.
                                ;*MAYNARD, MASS. 01754
                                ;*
                                ;*
                                ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                                ;*PACKAGE (MAINDEC-11-DZQAC-C1),MAR 24, 1976.
                                ;*

                                .SBTTL  OPERATIONAL SWITCH SETTINGS
                                ;*
                                ;*      SWITCH                  USE
                                ;*      ------          --------------------
                                ;*        15            HALT ON ERROR
                                ;*        14            LOOP ON TEST
                                ;*        13            INHIBIT ERROR TYPEOUTS
                                ;*        11            INHIBIT ITERATIONS
                                ;*        10            BELL ON ERROR
                                ;*         9            LOOP ON ERROR
                                ;*         8            LOOP ON TEST IN SWR<7:0>
                                ;*         7            STOP FURTHER COMPARES IF SW08 IS LOW
                                ;*         6            TYPE ALL REG. WITH ERROR IF SW8 LOW
                                .SBTTL  BASIC DEFINITIONS

                                ;*INITIAL ADDRESS OF THE STACK POINTER *** 1000 ***
001000                          STACK=  1000
                                .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
                                .EQUIV  R6,SP           ;;STACK POINTER
                                .EQUIV  R7,PC           ;;PROGRAM COUNTER

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

```
                                ;
                                ;PRIORITY LEVEL DEFINITIONS
                                ;
000040                  PR1=    40              ;;PRIORITY LEVEL 1
000100                  PR2=    100             ;;PRIORITY LEVEL 2
000140                  PR3=    140             ;;PRIORITY LEVEL 3
000200                  PR4=    200             ;;PRIORITY LEVEL 4
000240                  PR5=    240             ;;PRIORITY LEVEL 5
000300                  PR6=    300             ;;PRIORITY LEVEL 6
000340                  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

                                .SBTTL  TRAP CATCHER

000000                                  .=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
000174                                  .=174
000174  000000                DISPREG: .WORD  0               ;;SOFTWARE DISPLAY REGISTER
000176  000000                SWREG:   .WORD  0               ;;SOFTWARE SWITCH REGISTER
                                .SBTTL  STARTING ADDRESS(ES)
000200  000137  005522                  JMP     @#BEGIN ;;JUMP TO STARTING ADDRESS OF PROGRAM
000046                                  .=46
000046  037554                          $ENDAD
000052                                  .=52
000052  000000                          000000
000210                                  .=210
000210  000137  005532                  JMP     @#BEGIN2        ;JUMP SELECT TEST
                                ;*STARTING ADDRESS 200 FOR NORMAL STARTS
                                ;*THIS WILL TEST ALL RP04'S ON THE SYSTEM A SINGLE DRIVE AT A TIME
                                ;*
                                ;*STARTING ADDRESS 210 WILL TEST ONLY ONE SPECIFIED DRIVE
                                ;*
                                ;*STARTING ADDRESS 220 WILL JUMP OVER THE TESTS REQUIRING AN OPERATOR
                                ;*AT THE DRIVE
                                .SBTTL  MEMORY MANAGEMENT DEFINITIONS

                                ;*KT11 VECTOR ADDRESS

000250                          MMVEC=  250

                                ;*KT11 STATUS REGISTER ADDRESSES

177572                          SR0=    177572
177574                          SR1=    177574
```

```
1414            177576                  SR2=    177576
1415            172516                  SR3=    172516
1416
1417                                    ;*KERNEL "I" PAGE DESCRIPTOR REGISTERS
1418
1419            172300                  KIPDR0= 172300
1420            172302                  KIPDR1= 172302
1421            172304                  KIPDR2= 172304
1422            172306                  KIPDR3= 172306
1423            172310                  KIPDR4= 172310
1424            172312                  KIPDR5= 172312
1425            172314                  KIPDR6= 172314
1426            172316                  KIPDR7= 172316
1427
1428                                    ;*KERNEL "I" PAGE ADDRESS REGISTERS
1429
1430            172340                  KIPAR0= 172340
1431            172342                  KIPAR1= 172342
1432            172344                  KIPAR2= 172344
1433            172346                  KIPAR3= 172346
1434            172350                  KIPAR4= 172350
1435            172352                  KIPAR5= 172352
1436            172354                  KIPAR6= 172354
1437            172356                  KIPAR7= 172356
1438
1439                                    ;;*****************************************************************
1440            001110                          .=1110
```

```
                                .SBTTL  COMMON TAGS

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

                        001100          .=1100
001100                  001100  $CMTAG:                 ;;START OF COMMON TAGS
001100  000000          001100  $PASS:  .WORD   0       ;;CONTAINS PASS COUNT
001102      000         001102  $TSTNM: .BYTE   0       ;;CONTAINS THE TEST NUMBER
001103      000         001103  $ERFLG: .BYTE   0       ;;CONTAINS ERROR FLAG
001104  000000          001104  $ICNT:  .WORD   0       ;;CONTAINS SUBTEST ITERATION COUNT
001106  000000          001106  $LPADR: .WORD   0       ;;CONTAINS SCOPE LOOP ADDRESS
001110  000000          001110  $LPERR: .WORD   0       ;;CONTAINS SCOPE RETURN FOR ERRORS
001112  000000          001112  $ERTTL: .WORD   0       ;;CONTAINS TOTAL ERRORS DETECTED
001114      000         001114  $ITEMB: .BYTE   0       ;;CONTAINS ITEM CONTROL BYTE
001115      001         001115  $ERMAX: .BYTE   1       ;;CONTAINS MAX. ERRORS PER TEST
001116  000000          001116  $ERRPC: .WORD   0       ;;CONTAINS PC OF LAST ERROR INSTRUCTION
001120  000000          001120  $GDADR: .WORD   0       ;;CONTAINS ADDRESS OF 'GOOD' DATA
001122  000000          001122  $BDADR: .WORD   0       ;;CONTAINS ADDRESS OF 'BAD' DATA
001124  000000          001124  $GDDAT: .WORD   0       ;;CONTAINS 'GOOD' DATA
001126  000000          001126  $BDDAT: .WORD   0       ;;CONTAINS 'BAD' DATA
001130  000000                  .WORD   0       ;;RESERVED--NOT TO BE USED
001132  000000                  .WORD   0
001134      000         001134  $AUTOB: .BYTE   0       ;;AUTOMATIC MODE INDICATOR
001135      000         001135  $INTAG: .BYTE   0       ;;INTERRUPT MODE INDICATOR
001136  000000                  .WORD   0
001140  177570          001140  SWR:    .WORD   DSWR    ;;ADDRESS OF SWITCH REGISTER
001142  177570          001142  DISPLAY: .WORD  DDISP    ;;ADDRESS OF DISPLAY REGISTER
001144  177560          001144  $TKS:   177560          ;;TTY KBD STATUS
001146  177562          001146  $TKB:   177562          ;;TTY KBD BUFFER
001150  177564          001150  $TPS:   177564          ;;TTY PRINTER STATUS REG. ADDRESS
001152  177566          001152  $TPB:   177566          ;;TTY PRINTER BUFFER REG. ADDRESS
001154      000         001154  $NULL:  .BYTE   0       ;;CONTAINS NULL CHARACTER FOR FILLS
001155      002         001155  $FILLS: .BYTE   2       ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
001156      012         001156  $FILLC: .BYTE   12      ;;INSERT FILL CHARS. AFTER A "LINE FEED"
001157      000         001157  $TPFLG: .BYTE   0       ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
001160  000000          001160  $REGAD: .WORD   0       ;;CONTAINS THE ADDRESS FROM
                                                        ;;WHICH  ($REG0) WAS OBTAINED
001162  000000          001162  $REG0:  .WORD   0       ;;CONTAINS (($REGAD)+0)
001164  000000          001164  $REG1:  .WORD   0       ;;CONTAINS (($REGAD)+2)
001166  000000          001166  $REG2:  .WORD   0       ;;CONTAINS (($REGAD)+4)
001170  000000          001170  $REG3:  .WORD   0       ;;CONTAINS (($REGAD)+6)
001172  000000          001172  $REG4:  .WORD   0       ;;CONTAINS (($REGAD)+10)
001174  000000          001174  $REG5:  .WORD   0       ;;CONTAINS (($REGAD)+12)
001176  000000          001176  $TMP0:  .WORD   0       ;;USER DEFINED
001200  000000          001200  $TMP1:  .WORD   0       ;;USER DEFINED
001202  000000          001202  $TMP2:  .WORD   0       ;;USER DEFINED
001204  000000          001204  $TMP3:  .WORD   0       ;;USER DEFINED
001206  000000          001206  $TMP4:  .WORD   0       ;;USER DEFINED
001210  000000          001210  $TMP5:  .WORD   0       ;;USER DEFINED
001212  000000          001212  $TIMES: 0               ;;MAX. NUMBER OF ITERATIONS
001214  000000          001214  $ESCAPE:0               ;;ESCAPE ON ERROR ADDRESS
001216  177607  000377      001216  $BELL:  .ASCIZ  <207><377><377> ;;CODE FOR BELL
001222      077         001222  $QUES:  .ASCII  /?/      ;;QUESTION MARK
001223      015         001223  $CRLF:  .ASCII  <15>     ;;CARRIAGE RETURN
```

```
  1497  001224  000012                    $LF:    .ASCIZ  <12>            ;;LINE FEED
  1498                                    ;;*************************************************************************
```

```
                                .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

001226                          $ERRTB:

                                ;*****************************************************************
                                ;

                                ;ITEM 1
001226  046712                          EM1                     ;THE RH BASE ADDRESS WAS 772040
                                                                ;INDICATING A RS04 OR RS03
                                                                ;BUT THE DRIVE TYPE DID NOT
                                                                ;CONTAIN 0,1,2,3 OR 4
001230  065133                          DH1                     ;PC
                                                                ;RHDT
001232  066566                          DT1                     ;$ERRPC,$BDDAT,0
001234  066750                          DF1                     ;0

                                ;ITEM 2
001236  047064                          EM2                     ;THE RH BASE ADDRESS WAS 776700
                                                                ;INDICATING AN RP04, RP05, OR RP06
                                                                ;BUT THE DRIVE TYPE DID NOT
                                                                ;CONTAIN 20020 24020, 20021, 24021,
                                                                ;20022, OR 24022

001240  065133                          DH1                     ;PC
                                                                ;RHDT
001242  066566                          DT1                     ;$ERRPC,$BDDAT,0
001244  066750                          DF1                     ;0

                                ;ITEM 3
001246  047266                          EM3                     ;THE RH BASE ADDRESS WAS 772440
                                                                ;INDICATING A TM02, BUT THE
                                                                ;DRIVE TYPE DID NOT CONTAIN
                                                                ;142010 INDICATING NO
                                                                ;TM02
001250  065133                          DH1                     ;PC
                                                                ;RHDT
001252  066566                          DT1                     ;$ERRPC,$BDDAT,0
001254  066750                          DF1                     ;0,0

                                ;ITEM 4
```

```
1555  001256  047422                          EM4             ;THE RH BASE ADDRESS WAS 776300
1556                                                          ;INDICATING MORE THAN ONE
1557                                                          ;RH DEVICE. BUT THE DRIVE
1558                                                          ;TYPE DID NOT CONTAIN
1559                                                          ;0,1,2,3,4,20020,24020,20021,24021,
1560                                                          ;20022,24022, OR 142010 INDICATING NO
1561                                                          ;RH DEVICE IS PRESENT
1562  001260  065133                          DH1             ;PC
1563                                                          ;RHDT
1564  001262  066566                          DT1             ;$ERRPC,$BDDAT,0
1565  001264  066750                          DF1             ;0,0
1566
1567                                  ;ITEM 5
1568  001266  047721                          EM5             ;THE UNIBUS TIMED OUT
1569                                                          ;FOR EACH OF THE FOLLOWING
1570                                                          ;ADDRESSES, INDICATING
1571                                                          ;NO RH ON THE SYSTEM
1572                                                          ;
1573                                                          ;SO ABORT PROGRAM
1574  001270  065142                          DH5             ;PC
1575                                                          ;UNIBUS ADDRESSES ON WHICH
1576                                                          ;TIME OUT OCCURRED
1577  001272  066574                          DT5             ;$ERRPC,RSCS1,RPCS1,TMCS1,MIXCS1
1578  001274  066752                          DF5             ;0,0,0,0,0
1579
1580                                  ;ITEM 6
1581  001276  050074                          EM6             ;AFTER AN RH CLEAR (BIT #5
1582                                                          ;IN RHCS2) RHCS2 DOES NOT
1583                                                          ;HAVE ONLY IR AND UNIT
1584                                                          ;NUMBER
1585  001300  065216                          DH6             ;PC
1586                                                          ;TEST NO
1587                                                          ;RHCS2 GOOD
1588                                                          ;RHCS2 BAD
1589  001302  066610                          DT6             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1590  001304  066757                          DF6             ;0,0,0,0
1591
1592                                  ;ITEM 7
1593  001306  050212                          EM7             ;AFTER CLEARING THE RH AND
1594                                                          ;WRITING ONE WORD INTO
1595                                                          ;RHDB AND READING IT
1596                                                          ;BACK CAUSED RHDB TO
1597                                                          ;HAVE  WRONG VALUE GIVEN IN BAD RHDB
1598  001310  065261                          DH7             ;PC
1599                                                          ;TEST NO
1600                                                          ;RHDB GOOD
1601                                                          ;RHDB BAD
1602  001312  066610                          DT6             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1603  001314  066757                          DF6             ;0,0,0,0
1604
1605                                  ;ITEM 10
1606  001316  050404                          EM10            ;AFTER CLEARING THE RH AND
1607                                                          ;WRITING ONE WORD INTO
1608                                                          ;RHDB AND READING IT
1609                                                          ;BACK, CAUSED RHCS2 TO
1610                                                          ;HAVE WRONG DATA
```

```
                                                        ;GIVEN IN BAD RHCS2
001320  065216                          DH6           ;PC
                                                        ;TEST NUMBER
                                                        ;RHCS2 GOOD
                                                        ;RHCS2 BAD
001322  066610                          DT6           ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001324  066757                          DF6           ;0,0,0,0

                                ;ITEM 11
001326  050577                          EM11          ;AFTER CLEARING THE RH AND
                                                        ;WRITING ONE WORD INTO
                                                        ;RHDB AND READING IT
                                                        ;BACK, CAUSED RHCS1 TO
                                                        ;HAVE WRONG DATA
                                                        ;GIVEN IN BAD RHCS1
001330  065321                          DH11          ;PC
                                                        ;TEST NUMBER
                                                        ;RHCS1 GOOD
                                                        ;RHCS1 BAD
001332  066610                          DT6           ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001334  066757                          DF6           ;0,0,0,0

                                ;ITEM 12
001336  050772                          EM12          ;AFTER CLEARING THE RH AND
                                                        ;WRITING ONE WORD INTO
                                                        ;RHDB AND READING IT
                                                        ;BACK, CAUSED RHCS3 TO
                                                        ;HAVE WRONG DATA
                                                        ;GIVEN IN BAD RHCS3
001340  065363                          DH12          ;PC
                                                        ;TEST NUMBER
                                                        ;RHCS3 GOOD
                                                        ;RHCS3 BAD
001342  066610                          DT6           ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001344  066757                          DF6           ;0,0,0,0

                                ;ITEM 13
001346  051165                          EM13          ;AFTER CLEARING THE RH AND
                                                        ;WRITING ONE WORD INTO
                                                        ;RHDB AND READING IT
                                                        ;BACK, CAUSED RHBA TO
                                                        ;HAVE WRONG DATA
                                                        ;GIVEN IN BAD RHBA
001350  065425                          DH13          ;PC
                                                        ;TEST NUMBER
                                                        ;RHBA GOOD
                                                        ;RHBA BAD
001352  066610                          DT6           ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001354  066757                          DF6           ;0,0,0,0

                                ;ITEM 14
001356  051357                          EM14          ;AFTER CLEARING THE RH AND
                                                        ;WRITING ONE WORD INTO
                                                        ;RHDB AND READING IT
                                                        ;BACK, CAUSED RHBAE TO
                                                        ;HAVE WRONG DATA
```

```
                                                        ;GIVEN IN BAD RHBAE
001360  065465                    DH14                  ;PC
                                                        ;TEST NUMBER
                                                        ;RHBAE GOOD
                                                        ;RHBAE BAD
001362  066610                    DT6                   ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001364  066757                    DF6                   ;0,0,0,0

                                ;ITEM 15
001366  051552                    EM15                  ;AFTER CLEARING THE RH AND
                                                        ;WRITING ONE WORD INTO
                                                        ;RHDB AND READING IT
                                                        ;BACK, CAUSED RHWC TO
                                                        ;HAVE WRONG DATA
                                                        ;GIVEN IN BAD RHWC
001370  065527                    DH15                  ;PC
                                                        ;TEST NUMBER
                                                        ;RHWC GOOD
                                                        ;RHWC BAD
001372  066610                    DT6                   ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001374  066757                    DF6                   ;0,0,0,0

                                ;ITEM 16
001376  051744                    EM16                  ;AFTER CLEARING THE RH AND
                                                        ;WRITING ONE WORD INTO
                                                        ;RHDB
                                                        ;CAUSED RHCS2 TO
                                                        ;HAVE WRONG DATA
                                                        ;GIVEN IN BAD RHCS2
001400  065216                    DH6                   ;PC
                                                        ;TEST NUMBER
                                                        ;RHCS2 GOOD
                                                        ;RHCS2 BAD
001402  066610                    DT6                   ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001404  066757                    DF6                   ;0,0,0,0

                                ;ITEM 17
001406  052137                    EM17                  ;AFTER CLEARING THE RH AND
                                                        ;WRITING TWO WORD INTO
                                                        ;RHDB AND READING IT
                                                        ;BACK, CAUSED RHDB TO
                                                        ;HAVE WRONG DATA
                                                        ;GIVEN IN BAD RHDB
001410  065261                    DH7                   ;PC
                                                        ;TEST NUMBER
                                                        ;RHDB GOOD
                                                        ;RHDB BAD
001412  066610                    DT5                   ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001414  066757                    DF6                   ;0,0,0,0

                                ;ITEM 20
001416  052331                    EM20                  ;AFTER CLEARING THE RH AND
                                                        ;WRITING TWO WORD INTO
                                                        ;RHDB AND READING ONE
                                                        ;BACK, CAUSED RHCS2 TO
                                                        ;HAVE WRONG DATA
```

```
1723
1724  001420  065216                          DH6             ;GIVEN IN BAD RHCS2
1725                                                          ;PC
1726                                                          ;TEST NUMBER
1727                                                          ;RHCS2 GOOD
                                                              ;RHCS2 BAD
1728  001422  066610                          DT6             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1729  001424  066757                          DF6             ;0,0,0,0
1730
1731                                  ;ITEM 21
1732  001426  052525                          EM21            ;AFTER CLEARING THE RH AND
1733                                                          ;WRITING TWO WORD INTO
1734                                                          ;RHDB AND READING IT
1735                                                          ;BACK TWICE, CAUSED RHDB TO
1736                                                          ;HAVE WRONG DATA,
1737                                                          ;GIVEN IN BAD RHDB
1738  001430  065261                          DH7             ;PC
1739                                                          ;TEST NUMBER
1740                                                          ;RHDB GOOD
1741                                                          ;RHDB BAD
1742  001432  066610                          DT6             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1743  001434  066757                          DF6             ;0,0,0,0
1744
1745                                  ;ITEM 22
1746  001436  052725                          EM22            ;AFTER CLEARING THE RH AND
1747                                                          ;WRITING TWO WORD INTO
1748                                                          ;RHDB AND READING IT
1749                                                          ;BACK TWICE, CAUSED RHCS2 TO
1750                                                          ;HAVE WRONG DATA
1751                                                          ;GIVEN IN BAD RHCS2
1752  001440  065215                          DH6             ;PC
1753                                                          ;TEST NUMBER
1754                                                          ;RHCS2 GOOD
1755                                                          ;RHCS2 BAD
1756  001442  066610                          DT6             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1757  001444  066757                          DF6             ;0,0,0,0
1758
1759                                  ;ITEM 23
1760  001446  053126                          EM23            ;AFTER CLEARING THE RH AND
1761                                                          ;WRITING EIGHT WORD INTO
1762                                                          ;RHDB
1763                                                          ;CAUSED RHCS2 TO
1764                                                          ;HAVE WRONG DATA
1765                                                          ;GIVEN IN BAD RHCS2
1766  001450  065216                          DH6             ;PC
1767                                                          ;TEST NUMBER
1768                                                          ;RHCS2 GOOD
1769                                                          ;RHCS2 BAD
1770  001452  066610                          DT6             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1771  001454  066757                          DF6             ;0,0,0,0
1772
1773                                  ;ITEM 24
1774  001456  053323                          EM24            ;THE RH WAS CLEARED
1775                                                          ;AND A PATTERN OF 8 WORDS
1776                                                          ;WERE WRITTEN INTO RHDB
1777                                                          ;READING RHDB FOR THE
1778                                                          ;"N" TH. TIME GAVE WRONG
```

```
1779
1780
1781  001460  065567                          DH24                    ;VALUE IN RHDB
                                                                      ;N IS GIVEN IN "WORD NO"
                                                                      ;PC
                                                                      ;TEST NO
                                                                      ;WORD NO
                                                                      ;RHDB GOOD
                                                                      ;RHDB BAD
1786  001462  066622                          DT24                    ;$ERRPC,TSTNM,SILONM,$GDDAT,$BDDAT
1787  001464  066763                          DF24                    ;0,0,0,0,0
1788
1789                                  ;ITEM 25
1790  001466  053553                          EM25                    ;THE RH WAS CLEARED AND
                                                                      ;A PATTERN OF 8 WORDS WERE
                                                                      ;WRITTEN INTO RHDB
                                                                      ;AFTER READING ALL 8 WORDS
                                                                      ;FOLLWING REGISTER CONTAINED WRONG
                                                                      ;VALUE
1796  001470  065216                          DH6                     ;PC
                                                                      ;TEST NO
                                                                      ;RHCS2 GOOD
                                                                      ;RHCS2 BAD
1800  001472  066610                          DT6                     ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1801  001474  066757                          DF6                     ;0,0,0,0
1802
1803                                  ;ITEM 26
1804  001476  053553                          EM25
1805  001500  065321                          DH11
1806  001502  066610                          DT6
1807  001504  066757                          DF6                     ;0,0
1808
1809                                  ;ITEM 27
1810  001506  053553                          EM25
1811  001510  065363                          DH12                    ;PC
                                                                      ;TEST NO
                                                                      ;RHCS3 GOOD
                                                                      ;RHCS3 BAD
1815  001512  066610                          DT6                     ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1816  001514  066757                          DF6                     ;0,0,0,0
1817
1818                                  ;ITEM 30
1819  001516  053553                          EM25
1820  001520  065425                          DH13                    ;PC
                                                                      ;TEST NO
                                                                      ;RHBA GOOD
                                                                      ;RHBA BAD
1824  001522  066610                          DT6                     ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1825  001524  066757                          DF6                     ;0,0,0,0
1826
1827                                  ;ITEM 31
1828  001526  053553                          EM25
1829  001530  065465                          DH14                    ;PC
                                                                      ;TEST NO
                                                                      ;RHBAE GOOD
                                                                      ;RHBAE BAD
1833  001532  066610                          DT6                     ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1834  001534  066757                          DF6                     ;0,0,0,0
```

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1835
1836                                    ;ITEM 32
1837  001536  053553                          EM25
1838  001540  065527                          DH15                    ;PC
1839                                                                  ;TEST NO
1840                                                                  ;RHWC GOOD
;1841                                                                 ;RHWC BAD
1842  001542  066610                          DT6                     ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1843  001544  066757                          DF6                     ;0,0,0,0
1844
1845                                    ;ITEM 33
1846  001546  054002                          EM33                    ;SETTING RH CLEAR BIT #5
1847                                                                  ;IN RHCS2 CAUSED
1848                                                                  ;ERROR REGISTER 1 TO HAVE
1849                                                                  ;WRONG VALUE
1850  001550  065637                          DH33                    ;PC
1851                                                                  ;TEST NO
1852                                                                  ;RHER1 GOOD
1853                                                                  ;RHER1 BAD
1854  001552  066610                          DT6                     ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1855  001554  066757                          DF6
1856
1857                                    ;ITEM 34
1858  001556  054116                          EM34                    ;AN RH LCLEAR WAS GIVEN
1859                                                                  ;RHER1 WAS CHECKED TO HAVE ZERO
1860                                                                  ;PAT (BIT #4 RHCS2) WAS SET
1861                                                                  ;TO INVERT PARITY CHECKING
1862                                                                  ;RHER1 WAS READ BUT DID NOT
1863                                                                  ;CONTAIN WHAT IS IN RHER1 GOOD
1864  001560  065637                          DH33                    ;PC
1865                                                                  ;TEST NO
1866                                                                  ;RHER1 GOOD
1867                                                                  ;RHER1 BAD
1868  001562  066610                          DT6                     ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1869  001564  066757                          DF6                     ;0,0,0,0
1870
1871                                    ;ITEM 35
1872  001566  054360                          EM35                    ;RH CLEAR WAS GIVEN
1873                                                                  ;RHER1 WAS CHECKED
1874                                                                  ;PAT (BIT #4 RHCS2) WAS SET
1875                                                                  ;AND RHER1 WAS READ
1876                                                                  ;RHCS1 SHOULD HAVE RDY
1877                                                                  ;SC AND MCPE SET
1878  001570  065321                          DH11                    ;PC
1879                                                                  ;TEST NO
1880                                                                  ;RHCS1 GOOD
1881                                                                  ;RHCS1 BAD
1882  001572  066610                          DT5                     ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1883  001574  066757                          DF6                     ;0,0,0,0
1884
1885                                    ;ITEM 36
1886  001576  054556                          EM36                    ;RH CLEAR WAS GIVEN
1887                                                                  ;RHER1 WAS CHECKED
1888                                                                  ;PAT (RHCS2-BIT #4) WAS SET
1889                                                                  ;RHER1 WAS READ AND CHECKED
1890                                                                  ;"1" WAS WRITTEN INTO "TRE"-RHCS1
```

```
1891                                                    ;ON CHECKING RHCS1
1892                                                    ;IT DID NOT CONTAIN SC,MCPE
1893                                                    ;AND RDY
1894  001600  065321                   DH11             ;PC
1895                                                    ;TEST NUMBER
1896                                                    ;RHCS1 GOOD
1897                                                    ;RHCS1 BAD
1898  001602  066610                   DT6              ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1899  001604  066757                   DF6              ;0,0,0,0
1900
1901                              ;ITEM 37
1902  001606  055033                   EM37             ;RH WAS CLEARED
1903                                                    ;RHER1 WAS CHECKED
1904                                                    ;PAT (RHCS2-BIT #4) WAS SET
1905                                                    ;RHER1 WAS READ
1906                                                    ;"1" WAS WRITTEN IN "TRE" RHCS1
1907                                                    ;AN RH CLEAR WAS TO
1908                                                    ;GIVE WHAT IS IN "GOOD"
1909                                                    ;BUT GAVE WHAT IS IN "BAD"
1910  001610  065321                   DH11             ;PC
1911                                                    ;TEST NO
1912                                                    ;RHCS1 GOOD
1913                                                    ;RHCS1 BAD
1914  001612  066610                   DT6              ;$ERRPC,TSTNM,$GDDAT,$BDDAT
1915  001614  066757                   DF6              ;0,0,0,0
1916
1917                              ;ITEM 40
1918  001616  055033                   EM37
1919  001620  065216                   DH6
1920  001622  066610                   DT6
1921  001624  066757                   DF6
1922
1923                              ;ITEM 41
1924  001626  055033                   EM37
1925  001630  065363                   DH12
1926  001632  066610                   DT6
1927  001634  066757                   DF6
1928
1929                              ;ITEM 42
1930  001636  055033                   EM37
1931  001640  065425                   DH13
1932  001642  066610                   DT6
1933  001644  066757                   DF6
1934
1935                              ;ITEM 43
1936  001646  055033                   EM37
1937  001650  065465                   DH14
1938  001652  066610                   DT6
1939  001654  066757                   DF6
1940
1941                              ;ITEM 44
1942  001656  055033                   EM37
1943  001660  065527                   DH15
1944  001662  066610                   DT6
1945  001664  066757                   DF6
1946
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                                ;ITEM 45
001666  055335                          EM45            ;AFTER AN RH CLEAR
                                                        ;"1" WAS WRITTEN IN THE DISK
                                                        ;ADDRESS REGISTER (IN TAPE
                                                        ;DRIVES CALLED FRAME COUNT )
                                                        ;PAT IN RHCS1 WAS SET
                                                        ;ON READING RHDA (IN TAPE
                                                        ;DRIVES RHFC ) IT DID NOT
                                                        ;CONTAIN "1"
                                                        ;RHDA=RHFC
001670  065701                          DH45            ;PC
                                                        ;TEST NO
                                                        ;RHDA GOOD
                                                        ;RHDA BAD
001672  066610                          DT6             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001674  066757                          DF6             ;0,0,0,0

                                ;ITEM 46
001676  055573                          EM46            ;AFTER AN RH CLEAR
                                                        ;"1" WAS WRITTEN IN THE
                                                        ;DISK ADDRESS REGISTER (IN
                                                        ;TAPE
                                                        ;PAT IN RHCS1 WAS SET
                                                        ;ON READING RHDA (IN TAPE
                                                        ; ) FOLLOWING
                                                        ;REGISTER DID NOT CONTAIN
                                                        ;WHAT IS IN "GOOD"
001700  065321                          DH11            ;PC
                                                        ;TEST NO
                                                        ;RHCS1 GOOD
                                                        ;RHCS1 BAD
001702  066610                          DT5             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
001704  066757                          DF6

                                ;ITEM 47
001706  055573                          EM46
001710  065216                          DH6
001712  066610                          DT6
001714  066757                          DF6

                                ;ITEM 50
001716  055573                          EM46
001720  065363                          DH12
001722  066610                          DT6
001724  066757                          DF6

                                ;ITEM 51
001726  055573                          EM46
001730  065425                          DH13
001732  066610                          DT6
001734  066757                          DF6

                                ;ITEM 52
001736  055573                          EM46
001740  065465                          DH14
001742  066610                          DT6
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2003  001744  066757                          DF6
2004
2005                                  ;ITEM 53
2006  001746  055573                          EM46
2007  001750  065527                          DH15
2008  001752  066610                          DT6
2009  001754  066757                          DF6
2010
2011                                  ;ITEM 54
2012  001756  056074                          EM54          ;AN RH CLEAR (RHCS2 BIT #5)
2013                                                        ;WAS GIVEN
2014                                                        ;A16 (RHCS1 BIT #8) WAS SET
2015                                                        ;ON READING THE FOLLOWING
2016                                                        ;REGISTER IT DID NOT
2017                                                        ;CONTAIN WHAT IS IN "GOOD"
2018  001760  065321                          DH11
2019  001762  066610                          DT6
2020  001764  066757                          DF6
2021
2022                                  ;ITEM 55
2023  001766  056074                          EM54
2024  001770  065465                          DH14
2025  001772  066610                          DT6
2026  001774  066757                          DF6
2027
2028                                  ;ITEM 56
2029  001776  056305                          EM56          ;AN RH CLEAR (RHCS2 BIT #5)
2030                                                        ;WAS GIVEN
2031                                                        ;A16 WAS WRITTEN IN RHCS1
2032                                                        ;ALL ZEROS WERE WRITTEN IN RHBAE
2033                                                        ;THE FOLLOWING REGISTER DID
2034                                                        ;NOT CONTAIN WHAT IS IN "GOOD"
2035  002000  065465                          DH14
2036  002002  066610                          DT6
2037  002004  066757                          DF6
2038
2039                                  ;ITEM 57
2040  002006  056305                          EM56
2041  002010  065321                          DH11
2042  002012  066610                          DT6
2043  002014  066757                          DF6
2044
2045                                  ;ITEM 60
2046  002016  056543                          EM60          ;AN RH CLEAR (RHCS2 BIT #5)
2047                                                        ;WAS GIVEN
2048                                                        ;A17 (RHCS1 BIT #9) WAS SET
2049                                                        ;ON READING THE FOLLOWING
2050                                                        ;REGISTER IT DID NOT
2051                                                        ;CONTAIN WHAT IS IN "GOOD"
2052  002020  065321                          DH11
2053  002022  066610                          DT6
2054  002024  066757                          DF6
2055
2056                                  ;ITEM 61
2057  002026  056543                          EM60
2058  002030  065465                          DH14
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2059  002032  066610                    DT6
2060  002034  066757                    DF6
2061
2062                              ;ITEM 62
2063  002036  056754                    EM62          ;AN RH CLEAR (RHCS2 BIT #5)
2064                                                   ;WAS GIVEN
2065                                                   ;A17 WAS WRITTEN IN RHCS1
2066                                                   ;ALL ZEROS WERE WRITTEN IN RHBAE
2067                                                   ;THE FOLLOWING REGISTER DID
2068                                                   ;NOT CONTAIN WHAT IS IN "GOOD"
2069  002040  065465                    DH14
2070  002042  066610                    DT6
2071  002044  066757                    DF6
2072
2073                              ;ITEM 63
2074  002046  056754                    EM62
2075  002050  065321                    DH11
2076  002052  066610                    DT6
2077  002054  066757                    DF6
2078
2079                              ;ITEM 64
2080  002056  057211                    EM64          ;AN RH CLEAR (RHCS2 BIT #5)
2081                                                   ;WAS GIVEN
2082                                                   ;IE (RHCS1 BIT #6) WAS SET
2083                                                   ;ON READING THE FOLLOWING
2084                                                   ;REGISTER IT DID NOT
2085                                                   ;CONTAIN WHAT IS IN "GOOD"
2086  002060  065321                    DH11
2087  002062  066610                    DT6
2088  002064  066757                    DF6
2089
2090                              ;ITEM 65
2091  002066  057211                    EM64
2092  002070  065363                    DH12
2093  002072  066610                    DT6
2094  002074  066757                    DF6
2095
2096                              ;ITEM 66
2097  002076  057211                    EM64          ;AN RH CLEAR (RHCS2 BIT #5)
2098                                                   ;WAS GIVEN
2099                                                   ;A16 WAS WRITTEN IN RHCS1
2100                                                   ;ALL ZEROS WERE WRITTEN IN RHBAE
2101                                                   ;THE FOLLOWING REGISTER DID
2102                                                   ;NOT CONTAIN WHAT IS IN "GOOD"
2103  002100  065363                    DH12
2104  002102  066610                    DT6
2105  002104  066757                    DF6
2106
2107                              ;ITEM 67
2108  002106  057211                    EM64
2109  002110  065321                    DH11
2110  002112  066610                    DT6
2111  002114  066757                    DF6
2112
2113                              ;ITEM 70
2114  002116  057660                    EM70          ;RH CLEAR WAS GIVEN
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                                                                ;TWO SUCCESSIVE "GO" (RHCS1 BIT #0)
                                                                ;WAS GIVEN WITHOUT GIVING
                                                                ;TIME FOR FIRST "GO" TO
                                                                ;COMPLETE
                                                                ;THE FOLLOWING REGISTER
                                                                ;DID NOT CONTAIN WHAT IS
                                                                ;IN "GOOD"
002120  065321                            DH11
002122  066610                            DT6
002124  066757                            DF6

                                ;ITEM 71
002126  057660                            EM70
002130  065216                            DH6
002132  066610                            DT6
002134  066757                            DF6

                                ;ITEM 72
002136  057660                            EM70
002140  065363                            DH12
002142  066610                            DT6
002144  066757                            DF6

                                ;ITEM 73
002146  057660                            EM70
002150  065425                            DH13
002152  066610                            DT6
002154  066757                            DF6

                                ;ITEM 74
002156  057660                            EM70
002160  065465                            DH14
002162  066610                            DT6
002164  066757                            DF6

                                ;ITEM 75
002166  057660                            EM70
002170  065527                            DH15
002172  066610                            DT6
002174  066757                            DF6

                                ;ITEM 76
002176  060134                            EM76            ;RH CLEAR WAS GIVEN A 2 WORD
                                                          ;WRITE WAS DONE FROM A
                                                          ;LOCATION TAGED WRFROM
                                                          ;AND WITH BAI BIT SET
                                                          ;AT THE END OF THE WRITE
                                                          ;THE FOLLOWING REGISTER DID
                                                          ;NOT CONTAIN WHAT IS
                                                          ;IN GOOD
002200  065321                            DH11
002202  066610                            DT6
002204  066757                            DF6

                                ;ITEM 77
002206  060134                            EM76
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2171  002210  065216                    DH6
2172  002212  066610                    DT6
2173  002214  066757                    DF6
2174
2175                              ;ITEM 100
2176  002216  060134                    EM76
2177  002220  065363                    DH12
2178  002222  066610                    DT6
2179  002224  066757                    DF6
2180
2181                              ;ITEM 101
2182  002226  060134                    EM76
2183  002230  065425                    DH13
2184  002232  066610                    DT6
2185  002234  066757                    DF6
2186
2187                              ;ITEM 102
2188  002236  060134                    EM76
2189  002240  065465                    DH14
2190  002242  066610                    DT6
2191  002244  066757                    DF6
2192
2193                              ;ITEM 103
2194  002246  060134                    EM76
2195  002250  065527                    DH15
2196  002252  066610                    DT6
2197  002254  066757                    DF6
2198
2199                              ;ITEM 104
2200  002256  060427                    EM104          ;RH CLEAR WAS GIVEN AN
2201                                                   ;IPCK BIT SHOWN IN "IPCK" WAS SET
2202                                                   ;ZEROS WERE MOVED INTO RHDB
2203                                                   ;ON READING RHDB
2204                                                   ;THE FOLLOWING REGISTER
2205                                                   ;DID NOT CONTAIN WHAT
2206                                                   ;IS IN GOOD
2207  002260  065741                    DH104          ;PC,TEST NO,IPCK,RHCS3 GOOD,RHCS3 BAD
2208  002262  066636                    DT104          ;$ERRPC,TSTNM,IP,$GDDAT,$BDDAT
2209  002264  066770                    DF104          ;0,0,0,0,0
2210
2211                              ;ITEM 105
2212  002266  060427                    EM104
2213  002270  066011                    DH105          ;PC,TST NO, IPCK,RHCS2 GOOD,RHCS2 BAD
2214  002272  066652                    DT105          ;$ERRPC,TSTNM,IP,$GDDAT,$BDDAT
2215  002274  066775                    DF105          ;0,0,0,0,0
2216
2217                              ;ITEM 106
2218  002276  060665                    EM106          ;RH CLEAR WAS GIVEN AN
2219                                                   ;IPCK BIT SHOWN IN "IPCK" WAS SET
2220                                                   ;ZEROS WERE MOVED INTO
2221                                                   ;RHDB FROM AN ODD WORD
2222                                                   ;RHDB WAS READ
2223                                                   ;AN RH CLEAR WAS GIVEN
2224                                                   ;TO CLEAR ALL ERRORS
2225                                                   ;THE FOLLLOWING REGISTER
2226                                                   ;DID NOT CONTAIN WHAT
```

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2227
2228  002300  066061                    DH106           ;PC,TSTNM,IPCK,RHCS1 GOOD,RHCS1 BAD
2229  002302  066666                    DT106           ;$ERRPC,TSTNM,IP,$GDDAT,$BDDAT
2230  002304  067002                    DF106           ;0,0,0,0,0
2231
2232                                ;ITEM 107
2233  002306  060665                    EM106
2234  002310  066011                    DH105           ;PC,TSTNM,IPCK,RHCS2 GOOD,RHCS2 BAD
2235  002312  066652                    DT105
2236  002314  066775                    DF105
2237
2238                                ;ITEM 110
2239  002316  060665                    EM106
2240  002320  065741                    DH104
2241  002322  066636                    DT104
2242  002324  066770                    DF104
2243
2244                                ;ITEM 111
2245  002326  060665                    EM106
2246  002330  066131                    DH111           ;PC,TSTNM,IPCK,RHBA GOOD,RHBA BAD
2247  002332  066636                    DT104           ;$ERRPC,TSTNM,IP,$GDDAT,$BDDAT
2248  002334  066770                    DF104           ;0,0,0,0,0
2249
2250                                ;ITEM 112
2251  002336  060665                    EM106
2252  002340  066177                    DH112           ;PC,TSTNM,IPCK,RHBAE GOOD,RHBAE BAD
2253  002342  066636                    DT104           ;$ERRPC,TSTNM,IP,$GDDAT,$BDDAT
2254  002344  066770                    DF104           ;0,0,0,0,0
2255
2256                                ;ITEM 113
2257  002346  060665                    EM106
2258  002350  066247                    DH113           ;PC,TSTNM,IPCK,RHWC GOOD,RHWC BAD
2259  002352  066636                    DT104           ;$ERRPC,TSTNM,IP,$GDDAT,$BDDAT
2260  002354  066770                    DF104           ;0,0,0,0,0
2261
2262                                ;ITEM 114
2263  002356  061156                    EM114           ;RH CLEAR WAS GIVEN AN
2264                                                      ;A WRITE CHECK WAS DONE
2265                                                      ;THE FOLLOWING REGISTER
2266                                                      ;DID NOT CONTAIN WHAT IS
2267                                                      ;IN "GOOD"
2268  002360  065216                    DH6
2269  002362  066610                    DT6
2270  002364  066757                    DF6
2271
2272                                ;ITEM 115
2273  002366  061156                    EM114           ;RH CLEAR WAS GIVEN AN
2274                                                      ;A WRITE CHECK WAS DONE
2275                                                      ;THE FOLLOWING REGISTER
2276                                                      ;DID NOT CONTAIN WHAT IS
2277                                                      ;IN "GOOD"
2278  002370  065363                    DH12
2279  002372  066610                    DT6
2280  002374  066757                    DF6
2281
2282                                ;ITEM 116
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2283  002376  061325                        EM116                   ;RH CLEAR WAS GIVEN AN
2284                                                                  ;A WRITE CHECK WAS DONE
2285                                                                  ;THEN ANOTHER RH CLEAR WAS
2286                                                                  ;GIVEN TO CLEAR ALL ERRORS
2287                                                                  ;THE FOLLOWING REGISTER DID
2288                                                                  ;NOT CONTAIN WHAT IS IN "GOOD"
2289  002400  065321                        DH11
2290  002402  066610                        DT6
2291  002404  066757                        DF6
2292
2293                                  ;ITEM 117
2294  002406  061325                        EM116
2295  002410  065216                        DH6
2296  002412  066610                        DT6
2297  002414  066757                        DF6
2298
2299                                  ;ITEM 120
2300  002416  061325                        EM116
2301  002420  065363                        DH12
2302  002422  066610                        DT6
2303  002424  066757                        DF6
2304
2305                                  ;ITEM 121
2306  002426  061325                        EM116
2307  002430  065425                        DH13
2308  002432  066610                        DT6
2309  002434  066757                        DF6
2310
2311                                  ;ITEM 122
2312  002436  061325                        EM116
2313  002440  065465                        DH14
2314  002442  066610                        DT6
2315  002444  066757                        DF6
2316
2317                                  ;ITEM 123
2318  002446  061325                        EM116
2319  002450  065527                        DH15
2320  002452  066610                        DT6
2321  002454  066757                        DF6
2322
2323                                  ;ITEM 124
2324  002456  061535                        EM124                   ;ON A SILO TEST TO
2325                                                                  ;TEST DBL RHCS3-BIT #10
2326                                                                  ;THE FOLLOWING REGISTER
2327                                                                  ;DID NOT CONTAIN WHAT
2328                                                                  ;IS IN "GOOD"
2329  002460  065363                        DH12
2330  002462  066610                        DT6
2331  002464  066757                        DF6
2332
2333                                  ;ITEM 125
2334  002466  061535                        EM124
2335  002470  065321                        DH11
2336  002472  066610                        DT6
2337  002474  066757                        DF6
2338
```

```
2339                                    ;ITEM 126
2340  002476  061535                            EM124
2341  002500  065216                            DH6
2342  002502  066610                            DT6
2343  002504  066757                            DF6
2344
2345                                    ;ITEM 127
2346  002506  061535                            EM124
2347  002510  065425                            DH13
2348  002512  066610                            DT6
2349  002514  066757                            DF6
2350
2351                                    ;ITEM 130
2352  002516  061535                            EM124
2353  002520  065465                            DH14
2354  002522  066610                            DT6
2355  002524  066757                            DF6
2356
2357                                    ;ITEM 131
2358  002526  061535                            EM124
2359  002530  065527                            DH15
2360  002532  066610                            DT6
2361  002534  066757                            DF6
2362                                    ;ITEM132
2363  002536  061700                            EM132           ;BEFORE DATA TRANSFER
2364                                                            ;COMMAND WAS TO BE GIVEN
2365                                                            ;THE RP DRIVE
2366                                                            ;STATUS REGISTER DID NOT
2367                                                            ;CONTAIN WHAT IS IN GOOD
2368
2369  002540  066315                            DH132           ;PC
2370                                                            ;TEST NO.
2371                                                            ;RHDS1 GOOD
2372                                                            ;RHDS1 BAD
2373  002542  066610                            DT6
2374  002544  066757                            DF6
2375                                    ;ITEM133
2376  002546  062056                            EM133           ;BEFORE DATA TRANSFER
2377                                                            ;COMMAND WAS TO BE GIVEN
2378                                                            ;THE RS DRIVE
2379                                                            ;STATUS REGISTER DID NOT
2380                                                            ;CONTAIN WHAT IS IN GOOD
2381
2382  002550  066315                            DH132           ;PC
2383                                                            ;TEST NO.
2384                                                            ;RHDS1 GOOD
2385                                                            ;RHDS1 BAD
2386  002552  066610                            DT6
2387  002554  066757                            DF6
2388                                    ;ITEM 134
2389  002556  062234                            EM134           ;BEFORE DATA TRANSFER COMMAND
2390                                                            ;WAS TO BE GIVEN THE
2391                                                            ;MAG TAPE DRIVE STATUS
2392                                                            ;REGISTER DID NOT CONTAIN WHAT
2393                                                            ;IS IN GOOD
2394
```

```
002560  066315                  DH132
002562  066610                  DT6
002564  066757                  DF6
                        ;ITEM135
002566  062424                  EM135           ;WAS WATIING FOR A BIT TO SET
                                                ;BIT IN QUESTION IS IN "BIT WAITED FOR"
                                                ;REGISTER IN QUESTION IN "REG ADDR"
002570  066357                  DH135           ;PC
                                                ;TEST NO
                                                ;PC OF WAT
                                                ;BIT
                                                ;REG ADDR
002572  066702                  DT135           ;$ERRPC,TSTNM,WATIPC,WAITBT,WAITRE
002574  067007                  DF135           ;0,0,0,0,0
                        ;ITEM136
002576  062624                  EM136           ;WAS WATIING FOR A BIT TO RESET
                                                ;BIT IN QUESTION IS IN "BIT WAITED FOR"
                                                ;REGISTER IN QUESTION IN "REG ADDR"
002600  066357                  DH135           ;PC
                                                ;TEST NO
                                                ;PC OF WAT
                                                ;BIT
                                                ;REG ADDR
002602  066702                  DT135           ;$ERRPC,TSTNM,WATIPC,WAITBT,WAITRE
002604  067007                  DF135           ;0,0,0,0,0
                        ;ITEM 137
002606  063026                  EM137           ;ON WRITING AND READING
                                                ;THE REGISTER # IN "REG. ADDR"
                                                ;IT DID NOT CONTAIN
                                                ;EXPECTED VALUE.
002610  066437                  DH137           ;PC
                                                ;TEST NO
                                                ;REG ADDR
                                                ;GOOD DATA
                                                ;BAD DATA
002612  066716                  DT137           ;$ERRPC,TSTNM,$BDADR,$GDDAT,$BDDAT
002614  067014                  DF137           ;0,0,0,0,0

                        ;ITEM 140
002616  063154                  EM140
002620  066061                  DH106
002622  066666                  DT106
002624  067002                  DF106
                        ;ITEM 141
002626  063406                  EM141           ;AFTER CLEARING THE RH AND
                                                ;WRITING TWO WORD INTO
                                                ;RHDB AND READING IT
                                                ;BACK TWICE, CAUSED RHCS1 TO
                                                ;HAVE WRONG DATA,
                                                ;GIVEN IN BAD RHCS1
002630  065321                  DH11            ;PC
                                                ;TEST NUMBER
                                                ;RHCS1 GOOD
                                                ;RHCS1 BAD
002632  066610                  DT6             ;$ERRPC,TSTNM,$GDDAT,$BDDAT
```

```
2451  002634  066757                    DF6                 ;0,0,0,0
2452
2453
2454                                ;ITEM 142
2455  002636  063607                    EM142               ;AFTER CLEARING THE RH AND
2456                                                         ;WRITING TWO WORD INTO
2457                                                         ;RHDB AND READING IT
2458                                                         ;BACK TWICE, CAUSED RHCS3 TO
2459                                                         ;HAVE WRONG DATA,
2460                                                         ;GIVEN IN BAD RHCS3
2461  002640  065363                    DH12                ;PC
2462                                                         ;TEST NUMBER
2463                                                         ;RHCS3 GOOD
2464                                                         ;RHCS3 BAD
2465  002642  066610                    DT6                 ;$ERRPC,TSTNM,$GDDAT,$BDDAT
2466  002644  066757                    DF6                 ;0,0,0,0
2467
2468
2469                                ;ITEM 143
2470  002646  064010                    EM143               ;AFTER CLEARING THE RH AND
2471                                                         ;WRITING TWO WORD INTO
2472                                                         ;RHDB AND READING IT
2473                                                         ;BACK TWICE, CAUSED RHBA TO
2474                                                         ;HAVE WRONG DATA,
2475                                                         ;GIVEN IN BAD RHBA
2476  002650  065425                    DH13                ;PC
2477                                                         ;TEST NUMBER
2478                                                         ;RHBA GOOD
2479                                                         ;RHBA BAD
2480  002652  066610                    DT6                 ;$ERRPC,TSTNM,$GDDAT,$BDDAT
2481  002654  066757                    DF6                 ;0,0,0,0
2482
2483
2484                                ;ITEM 144
2485  002656  064210                    EM144               ;AFTER CLEARING THE RH AND
2486                                                         ;WRITING TWO WORD INTO
2487                                                         ;RHDB AND READING IT
2488                                                         ;BACK TWICE, CAUSED RHBAE TO
2489                                                         ;HAVE WRONG DATA,
2430                                                         ;GIVEN IN BAD RHBAE
2491  002660  065465                    DH14                ;PC
2492                                                         ;TEST NUMBER
2493                                                         ;RHBAE GOOD
2494                                                         ;RHBAE BAD
2495  002662  066610                    DT6                 ;$ERRPC,TSTNM,$GDDAT,$BDDAT
2496  002664  066757                    DF6                 ;0,0,0,0
2497
2498
2499                                ;ITEM 145
2500  002666  064411                    EM145               ;AFTER CLEARING THE RH AND
2501                                                         ;WRITING TWO WORD INTO
2502                                                         ;RHDB AND READING IT
2503                                                         ;BACK TWICE, CAUSED RHWC TO
2504                                                         ;HAVE WRONG DATA,
2505                                                         ;GIVEN IN BAD RHWC
2506  002670  065527                    DH15                ;PC
```

```
2507
2508
2509
2510  002672  066610                    DT6         ;TEST NUMBER
2511  002674  066757                    DF6         ;RHWC GOOD
2512                                                ;RHWC BAD
                                        ;ITEM146    ;$ERRPC,TSTNM,$GDDAT,$BDDAT
2513  002676  064611                    EM146       ;0,0,0,0
2514                                                ;A DEVICE BASE ADDRESS DID NOT
2515                                                ;TIME OUT BUT CORRESPONDING
2516  002700  066511                    DH146       ;VECTOR ADDRESS DID TIME OUT
2517                                                ;PC
2518                                                ;BASE
2519  002702  066732                    DT146       ;VECTOR
2520  002704  067021                    DF146       ;$ERRPC,TESTDV,TESTVC,0
2521                                                ;0,0,0
2522                                    ;ITEM147
2523  002706  065003                    EM147       ;A DEVICE ADDRESS DID NOT
2524                                                ;TIME OUT BUT NO UNITS HAD
2525                                                ;APPROPRIATE DRIVE TYPE
2526  002710  066540                    DH147       ;PC
2527                                                ;BASE ADDRESS
2528  002712  066742                    DT147       ;$ERRPC,TESTDV
2529  002714  067024                    DF147
2530
```

```
2531
2532                                    ;;*****************************************************************
2533                                    ;RH70 REGISTERS
2534
2535
2536
2537  002716  000254                    RPVEC:  254                             ;RP VECTOR ADDRESS
2538                                    ;;*****************************************************************
2539                                    ;WORD COUNT REGISTER (RHWC)
2540                                    ;EACH BIT IS CALLED BY BIT NUMBER
2541
2542
2543
2544                                    ;BUS ADDRESS REGISTER (RHBA)
2545                                    ;EACH BIT IS CALLED BY BIT NUMBER
2546
2547
2548
2549                                    ;CONTROL AND STATUS REGISTER 2 (RHCS2)
2550
2551          000001                    US1=    1                               ;UNIT SELECT (BIT #0)
2552          000002                    US2=    2                               ;UNIT SELECT (BIT #1)
2553          000004                    US4=    4                               ;UNIT SELECT (BIT #2)
2554          000010                    BAI=    10                              ;BUS ADDRESS INCREMENT INHIBIT (BIT #3)
2555          000020                    PAT=    20                              ;INVERT PARITY
2556          000040                    CLR=    40                              ;CLEAR (BIT #5)
2557          000100                    IR=     100                             ;INPUT READY (BIT #6)
2558          000200                    OR=     200                             ;OUTPUT READY (BIT #7)
2559          000400                    MPE=    400                             ;MASS BUS PARITY ERROR (BIT #9)
2560          000400                    MDPE=   400                             ;MASS BUS PARITY ERROR (BIT #8)
2561          001000                    MXF=    1000                            ;MISSED TRANSFER ERROR (BIT #9)
2562          002000                    PGE=    2000                            ;PROGRAM ERROR (BIT #10)
2563          004000                    NEM=    4000                            ;NON EXISTANT MEMORY (BIT #11)
2564          010000                    NED=    10000                           ;NON EXISTANT DRIVE (BIT #12)
2565          020000                    PE=     20000                           ;UNIBUS PARITY ERROR (BIT #13)
2566          040000                    WCE=    40000                           ;WRITE CHECK ERROR (BIT #14)
2567          100000                    DLT=    100000                          ;DATA LATE (BIT #15)
2568
2569                                    ;CONTROL AND STATUS REGISTER 3 (RHCS3)
2570
2571          000001                    IPCK0=  1                               ;INVERT PARITY CHECK BIT 0
2572          000002                    IPCK1=  2                               ;INVERT PARITY CHECK BIT 1
2573          000004                    IPCK2=  4                               ;INVERT PARITY CHECK BIT 2
2574          000010                    IPCK3=  10                              ;INVERT PARITY CHECK BIT 3
2575          000100                    IE=     100                             ;INTERRUPT ENABLE (BIT #6)
2576          002000                    DBL=    2000                            ;DOUBLE WORD BOUNDRY (BIT #10)
2577          004000                    WCEEW=  4000                            ;WRITE CHECK EVEN WORD (BIT #11)
2578          010000                    WCEOW=  10000                           ;WRITE CHECK ODD WORD (BIT #12)
2579          020000                    DPEEW=  20000           ;DATA PARITY ERROR EVEN WORD (BIT #13)
2580          040000                    DPEOW=  40000           ;DATA PARITY ERROR ODD WORD (BIT #14)
2581          100000                    APE=    100000          ;ADDRESS PARITY ERROR (BIT #15)
2582
2583
2584
2585
2586                                    ;DATA BUFFER REGISTER (RHDB)
```

```
                                ;EACH BIT IS CALLED BY BIT NUMBER


                                ;;*****************************************************************
                                ;RP04 REGISTERS
                                ;;*****************************************************************


                                ;CONTROL AND STATUS 1 REGISTER. (#00)

000001                          GO=     1               ;GO (BIT #0)
000100                          IE=     100             ;INTERRUPT ENABLE (BIT #6)
000200                          RDY=    200             ;READY (BIT #7)
000400                          A16=    400             ;HIGH ORDER UNIBUS BITS (BIT #8)
001000                          A17=    1000            ;HIGH ORDER UNIBUS BITS (BIT #9)
002000                          PSEL=   2000            ;PORT SELECT (BIT #10)
004000                          DVA=    4000            ;DEVICE AVAILABLE (BIT #11)
020000                          MCPE=   20000           ;MASSBUSS PARITY ERROR (BIT #13)
040000                          TRE=    40000           ;TRANSFER ERROR (BIT #14)
100000                          SC=     100000          ;SPECIAL CONDITION (BIT #15)

                                ;STATUS REGISTER (RHDS1) (#01)

000001                          DFF5=   1               ;DRIVE FORWARD 5"/SEC.  (BIT #0)
000002                          BOT=    2               ;BEGINING OF TAPE (BIT #1)
000002                          DFF20=  2               ;DRIVE FORWARD 20"/SEC.  (BIT #1)
000004                          DIGB=   4               ;DRIVE TO INNER GAVRD BAND (BIT #2)
000010                          GRV=    10              ;GO REVERSE (BIT #3)
000020                          DL64=   20              ;DIFFERENCE LESS THAN 64 (BIT #4)
000040                          DE1=    40              ;DIFFERENCE EQUALS 1 (BIT #5)
000100                          VV=     100             ;VOLUME VALID (BIT #6)
000200                          DRY=    200             ;DRIVE READY (BIT #7)
000400                          DPR=    400             ;DRIVE PRESENT (BIT #8)
001000                          PROG=   1000            ;PROGRAMABLE (BIT #9)
002000                          LBT=    2000            ;LAST SECTOR TRANSFERRED (BIT #10)
004000                          WRL=    4000            ;WRITE LOCK (BIT #11)
010000                          MOL=    10000           ;MEDIUM ON-LINE (BIT #12)
020000                          PIP=    20000           ;POSITIONING OPERATION IN PROGRESS (BIT #13)
040000                          ERR=    40000           ;COMPOSIT ERROR. (BIT #14)
100000                          ATA=    100000          ;ATTENTION ACTIVE (BIT #15)

                                ;ERROR REGISTER #01 (RHER1) (#02)
000001                          ILF=    1               ;ILLEGAL FUNCTION (BIT #0)
000002                          ILR=    2               ;ILLEGAL REGISTER (BIT #1)
000004                          RMR=    4               ;REGISTER MODIFICATION REFUSED (BIT #2)
000010                          PAR=    10              ;PARITY ERROR (BIT #3)
000020                          FER=    20              ;FORMAT ERROR (BIT #4)
000040                          WCF=    40              ;WRITE CLOCK FAIL (BIT #5)
000100                          ECH=    100             ;ECC HARD ERROR (BIT #6)
000200                          HCE=    200             ;HEADER COMPARE ERROR (BIT #7)
000400                          HCRC=   400             ;HEADER CRC ERROR (BIT #8)
001000                          AOE=    1000            ;ADDRESS OVERFLOW ERROR (BIT #9)
002000                          IAE=    2000            ;INVALID ADDRESS ERROR (BIT #10)
004000                          WLE=    4000            ;WRITE LOCK ERROR (BIT #11)
010000                          DTE=    10000           ;DRIVE TIMING ERROR (BIT #12)
```

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2643    020000          OPI=    20000           ;OPERATION INCOMPLETE (BIT #13)
2644    040000          UNS=    40000           ;DRIVE UNSAFE (BIT #14)
2645    100000          DCK=    100000          ;DATA CHECK ERROR (BIT 15)
2646
2647                    ;MAINTAINABILITY REGISTER (RHMR)(#03)
2648
2649    000001          DMD=    1               ;DIAGINOSTIC MODE (BIT #0)
2650    000002          MCLK=   2               ;MAINTAINABILITY CLOCK (BIT #1)
2651    000004          MINX=   4               ;MAINTAINABILITY INDEX (BIT #2)
2652    000010          MSTCK=  10              ;MAINTAINABILITY SECTOR CLOCK (BIT #3)
2653    000020          MRD=    20              ;MAINTAINABILITY READ (BIT #4)
2654    000040          MWR=    40              ;MAINTAINABILITY WRITE (BIT #5)
2655    001000          DTSY=   1000            ;MAINTAINABILITY SYNC DETECTED (BIT #9)
2656
2657                    ;ATTENTION SUMMARY PSEUDO-REGISTER (RHAS) (#04)
2658
2659    000001          AT0=    1               ;DEVICE 0 (BIT #0)
2660    000002          AT1=    2               ;DEVICE 1 (BIT #1)
2661    000004          AT2=    4               ;DEVICE 2 (BIT #2)
2662    000010          AT3=    10              ;DEVICE 3 (BIT #3)
2663    000020          AT4=    20              ;DEVICE 4 (BIT #4)
2664    000040          AT5=    40              ;DEVICE 5 (BIT #5)
2665    000100          AT6=    100             ;DEVICE 6 (BIT #6)
2666    000200          AT7=    200             ;DEVICE 7 (BIT #7)
2667
2668                    ;DESIRED SECTOR/TRACK ADDRESS REGISTER (RHDST) (#1)
2669                    ;EACH BIT IS CALLED BY BIT NUMBER
2670                    ;DRIVE TYPE REGISTER (RHDT) (#06)
2671                    ;EACH BIT IS CALLED BY BIT NUMBER
2672                    ;LOOK-AHEAD REGISTER (RHLA) (#07)
2673
2674    000001          EXT1=   1               ;EXTENSION 1 (BIT #0)
2675    000002          EXT2=   2               ;EXTENSION 2 (BIT #1)
2676    000004          EXT4=   4               ;EXTENSION 3 (BIT #2)
2677    000010          EXT10=  10              ;EXTENSION 4 (BIT #3)
2678    000020          EXT20=  20              ;EXTENSION 5 (BIT #4)
2679    000040          EXT40=  40              ;EXTENSION 6 (BIT #5)
2680    000100          SC1=    100             ;SECTOR COUNT FIELD 0 (BIT #6)
2681    000200          SC2=    200             ;SECTOR COUNT FIELD 1 (BIT #7)
2682    000400          SC4=    400             ;SECTOR COUNT FIELD 2 (BIT #8)
2683    001000          SC10=   1000            ;SECTOR COUNT FIELD 3 (BIT #9)
2684    002000          SC20=   2000            ;SECTOR COUNT FIELD 4 (BIT #10)
2685    004000          TRK1=   4000            ;TRACK FIELD 1 (BIT #11)
2686    010000          TRK2=   10000           ;TRACK FIELD 2 (BIT #12)
2687    020000          TRK4=   20000           ;TRACK FIELD 3 (BIT #13)
2688    040000          TRK10=  40000           ;TRACK FIELD 4 (BIT #14)
2689    100000          TRK20=  100000          ;TRACK FIELD 5 (BIT #15)
2690
2691                    ;ERROR REGISTER #2 (RHER2) (#10)
2692
2693    000001          WCU=    1               ;WRITE CURRENT UNSAFE (BIT #0)
2694    000002          CSF=    2               ;CURRENT SINK FAILURE (BIT #1)
2695    000004          WSU=    4               ;WRITE SELECT UNSAFE (BIT #2)
2696    000010          CSU=    10              ;CURRENT SWITCH UNSAFE (BIT #3)
2697    000020          MSE=    20              ;MOTOR SEQUENCE ERROR (BIT #4)
2698    000040          TDF=    40              ;TRANSITIONS DETECTOR FAILURE (BIT #5)
```

```
2699            000100                  TUF=    100                     ;TRANSITIONS UNSAFE (BIT #6)
2700            000200                  FEN=    200                     ;FAILSAFE ENABLED (BIT #7)
2701            000400                  WRU=    400                     ;WRITE READY UNSAFE (BIT #8)
2702            001000                  MHS=    1000                    ;MULTIPLE HEAD SELECT (BIT #9)
2703            002000                  NHS=    2000                    ;NO HEAD SELECTION (BIT #10)
2704            004000                  IXE=    4000                    ;INDEX ERROR (BIT #11)
2705            010000                  VU30=   10000                   ;30VOLT UNSAFE (BIT #12)
2706            020000                  PLU=    20000                   ;PLO UNSAFE (BIT #13)
2707            100000                  ACU=    100000                  ;ACUNSAFE (BIT #15)
2708
2709                                    ;OFFSET REGISTER (RHOF) (#11)
2710
2711            000001                  OF25=   1                       ;OFFSET 25 MICRO INCHES (BIT #0)
2712            000002                  OF50=   2                       ;OFFSET 50 MICRO INCHES (BIT #1)
2713            000004                  OF100=  4                       ;OFFSET 100 MICRO INCHES (BIT #2)
2714            000010                  OF200=  10                      ;OFFSET 200 MICRO INCHES (BIT #3)
2715            000020                  OF400=  20                      ;OFFSET 400 MICRO INCHES (BIT #4)
2716            000040                  OF800=  40                      ;OFFSET 800 MICRO INCHES (BIT #5)
2717
2718            000200                  OFREV=  200                     ;OFFSET NEGATIVE (REVERSE) (BIT #5)
2719            002000                  HCI=    2000                    ;HEADER COMPARE INHIBIT (BIT #10)
2720            004000                  ECI=    4000                    ;ERROR CORRECTION CODE INHIBIT (BIT #11)
2721            010000                  FMT22=  10000                   ;FORMAT BIT (BIT #12
2722
2723                                    ;TAPE CONTROL REGISTER (RHTC)
2724
2725            000001                  S1=     1                       ;SLAVE NUMBER
2726            000002                  S2=     2                       ;SLAVE NUMBER
2727            000004                  S4=     4                       ;SLAVE NUMBER
2728            000010                  EPAR=   10                      ;EVEN PARITY
2729            000020                  FMT1=   20                      ;FORMAT
2730            000040                  FMT2=   40                      ;FORMAT
2731            000100                  FMT4=   100                     ;FORMAT
2732            000200                  FMT8=   200                     ;FORMAT
2733            000400                  DEN1=   400                     ;DENSITY
2734            001000                  DEN2=   1000                    ;DENSITY
2735            002000                  DEN4=   2000                    ;DENSITY
2736            001400                  BPI8=   1400                    ;800 BPI
2737            000300                  NML=    300                     ;NORMAL - 2 FRAMES PER WORD
2738
2739
2740
2741
2742
2743                                    ;DRIVE TYPE REGISTER
2744
2745            002000                  SLVPR=  2000                    ;SLAVE PRESENT (BIT #10)
2746            010000                  CH7=    10000                   ;CHANNEL 7 (BIT #12)
2747
2748                                    ;DESIRED CYLINDER ADDRESS (RHCA) (#12)
2749                                    ;EACH BIT IS CALLED BY BIT NUMBER.
2750
2751
2752
2753
2754                                    ;CURRENT CYLINDER ADDRESS (RHCC) (#13)
```

```
                                ;EACH BIT IS CALLED BY BIT NUMBER


                                ;SERIAL NUMBER REGISTER (RHSN) (#14)
                                ;EACH IS CALLED BY BIT NUMBER


                                ;ERROR REGISTER #03 (RHER3) (#15)

000001                          PSU=    1               ;PACK SPEED UNSAFE (BIT #0)
000002                          VUF=    2               ;VELOCITY UNSAFE (BIT #1)
000010                          UWR=    10              ;ANY UNSAFE EXCEPT READ/WRITE (BIT #3)
000020                          PRE=    20              ;DISK PACK ROTATION ERROR (BIT #4)
000040                          ACL=    40              ;AC LOW (BIT #5)
000100                          DCL=    100             ;DC LOW (BIT #6)
040000                          SKI=    40000           ;SEEK INCOMPLETE (BIT #14)
100000                          OCYL=   100000          ;OFF CYLINDER (BIT #15)


                                ;ECC POSITION REGISTER (RHEC1) (#16)
                                ;EACH BIT IS CALLED BY BIT NUMBER


                                ;ECC PATTERN REGISTER (RHEC2) (#17)
                                ;EACH BIT IS CALLED BY BIT NUMBER


                                ;;*****************************************************************
```

```
                                
                                
                                
                000000          CS1=    0               ;CONTROL STATUS 1
                000002          WC=     2               ;WORD COUNT
                000004          BA=     4               ;BUS ADDRESS
                000006          FC=     6               ;FRAME COUNT
                000006          DA=     6               ;DESIRED SECTOR/TRACK
                000010          CS2=    10              ;CONTROL STATUS 2
                000012          DS=     12              ;DRIVE STATUS
                000014          ER1=    14              ;ERROR 1
                000016          AS=     16              ;ATTENTION SUMMERY
                000020          LA=     20              ;LOOK AHEAD
                000022          DB=     22              ;DATA BUFFER
                000024          MR=     24              ;MAINTENANCE REGISTER
                000026          DT=     26              ;DRIVE TYPE
                000030          SN=     30              ;SERIAL NUMBER
                000032          OF=     32              ;OFFSET
                000032          TC=     32              ;TAPE CONTROL
                000034          DC=     34              ;DESIRED CYLINDER
                000036          CC=     36              ;CURRENT CYLINDER
                000040          ER2=    40              ;ERROR 2
                000042          ER3=    42              ;ERROR 3
                000044          EC1=    44              ;ECC 1
                000046          EC2=    46              ;ECC 2
                                
                                
                                ;BUFFERS
                003000          .=3000
003000                          BUFEW:
003000  000000                  BFEVEN: 0
003002                          BUFOW:
003002  000422                  BFODD:  .BLKW   274.     ;BUFFER
                                ;STARTING ADDRESS OF REGISTERS
                                
004046  172040                  RSCS1:  172040          ;RS ALONG
004050  176700                  RPCS1:  176700          ;RP ALONE
004052  172440                  TMCS1:  172440          ;TM ALONE
004054  176300                  MIXCS1: 176300          ;MIXED SYSTEM
004056  000000                  PRESENT:        0
                                
                                
                                
                                .SBTTL  REGISTER ADDRESSES
```

```
2837                                    ;THE FOLLOWING ARE THE I/O REGISTERS FOR THE DEVICE UNDER TEST
2838                                    ;THEY WILL BE FILLED WITH ADDRESSES DEPENDING ON WHAT DEVICE IS ON
2839                                    ;THE SYSTEM.
2840                                    ;IN THE CASE OF A MIXED SYSTEM THAT IS WITH MORE THAN ONE RH DEVICE
2841                                    ;THE FIRST ONE THAT EXISTS IN THE FOLLOWING LIST WILL BE PICKED
2842                                    ;AND THE OTHERS WILL NOT BE USED.
2843                                    ;LIST:-
2844                                    ;1)     RS03
2845                                    ;2)     RS04
2846                                    ;3)     RP04,5,6
2847                                    ;4)     TM02
2848                                    ;THE CONTENTS OF RHCS1 WHICH IS THE BASE ADDRESS IS
2849                                    ;172040 FOR RS03/04
2850                                    ;176700 FOR RP04,5,6
2851                                    ;172440 FOR TM02
2852                                    ;THE REST OF THE LOCATIONS WILL BE FILLED BY THE PROGRAM
2853   004060  000000                   RHCS1:  0                       ;CONTROL AND STATUS 1
2854   004062  000000                   RHWC:   0                               ;WORD COUNT
2855   004064  000000                   RHBA:   0                               ;BUS ADDRESS
2856   004066                           RHFC:                           ;FRAME COUNT
2857   004066                           RHDA:                           ;DISK ADDRESS
2858   004066  000000                   RHDST:  0                       ;DESIRED SECTOR/TRACK ADDRESS
2859   004070  000000                   RHCS2:  0                               ;CONTROL AND STATUS 2
2860   004072  000000                   RHDS1:  0                       ;DRIVE STATUS
2861   004074  000000                   RHER1:  0                       ;ERROR #1
2862   004076  000000                   RHAS:   0                       ;ATTENTION SUMMARY
2863   004100                           RHCC:                           ;CHECK CHARACTER
2864   004100  000000                   RHLA:   0                       ;LOOK-AHEAD
2865   004102  000000                   RHDB:   0                               ;DATA BUFFER
2866   004104  000000                   RHMR:   0                       ;MAINTAINABILITY
2867   004106  000000                   RHDT:   0                       ;DRIVE TYPE
2868   004110  000000                   RHSN:   0                       ;SERIAL NUMBER
2869   004112                           RHTC:                           ;TAPE CONTROL
2870   004112  000000                   RHOF:   0                       ;OFFSET
2871   004114  000000                   RHCA:   0                       ;DESIRED CYLINDER ADDRESS
2872   004116  000000                   RHCCA:  0                       ;CURRENT CYLINDER ADDRESS
2873   004120  000000                   RHER2:  0                       ;ERROR #2
2874   004122  000000                   RHER3:  0                       ;ERROR #3
2875   004124  000000                   RHEC1:  0                       ;ECC POSITION
2876   004126  000000                   RHEC2:  0                       ;ECC PATTERN
2877   004130  000000                   RHBAE:  0                               ;BUS ADDRESS EXTENSION
2878   004132  000000                   RHCS3:  0                       ;CONTROL AND STATUS 3
2879
2880
2881
2882
2883
2884                                    ;FUNCTION EQUATES
2885
2886                                            ;TABLE OF FUNCTIONS FOR RHCS1 THEN "GO" BIT HAS TO BE SET
2887   004134                           FUTABL:
2888   004134  000000                   NOPERA: 0                       ;NO OPERATION
2889   004136  000002                   UNLOAD: 2                       ;UNLOAD (STAND BY)
2890   004140  000006                   RECALI: 6                       ;RECALIBRATE
2891   004142  000010                   DCLEAR: 10                      ;DRIVE CLEAR
2892   004144  000012                   RELEAS: 12                      ;RELEASE (DUAL-PORT OPERATION)
```

```
                                ;SEARCH COMMAND
                                ;WRITE CHECK DATA
                                ;WRITE CHECK HEADER AND DATA
                                ;WRITE DATA
                                ;WRITE HEADER AND DATA (FORMAT)
                                ;READ DATA
                                ;READ HEADER AND DATA
                                ;SEEK COMMAND
                                ;OFFSET COMMAND
                                ;RETURNTO CENTERLINE
                                ;PACK ACKNOWLEDGE
                                ;READ IN
                                ;REWIND
                                ;REVERSE READ
                                ;SPACE FORWARD
                        ;REVERSE WRITE
                                ;COMPUTED ILLEGAL FUNCTION

                ;DATA BUFFER FOR READ WRITE
                                ;WRITE FROM THIS BUFFER
                                ;READ INTO THIS BUFFER
                ;STORE COMMAND FOR COMMAND ROUTINE
                ;STORE COMMACD
                                ;IF ZERO GO IS TO BE GIVEN IN COMMAND ROUTINE
                                ;IF ONES GO IS NOT TO BE GIVEN IN COMMAND ROUTINE
                                ;USED IN PGE TEST
                                ;IF ZERO WAIT FOR BIT TO SET
                                ;IF ONES WAIT FOR BIT TO RESET
                                ;USED IN WAIT TRAP
                                ;BITS NOT WRITTEN INTO
                                ;BITS ALWAYS SET
                                ;BITS ALWAYS CLEARED


                ;RESERVED LOCATIONS
                                ;TEST NUMBER
                                ;KEEP SLAVE NO.
                ;IPCK NUMBER FOR ERROR PRINTOUT
                ;SILO WORD NUMBER FOR ERROR PRINT OUT
                ;WAIT TRAP PC
                                ;WAITING FOR REGISTER ADDRESS IN WAIT TRAP
                                ;WAITING FOR BIT IN WAIT TRAP

                ;TABLE FOR ATTENTION BITS
                ;ATTENTION TABLE
                ATABLE: .BYTE   1,2,4,10,20,40,100,200


                ;RESERVED LOCATIONS FOR UNIT SELECT
                BASEAD: 172040          ;RS BASE ADDRESS
                BASPAD: 176700          ;RP BASE ADDRESS
                BASTAD: 172440          ;TU BASE ADDRESS
```

```
2949  004712  176300                BASEMAD:        176300          ;MIXED SYSTEM BASE ADDRESS
2950
2951
2952  004714  000000                BASEVC: 0               ;RS VECTOR
2953  004716  000254                BWSP:   254                     ;RP VECTOR
2954  004720  000001                BAST:   1               ;TU VECTOR
2955  004722  000002                BASM:   2               ;MIXED VECTOR
2956
2957                                ;TABLE FOR GIVEN BASE ADDRESSES
2958  004724  000010                BSGIVA: .BLKW   8.
2959
2960
2961                                ;TABLE FOR GIVEN VECTOR
2962  004744  000010                BSGIVV: .BLKW   8.
2963
2964
2965  004764  000004                NMRHS:  4               ;NUMBER OF RH
2966  004766  000000                BASINX: 0               ;INDEX FOR BASE
2967  004770  000000                WORKBS: 0               ;WORKING BASE
2968  004772  000000                WORKNM: 0               ;WORKING NUMBER FOR RH
2969  004774  000000                WORKVC: 0               ;WORKING VECTOR FOR RH
2970  004776  000000                FORBAE: 0               ;TOTAL NO. OF REG. FOR BAE CALCULATION
2971  005000  000000                LOPCT:  0               ;LOOP COUNT FOR 200 START
2972  005002  000000                LOPCT1: 0               ;LOOP COUNT FOR 210 START
2973  005004  000000                USEVEC: 0               ;USE VECTOR
2974
2975
2976
2977  005006  000000                GIVE:   0               ;IF ONES OPERATOR WILL GIVE ADDRESSS
2978  005010  000000                UNIT:   0                       ;UNIT UNDER TEST
2979  005012  000000                ST200:  0               ;ALL ONES INDICATE STARTING FROM 200
2980                                ;TESTING TABLE
2981  005014  000010                TSRHNO: .BLKW   8.      ;RH NO TO BE TESTED IN ORDER OF TEST
2982
2983  005034  000010                TSDEVICE:       .BLKW   8.      ;DEVICE TO BE TESTED IN ORDER OF TEST
2984                                                                ;1=RS03,3/L,3/LA  2=RS04,4/L  4=RP04,5,6 SINGLE PORT
2985                                                                ;10=RP04,5,6 DUAL PORT  20=TM02
2986
2987
2988  005054  000010                TSUNIT: .BLKW   8.              ;UNIT NO. TO BE TESTED IN ORDER OF TEST
2989
2990
2991  005074  000010                TSSLAV: .BLKW   8.              ;SLAVE NO TO BE TESTED IN ORDER OF TEST
2992
2993
2994  005114  000000                TSTOTL: 0                       ;TOTAL NO. OF UNITS TO BE TESTED
2995  005116  000000                TSINDX: 0                       ;INDEX TO ONE UNDER TEST
2996
2997
2998  005120  000010                TSVEC:  .BLKW   8.              ;VECTOR ADDRESS IN ORDER OF TEST
2999
3000
3001  005140  000010                TSBAE:  .BLKW   8.              ;RHBAE ADDRESS IN ORDER OF TEST
3002
3003
3004  005160  000010                TSCS3:  .BLKW   8.              ;RHCS3 ADDRESS IN ORDER OF TEST
```

```
3005
3006
3007  005200  000010                TSCOMD: .BLKW   8.              ;COMMAND ADDRESS IN ORDER OF TEST
3008
3009
3010  005220  000010                TSBASE: .BLKW   8.              ;BASE ADDRESS IN ORDER OF TEST
3011
3012
3013
3014
3015
3016
3017  005240  000000                ERFLG$: 0                       ;ERROR FLAG
3018  005242  000000                FIRST:  0                       ;IF ZERO WILL TYPE HEADER
3019                                                                        ;IF ONES WILL NOT TYPE HEADER
3020
3021
3022
3023  005244  000000                ATTENT: 0               ;ATTENTION BIT FOR PRESENT UNIT
3024  005246  000000                TOTALAT:        0                       ;TATAL ATTENTION BITS
3025
3026  005250  000000                TMP0:   .WORD   0               ;TEMP STORAGE
3027  005252  000000                TMP1:   .WORD   0
3028  005254  000000                TMP4:   .WORD   0               ;TEMP STORAGE
3029                                ;PERMANENT TABLE
3030  005256  172040                PERRS:  172040                  ;RS BASE ADDRESS
3031  005260  176700                PERRP:  176700                  ;RP BASE ADDRESS
3032  005262  172440                PERTU:  172440                  ;TU BASE ADDRESS
3033  005264  176300                PERMX:  176300                  ;MIXED BASE ADDRESS
3034
3035  005266  000204                PERRSV: 204                     ;RS VECTOR ADDRESS
3036  005270  000254                PERRPV: 254                     ;RP VECTOR ADDRESS
3037  005272  000224                PERTUV: 224                     ;TU VECTOR ADDRESS
3038  005274  000000                PERMXV: 0                       ;MIXED VECTOR ADDRESS
3039
3040  005276  000004                PERNUM: 4                       ;NUMBER OF RH
3041
3042                                ;WORKING TABLE
3043
3044  005300  000004                DEVPNT: .BLKW   4               ;BASE ADDRESS TO BE TESTED
3045  005310  000004                VECPNT: .BLKW   4               ;VECTOR ADDRESS TO BE TESTED
3046  005320  000000                LTRY:   0                       ;NO. OF UNITS TO BE TESTED
3047  005322  000000                TFOUND: 0                       ;TWICE NUMBER OF RH FOUND
3048  005324  000000                TESTDV: 0                       ;STORES BASE ADDRESS OF TEST DEVICE
3049  005326  000000                TESTVC: 0                       ;STORES VECTOR OF TEST DEVICE
3050                                                                ;THE ABOVE TWO IS BEFORE ANY
3051                                                                ;DEVICE IS FOUND.
3052                                ;TABLE FOR DRIVE TYPES
3053                                ;0=RS03, 1=RS03/L, 2=RS04, 3=RS04/L, 4=RS03/LA
3054                                ;20020=SINGLE PORT RP04, 24020=DUAL PORT RP04
3055                                ;20021=SINGLE PORT RP05, 24021=DUAL PORT RP05
3056                                ;20022=SINGLE PORT RP06, 24022=DUAL PORT RP06
3057                                ;142010=TU16
3058
3059  005330  000000  000001  000002  TYPNT:   .WORD   0,1,2,3,4,20020,24020,20021,24021,20022,24022,142010
3060  005336  000003  000004  020020
```

```
3061   005344  024020  020021  024021
3062   005352  020022  024022  142010
3063   005360  000000          POINTT: 0                       ;POITER TO ABOVE TABLE
3064   005362  000014          NTYPNT: 14                      ;NUMBER OF ABOVE TYPES
3065
3066   005364  000000          TMPSLV: 0                       ;TEMPORARY SLAVE COUNTER
3067
3068                                  ;TABLE OF DATA FOR DEVICES FOUND
3069   005366  000004          FDEVIC: .BLKW   4               ;DEVICE FOUND, 1=TU, 2=RP DUAL
3070                                                          ;3=RP SINGLE, 4=RS04, 5=RS03
3071   005376  000004          FUNITN: .BLKW   4               ;UNIT NUMBER FOUND
3072   005406  000004          FTYPE:  .BLKW   4               ;DDRIVE TYPE FOUND
3073   005416  000004          FVECTR: .BLKW   4               ;VECTOR FOUND
3074   005426  000004          FBASEA: .BLKW   4               ;BASE ADDRESS FOUND
3075   005436  000004          FRHNM:  .BLKW   4               ;RH NUMBER FOUND
3076   005446  000004          FSLAVE: .BLKW   4               ;TU16 SLAVE NUMBER FOUND
3077   005456  000004          FDRIVR: .BLKW   4               ;DRIVER ADDRESS FOUND
3078   005466  000004          FBAE:   .BLKW   4               ;BAE ADDRESS FOUND
3079   005476  000004          FCS3:   .BLKW   4               ;CS3 ADDRESS FOUND
3080
3081   005506  000000          TSTUNT: 0                       ;TOTAL NUMBER OF RH FOUND AT
3082                                                          ;END OF SIZE
3083   005510  000000          WORUNT: 0                       ;SAME AS ABOVE BUT TO BE
3084                                                          ;DECREASED AT END PROGRAM
3085
3086   005512  000000          VECTOR: 0                       ;VECTOR UNDER TEST
3087   005514  177740          LERADD: 177740                  ;LOW ERROR ADDRESS REG.
3088   005516  177742          HERADD: 177742                          ;HIGH ERROR ADDRESS REG
3089   005520  177744          MEMERR: 177744                          ;MEMORY SYSTEM ADDRESS REG
3090           000114          PARE70=114                      ;PARITY ERROR VECTOR FOR 70
```

```
3091                                            .SBTTL  REGISTER TEST
3092  005522  012737  177777  005012  BEGIN:  MOV     #-1,ST200
3093  005530  000402                  BR      START
3094  005532  005037  005012          BEGIN2: CLR     ST200
3095
3096  005536                          START:
3097                                  .SBTTL  INITIALIZE THE COMMON TAGS
3098                                  ;;CLEAR THE COMMON TAGS ($CMTAG) AREA
3099  005536  012706  001100                  MOV     #$CMTAG,R6      ;;FIRST LOCATION TO BE CLEARED
3100  005542  005026                  CLR     (R6)+           ;;CLEAR MEMORY LOCATION
3101  005544  022706  001140                  CMP     #SWR,R6 ;;DONE?
3102  005550  001374                  BNE     .-6             ;;LOOP BACK IF NO
3103  005552  012706  001000                  MOV     #STACK,SP       ;;SETUP THE STACK POINTER
3104                                  ;;INITIALIZE A FEW VECTORS
3105  005556  012737  043120  000020          MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
3106  005564  012737  000340  000022          MOV     #340,@#IOTVEC+2 ;;LEVEL 7
3107  005572  012737  044744  000030          MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
3108  005600  012737  000340  000032          MOV     #340,@#EMTVEC+2 ;;LEVEL 7
3109  005606  012737  046450  000034          MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
3110  005614  012737  000340  000036          MOV     #340,@#TRAPVEC+2;LEVEL 7
3111  005622  012737  046530  000024          MOV     #$PWRDN,@#PWRVEC ;;POWER FAILURE VECTOR
3112  005630  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;LEVEL 7
3113  005636  005037  001212                  CLR     $TIMES          ;;INITIALIZE NUMBER OF ITERATIONS
3114  005642  005037  001214                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE ON ERROR ADDRESS
3115  005646  112737  000001  001115          MOVB    #1,$ERMAX       ;;ALLOW ONE ERROR PER TEST
3116  005654  012737  005654  001106          MOV     #.,$LPADR       ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
3117  005662  012737  005662  001110          MOV     #.,$LPERR       ;;SETUP THE ERROR LOOP ADDRESS
3118                                  ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
3119                                  ;;EQUAL TO A "-1"  SETUP FOR A SOFTWARE SWITCH REGISTER.
3120  005670  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE ERROR VECTOR
3121  005674  012737  005730  000004          MOV     #64$,@#ERRVEC   ;;SET UP ERROR VECTOR
3122  005702  012737  177570  001140          MOV     #DSWR,SWR       ;;SETUP FOR A HARDWARE SWICH REGISTER
3123  005710  012737  177570  001142          MOV     #DDISP,DISPLAY  ;;AND A HARDWARE DISPLAY REGISTER
3124  005716  022777  177777  173214          CMP     #-1,@SWR        ;;TRY TO REFERENCE HARDWARE SWR
3125  005724  001012                  BNE     66$             ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
3126                                                          ;;AND  THE HARDWARE SWR IS NOT = -1
3127  005726  000403                  BR      65$             ;;BRANCH IF NO TIMEOUT
3128  005730  012716  005736  64$:    MOV     #65$,(SP)       ;;SET UP FOR TRAP RETURN
3129  005734  000002                  RTI
3130  005736  012737  000176  001140  65$:    MOV     #SWREG,SWR      ;;POINT TO SOFTWARE SWR
3131  005744  012737  000174  001142          MOV     #DISPREG,DISPLAY
3132  005752  012637  000004          66$:    MOV     (SP)+,@#ERRVEC  ;;RESTORE ERROR VECTOR
3133
3134
3135
3136  005756  012737  000000  177776          MOV     #0,PS                   ;SET PROCESSOR STATUS TO 0
3137  005764  012737  000200  000036          MOV     #200,@#TRAPVEC+2                ;TRAP PRIORITY = 4
3138  005772  013700  002716                  MOV     @#RPVEC,R0              ;GET RP VECTOR ADDRESS
3139  005776  012720  043056                  MOV     #RPVECT,(R0)+           ;THIS IS FOR UNTIMELY INTERRUPTS
3140  006002  012710  000340                  MOV     #340,(R0)               ;RP04 INTERRUPT SERVICE ROUTINE
3141                                                                          ;PRIORITY = 7
3142  006006  004737  044064                  JSR     PC,@#$TKINT     ;INITILIZE THE TK
3143  006012  005037  045100                  CLR     PRITEM                  ;CLEAR FOR ERROR MESSAGE PRINTOUT
3144  006016  005737  005242                  TST     @#FIRST                 ;IS THIS FIRST TIME ROUND
3145  006022  001001                  BNE     1$                      ;BRANCH IF NOT
3146  006024  000402                  BR      2$
```

```
3147  006026  000137  006124          1$:     JMP     @#SND1
3148  006032  023737  000042  000046  2$:     CMP     @#42,@#46       ;ARE WE IN QV OR AUTO ACCEPT MODE?
3149  006040  001431                  BEQ     SND1            ;IF YES, SKIP HEADER
3150  006042  104401  006050                  TYPE    ,68$            ;;TYPE ASCIZ STRING
3151  006046  000426                  BR      67$             ;;GET OVER THE ASCIZ
3152                                  ;;68$:  .ASCIZ  <15><12>/RH70 FUNCTIONAL CONTROLLER TEST  DERHA-C/
3153  006124                          67$:
3154  006124  012737  177777  005242  SND1:   MOV     #-1,@#FIRST             ;NEXT TIME DO NOT GIVE HEADER
3155  006132  012737  037746  000114          MOV     #PARITY,@#PARE70        ;PARITY VECTOR
3156  006140  012737  000340  000116          MOV     #340,@#PARE70+2         ;PRIORITY 7
3157  006146  012737  037610  000004          MOV     #TIEOUT,@#ERRVEC        ;TIMEOUT VECTOR
3158  006154  012737  000340  000006          MOV     #340,@#ERRVEC+2         ;PRIORITY 7
3159
3160
3161
3162
3163
3164
3165
3166
3167
3168
3169
3170
3171
3172
3173
3174
3175
3176
3177
3178                    ;;*****************************************************************
3179                    ;*TEST 1         SIZE FOR RH DEVICES
3180                    ;*      THIS TEST DETERMINS WHICH RH DEVICE IS ON THE SYSTEM.
3181                    ;*      IF THE SYSTEM HAS MORE THAN ONE RH DEVICE THEN ONLY ONE OF
3182                    ;*      THE DEVICES WILL BE USED IN THE FOLLOWING TESTS.
3183                    ;*      THE ONE THAT WILL BE USED IS THE FIRST ONE THAT IS PRESENT
3184                    ;*      IN THE FOLLOWING LIST
3185                    ;*      RS
3186                    ;*      RP
3187                    ;*      TM
3188                    ;*
3189                    ;*      THE WAY THE TEST WORKS IS AS FOLLOWS:-
3190                    ;*      A REFERENCE IS MADE TO THE CONTROL AND STATUS REGISTER 1
3191                    ;*      FOR THE RS BY A TST INSTRUCTION. IF IT RESPONDS THEN IT IS
3192                    ;*      ASSUMED PRESENT AND THE LOCATIONS FOR THE I/O REGISTERS ARE
3193                    ;*      FILLED WITH THE APPROPIATE ADDRESSES.
3194                    ;*      THEN THE DRIVE TYPE REGISTER IS CHECKED TO HAVE GOOD
3195                    ;*      VALUES.
3196                    ;*      IF THE TST INSTRUCTION TRAPS TO A NON EXISTANT VECTOR
3197                    ;*      THEN A SIMILAR ATTEMPT IS MADE TO A RP CONTROL AND STATUS
3198                    ;*      REGISTER 1.
3199                    ;*      THEN A TM IS TRYED.
3200                    ;*      THEN A MIXED SYSTEM WITH MORE THAN ONE RH DEVICS IS TRYED.
3201
3202                    ;;*****************************************************************
```

```
                                TST1:   SCOPE
3204  006164  012737  000001  001212        MOV     #1,$TIMES       ;;DO 1 ITERATION
3205  006172  005737  005012                TST     ST200           ;IS IT A 200 START
3206  006176  001413                        BEQ     2$              ;BRANCH IF NOT 200 START
3207  006200  012700  005256                MOV     #PERRS,R0       ;POINTER TO MOVE 9 WMRDS FROM
3208  006204  012701  000011                MOV     #9.,R1          ;NUMBER TO MOVE
3209  006210  012702  005300                MOV     #DEVPNT,R2      ;POINTER TO MOVE 9 TORDS TO
3210  006214  012022                1$:     MOV     (R0)+,(R2)+     ;FILL WORK TABLE
3211  006216  005301                        DEC     R1
3212  006220  001375                        BNE     1$              ;BRANCH IF 9 NOT DONE
3213  006222  000137  006522                JMP     SETSIZ
3214  006226                        2$:
3215  006226  104401  006234                TYPE    ,65$            ;;TYPE ASCIZ STRING
3216  006232  000417                        BR      64$             ;;GET OVER THE ASCIZ
3217                                ;;65$:  .ASCIZ  <15><12>/HOW MANY RH TO BE TESTED   /
3218  006272                        64$:
3219  006272  104401  006300                TYPE    ,67$            ;;TYPE ASCIZ STRING
3220  006276  000402                        BR      66$             ;;GET OVER THE ASCIZ
3221                                ;;67$:  .ASCIZ  <15><12>/ /
3222  006304                        66$:
3223  006304  104410                        RDOCT
3224  006306  011637  005320                MOV     (SP),LTRY       ;GET NUMBER OF RH TO BE TESTED
3225  006312  012637  005250                MOV     (SP)+,TMP0      ;WORKING NUMBER OF RH
3226  006316  012737  000001  005252        MOV     #1,TMP1         ;RH NUMBER TO BE TYPED
3227  006324  005000                        CLR     R0              ;INDEX TO WORKING TABLE
3228
3229  006326                        3$:
3230  006326  104401  006334                TYPE    ,69$            ;;TYPE ASCIZ STRING
3231  006332  000417                        BR      68$             ;;GET OVER THE ASCIZ
3232                                ;;69$:  .ASCIZ  <15><12>/TYPE BASE ADDRESS OF RH NO/
3233  006372                        68$:
3234  006372  013746  005252                MOV     TMP1,-(SP)
3235  006376  104405                        TYPDS
3236  006400  104401  006406                TYPE    ,71$            ;;TYPE ASCIZ STRING
3237  006404  000402                        BR      70$             ;;GET OVER THE ASCIZ
3238                                ;;71$:  .ASCIZ  <15><12>/ /
3239  006412                        70$:
3240  006412  104410                        RDOCT
3241  006414  012660  005300                MOV     (SP)+,DEVPNT(R0)  ;FILL WORKING TABLE WITH BASE ADDRESS
3242  006420  104401  006426                TYPE    ,73$            ;;TYPE ASCIZ STRING
3243  006424  000420                        BR      72$             ;;GET OVER THE ASCIZ
3244                                ;;73$:  .ASCIZ  <15><12>/TYPE VECTOR ADDRESS OF RH NO/
3245  006466                        72$:
3246  006466  013746  005252                MOV     TMP1,-(SP)
3247  006472  104405                        TYPDS
3248  006474  104401  000200                TYPE    ,CRLF
3249  006500  104410                        RDOCT
3250  006502  012660  005310                MOV     (SP)+,VECPNT(R0)  ;FILL WORKING TABLE WITH VECTOR ADDRESS
3251  006506  005720                        TST     (R0)+           ;ADD 2 TO R0
3252  006510  005237  005252                INC     TMP1            ;GET NEXT RH NUMBER
3253  006514  005337  005250                DEC     TMP0            ;COUNT DOWN RH TO BE TESTED
3254  006520  001302                        BNE     3$              ;BRANCH IF ALL NOT DONE
3255
3256                                ;R0 WILL HAVE DEVICE POINTER, R1 WILL HAVE VECTOR POINTER
3257  006522  012700  005300        SETSIZ: MOV     #DEVPNT,R0      ;DEVICE POINTER
3258  006526  012701  005310                MOV     #VECPNT,R1      ;VECTOR PMINTER
```

```
3259  006532  005037  005322                      CLR     TFOUND          ;WILL BE USED AS POINTER
3260  006536                              SS2:                            ;TO FOUND TABLE.
3261  006536  012737  010530  000004    1$:       MOV     #SS4,ERRVEC     ;TIME OUT VECTOR TO REDUCE LTRY
3262  006544  012037  005324                      MOV     (R0)+,TESTDV    ;ADDRESS OF DEVICE TO BE TESTED
3263  006550  012137  005326                      MOV     (R1)+,TESTVC    ;VECTOR TO BE TESTED
3264  006554  005777  176544                      TST     @TESTDV         ;TRY TIME OUT ON DEVICE BASE
3265                                              ;IF NO TIME OUT OCCURS THEN DEVICE IN TESTDV IS PRESENT
3266                                              ;NOW FILL ALL REGISTER ADDRESS TABLE
3267  006560  012702  000026                      MOV     #22.,R2         ;COUNT 22
3268  006564  012703  004060                      MOV     #RHCS1,R3       ;GET BASE LOCATION
3269  006570  013704  005324                      MOV     TESTDV,R4       ;GET BASE ADDRESS
3270  006574  010423                     2$:      MOV     R4,(R3)+        ;FILL PROPER ADDRESS
3271  006576  062704  000002                      ADD     #2,R4           ;INCREMENT ADDRESS BY 2
3272  006602  005302                              DEC     R2              ;COUNT DOWN
3273  006604  001373                              BNE     2$              ;BRANCH IF 22 NOT DONE.
3274  006606  005077  175256                      CLR     @RHCS2          ;SET UNIT NUMBER
3275  006612                              SS6:
3276  006612  012737  005330  005360    3$:\      MOV     #TYPNT,POINTT   ;POINTER TO DRIVE TYPE
3277  006620  012737  000014  005362              MOV     #14,NTYPNT      ;NUMBER OF DRIVE TYPES
3278
3279  006626                              SS7:
3280  006626  022737  000001  005362    4$:       CMP     #1,NTYPNT       ;IS IT FOR TU
3281  006634  001424                              BEQ     5$              ;IF FOR TU BRANCH
3282  006636  017737  175244  001126              MOV     @RHDT,$BDDAT    ;READ DRIVE TYPE
3283  006644  012702  000014                      MOV     #14,R2  ;GET NUMBER FOR DT NOT DONE
3284  006650  163702  005362                      SUB     NTYPNT,R2               ;GET DT TO DO
3285  006654  006302                              ASL     R2              ;MULTIPLY R2 BY 2
3286  006656  026237  005330  001126              CMP     TYPNT(R2),$BDDAT  ;IS DRIVE TYPE FOUND
3287  006664  001402                              BEQ     16$             ;DRIVE TYPE FOUND SO BRANCH
3288  006666  000137  010554                      JMP     SS8
3289  006672  032777  010000  175170  16$:       BIT     #NED,@RHCS2     ;IS IT NON EXISTANT DRIVE
3290  006700  001437                              BEQ     8$              ;NED NOT SET, DRIVE TYPE FOUND SO BRANCH
3291                                              ;A DEVICE HAS NOT BEEN FOUND
3292  006702  000137  010546                      JMP     SS5             ;A DEVICE HAS NOT BEEN FOUND SO BRANCH
3293
3294                                              ;TRYING THE TU16 DRIVE TYPE
3295  006706  005037  005364            5$:       CLR     TMPSLV          ;SLAVE 0
3296  006712  013777  005364  175172    6$:       MOV     TMPSLV,@RHTC    ;MOVE SLAVE NUMBER IN TAPE CONTROL
3297  006720  017737  175162  001126              MOV     @RHDT,$BDDAT    ;READ DRIVE TYPE
3298  006726  032737  002000  001126              BIT     #SLVPR,$BDDAT   ;IS SLAVE PRESENT
3299  006734  001014                              BNE     7$
3300  006736  022737  000007  005364              CMP     #7,TMPSLV       ;IS 7 DONE
3301  006744  001002                              BNE     17$             ;BRANCH IF 7 DONE AND NONE FOUND
3302  006746  000137  010554                      JMP     SS8
3303  006752  005237  005364            17$:      INC     TMPSLV          ;GET NEXT SLAVE
3304  006756  012777  040000  175074              MOV     #TRE,@RHCS1     ;CLEAR CONTROLLER ERRORS
3305  006764  000752                              BR      6$              ;TRY NEXT SLAVE
3306                                              ;A DEVICE HAS BEEN FOUND SAVE SLAVE
3307  006766  013702  005322            7$:       MOV     TFOUND,R2       ;GET NO OF RH FOUND X2 FOR INDEX
3308  006772  013762  005364  005446              MOV     TMPSLV,FSLAVE(R2)
3309                                              ;A DEVICE HAS BEEN FOUND TEST VECTOR
3310  007000  012737  007014  000004    8$:       MOV     #9$,ERRVEC      ;TIME OUT VECTOR TO REPORT ERROR
3311  007006  005777  176314                      TST     @TESTVC         ;TRY TIME OUT ON VECTOR
3312  007012  000403                              BR      10$             ;A VECTOR EXISTS SO CONTINUE
3313  007014  104146                    9$:       ERROR   146             ;A DEVICE BASE ADDRESS DID NOT
3314                                              ;TIME OUT BUT ITS CORRESPONDING
```

```
                                                        ;VECTOR ADDRESS TIMED OUT
                                                        ;HIT CONTINUE TO REPEAT THIS
                                                        ;TEST
007016  000000                          HALT
007020  000767                          BR      8$              ;REPEAT THIS TEST
                                        ;A DEVICE HAS BEEN FOUND AND VECTOR RESPONDS SO STORE RESULTS
007022  013702  005322          10$:    MOV     TFOUND,R2       ;GET NO OF RH FOUND X2 FOR INDEX
007026  013762  005362  005366          MOV     NTYPNT,FDEVIC(R2)  ;DEVICE 1=TU; 2,3,4,5,6,7=RP;
                                                                ;10,11,12,13,14=RS
007034  017762  175030  005376          MOV     @RHCS2,FUNITN(R2)  ;GET RHCS2
007042  042762  177770  005376          BIC     #177770,FUNITN(R2)  ;KEEP UNIT NUMBER
007050  017762  175032  005406          MOV     @RHDT,FTYPE(R2) ;DRIVE BYTE
007056  013762  005326  005416          MOV     TESTVC,FVECTR(R2)  ;VECTOR
007064  013762  005324  005426          MOV     TESTDV,FBASEA(R2)  ;BASE ADDRESS
007072  013762  005322  005436          MOV     TFOUND,FRHNM(R2)  ;RH NUMBER X2 MINUS ONE
007100  006262  005436                  ASR     FRHNM(R2)       ;RH NUMBER MINUS ONE
007104  005262  005436                  INC     FRHNM(R2)       ;RH NUMBER
007110  022762  000001  005366          CMP     #1,FDEVIC(R2)   ;IS IT TU
007116  001016                          BNE     11$             ;BRANCH IF NOT TU
007120  012762  041710  005456          MOV     #CMNDTM,FDRIVR(R2)  ;DRIVER ADDRESS FOR TU
007126  013746  005324                  MOV     TESTDV,-(SP)    ;BASE ADDRESS
007132  062716  000034                  ADD     #<2*14.>,(SP)   ;15TH ADDRESS IS BAE FOR TU
007136  011662  005466                  MOV     (SP),FBAE(R2)   ;SAVE BAE FOR TU
007142  062716  000002                  ADD     #2,(SP)         ;16TH ADDRESS IS CS3 FOR TU
007146  012662  005476                  MOV     (SP)+,FCS3(R2)  ;SAVE CS3 FOR TU

007152  000511                          BR      SS1
007154  022762  000002  005366  11$:    CMP     #2,FDEVIC(R2)   ;IS IT RP DUAL PORT
007162  001424                          BEQ     12$             ;BRANCH IF RP FOUND
007164  022762  000003  005366          CMP     #3,FDEVIC(R2)   ;IS IT RP
007172  001420                          BEQ     12$             ;BRANCH IF RP FOUND
007174  022762  000004  005366          CMP     #4,FDEVIC(R2)   ;IS IT RP DUAL PORT
007202  001414                          BEQ     12$             ;BRANCH IF RP FOUND
007204  022762  000005  005366          CMP     #5,FDEVIC(R2)   ;IS IT RP
007212  001410                          BEQ     12$             ;BRANCH IF RP FOUND
007214  022762  000006  005366          CMP     #6,FDEVIC(R2)   ;IS IT RP DUAL PORT
007222  001404                          BEQ     12$             ;BRANCH IF RP FOUND
007224  022762  000007  005366          CMP     #7,FDEVIC(R2)   ;IS IT RP
007232  001016                          BNE     13$             ;BRANCH IF NO RP
007234  012762  041572  005456  12$:    MOV     #CMNDRP,FDRIVR(R2)  ;DRIVER ADDRESS FOR RP
007242  013746  005324                  MOV     TESTDV,-(SP)    ;BASE ADDRESS
007246  062716  000050                  ADD     #<2*20.>,(SP)   ;21ST ADDRESS IS BAE FOR RP
007252  011662  005466                  MOV     (SP),FBAE(R2)   ;SAVE BAE FOR RP
007256  062716  000002                  ADD     #2,(SP)         ;22ND ADDRESS IS CS3 FOR RP
007262  012662  005476                  MOV     (SP)+,FCS3(R2)  ;SAVE CS3 FOR RP

007266  000443                          BR      SS1
007270  022762  000010  005366  13$:    CMP     #10,FDEVIC(R2)  ;IS IT RS03/LA
007276  001420                          BEQ     14$             ;BRANCH IF RS03/LA
007300  022762  000011  005366          CMP     #11,FDEVIC(R2)  ;IS IT RS04/L
007306  001414                          BEQ     14$             ;BRANCH IF RS04/L
007310  022762  000012  005366          CMP     #12,FDEVIC(R2)  ;IS IT RS04
007316  001410                          BEQ     14$             ;BRANCH IF RS04
007320  022762  000013  005366          CMP     #13,FDEVIC(R2)  ;IS IT RS03/L
007326  001404                          BEQ     14$             ;BRANCH IF RS03/L
007330  022762  000014  005366          CMP     #14,FDEVIC(R2)  ;IS IT RS03
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3371  007336  001016                          BNE     15$                     ;BRANCH IF NOT RS03
3372  007340  012762  041502  005456  14$:    MOV     #CMNDRS,FDRIVR(R2)  ;DRIVER ADDRESS FOR RS
3373  007346  013746  005324                  MOV     TESTDV,-(SP)    ;BASE ADDRESS
3374  007352  062716  000030                  ADD     #(2*12.),(SP)   ;13TH ADDRESS IS BAE FOR RS
3375  007356  011662  005466                  MOV     (SP),FBAE(R2)   ;SAVE BAE FOR RS
3376  007362  062716  000002                  ADD     #2,(SP)         ;14TH ADDRESS IS CS3 FOR RS
3377  007366  012662  005476                  MOV     (SP)+,FCS3(R2)  ;SAVE CS3 FOR RS
3378  007372  000401                          BR      SS1             ;CONTINUE
3379  007374  000000                  15$:    HALT                    ;PROGRAM ERROR
3380
3381                                          ;NOW TYPE RESULT
3382
3383  007376                          SS1:
3384  007376  104401  007404                  TYPE    ,65$            ;;TYPE ASCIZ STRING
3385  007402  000406                          BR      64$             ;;GET OVER THE ASCIZ
3386                                  ;;65$:  .ASCIZ  <15><12>/ON RH NO/
3387  007420                          64$:
3388  007420  016246  005436                  MOV     FRHNM(R2),-(SP) ;TYPE RH NUMBER
3389  007424  104405                          TYPDS
3390  007426  104401  007434                  TYPE    ,67$            ;;TYPE ASCIZ STRING
3391  007432  000411                          BR      66$             ;;GET OVER THE ASCIZ
3392                                  ;;67$:  .ASCIZ  /           BASE /
3393  007456                          66$:
3394  007456  016246  005426                  MOV     FBASEA(R2),-(SP)  ;TYPE BASE ADDRESS
3395  007462  104402                          TYPOC
3396  007464  104401  007472                  TYPE    ,69$            ;;TYPE ASCIZ STRING
3397  007470  000404                          BR      68$             ;;GET OVER THE ASCIZ
3398                                  ;;69$:  .ASCIZ  / FOUND/
3399  007502                          68$:
3400  007502  022762  000001  005366          CMP     #1,FDEVIC(R2)   ;IS IT TU
3401  007510  001020                          BNE     1$              ;BRANCH IF NOT TU
3402  007512  104401  007520                  TYPE    ,71$            ;;TYPE ASCIZ STRING
3403  007516  000410                          BR      70$             ;;GET OVER THE ASCIZ
3404                                  ;;71$:  .ASCIZ  / TU16 AT SLAVE/
3405  007540                          70$:
3406  007540  016246  005446                  MOV     FSLAVE(R2),-(SP)  ;TYPE SLAVE NUMBER
3407  007544  104405                          TYPDS
3408  007546  000137  010346                  JMP     6$
3409                                                                  ;THE FOLLOWING TYPES OUT
3410                                                                  ;THE DEVICE AND REDEFINES
3411                                                                  ;FDEVIC: 1=TU, 2=RP DUAL PORT
3412                                                                  ;3=RP SINGLE PORT
3413                                                                  ;4=RS04/L,RS04
3414                                                                  ;5=RS03/LA,RS03/L,RS03
3415  007552  022762  000002  005366  1$:     CMP     #2,FDEVIC(R2)   ;IS IT RP06 DUAL PORT
3416  007560  001016                          BNE     2$              ;BRANCH IF NOT RP06 DUAL PORT
3417  007562  104401  007570                  TYPE    ,73$            ;;TYPE ASCIZ STRING
3418  007566  000411                          BR      72$             ;;GET OVER THE ASCIZ
3419                                  ;;73$:  .ASCIZ  / RP06 DUAL PORT /
3420  007612                          72$:
3421  007612  000137  010346                  JMP     6$
3422  007616  022762  000003  005366  2$:     CMP     #3,FDEVIC(R2)   ;IS IT RP06 SINGLE PORT
3423  007624  001016                          BNE     3$              ;BRANCH IF NOT RP06 SINGLE PORT
3424  007626  104401  007634                  TYPE    ,75$            ;;TYPE ASCIZ STRING
3425  007632  000411                          BR      74$             ;;GET OVER THE ASCIZ
3426                                  ;;75$:  .ASCIZ  / RP06 SINGLE PORT/
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3427  007656                                  74$:
3428  007656  000137  010346                  JMP     6$
3429  007662  022762  000004  005366  3$:     CMP     #4,FDEVIC(R2)   ;IS IT RP05 DUAL PORT
3430  007670  001020                          BNE     4$              ;BRANCH IF NOT RP05 DUAL PORT
3431  007672  012762  000002  005366          MOV     #2,FDEVIC(R2)
3432  007700  104401  007706                  TYPE    ,77$            ;;TYPE ASCIZ STRING
3433  007704  000410                          BR      76$             ;;GET OVER THE ASCIZ
3434                                  ;;77$:  .ASCIZ  / RP05 DUAL PORT/
3435  007726                                  76$:
3436  007726  000137  010346                  JMP     6$
3437  007732  022762  000005  005366  4$:     CMP     #5,FDEVIC(R2)   ;IS IT RP05 SINGLE PORT
3438  007740  001020                          BNE     8$              ;BRANCH IF NOT RP05 SINGLE PORT
3439  007742  012762  000003  005366          MOV     #3,FDEVIC(R2)
3440  007750  104401  007756                  TYPE    ,79$            ;;TYPE ASCIZ STRING
3441  007754  000411                          BR      78$             ;;GET OVER THE ASCIZ
3442                                  ;;79$:  .ASCIZ  / RP05 SINGLE PORT/
3443  010000                                  78$:
3444  010000  000562                          BR      6$
3445  010002  022762  000006  005366  8$:     CMP     #6,FDEVIC(R2)   ;IS IT RP04 DUAL PORT
3446  010010  001017                          BNE     9$              ;BRANCH IF NOT RP04 DUAL PORT
3447  010012  012762  000002  005366          MOV     #2,FDEVIC(R2)
3448  010020  104401  010026                  TYPE    ,81$            ;;TYPE ASCIZ STRING
3449  010024  000410                          BR      80$             ;;GET OVER THE ASCIZ
3450                                  ;;81$:  .ASCIZ  / RP04 DUAL PORT/
3451  010046                                  80$:
3452  010046  000537                          BR      6$
3453  010050  022762  000007  005366  9$:     CMP     #7,FDEVIC(R2)   ;IS IT RP04 SINGLE PORT
3454  010056  001020                          BNE     10$             ;BRANCH IF NOT RP04 SINGLE PORT
3455  010060  012762  000003  005366          MOV     #3,FDEVIC(R2)
3456  010066  104401  010074                  TYPE    ,83$            ;;TYPE ASCIZ STRING
3457  010072  000411                          BR      82$             ;;GET OVER THE ASCIZ
3458                                  ;;83$:  .ASCIZ  / RP04 SINGLE PORT/
3459  010116                                  82$:
3460  010116  000513                          BR      6$
3461  010120  022762  000010  005366  10$:    CMP     #10,FDEVIC(R2)  ;IS IT RS03-LA
3462  010126  001014                          BNE     11$             ;BRANCH IF NOT RS03-LA
3463  010130  012762  000005  005366          MOV     #5,FDEVIC(R2)
3464  010136  104401  010144                  TYPE    ,85$            ;;TYPE ASCIZ STRING
3465  010142  000405                          BR      84$             ;;GET OVER THE ASCIZ
3466                                  ;;85$:  .ASCIZ  / RS03-LA/
3467  010156                                  84$:
3468  010156  000473                          BR      6$
3469  010160  022762  000011  005366  11$:    CMP     #11,FDEVIC(R2)  ;IS IT RS04-L
3470  010166  001013                          BNE     12$             ;BRANCH IF NOT RS04-L
3471  010170  012762  000004  005366          MOV     #4,FDEVIC(R2)
3472  010176  104401  010204                  TYPE    ,87$            ;;TYPE ASCIZ STRING
3473  010202  000404                          BR      86$             ;;GET OVER THE ASCIZ
3474                                  ;;87$:  .ASCIZ  / RS04-L/
3475  010214                                  86$:
3476  010214  000454                          BR      6$
3477  010216  022762  000012  005366  12$:    CMP     #12,FDEVIC(R2)  ;IS IT RS04
3478  010224  001012                          BNE     13$             ;BRANCH IF NOT RS04
3479  010226  012762  000004  005366          MOV     #4,FDEVIC(R2)
3480  010234  104401  010242                  TYPE    ,89$            ;;TYPE ASCIZ STRING
3481  010240  000403                          BR      88$             ;;GET OVER THE ASCIZ
3482                                  ;;89$:  .ASCIZ  / RS04/
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3483  010250                                88$:
3484  010250  000436                              BR      6$
3485  010252  022762  000013  005366  13$:      CMP     #13,FDEVIC(R2)  ;IS IT RS03-L
3486  010260  001013                            BNE     14$             ;BRANCH IF NOT RS03-L
3487  010262  012762  000005  005366            MOV     #5,FDEVIC(R2)
3488  010270  104401  010276                    TYPE    ,91$            ;;TYPE ASCIZ STRING
3489  010274  000404                            BR      90$             ;;GET OVER THE ASCIZ
3490                                  ;;91$:    .ASCIZ  / RS03-L/
3491  010306                                90$:
3492  010306  000417                            BR      6$
3493  010310  022762  000014  005366  14$:      CMP     #14,FDEVIC(R2)  ;IS IT RS03
3494  010316  001012                            BNE     5$              ;BRANCH IF NOT RS03
3495  010320  012762  000005  005366            MOV     #5,FDEVIC(R2)
3496  010326  104401  010334                    TYPE    ,93$            ;;TYPE ASCIZ STRING
3497  010332  000403                            BR      92$             ;;GET OVER THE ASCIZ
3498                                  ;;93$:    .ASCIZ  / RS03/
3499  010342                                92$:
3500  010342  000401                            BR      6$
3501  010344  000000                  5$:       HALT                    ;PROGRAM ERROR
3502  010346                                6$:
3503  010346  104401  010354                    TYPE    ,95$            ;;TYPE ASCIZ STRING
3504  010352  000411                            BR      94$             ;;GET OVER THE ASCIZ
3505                                  ;;95$:    .ASCIZ  <15><12>/AT UNIT NUMBER/
3506  010376                                94$:
3507  010376  016246  005376                    MOV     FUNITN(R2),-(SP)  ;TYPE UNIT NUMBER
3508  010402  104405                            TYPDS
3509  010404  104401  010412                    TYPE    ,97$            ;;TYPE ASCIZ STRING
3510  010410  000411                            BR      96$             ;;GET OVER THE ASCIZ
3511                                  ;;97$:    .ASCIZ  /          VECTOR /
3512  010434                                96$:
3513  010434  016246  005416                    MOV     FVECTR(R2),-(SP)  ;TYPE VECTOR
3514  010440  104402                            TYPOC
3515  010442  104401  010450                    TYPE    ,99$            ;;TYPE ASCIZ STRING
3516  010446  000402                            BR      98$             ;;GET OVER THE ASCIZ
3517                                  ;;99$:    .ASCIZ  <15><12>/ /
3518  010454                                98$:
3519  010454  104401  010462                    TYPE    ,101$           ;;TYPE ASCIZ STRING
3520  010460  000402                            BR      100$            ;;GET OVER THE ASCIZ
3521                                  ;;101$:   .ASCIZ  <15><12>/ /
3522  010466                                100$:
3523
3524                                            ;UPDATE TFOUND
3525  010466  062737  000002  005322            ADD     #2,TFOUND       ;GET READY FOR NEXT DEVICE
3526
3527                                            ;ALL UNITS DONE? IF LTRY BECOMES ZERO YES ALL DONE
3528  010474  005337  005320                    DEC     LTRY            ;REDUCE DEVICES LEFT TO TRY
3529  010500  001402                            BEQ     7$              ;BRANCH IF ALL COMPLETE
3530  010502  000137  006536                    JMP     SS2             ;ALL NOT DONE
3531  010506                                7$:
3532  010506  013746  005322          SS3:      MOV     TFOUND,-(SP)    ;GET TWICE NUMBER OF RH FOUND
3533  010512  006216                            ASR     (SP)            ;DIVIDE BY 2
3534  010514  011637  005506                    MOV     (SP),TSTUNT
3535  010520  012637  005510                    MOV     (SP)+,WORUNT
3536  010524  000137  010632                    JMP     TST2    ;JUMP TO NEXT TEST
3537
3538                                            ;A RH TIMED OUT SO TRY NEXT UNIT OR END TRYING
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3539  010530  005337  005320          SS4:    DEC     LTRY            ;RH TIMES OUT SO DECREASE RH TYPED
3540  010534  001402                          BEQ     1$              ;BRANCH IF ALL DONE
3541  010536  000137  006536                  JMP     SS2             ;ALL NOT DONE SO JUMP.
3542  010542  000137  010506          1$:     JMP     SS3             ;ALL DONE SO STORE NUMBER OF RH FOUND
3543
3544                                          ;A DRIVE TYPE DID NOT MATCH SO TRY NEXT
3545  010546  012777  040000  173304  SS5:    MOV     #TRE,@RHCS1     ;CLEAR NED ERROR
3546  010554  005337  005362          SS8:    DEC     NTYPNT          ;DECREASE NUMBER OF DRIVE TYPES TRIED
3547  010560  001402                          BEQ     1$              ;BRANCH IF ALL DONE
3548  010562  000137  006626                  JMP     SS7             ;ALL NOT DONE
3549  010566  005277  173276          1$:     INC     @RHCS2          ;GET NEXT UNIT NO.
3550  010572  012777  040000  173260          MOV     #TRE,@RHCS1     ;CLEAR NED ERROR
3551  010600  017746  173264                  MOV     @RHCS2,-(SP)    ;GET RHCS2
3552  010604  042716  177770                  BIC     #177770,(SP)    ;GET UNIT NO
3553  010610  022726  000010                  CMP     #8.,(SP)+       ;ARE 7 DONE
3554  010614  001402                          BEQ     2$              ;BRANCH IF 7 DONE
3555  010616  000137  006612                  JMP     SS6             ;7 NOT DONE SO TRY NEXT UNIT NO
3556
3557  010622  104147          2$:     ERROR   147             ;DEVICE ADDRESS DID NOT TIME
3558  010624  000000                  HALT                    ;OUT BUT NO UNITS HAD
3559                                                          ;APPROPRIATE DRIVE TYPE.
3560  010626  000137  010530                  JMP     SS4
3561
3562
3563
3564
3565
3566
3567
3568                                  ;;**********************************************************************
3569                                  ;*TEST 2         UNIT UNDER TEST
3570                                  ;*      THIS TYPES THE UNIT TO BE TESTED
3571                                  ;*      AND IS THE FIRST TEST AFTER THE END OF THE PROGRAM
3572                                  ;;**********************************************************************
3573  010632  000004          TST2:   SCOPE
3574  010634  012737  000001  001212          MOV     #1,$TIMES       ;;DO 1 ITERATION
3575  010642  012737  037610  000004          MOV     #TIEOUT,@#ERRVEC        ;TIMEOUT VECTOR
3576  010650  012737  000340  000006          MOV     #340,@#ERRVEC+2         ;PRIORITY 7
3577
3578  010656  013746  005510                  MOV     WORUNT,-(SP)    ;GET WORKING RH NUMBER LEFT
3579  010662  013702  005506                  MOV     TSTUNT,R2       ;GET TOTAL NO OF RH FOUND
3580  010666  162602                          SUB     (SP)+,R2        ;NO OF RH TO BE TESTED
3581  010670  006302                          ASL     R2              ;INDEX FOR RH TO BE TESTED.
3582  010672  104401  010700                  TYPE    ,65$            ;;TYPE ASCIZ STRING
3583  010676  000402                          BR      64$             ;;GET OVER THE ASCIZ
3584                                  ;;65$:  .ASCIZ  <15><12>/ /
3585  010704                          64$:
3586  010704  104401  010712                  TYPE    ,67$            ;;TYPE ASCIZ STRING
3587  010710  000410                          BR      66$             ;;GET OVER THE ASCIZ
3588                                  ;;67$:  .ASCIZ  <15><12>/TESTING RH NO/
3589  010732                          66$:
3590  010732  016246  005436                  MOV     FRHNM(R2),-(SP) ;TYPE RH NO.
3591  010736  104405                          TYPDS
3592
3593  010740  104401  010746                  TYPE    ,69$            ;;TYPE ASCIZ STRING
3594  010744  000410                          BR      68$             ;;GET OVER THE ASCIZ
```

```
3595                                        ;;69$:  .ASCIZ  /       USING /
3596  010766                                68$:
3597  010766  104401  010774                         TYPE    ,71$            ;;TYPE ASCIZ STRING
3598  010772  000404                               BR      70$             ;;GET OVER THE ASCIZ
3599                                        ;;71$:  .ASCIZ  / BASE /
3600  011004                                70$:
3601  011004  016246  005426                       MOV     FBASEA(R2),-(SP)  ;TYPE BASE ADDRESS
3602  011010  104402                               TYPOC
3603  011012  022762  000001  005366               CMP     #1,FDEVIC(R2)   ;IS IT TU
3604  011020  001017                               BNE     1$              ;BRANCH IF NOT TU
3605  011022  104401  011030                       TYPE    ,73$            ;;TYPE ASCIZ STRING
3606  011026  000410                               BR      72$             ;;GET OVER THE ASCIZ
3607                                        ;;73$:  .ASCIZ  / TU16 AT SLAVE/
3608  011050                                72$:
3609  011050  016246  005446                       MOV     FSLAVE(R2),-(SP)  ;TYPE SLAVE NUMBER
3610  011054  104405                               TYPDS
3611  011056  000467                               BR      6$
3612  011060  022762  000002  005366  1$:          CMP     #2,FDEVIC(R2)   ;IS IT RP DUAL PORT
3613  011066  001014                               BNE     2$              ;BRANCH IF NOT RP DUAL PORT
3614  011070  104401  011076                       TYPE    ,75$            ;;TYPE ASCIZ STRING
3615  011074  000410                               BR      74$             ;;GET OVER THE ASCIZ
3616                                        ;;75$:  .ASCIZ  / RP DUAL PORT /
3617  011116                                74$:
3618  011116  000447                               BR      6$
3619  011120  022762  000003  005366  2$:          CMP     #3,FDEVIC(R2)   ;IS IT RO SINGLE PORT
3620  011126  001014                               BNE     3$              ;BRANCH IF NOT RP
3621  011130  104401  011136                       TYPE    ,77$            ;;TYPE ASCIZ STRING
3622  011134  000410                               BR      76$             ;;GET OVER THE ASCIZ
3623                                        ;;77$:  .ASCIZ  / RP SINGLE PORT/
3624  011156                                76$:
3625  011156  000427                               BR      6$
3626  011160  022762  000004  005366  3$:          CMP     #4,FDEVIC(R2)   ;IS IT RS04
3627  011166  001007                               BNE     4$              ;BRANCH IF NOT RS04
3628  011170  104401  011176                       TYPE    ,79$            ;;TYPE ASCIZ STRING
3629  011174  000403                               BR      78$             ;;GET OVER THE ASCIZ
3630                                        ;;79$:  .ASCIZ  / RS04/
3631  011204                                78$:
3632  011204  000414                               BR      6$
3633  011206  022762  000005  005366  4$:          CMP     #5,FDEVIC(R2)   ;IS IT RS03
3634  011214  001007                               BNE     5$              ;BRANCH IF NOT RS03
3635  011216  104401  011224                       TYPE    ,81$            ;;TYPE ASCIZ STRING
3636  011222  000403                               BR      80$             ;;GET OVER THE ASCIZ
3637                                        ;;81$:  .ASCIZ  / RS03/
3638  011232                                80$:
3639  011232  000401                               BR      6$
3640  011234  000000                        5$:    HALT                    ;PROGRAM ERROR
3641
3642  011236                                6$:
3643  011236  104401  011244                       TYPE    ,83$            ;;TYPE ASCIZ STRING
3644  011242  000411                               BR      82$             ;;GET OVER THE ASCIZ
3645                                        ;;83$:  .ASCIZ  <15><12>/AT UNIT NUMBER/
3646  011266                                82$:
3647  011266  016246  005376                       MOV     FUNITN(R2),-(SP)  ;TYPE UNIT NUMBER
3648  011272  104405                               TYPDS
3649  011274  104401  011302                       TYPE    ,85$            ;;TYPE ASCIZ STRING
3650  011300  000411                               BR      84$             ;;GET OVER THE ASCIZ
```

```
                                        ;;85$:  .ASCIZ  /          VECTOR /
                                        84$:
011324                                          
011324  016246  005416                          MOV     FVECTR(R2),-(SP)  ;TYPE VECTOR
011330  104402                                  TYPOC
011332  012703  000024                          MOV     #20.,R3           ;COUNT 20
011336  012704  004060                          MOV     #RHCS1,R4         ;GET BASE LOCATION
011342  016205  005426                          MOV     FBASEA(R2),R5     ;GET BASE ADDRESS
011346  010524                          7$:     MOV     R5,(R4)+          ;FILL PROPER ADDRESS
011350  062705  000002                          ADD     #2,R5             ;INCREMENT BY 2
011354  005303                                  DEC     R3                ;COUNT DOWN
011356  001373                                  BNE     7$                ;BRANCH IF 20 NOT DONE

011360  016237  005376  005010                  MOV     FUNITN(R2),UNIT ;UNIT NUMBER
011366  016237  005416  005512                  MOV     FVECTR(R2),VECTOR  ;VECTOR
011374  016237  005446  004660                  MOV     FSLAVE(R2),SLAVE  ;SLAVE NO
011402  016237  005456  004640                  MOV     FDRIVR(R2),COMND  ;DRIVER ADDRESS
011410  016237  005466  004130                  MOV     FBAE(R2),RHBAE  ;BAE ADDRESS
011416  016237  005476  004132                  MOV     FCS3(R2),RHCS3  ;CS3 ADDRESS

011424  005037  045100                          CLR     PRITEM


                                        ;;**************************************************************
                                        ;*TEST 3        BIT BANG RHCS1

                                        ;*      TEST LOADING AND READING OF ALL POSSIBLE BITS
                                        ;*      IN RHCS1 REGISTER.
                                        ;*      USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                                        ;*      AND WALKING 0'S (-2,-3,-5 ETC)
                                        ;*      IN THIS TEST SC!TRE!MCPE!DVA!BIT12!BIT10!RDY!GO BITS WILL NOT BE WRITTEN INTO
                                        ;*      AND RDY!DVA BITS WILL ALWAYS BE SET
                                        ;*      AND BIT10 BITS WILL ALWAYS BE CLEARED
                                        ;*      IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                                        ;*      THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                                        ;*      GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                                        ;*      SIGNAL.

                                        ;;**************************************************************
011430  000004                          TST3:   SCOPE
011432  012706  001000                          MOV     #STACK,SP         ;RESET STACK
011436  012737  000003  004656                  MOV     #3,@#TSTNM        ;SAVE TEST NUMBER

011444  004737  040322                          JSR     PC,@#CLDISK       ;GIVE RH INITIALIZE
                                                                          ;SETUP UNIT NUBER
                                                                          ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

011450  012737  176201  004650                  MOV     #SC!TRE!MCPE!DVA!BIT12!BIT10!RDY!GO,WRTBIT      ;SC!TRE!MCPE!DVA!BIT12!B
011456  012737  004200  004652                  MOV     #RDY!DVA,SETBIT ;RDY!DVA ARE BITS ALWAYS SET
011464  012737  002000  004654                  MOV #BIT10,CLRBIT         ;BIT10 ARE BITS ALWAYS CLEARED
```

```
3707
3708                                            ;FLOAT 1'S THRU THE RHCS1 REGISTER
3709  011472  012737  011516  001110            MOV     #2$,$LPERR      ;SET LOOP ON ERROR ADDRESS
3710  011500  012705  000001                    MOV     #1,R5           ;GETTING READY TO FLOAT A ONE
3711  011504  010537  001124          1$:       MOV     R5,$GDDAT       ;START WITH DATA
3712  011510  042737  176201  001124            BIC     #SC!TRE!MCPE!DVA!BIT12!BIT10!RDY!GO,$GDDAT      ;CLEAR BITS NOT WRITTEN
3713  011516  032737  041400  001140  2$:       BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
3714  011524  001403                            BEQ     3$              ;BRANCH IF ANY ONE SET
3715  011526  052777  000040  172334            BIS     #CLR,@RHCS2     ;GIVE CLEAR FOR SCOPE
3716                                            ;SYNC IF IN DEBUG:
3717  011534  013777  001124  172316  3$:       MOV     $GDDAT,@RHCS1   ;WRITE RHCS1 REGISTER
3718  011542  017737  172312  001126            MOV     @RHCS1,$BDDAT   ;READ RHCS1 REGISTER
3719  011550  043737  004654  001124            BIC     CLRBIT,$GDDAT   ;CLEAR ALWAYS CLEARED BITS
3720  011556  053737  004652  001124            BIS     SETBIT,$GDDAT   ;SET ALWAYS SET BITS
3721  011564  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;TEST
3722  011572  001404                            BEQ     4$              ;BRANCH IF GOOD
3723  011574  013737  004060  001122            MOV     RHCS1,$BDADR    ;GET REGISTER ADDRESS
3724  011602  104137                            ERROR   137             ;ONE WAS BEING FLOATED
3725                                            ;THRU RHCS1 REGISTER
3726                                            ;ON READING RHCS1 BACK
3727                                            ;IT DID NOT CONTAIN WHAT
3728                                            ;WAS EXPECTED.
3729  011604  000241                    4$:     CLC                     ;CLEAR CARRY
3730  011606  006305                            ASL     R5              ;GET 1 ONE LEFT
3731  011610  103335                            BCC     1$              ;BRANCH IF 16 NOT DONE
3732
3733                                            ;FLOAT A ZERO THRU RHCS1 REGISTER.
3734
3735  011612  012737  011636  001110            MOV     #6$,$LPERR      ;SET LOOP BACK POINT.
3736  011620  012705  177776                    MOV     #177776,R5      ;GET READY TO FLOAT A ZERO
3737  011624  010537  001124          5$:       MOV     R5,$GDDAT       ;GET READY TO WRITE DATA
3738  011630  042737  176201  001124            BIC     #SC!TRE!MCPE!DVA!BIT12!BIT10!RDY!GO,$GDDAT      ;CLEAR BITS NOT WRITTEN
3739  011636  032737  041400  001140  6$:       BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
3740  011644  001403                            BEQ     7$              ;BRANCH IF ANY OF THE ABOVE SET
3741  011646  012777  000040  172214            MOV     #CLR,@RHCS2     ;CLEAR FOR SCOPE AID TO
3742                                            ;SYNC IF IN DEBUG
3743  011654  013777  001124  172176  7$:       MOV     $GDDAT,@RHCS1   ;WRITE INTO RH'XA.
3744  011662  017737  172172  001126            MOV     @RHCS1,$BDDAT   ;READ RHCS1
3745  011670  053737  004652  001124            BIS     SETBIT,$GDDAT   ;SET BITS ALWAYS SET
3746  011676  043737  004654  001124            BIC CLRBIT,$GDDAT       ;CLEAR BITS ALWAYS 0
3747  011704  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;TEST
3748  011712  001404                            BEQ     8$              ;BRANCH IF GOOD
3749  011714  013737  004060  001122            MOV     RHCS1,$BDADR    ;GET REGISTER ADDRESS
3750  011722  104137                            ERROR   137             ;ZERO WAS BEING FLOATED
3751                                            ;THRU RHCS1 REGISTER
3752                                            ;ON READING IT BACK IT
3753                                            ;DID NOT CONTAIN WHAT
3754                                            ;WAS EXPECTED
3755
3756  011724  000261                    8$:     SEC
3757  011726  006105                            ROL     R5
3758  011730  103735                            BCS     5$
3759
3760
3761                                            ;;*****************************************************************
3762                                            ;*TEST 4         BIT BANG RHCS2
```

```
3763
3764                                    ;*      TEST LOADING AND READING OF ALL POSSIBLE BITS
3765                                    ;*      IN RHCS2 REGISTER.
3766                                    ;*      USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
3767                                    ;*      AND WALKING 0'S (-2,-3,-5 ETC)
3768                                    ;*      IN THIS TEST 177740 BITS WILL NOT BE WRITTEN INTO
3769                                    ;*      AND IR BITS WILL ALWAYS BE SET
3770                                    ;*      IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
3771                                    ;*      THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
3772                                    ;*      GIVEN TO AID SCOPE SYNCS ON THE CLEAR
3773                                    ;*      SIGNAL.
3774
3775                                    ;;*****************************************************************
3776  011732  000004                   TST4:   SCOPE
3777  011734  012706  001000                   MOV     #STACK,SP       ;RESET STACK
3778  011740  012737  000004  004656           MOV     #4,@#TSTNM      ;SAVE TEST NUMBER
3779
3780  011746  004737  040322                   JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
3781                                                                    ;SETUP UNIT NUBER
3782                                                                    ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
3783
3784  011752  012737  177740  004650           MOV     #177740,WRTBIT  ;177740 ARE BITS NOT WRITTEN INTO
3785  011760  012737  000100  004652           MOV     #IR,SETBIT      ;IR ARE BITS ALWAYS SET
3786
3787                                            ;FLOAT 1'S THRU THE RHCS2 REGISTER
3788  011766  012737  012012  001110           MOV     #2$,$LPERR      ;SET LOOP ON ERROR ADDRESS
3789  011774  012705  000001                   MOV     #1,R5           ;GETTING READY TO FLOAT A ONE
3790  012000  010537  001124           1$:     MOV     R5,$GDDAT       ;START WITH DATA
3791  012004  042737  177740  001124           BIC     #177740,$GDDAT  ;CLEAR BITS NOT WRITTEN INTO
3792  012012  032737  041400  001140   2$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
3793  012020  001403                           BEQ     3$              ;BRANCH IF ANY ONE SET
3794  012022  052777  000040  172040           BIS     #CLR,@RHCS2     ;GIVE CLEAR FOR SCOPE
3795                                                                    ;SYNC IF IN DEBUG:
3796  012030  013777  001124  172032   3$:     MOV     $GDDAT,@RHCS2   ;WRITE RHCS2 REGISTER
3797  012036  017737  172026  001126           MOV     @RHCS2,$BDDAT   ;READ RHCS2 REGISTER
3798  012044  053737  004652  001124           BIS     SETBIT,$GDDAT   ;SET ALWAYS SET BITS
3799  012052  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;TEST
3800  012060  001404                           BEQ     4$              ;BRANCH IF GOOD
3801  012062  013737  004070  001122           MOV     RHCS2,$BDADR    ;GET REGISTER ADDRESS
3802  012070  104137                           ERROR   137             ;ONE WAS BEING FLOATED
3803                                                                    ;THRU RHCS2 REGISTER
3804                                                                    ;ON READING RHCS2 BACK
3805                                                                    ;IT DID NOT CONTAIN WHAT
3806                                                                    ;WAS EXPECTED.
3807  012072  000241                   4$:     CLC                     ;CLEAR CARRY
3808  012074  006305                           ASL     R5              ;GET 1 ONE LEFT
3809  012076  103340                           BCC     1$              ;BRANCH IF 16 NOT DONE
3810
3811                                            ;FLOAT A ZERO THRU RHCS2 REGISTER.
3812
3813  012100  012737  012124  001110           MOV     #6$,$LPERR      ;SET LOOP BACK POINT.
3814  012106  012705  177776                   MOV     #177776,R5      ;GET READY TO FLOAT A ZERO
3815  012112  010537  001124           5$:     MOV     R5,$GDDAT       ;GET READY TO WRITE DATA
3816  012116  042737  177740  001124           BIC     #177740,$GDDAT  ;CLEAR BITS NOT WRITTEN INTO
3817  012124  032737  041400  001140   6$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
3818  012132  001403                           BEQ     7$              ;BRANCH IF ANY OF THE ABOVE SET
```

```
3819  012134  012777  000040  171726          MOV     #CLR,@RHCS2     ;CLEAR FOR SCOPE AID TO
3820                                                                  ;SYNC IF IN DEBUG
3821  012142  013777  001124  171720  7$:     MOV     $GDDAT,@RHCS2   ;WRITE INTO RH'XA.
3822  012150  017737  171714  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2
3823  012156  053737  004652  001124          BIS     SETBIT,$GDDAT   ;SET BITS ALWAYS SET
3824  012164  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;TEST
3825  012172  001404                          BEQ     8$              ;BRANCH IF GOOD
3826  012174  013737  004070  001122          MOV     RHCS2,$BDADR    ;GET REGISTER ADDRESS
3827  012202  104137                          ERROR   137             ;ZERO WAS BEING FLOATED
3828                                                                  ;THRU RHCS2 REGISTER
3829                                                                  ;ON READING IT BACK IT
3830                                                                  ;DID NOT CONTAIN WHAT
3831                                                                  ;WAS EXPECTED
3832
3833  012204  000261                  8$:     SEC
3834  012206  006105                          ROL     R5
3835  012210  103740                          BCS     5$
3836
3837
3838                          ;;*****************************************************************
3839                          ;*TEST 5         BIT BANG RHCS3
3840
3841                          ;*      TEST LOADING AND READING OF ALL POSSIBLE BITS
3842                          ;*      IN RHCS3 REGISTER.
3843                          ;*      USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
3844                          ;*      AND WALKING 0'S (-2,-3,-5 ETC)
3845                          ;*      IN THIS TEST 177660 BITS WILL NOT BE WRITTEN INTO
3846                          ;*      AND 0 BITS WILL ALWAYS BE SET
3847                          ;*      AND BIT9!BIT8!BIT7!BIT5!BIT4 BITS WILL ALWAYS BE CLEARED
3848                          ;*      IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
3849                          ;*      THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
3850                          ;*      GIVEN TO AID SCOPE SYNCS ON THE CLEAR
3851                          ;*      SIGNAL.
3852
3853                          ;;*****************************************************************
3854  012212  000004          TST5:   SCOPE
3855  012214  012706  001000          MOV     #STACK,SP       ;RESET STACK
3856  012220  012737  000005  004656  MOV     #5,@#TSTNM      ;SAVE TEST NUMBER
3857
3858  012226  004737  840322          JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
3859                                                          ;SETUP UNIT NUBER
3860                                                          ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
3861
3862  012232  012737  177660  004650  MOV     #177660,WRTBIT  ;177660 ARE BITS NOT WRITTEN INTO
3863  012240  012737  000000  004652  MOV     #0,SETBIT       ;0 ARE BITS ALWAYS SET
3864  012246  012737  001660  004654  MOV #BIT9!BIT8!BIT7!BIT5!BIT4,CLRBIT    ;BIT9!BIT8!BIT7!BIT5!BIT4 ARE BITS ALWAY
3865
3866                                  ;FLOAT 1'S THRU THE RHCS3 REGISTER
3867  012254  012737  012300  001110  MOV     #2$,$LPERR      ;SET LOOP ON ERROR ADDRESS
3868  012262  012705  000001          MOV     #1,R5           ;GETTING READY TO FLOAT A ONE
3869  012266  010537  001124  1$:     MOV     R5,$GDDAT       ;START WITH DATA
3870  012272  042737  177660  001124  BIC     #177660,$GDDAT  ;CLEAR BITS NOT WRITTEN INTO
3871  012300  032737  041400  001140  2$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
3872  012306  001403                  BEQ     3$              ;BRANCH IF ANY ONE SET
3873  012310  052777  000040  171552  BIS     #CLR,@RHCS2     ;GIVE CLEAR FOR SCOPE
3874                                                          ;SYNC IF IN DEBUG:
```

```
3875  012316  013777  001124  171606  3$:     MOV     $GDDAT,@RHCS3   ;WRITE RHCS3 REGISTER
3876  012324  017737  171602  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 REGISTER
3877  012332  043737  004654  001124          BIC     CLRBIT,$GDDAT   ;CLEAR ALWAYS CLEARED BITS
3878  012340  053737  004652  001124          BIS     SETBIT,$GDDAT   ;SET ALWAYS SET BITS
3879  012346  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;TEST
3880  012354  001404                          BEQ     4$              ;BRANCH IF GOOD
3881  012356  013737  004132  001122          MOV     RHCS3,$BDADR    ;GET REGISTER ADDRESS
3882  012364  104137                          ERROR   137             ;ONE WAS BEING FLOATED
3883                                                                  ;THRU RHCS3 REGISTER
3884                                                                  ;ON READING RHCS3 BACK
3885                                                                  ;IT DID NOT CONTAIN WHAT
3886                                                                  ;WAS EXPECTED.
3887  012366  000241                  4$:     CLC                     ;CLEAR CARRY
3888  012370  006305                          ASL     R5              ;GET 1 ONE LEFT
3889  012372  103335                          BCC     1$              ;BRANCH IF 16 NOT DONE
3890
3891                                          ;FLOAT A ZERO THRU RHCS3 REGISTER.
3892
3893  012374  012737  012420  001110          MOV     #6$,$LPERR      ;SET LOOP BACK POINT.
3894  012402  012705  177776                  MOV     #177776,R5      ;GET READY TO FLOAT A ZERO
3895  012406  010537  001124          5$:     MOV     R5,$GDDAT       ;GET READY TO WRITE DATA
3896  012412  042737  177660  001124          BIC     #177660,$GDDAT  ;CLEAR BITS NOT WRITTEN INTO
3897  012420  032737  041400  001140  6$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
3898  012426  001403                          BEQ     7$              ;BRANCH IF ANY OF THE ABOVE SET
3899  012430  012777  000040  171432          MOV     #CLR,@RHCS2     ;CLEAR FOR SCOPE AID TO
3900                                                                  ;SYNC IF IN DEBUG
3901  012436  013777  001124  171466  7$:     MOV     $GDDAT,@RHCS3   ;WRITE INTO RH'XA.
3902  012444  017737  171462  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3
3903  012452  053737  004652  001124          BIS     SETBIT,$GDDAT   ;SET BITS ALWAYS SET
3904  012460  043737  004654  001124          BIC CLRBIT,$GDDAT       ;CLEAR BITS ALWAYS 0
3905  012466  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;TEST
3906  012474  001404                          BEQ     8$              ;BRANCH IF GOOD
3907  012476  013737  004132  001122          MOV     RHCS3,$BDADR    ;GET REGISTER ADDRESS
3908  012504  104137                          ERROR   137             ;ZERO WAS BEING FLOATED
3909                                                                  ;THRU RHCS3 REGISTER
3910                                                                  ;ON READING IT BACK IT
3911                                                                  ;DID NOT CONTAIN WHAT
3912                                                                  ;WAS EXPECTED
3913
3914  012506  000261                  8$:     SEC
3915  012510  006105                          ROL     R5
3916  012512  103735                          BCS     5$
3917
3918
3919                                  ;;*****************************************************************
3920                                  ;*TEST 6        BIT BANG RHWC
3921
3922                                  ;*      TEST LOADING AND READING OF ALL POSSIBLE BITS
3923                                  ;*      IN RHWC REGISTER.
3924                                  ;*      USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
3925                                  ;*      AND WALKING 0'S (-2,-3,-5 ETC)
3926                                  ;*      IN THIS TEST 0 BITS WILL NOT BE WRITTEN INTO
3927                                  ;*      AND 0 BITS WILL ALWAYS BE SET
3928                                  ;*      IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
3929                                  ;*      THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
3930                                  ;*      GIVEN TO AID SCOPE SYNCS ON THE CLEAR
```

```
3931                                    ;*      SIGNAL.
3932
3933                                    ;;*****************************************************************
3934  012514  000004                    TST6:   SCOPE
3935  012516  012706  001000                    MOV     #STACK,SP       ;RESET STACK
3936  012522  012737  000006  004656            MOV     #6,@#TSTNM      ;SAVE TEST NUMBER
3937
3938  012530  004737  040322                    JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
3939                                                                    ;SETUP UNIT NUBER
3940                                                                    ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
3941
3942  012534  012737  000000  004650            MOV     #0,WRTBIT       ;0 ARE BITS NOT WRITTEN INTO
3943  012542  012737  000000  004652            MOV     #0,SETBIT       ;0 ARE BITS ALWAYS SET
3944
3945                                            ;FLOAT 1'S THRU THE RHWC REGISTER
3946  012550  012737  012574  001110            MOV     #2$,$LPERR      ;SET LOOP ON ERROR ADDRESS
3947  012556  012705  000001                    MOV     #1,R5           ;GETTING READY TO FLOAT A ONE
3948  012562  010537  001124            1$:     MOV     R5,$GDDAT       ;START WITH DATA
3949  012566  042737  000000  001124            BIC     #0,$GDDAT       ;CLEAR BITS NOT WRITTEN INTO
3950  012574  032737  041400  001140    2$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
3951  012602  001403                            BEQ     3$              ;BRANCH IF ANY ONE SET
3952  012604  052777  000040  171256            BIS     #CLR,@RHCS2     ;GIVE CLEAR FOR SCOPE
3953                                                                    ;SYNC IF IN DEBUG:
3954  012612  013777  001124  171242    3$:     MOV     $GDDAT,@RHWC    ;WRITE RHWC REGISTER
3955  012620  017737  171236  001126            MOV     @RHWC,$BDDAT    ;READ RHWC REGISTER
3956  012626  053737  004652  001124            BIS     SETBIT,$GDDAT   ;SET ALWAYS SET BITS
3957  012634  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;TEST
3958  012642  001404                            BEQ     4$              ;BRANCH IF GOOD
3959  012644  013737  004062  001122            MOV     RHWC,$BDADR     ;GET REGISTER ADDRESS
3960  012652  104137                            ERROR   137             ;ONE WAS BEING FLOATED
3961                                                                    ;THRU RHWC REGISTER
3962                                                                    ;ON READING RHWC BAC
3963                                                                    ;IT DID NOT CONTAIN WHAT
3964                                                                    ;WAS EXPECTED.
3965  012654  000241                    4$:     CLC                     ;CLEAR CARRY
3966  012656  006305                            ASL     R5              ;GET 1 ONE LEFT
3967  012660  103340                            BCC     1$              ;BRANCH IF 16 NOT DONE
3968
3969                                            ;FLOAT A ZERO THRU RHWC REGISTER.
3970
3971  012662  012737  012706  001110            MOV     #6$,$LPERR      ;SET LOOP BACK POINT.
3972  012670  012705  177776                    MOV     #177776,R5      ;GET READY TO FLOAT A ZERO
3973  012674  010537  001124            5$:     MOV     R5,$GDDAT       ;GET READY TO WRITE DATA
3974  012700  042737  000000  001124            BIC     #0,$GDDAT       ;CLEAR BITS NOT WRITTEN INTO
3975  012706  032737  041400  001140    6$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
3976  012714  001403                            BEQ     7$              ;BRANCH IF ANY OF THE ABOVE SET
3977  012716  012777  000040  171144            MOV     #CLR,@RHCS2     ;CLEAR FOR SCOPE AID TO
3978                                                                    ;SYNC IF IN DEBUG
3979  012724  013777  001124  171130    7$:     MOV     $GDDAT,@RHWC    ;WRITE INTO RH'XA.
3980  012732  017737  171124  001126            MOV     @RHWC,$BDDAT    ;READ RHWC
3981  012740  053737  004652  001124            BIS     SETBIT,$GDDAT   ;SET BITS ALWAYS SET
3982  012746  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;TEST
3983  012754  001404                            BEQ     8$              ;BRANCH IF GOOD
3984  012756  013737  004062  001122            MOV     RHWC,$BDADR     ;GET REGISTER ADDRESS
3985  012764  104137                            ERROR   137             ;ZERO WAS BEING FLOATED
3986                                                                    ;THRU RHWC REGISTER
```

```
                                                        ;ON READING IT BACK IT
                                                        ;DID NOT CONTAIN WHAT
                                                        ;WAS EXPECTED

012766  000261          8$:     SEC
012770  006105                  ROL     R5
012772  103740                  BCS     5$

                        ;;*****************************************************************
                        ;*TEST 7         BIT BANG RHBA

                        ;*      TEST LOADING AND READING OF ALL POSSIBLE BITS
                        ;*      IN RHBA REGISTER.
                        ;*      USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                        ;*      AND WALKING 0'S (-2,-3,-5 ETC)
                        ;*      IN THIS TEST 0 BITS WILL NOT BE WRITTEN INTO
                        ;*      AND 0 BITS WILL ALWAYS BE SET
                        ;*      AND BIT00 BITS WILL ALWAYS BE CLEARED
                        ;*      IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                        ;*      THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                        ;*      GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                        ;*      SIGNAL.

                        ;;*****************************************************************
012774  000004          TST7:   SCOPE
012776  012706  001000          MOV     #STACK,SP       ;RESET STACK
013002  012737  000007  004656  MOV     #7,@#TSTNM      ;SAVE TEST NUMBER

013010  004737  040322          JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                        ;SETUP UNIT NUBER
                                                        ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

013014  012737  000000  004650  MOV     #0,WRTBIT       ;0 ARE BITS NOT WRITTEN INTO
013022  012737  000000  004652  MOV     #0,SETBIT       ;0 ARE BITS ALWAYS SET
013030  012737  000001  004654  MOV #BIT00,CLRBIT       ;BIT00 ARE BITS ALWAYS CLEARED

                                ;FLOAT 1'S THRU THE RHBA REGISTER
013036  012737  013062  001110  MOV     #2$,$LPERR      ;SET LOOP ON ERROR ADDRESS
013044  012705  000001          MOV     #1,R5           ;GETTING READY TO FLOAT A ONE
013050  010537  001124  1$:     MOV     R5,$GDDAT       ;START WITH DATA
013054  042737  000000  001124  BIC     #0,$GDDAT       ;CLEAR BITS NOT WRITTEN INTO
013062  032737  041400  001140  2$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
013070  001403                  BEQ     3$              ;BRANCH IF ANY ONE SET
013072  052777  000040  170770  BIS     #CLR,@RHCS2     ;GIVE CLEAR FOR SCOPE
                                                        ;SYNC IF IN DEBUG:
013100  013777  001124  170756  3$:     MOV     $GDDAT,@RHBA    ;WRITE RHBA REGISTER
013106  017737  170752  001126  MOV     @RHBA,$BDDAT    ;READ RHBA REGISTER
013114  043737  004654  001124  BIC     CLRBIT,$GDDAT   ;CLEAR ALWAYS CLEARED BITS
013122  053737  004652  001124  BIS     SETBIT,$GDDAT   ;SET ALWAYS SET BITS
013130  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;TEST
013136  001404                  BEQ     4$              ;BRANCH IF GOOD
013140  013737  004064  001122  MOV     RHBA,$BDADR     ;GET REGISTER ADDRESS
013146  104137                  ERROR   137             ;ONE WAS BEING FLOATED
                                                        ;THRU RHBA REGISTER
                                                        ;ON READING RHBA BACK
```

```
                                                        ;IT DID NOT CONTAIN WHAT
                                                        ;WAS EXPECTED.
013150  000241          4$:    CLC                     ;CLEAR CARRY
013152  006305                 ASL     R5              ;GET 1 ONE LEFT
013154  103335                 BCC     1$              ;BRANCH IF 16 NOT DONE

                               ;FLOAT A ZERO THRU RHBA REGISTER.

013156  012737  013202  001110         MOV     #6$,$LPERR      ;SET LOOP BACK POINT.
013164  012705  177776                 MOV     #177776,R5      ;GET READY TO FLOAT A ZERO
013170  010537  001124          5$:    MOV     R5,$GDDAT       ;GET READY TO WRITE DATA
013174  042737  000000  001124         BIC     #0,$GDDAT       ;CLEAR BITS NOT WRITTEN INTO
013202  032737  041400  001140  6$:    BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
013210  001403                 BEQ     7$              ;BRANCH IF ANY OF THE ABOVE SET
013212  012777  000040  170650         MOV     #CLR,@RHCS2     ;CLEAR FOR SCOPE AID TO
                                                        ;SYNC IF IN DEBUG
013220  013777  001124  170636  7$:    MOV     $GDDAT,@RHBA    ;WRITE INTO RH'XA.
013226  017737  170632  001126         MOV     @RHBA,$BDDAT    ;READ RHBA
013234  053737  004652  001124         BIS     SETBIT,$GDDAT   ;SET BITS ALWAYS SET
013242  043737  004654  001124         BIC CLRBIT,$GDDAT       ;CLEAR BITS ALWAYS 0
013250  023737  001124  001126         CMP     $GDDAT,$BDDAT   ;TEST
013256  001404                 BEQ     8$              ;BRANCH IF GOOD
013260  013737  004064  001122         MOV     RHBA,$BDADR     ;GET REGISTER ADDRESS
013266  104137                 ERROR   137             ;ZERO WAS BEING FLOATED
                                                        ;THRU RHBA REGISTER
                                                        ;ON READING IT BACK IT
                                                        ;DID NOT CONTAIN WHAT
                                                        ;WAS EXPECTED

013270  000261          8$:    SEC
013272  006105                 ROL     R5
013274  103735                 BCS     5$


                               ;;*****************************************************************
                               ;*TEST 10       BIT BANG RHBAE

                               ;*      TEST LOADING AND READING OF ALL POSSIBLE BITS
                               ;*      IN RHBAE REGISTER.
                               ;*      USE A PATTERN OF WALKING 1'S (1,2,4,10 ETC)
                               ;*      AND WALKING 0'S (-2,-3,-5 ETC)
                               ;*      IN THIS TEST 177700 BITS WILL NOT BE WRITTEN INTO
                               ;*      AND 0 BITS WILL ALWAYS BE SET
                               ;*      AND 177700 BITS WILL ALWAYS BE CLEARED
                               ;*      IF SWITCH 14 OR 9 OR 8 ARE SET FOR DEBUGGING
                               ;*      THEN A RH CLEAR (RHCS2 BIT #5) WILL BE
                               ;*      GIVEN TO AID SCOPE SYNCS ON THE CLEAR
                               ;*      SIGNAL.

                               ;;*****************************************************************
013276  000004          TST10: SCOPE
013300  012706  001000         MOV     #STACK,SP       ;RESET STACK
013304  012737  000010  004656 MOV     #10,@#TSTNM     ;SAVE TEST NUMBER

013312  004737  040322         JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                        ;SETUP UNIT NUBER
```

```
4099                                                    ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
4100
4101  013316  012737  177700  004650          MOV     #177700,WRTBIT  ;177700 ARE BITS NOT WRITTEN INTO
4102  013324  012737  000000  004652          MOV     #0,SETBIT       ;0 ARE BITS ALWAYS SET
4103  013332  012737  177700  004654          MOV #177700,CLRBIT      ;177700 ARE BITS ALWAYS CLEARED
4104
4105                                            ;FLOAT 1'S THRU THE RHBAE REGISTER
4106  013340  012737  013364  001110          MOV     #2$,$LPERR      ;SET LOOP ON ERROR ADDRESS
4107  013346  012705  000001                  MOV     #1,R5           ;GETTING READY TO FLOAT A ONE
4108  013352  010537  001124          1$:     MOV     R5,$GDDAT       ;START WITH DATA
4109  013356  042737  177700  001124          BIC     #177700,$GDDAT  ;CLEAR BITS NOT WRITTEN INTO
4110  013364  032737  041400  001140  2$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
4111  013372  001403                          BEQ     3$              ;BRANCH IF ANY ONE SET
4112  013374  052777  000040  170466          BIS     #CLR,@RHCS2     ;GIVE CLEAR FOR SCOPE
4113                                                                  ;SYNC IF IN DEBUG:
4114  013402  013777  001124  170520  3$:     MOV     $GDDAT,@RHBAE   ;WRITE RHBAE REGISTER
4115  013410  017737  170514  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE REGISTER
4116  013416  043737  004654  001124          BIC     CLRBIT,$GDDAT   ;CLEAR ALWAYS CLEARED BITS
4117  013424  053737  004652  001124          BIS     SETBIT,$GDDAT   ;SET ALWAYS SET BITS
4118  013432  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;TEST
4119  013440  001404                          BEQ     4$              ;BRANCH IF GOOD
4120  013442  013737  004130  001122          MOV     RHBAE,$BDADR    ;GET REGISTER ADDRESS
4121  013450  104137                          ERROR   137             ;ONE WAS BEING FLOATED
4122                                                                  ;THRU RHBAE REGISTER
4123                                                                  ;ON READING RHBAE BACK
4124                                                                  ;IT DID NOT CONTAIN WHAT
4125                                                                  ;WAS EXPECTED.
4126  013452  000241                  4$:     CLC                     ;CLEAR CARRY
4127  013454  006305                          ASL     R5              ;GET 1 ONE LEFT
4128  013456  103335                          BCC     1$              ;BRANCH IF 16 NOT DONE
4129
4130                                            ;FLOAT A ZERO THRU RHBAE REGISTER.
4131
4132  013460  012737  013504  001110          MOV     #6$,$LPERR      ;SET LOOP BACK POINT.
4133  013466  012705  177776                  MOV     #177776,R5      ;GET READY TO FLOAT A ZERO
4134  013472  010537  001124          5$:     MOV     R5,$GDDAT       ;GET READY TO WRITE DATA
4135  013476  042737  177700  001124          BIC     #177700,$GDDAT  ;CLEAR BITS NOT WRITTEN INTO
4136  013504  032737  041400  001140  6$:     BIT     #BIT14!BIT9!BIT8,SWR ;ARE SWITCHES 14 OR 9 OR 8 SET
4137  013512  001403                          BEQ     7$              ;BRANCH IF ANY OF THE ABOVE SET
4138  013514  012777  000040  170346          MOV     #CLR,@RHCS2     ;CLEAR FOR SCOPE AID TO
4139                                                                  ;SYNC IF IN DEBUG
4140  013522  013777  001124  170400  7$:     MOV     $GDDAT,@RHBAE   ;WRITE INTO RH'XA.
4141  013530  017737  170374  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE
4142  013536  053737  004652  001124          BIS     SETBIT,$GDDAT   ;SET BITS ALWAYS SET
4143  013544  043737  004654  001124          BIC CLRBIT,$GDDAT       ;CLEAR BITS ALWAYS 0
4144  013552  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;TEST
4145  013560  001404                          BEQ     8$              ;BRANCH IF GOOD
4146  013562  013737  004130  001122          MOV     RHBAE,$BDADR    ;GET REGISTER ADDRESS
4147  013570  104137                          ERROR   137             ;ZERO WAS BEING FLOATED
4148                                                                  ;THRU RHBAE REGISTER
4149                                                                  ;ON READING IT BACK IT
4150                                                                  ;DID NOT CONTAIN WHAT
4151                                                                  ;WAS EXPECTED
4152
4153  013572  000261                  8$:     SEC
4154  013574  006105                          ROL     R5
```

```
4155  013576  103735                        BCS     5$
4156
4157
4158
4159
4160
4161
4162                                ;;*****************************************************************
4163                                ;*TEST 11       SILO TEST 1 (ONE WORD WRITE)
4164                                ;*      AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
4165                                ;*      RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH
4166                                ;*      TOGETHER WITH UNIT NUMBER
4167                                ;*      ONE WORD OF ALL ZEROS IS WRITTEN INTO RHDB
4168                                ;*      BY "CLR"
4169                                ;*      "OR" (BIT #7) IS WAITED FOR BY A TRAP INSTRUCTION
4170                                ;*      CALLED "WAT" (NO TIMING IS DONE)
4171                                ;*      HOWEVER IF "OR" DOES NOT SET WITHIN "WAT" COUNT
4172                                ;*      DOWN AN ERROR IS REPORTED
4173                                ;*      RHDB IS READ AND CHECKED TO CONTAIN ZEROS
4174                                ;*      RHCS2 WILL BE CHECKED TO HAVE "IR" AND UNIT NUMBER
4175                                ;*      RHCS1,RHCS3,RHBA,RHBAE,RHWC, WILL BE CHECKED TO HAVE
4176                                ;*      APPROPIATE VALUES
4177                                ;;*****************************************************************
4178  013600  000004                TST11:  SCOPE
4179  013602  012706  001000               MOV     #STACK,SP       ;RESET STACK
4180  013606  012737  000011  004656       MOV     #11,@#TSTNM     ;SAVE TEST NUMBER
4181
4182  013614  004737  040322               JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
4183                                                                ;SETUP UNIT NUBER
4184                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
4185
4186                                ;CHECK THAT RHCS2 HAS IR
4187  013620  012737  000100  001124       MOV     #IR,$GDDAT      ;GET GOOD = 100
4188  013626  053737  005010  001124       BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
4189
4190  013634  017737  170230  001126       MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
4191  013642  023737  001124  001126       CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4192                                                                ;DATA WITH DATA READ FROM
4193                                                                ;RHCS2
4194  013650  001401                       BEQ     65$             ;BRANCH IF GOOD
4195  013652  104006                       ERROR   6
4196                                                                ;AFTER SETTING CLR BIT #5
4197                                                                ;IN RHCS2 TO INIT THE RH
4198                                                                ;AND HAVING DONE NOTHING ELSE
4199                                                                ;RHCS2 SHOULD HAVE IR
4200                                                                ;=100
4201                                                                ;TOGETHER WITH UNIT NUMBER
4202                                                                ;BUT CONTAINED WHAT IS
4203                                                                ;GIVEN IN BAD RHCS2
4204  013654                        65$:
4205
4206                                ;WRITE ONE WORD OF ALL ZEROS INTO RHDB
4207  013654  005077  170222               CLR     @RHDB           ;WRITE 0 IN RHDB
4208
4209                                ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
4210  013660  104411                       WAT                     ;TRAP TO WAIT.T SUBROUTINE
```

```
4211  013662  004070                        RHCS2                   ;AND WAIT FOR OR BIT IN
4212  013664  000200                        OR                      ;RHCS2 REGISTER
4213                                                                  ;IF ERROR OCCURS HERE
4214                                                                  ;IT MEANS "OR" DID NOT
4215                                                                  ;SET FOR THE FULL COUNT
4216                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
4217                                                                  ;THIS TIME IS APPROXIMATELY
4218                                                                  ;LARGER THAN 500 MILLISECONDS
4219
4220
4221                                        ;CHECK THAT RHDB HAS 0
4222  013666  012737  000000  001124        MOV     #0,$GDDAT       ;GET GOOD =
4223
4224  013674  017737  170202  001126        MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
4225  013702  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4226                                                                  ;DATA WITH DATA READ FROM
4227                                                                  ;RHDB
4228  013710  001401                        BEQ     67$             ;BRANCH IF GOOD
4229  013712  104007                        ERROR   7
4230                                                                  ;AFTER CLEARING THE RH
4231                                                                  ;AND WRITING ALL ZEROS
4232                                                                  ;INTO RHDB
4233                                                                  ;THEN READING IT BACK
4234                                                                  ;RHDB SHOULD HAVE 0
4235                                                                  ;=
4236                                                                  ;BUT CONTAINED WHAT IS
4237                                                                  ;GIVEN IN BAD RHDB
4238  013714                            67$:
4239                                        ;CHECK THAT RHCS2 HAS IR
4240  013714  012737  000100  001124        MOV     #IR,$GDDAT      ;GET GOOD = 100
4241  013722  053737  005010  001124        BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
4242
4243  013730  017737  170134  001126        MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
4244  013736  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4245                                                                  ;DATA WITH DATA READ FROM
4246                                                                  ;RHCS2
4247  013744  001401                        BEQ     69$             ;BRANCH IF GOOD
4248  013746  104010                        ERROR   10
4249                                                                  ;AFTER CLEARING THE RH
4250                                                                  ;AND WRITING ALL ZEROS
4251                                                                  ;INTO RHDB
4252                                                                  ;THEN READING IT BACK
4253                                                                  ;RHCS2 SHOULD HAVE IR
4254                                                                  ;=100
4255                                                                  ;TOGETHER WITH UNIT NUMBER
4256                                                                  ;BUT CONTAINED WHAT IS
4257                                                                  ;GIVEN IN BAD RHCS2
4258  013750                            69$:
4259                                        ;CHECK THAT RHCS1 HAS DVA!RDY
4260  013750  012737  004200  001124        MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200
4261
4262  013756  017737  170076  001126        MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
4263  013764  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4264                                                                  ;DATA WITH DATA READ FROM
4265                                                                  ;RHCS1
4266  013772  001401                        BEQ     71$             ;BRANCH IF GOOD
```

```
4267  013774  104011                          ERROR   11
4268                                                      ;AFTER CLEARING THE RH
4269                                                      ;AND WRITING ALL ZEROS
4270                                                      ;INTO RHDB
4271                                                      ;THEN READING IT BACK
4272                                                      ;RHCS1 SHOULD HAVE DVA!RDY
4273                                                      ;=4200
4274                                                      ;BUT CONTAINED WHAT IS
4275                                                      ;GIVEN IN BAD RHCS1
4276  013776                          71$:
4277                                          ;CHECK THAT RHCS3 HAS 0
4278  013776  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
4279
4280  014004  017737  170122  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
4281  014012  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4282                                                      ;DATA WITH DATA READ FROM
4283                                                      ;RHCS3
4284  014020  001401                          BEQ     73$             ;BRANCH IF GOOD
4285  014022  104012                          ERROR   12
4286                                                      ;AFTER CLEARING THE RH
4287                                                      ;AND WRITING ALL ZEROS
4288                                                      ;INTO RHDB
4289                                                      ;THEN READING IT BACK
4290                                                      ;RHCS3 SHOULD HAVE 0
4291                                                      ;BUT CONTAINED WHAT IS
4292                                                      ;GIVEN IN BAD RHCS3
4293  014024                          73$:
4294                                          ;CHECK THAT RHBA HAS 0
4295  014024  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD =
4296
4297  014032  017737  170026  001126          MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
4298  014040  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4299                                                      ;DATA WITH DATA READ FROM
4300                                                      ;RHBA
4301  014046  001401                          BEQ     75$             ;BRANCH IF GOOD
4302  014050  104013                          ERROR   13
4303                                                      ;AFTER CLEARING THE RH
4304                                                      ;AND WRITING ALL ZEROS
4305                                                      ;INTO RHDB
4306                                                      ;THEN READING IT BACK
4307                                                      ;RHBA SHOULD HAVE 0
4308                                                      ;=
4309                                                      ;BUT CONTAINED WHAT IS
4310                                                      ;GIVEN IN BAD RHBA
4311  014052                          75$:
4312                                          ;CHECK THAT RHBAE HAS 0
4313  014052  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD =
4314
4315  014060  017737  170044  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
4316  014066  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4317                                                      ;DATA WITH DATA READ FROM
4318                                                      ;RHBAE
4319  014074  001401                          BEQ     77$             ;BRANCH IF GOOD
4320  014076  104014                          ERROR   14
4321                                                      ;AFTER CLEARING THE RH
4322                                                      ;AND WRITING ALL ZEROS
```

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                                                                ;INTO RHDB
                                                                ;THEN READING IT BACK
                                                                ;RHBAE SHOULD HAVE 0
                                                                ;=
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBAE
014100                                  77$:
                                                ;CHECK THAT RHWC HAS 0
014100  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD =

014106  017737  167750  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
014114  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHWC
014122  001401                          BEQ     79$             ;BRANCH IF GOOD
014124  104015                          ERROR   15

                                                                ;AFTER CLEARING THE RH
                                                                ;AND WRITING ALL ZEROS
                                                                ;INTO RHDB
                                                                ;THEN READING IT BACK
                                                                ;RHWC SHOULD HAVE 0
                                                                ;=
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHWC
014126                                  79$:


                                ;;*****************************************************************
                                ;*TEST 12       SILO TEST 2 (ONE WORD WRITE)
                                ;*      AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                ;*      RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH
                                ;*      TOGETHER WITH UNIT NUMBER
                                ;*      ONE WORD OF ALL ONES IS WRITTEN INTO RHDB
                                ;*      BY "CLR"
                                ;*      "OR" (BIT #7) IS WAITED FOR BY A TRAP INSTRUCTION
                                ;*      CALLED "WAT" (NO TIMING IS DONE)
                                ;*      HOWEVER IF "OR" DOES NOT SET WITHIN "WAT" COUNT
                                ;*      DOWN AN ERROR IS REPORTED
                                ;*      RHDB IS READ AND CHECKED TO CONTAIN ALL ONES
                                ;*      RHCS2 WILL BE CHECKED TO HAVE "IR" AND UNIT NUMBER
                                ;*      RHCS1,RHCS3,RHBA,RHBAE,RHWC, WILL BE CHECKED TO HAVE
                                ;*      APPROPIATE VALUES
                                ;*****************************************************************
014126  000004                  ↑ST12:  SCOPE
014130  012706  001000                  MOV     #STACK,SP       ;RESET STACK
014134  012737  000012  004656          MOV     #12,@#↑STNM     ;SAVE TEST NUMBER

014142  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1


                                                ;CHECK THAT RHCS2 HAS IR
014146  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
014154  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
```

```
4379
4380  014162  017737  167702  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
4381  014170  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4382                                                                  ;DATA WITH DATA READ FROM
4383                                                                  ;RHCS2
4384  014176  001401                          BEQ     65$             ;BRANCH IF GOOD
4385  014200  104006                          ERROR   6
4386                                                                  ;AFTER SETTING CLR BIT #5
4387                                                                  ;IN RHCS2 TO INIT THE RH
4388                                                                  ;AND HAVING DONE NOTHING ELSE
4389                                                                  ;RHCS2 SHOULD HAVE IR
4390                                                                  ;=100
4391                                                                  ;TOGETHER WITH UNIT NUMBER
4392                                                                  ;BUT CONTAINED WHAT IS
4393                                                                  ;GIVEN IN BAD RHCS2
4394  014202                          65$:
4395
4396                                          ;WRITE ONE WORD OF ALL ONES INTO RHDB
4397  014202  012777  177777  167672          MOV     #177777,@RHDB   ;WRITE 1 IN RHDB
4398
4399                                          ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
4400  014210  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
4401  014212  004070                          RHCS2                   ;AND WAIT FOR OR BIT IN
4402  014214  000200                          OR                      ;RHCS2 REGISTER
4403                                                                  ;IF ERROR OCCURS HERE
4404                                                                  ;IT MEANS "OR" DID NOT
4405                                                                  ;SET FOR THE FULL COUNT
4406                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
4407                                                                  ;THIS TIME IS APPROXIMATELY
4408                                                                  ;LARGER THAN 500 MILLISECONDS
4409
4410
4411                                          ;CHECK THAT RHDB HAS 177777
4412  014216  012737  177777  001124          MOV     #177777,$GDDAT  ;GET GOOD = 0
4413
4414  014224  017737  167652  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
4415  014232  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4416                                                                  ;DATA WITH DATA READ FROM
4417                                                                  ;RHDB
4418  014240  001401                          BEQ     67$             ;BRANCH IF GOOD
4419  014242  104007                          ERROR   7
4420                                                                  ;AFTER CLEARING THE RH
4421                                                                  ;AND WRITING ALL ONES
4422                                                                  ;INTO RHDB
4423                                                                  ;THEN READING IT BACK
4424                                                                  ;RHDB SHOULD HAVE 177777
4425                                                                  ;BUT CONTAINED WHAT IS
4426                                                                  ;GIVEN IN BAD RHDB
4427  014244                          67$:
4428                                          ;CHECK THAT RHCS2 HAS IR
4429  014244  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
4430  014252  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
4431
4432  014260  017737  167604  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
4433  014266  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4434                                                                  ;DATA WITH DATA READ FROM
```

```
                                                                        ;RHCS2
014274  001401                        BEQ     69$                     ;BRANCH IF GOOD
014276  104010                        ERROR   10
                                                                        ;AFTER CLEARING THE RH
                                                                        ;AND WRITING ALL ONES
                                                                        ;INTO RHDB
                                                                        ;THEN READING IT BACK
                                                                        ;RHCS2 SHOULD HAVE IR
                                                                        ;=100
                                                                        ;TOGETHER WITH UNIT NUMBER
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS2
014300                          69$:
                                        ;CHECK THAT RHCS3 HAS 0
014300  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD =

014306  017737  167620  001126          MOV     @RHCS3,$BDDAT           ;READ RHCS3 FOR COMPARISON
014314  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHCS3
014322  001401                        BEQ     71$                     ;BRANCH IF GOOD
014324  104012                        ERROR   12
                                                                        ;AFTER CLEARING THE RH
                                                                        ;AND WRITING ALL ONES
                                                                        ;INTO RHDB
                                                                        ;THEN READING IT BACK
                                                                        ;RHCS3 SHOULD HAVE 0
                                                                        ;=
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS3
014326                          71$:
                                        ;CHECK THAT RHBA HAS 0
014326  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD =

014334  017737  167524  001126          MOV     @RHBA,$BDDAT            ;READ RHBA FOR COMPARISON
014342  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBA
014350  001401                        BEQ     73$                     ;BRANCH IF GOOD
014352  104013                        ERROR   13
                                                                        ;AFTER CLEARING THE RH
                                                                        ;AND WRITING ALL ONES
                                                                        ;INTO RHDB
                                                                        ;THEN READING IT BACK
                                                                        ;RHBA SHOULD HAVE 0
                                                                        ;=
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
014354                          73$:
                                        ;CHECK THAT RHBAE HAS 0
014354  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD =

014362  017737  167542  001126          MOV     @RHBAE,$BDDAT           ;READ RHBAE FOR COMPARISON
014370  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
```

```
4491  014376  001401                          BEQ     75$             ;BRANCH IF GOOD
4492  014400  104014                          ERROR   14
4493                                                                  ;AFTER CLEARING THE RH
4494                                                                  ;AND WRITING ALL ONES
4495                                                                  ;INTO RHDB
4496                                                                  ;THEN READING IT BACK
4497                                                                  ;RHBAE SHOULD HAVE 0
4498                                                                  ;=
4499                                                                  ;BUT CONTAINED WHAT IS
4500                                                                  ;GIVEN IN BAD RHBAE
4501  014402                          75$:
4502                                          ;CHECK THAT RHWC HAS 0
4503  014402  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD =
4504
4505  014410  017737  167446  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
4506  014416  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4507                                                                  ;DATA WITH DATA READ FROM
4508                                                                  ;RHWC
4509  014424  001401                          BEQ     77$             ;BRANCH IF GOOD
4510  014426  104015                          ERROR   15
4511                                                                  ;AFTER CLEARING THE RH
4512                                                                  ;AND WRITING ALL ONES
4513                                                                  ;INTO RHDB
4514                                                                  ;THEN READING IT BACK
4515                                                                  ;RHWC SHOULD HAVE 0
4516                                                                  ;=
4517                                                                  ;BUT CONTAINED WHAT IS
4518                                                                  ;GIVEN IN BAD RHWC
4519  014430                          77$:
4520
4521
4522                                  ;;*****************************************************************
4523                                  ;*TEST 13       SILO TEST 3 (TWO WORD WRITE)
4524
4525                                  ;*      AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
4526                                  ;*      RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
4527                                  ;*      TOGETHER WITH UNIT NUMBER
4528                                  ;*      ONE WORD = 52525 IS WRITTEN INTO RHDB
4529                                  ;*      RHCS2 IS CHECKED TO HAVE "IR" AND UNIT NUMBER
4530                                  ;*      A SECOND WORD = 12525 IS WRITTEN INTO RHDB
4531                                  ;*      "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
4532                                  ;*      INSTRUCTION CALLED "WAT"
4533                                  ;*      RHDB IS READ AND CHECKED TO CONTAIN 52525
4534                                  ;*      RHCS2 IS CHECKED TO HAVE "IR", "OR" AND UNIT NUMBER
4535                                  ;*      RHDB IS READ A SECOND TIME AND CHECKED TO
4536                                  ;*      CONTAIN 125252
4537                                  ;*      RHCS2 IS CHECKED TO HAVE "IR" AND UNIT NUMBER
4538                                  ;*      THEN ALL REGISTERS RHCS1, RHCS3, RHBA, RHBAE, RHWC
4539                                  ;*      ARE CHECKED TO HAVE APPROPIATE VALUE
4540                                  ;*
4541                                  ;*
4542                                  ;;*****************************************************************
4543  014430  000004                  TST13:  SCOPE
4544  014432  012706  001000                  MOV     #STACK,SP       ;RESET STACK
4545  014436  012737  000013  004656          MOV     #13,@#TSTNM     ;SAVE TEST NUMBER
4546
```

```
4547  014444  004737  040322                JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
4548                                                                  ;SETUP UNIT NUBER
4549                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
4550
4551                                          ;CHECK THAT RHCS2 HAS IR
4552  014450  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
4553  014456  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
4554
4555  014464  017737  167400  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
4556  014472  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4557                                                                  ;DATA WITH DATA READ FROM
4558                                                                  ;RHCS2
4559  014500  001401                          BEQ     65$             ;BRANCH IF GOOD
4560  014502  104006                          ERROR   6
4561                                                                  ;AFTER SETTING "CLR" BIT #5
4562                                                                  ;IN RHCS2 TO INIT THE RH
4563                                                                  ;AND HAVING DONE NOTHING ELSE
4564
4565                                                                  ;RHCS2 SHOULD HAVE IR
4566                                                                  ;=100
4567                                                                  ;TOGETHER WITH UNIT NUMBER
4568                                                                  ;BUT CONTAINED WHAT IS
4569                                                                  ;GIVEN IN BAD RHCS2
4570  014504                          65$:
4571
4572                                          ;WRITE ONE WORD = 52525 INTO RHDB
4573  014504  012777  052525  167370          MOV     #52525,@RHDB    ;WRITE IN RHDB
4574
4575                                          ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
4576  014512  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
4577  014514  004070                          RHCS2                   ;AND WAIT FOR OR BIT IN
4578  014516  000200                          OR                      ;RHCS2 REGISTER
4579                                                                  ;IF ERROR OCCURS HERE
4580                                                                  ;IT MEANS "OR" DID NOT
4581                                                                  ;SET FOR THE FULL COUNT
4582                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
4583                                                                  ;THIS TIME IS APPROXIMATELY
4584                                                                  ;LARGER THAN 500 MILLISECONDS
4585
4586
4587                                          ;CHECK THAT RHCS2 HAS IR!OR
4588  014520  012737  000300  001124          MOV     #IR!OR,$GDDAT   ;GET GOOD = 300
4589  014526  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
4590
4591  014534  017737  167330  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
4592  014542  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4593                                                                  ;DATA WITH DATA READ FROM
4594                                                                  ;RHCS2
4595  014550  001401                          BEQ     67$             ;BRANCH IF GOOD
4596  014552  104016                          ERROR   16
4597                                                                  ;AFTER SETTING "CLR" BIT #5
4598                                                                  ;IN RHCS2 TO INIT THE RH
4599                                                                  ;THEN WRITING 52525 INTO
4600                                                                  ;RHDB
4601                                                                  ;RHCS2 SHOULD HAVE IR!OR
4602                                                                  ;=300
```

```
                                                        ;TOGETHER WITH UNIT NUMBER
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHCS2
014554                          67$:

                                        ;WRITE A SECOND WORD = 125252 INTO RHDB
014554  012777  125252  167320        MOV     #125252,@RHDB   ;WRITE 125252 INTO RHDB

                                        ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
014562  104411                        WAT                     ;TRAP TO WAIT.T SUBROUTINE
014564  004070                        RHCS2                   ;AND WAIT FOR OR BIT IN
014566  000200                        OR                      ;RHCS2 REGISTER
                                                        ;IF ERROR OCCURS HERE
                                                        ;IT MEANS "OR" DID NOT
                                                        ;SET FOR THE FULL COUNT
                                                        ;DOWN OF THE WAIT.T SUBROUTINE
                                                        ;THIS TIME IS APPROXIMATELY
                                                        ;LARGER THAN 500 MILLISECONDS

                                        ;CHECK THAT RHDB HAS 52525
014570  012737  052525  001124        MOV     #52525,$GDDAT   ;GET GOOD = 0

014576  017737  167300  001126        MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
014604  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHDB
014612  001401                        BEQ     69$             ;BRANCH IF GOOD
014614  104017                        ERROR   17

                                                        ;AFTERCLEARING THE RH THEN
                                                        ;WRITING TWO WORDS INTO
                                                        ;RHDB 52525 ND 125252
                                                        ;THEN READING RHDB ONCE
                                                        ;RHDB SHOULD HAVE 52525
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHDB
014616                          69$:
                                        ;CHECK THAT RHCS2 HAS IR!OR
014616  012737  000300  001124        MOV     #IR!OR,$GDDAT   ;GET GOOD = 300
014624  053737  005010  001124        BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

014632  017737  167232  001126        MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
014640  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHCS2
014646  001401                        BEQ     71$             ;BRANCH IF GOOD
014650  104020                        ERROR   20

                                                        ;AFTERCLEARING THE RH THEN
                                                        ;WRITING TWO WORDS INTO
                                                        ;RHDB 52525 ND 125252
                                                        ;THEN READING RHDB ONCE
                                                        ;RHCS2 SHOULD HAVE IR!OR
                                                        ;=300
                                                        ;TOGETHER WITH UNIT NUMBER
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHCS2
014652                          71$:
```

```
4659
4660
4661                                                    ;READ RHDB A SECOND TIME
4662                                                    ;CHECK THAT RHDB HAS 125252
4663  014652  012737  125252  001124          MOV     #125252,$GDDAT  ;GET GOOD = 0
4664
4665  014660  017737  167216  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
4666  014666  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4667                                                                  ;DATA WITH DATA READ FROM
4668                                                                  ;RHDB
4669  014674  001401                          BEQ     73$             ;BRANCH IF GOOD
4670  014676  104021                          ERROR   21
4671                                                                  ;AFTER CLEARING RH THEN
4672                                                                  ;WRITING TWO WORDS INTO
4673                                                                  ;RHDB 52525 AND 125252
4674                                                                  ;THEN READING RHDB THE
4675                                                                  ;SECOND TIME
4676                                                                  ;RHDB SHOULD HAVE 125252
4677                                                                  ;BUT CONTAINED WHAT IS
4678                                                                  ;GIVEN IN BAD RHDB
4679  014700                          73$:
4680                                                    ;CHECK THAT RHCS2 HAS IR
4681  014700  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
4682  014706  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
4683
4684  014714  017737  167150  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
4685  014722  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4686                                                                  ;DATA WITH DATA READ FROM
4687                                                                  ;RHCS2
4688  014730  001401                          BEQ     75$             ;BRANCH IF GOOD
4689  014732  104022                          ERROR   22
4690                                                                  ;AFTER CLEARING RH THEN
4691                                                                  ;WRITING TWO WORDS INTO
4692                                                                  ;RHDB 52525 AND 125252
4693                                                                  ;THEN READING RHDB THE
4694                                                                  ;SECOND TIME
4695                                                                  ;RHCS2 SHOULD HAVE IR
4696                                                                  ;=100
4697                                                                  ;TOGETHER WITH UNIT NUMBER
4698                                                                  ;BUT CONTAINED WHAT IS
4699                                                                  ;GIVEN IN BAD RHCS2
4700  014734                          75$:
4701                                                    ;CHECK THAT RHCS1 HAS DVA!RDY
4702  014734  012737  004200  001124          MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200
4703
4704  014742  017737  167112  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
4705  014750  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4706                                                                  ;DATA WITH DATA READ FROM
4707                                                                  ;RHCS1
4708  014756  001401                          BEQ     77$             ;BRANCH IF GOOD
4709  014760  104141                          ERROR   141
4710                                                                  ;AFTER CLEARING RH THEN
4711                                                                  ;WRITING TWO WORDS INTO
4712                                                                  ;RHDB 52525 AND 125252
4713                                                                  ;THEN READING RHDB THE
4714                                                                  ;SECOND TIME
```

```
                                                                        ;RHCS1 SHOULD HAVE DVA!RDY
                                                                        ;=4200
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS1
014762                                  77$:
                                                ;CHECK THAT RHCS3 HAS 0
014762  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

014770  017737  167136  001126                  MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
014776  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHCS3
015004  001401                                  BEQ     79$             ;BRANCH IF GOOD
015006  104142                                  ERROR   142
                                                                        ;AFTER CLEARING RH THEN
                                                                        ;WRITING TWO WORDS INTO
                                                                        ;RHDB 52525 AND 125252
                                                                        ;THEN READING RHDB THE
                                                                        ;SECOND TIME
                                                                        ;RHCS3 SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS3
015010                                  79$:
                                                ;CHECK THAT RHBA HAS 0
015010  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

015016  017737  167042  001126                  MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
015024  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBA
015032  001401                                  BEQ     81$             ;BRANCH IF GOOD
015034  104143                                  ERROR   143
                                                                        ;AFTER CLEARING RH THEN
                                                                        ;WRITING TWO WORDS INTO
                                                                        ;RHDB 52525 AND 125252
                                                                        ;THEN READING RHDB THE
                                                                        ;SECOND TIME
                                                                        ;RHBA SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
015036                                  81$:
                                                ;CHECK THAT RHBAE HAS 0
015036  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

015044  017737  167060  001126                  MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
015052  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
015060  001401                                  BEQ     83$             ;BRANCH IF GOOD
015062  104144                                  ERROR   144
                                                                        ;AFTER CLEARING RH THEN
                                                                        ;WRITING TWO WORDS INTO
                                                                        ;RHDB 52525 AND 125252
                                                                        ;THEN READING RHDB THE
                                                                        ;SECOND TIME
                                                                        ;RHBAE SHOULD HAVE 0
```

```
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBAE
015064                                  83$:
                                                ;CHECK THAT RHWC HAS 0
015064  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

015072  017737  166764  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
015100  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHWC
015106  001401                                  BEQ     85$             ;BRANCH IF GOOD
015110  104145                                  ERROR   145

                                                                ;AFTER CLEARING RH THEN
                                                                ;WRITING TWO WORDS INTO
                                                                ;RHDB 52525 AND 125252
                                                                ;THEN READING RHDB THE
                                                                ;SECOND TIME
                                                                ;RHWC SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHWC
015112                                  85$:


                                        ;;**************************************************************
                                        ;*TEST 14       SILO TEST 4 (COUNT PATTERN)

                                        ;*      AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                        ;*      RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH, TOGETHER
                                        ;*      WITH UNIT NUMBER
                                        ;*      EIGHT WORDS, A COUNT PATTERN 0 THRU 7 IS WRITTEN
                                        ;*      INTO RHDB
                                        ;*      "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                        ;*      INSTRUCTION CALLED "WAT"
                                        ;*      THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
                                        ;*      "OR" HIGH TOGETHER WITH THE UNIT NUMBER
                                        ;*      THEN RHBIS READ AND COMPARED TO HAVE THE RIGHT VALUE
                                        ;*      EIGHT TIES
                                        ;*      THEN RHCS2, RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
                                        ;*      CHECKED TO HAVE THE APPROPIATE VALUE
                                        ;;**************************************************************
015112  000004                    TST14:  SCOPE
015114  012706  001000                    MOV     #STACK,SP       ;RESET STACK
015120  012737  000014  004656            MOV     #14,@#TSTNM     ;SAVE TEST NUMBER

015126  004737  040322                    JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                                ;CHECK THAT RHCS2 HAS IR
015132  012737  000100  001124                  MOV     #IR,$GDDAT      ;GET GOOD = 100
015140  053737  005010  001124                  BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

015146  017737  166716  001126                  MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
015154  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
```

```
4827  015162  001401                          BEQ     65$             ;BRANCH IF GOOD
4828  015164  104006                          ERROR   6
4829                                                                  ;AFTER SETTING "CLR" BIT #5
4830                                                                  ;IN RHCS2 TO INIT THE RH
4831                                                                  ;AND HAVING DONE NOTHING ELSE
4832                                                                  ;RHCS2 SHOULD HAVE IR
4833                                                                  ;=100
4834                                                                  ;TOGETHER WITH UNIT NUMBER
4835                                                                  ;BUT CONTAINED WHAT IS
4836                                                                  ;GIVEN IN BAD RHCS2
4837  015166                          65$:
4838
4839                                          ;WRITE EIGHT WORDS INTO RHDB TO FILL IT
4840                                          ;THIS IS A COUNT PATTERN 0 THRU 7
4841  015166  012702  000010                 MOV     #8.,R2          ;8 NUMBERS TO BE WRITTEN
4842  015172  005001                          CLR     R1              ;FIRST WORD TO BE WRITTEN = 0
4843  015174  010177  166702          1$:     MOV     R1,@RHDB        ;WRITE INTO RHDB - A COUNT
4844  015200  005201                          INC     R1              ;GET NEXT WORD
4845  015202  005302                          DEC     R2              ;COUNT TO 8
4846  015204  001373                          BNE     1$              ;BRANCH IF 8 NOT DONE
4847
4848                                          ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
4849  015206  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
4850  015210  004070                          RHCS2                   ;AND WAIT FOR OR BIT IN
4851  015212  000200                          OR                      ;RHCS2 REGISTER
4852                                                                  ;IF ERROR OCCURS HERE
4853                                                                  ;IT MEANS "OR" DID NOT
4854                                                                  ;SET FOR THE FULL COUNT
4855                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
4856                                                                  ;THIS TIME IS APPROXIMATELY
4857                                                                  ;LARGER THAN 500 MILLISECONDS
4858
4859                                          ;CHECK THAT RHCS2 HAS OR
4860  015214  012737  000200  001124          MOV     #OR,$GDDAT      ;GET GOOD = 200
4861  015222  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
4862
4863  015230  017737  166634  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
4864  015236  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4865                                                                  ;DATA WITH DATA READ FROM
4866                                                                  ;RHCS2
4867  015244  001401                          BEQ     67$             ;BRANCH IF GOOD
4868  015246  104023                          ERROR   23
4869                                                                  ;AFTER SETTING "CLR" BIT #5
4870                                                                  ;IN RHCS2 TO INIT THE RH
4871                                                                  ;AND HAVING WRITTEN A
4872                                                                  ;COUNT PATTERN 0 THRU 7
4873                                                                  ;INTO RHDB TO FILL IT
4874                                                                  ;RHCS2 SHOULD HAVE OR
4875                                                                  ;=200
4876                                                                  ;TOGETHER WITH UNIT NUMBER
4877                                                                  ;BUT CONTAINED WHAT IS
4878                                                                  ;GIVEN IN BAD RHCS2
4879  015250                          67$:
4880
4881
4882
```

```
4883  015250  012737  000001  004664          MOV     #1,SILONM       ;FIRST WORD TO BE READ
4884                                          ;CHECK THAT RHDB HAS 0
4885  015256  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
4886
4887  015264  017737  166612  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
4888  015272  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4889                                                                  ;DATA WITH DATA READ FROM
4890                                                                  ;RHDB
4891  015300  001401                          BEQ     69$             ;BRANCH IF GOOD
4892  015302  104024                          ERROR   24
4893                                                                  ;AFTER SETTING "CLR" BIT #5
4894                                                                  ;IN RHCS2 TO INIT THE RH
4895                                                                  ;AND WRITING A
4896                                                                  ;COUNT PATTERN 0 THRU 7
4897                                                                  ;INTO RHDB TO FILL IT
4898                                                                  ;THEN ON READING RHDB THE
4899                                                                  ;FIRST TIME
4900                                                                  ;RHDB SHOULD HAVE 0
4901                                                                  ;BUT CONTAINED WHAT IS
4902                                                                  ;GIVEN IN BAD RHDB
4903  015304                          69$:
4904
4905  015304  012737  000002  004664          MOV     #2,SILONM       ;SECOND WORD TO BE READ
4906                                          ;CHECK THAT RHDB HAS 1
4907  015312  012737  000001  001124          MOV     #1,$GDDAT       ;GET GOOD = 0
4908
4909  015320  017737  166556  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
4910  015326  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4911                                                                  ;DATA WITH DATA READ FROM
4912                                                                  ;RHDB
4913  015334  001401                          BEQ     71$             ;BRANCH IF GOOD
4914  015336  104024                          ERROR   24
4915                                                                  ;AFTER SETTING "CLR" BIT #5
4916                                                                  ;IN RHCS2 TO INIT THE RH
4917                                                                  ;AND WRITING A
4918                                                                  ;COUNT PATTERN 0 THRU 7
4919                                                                  ;INTO RHDB TO FILL IT
4920                                                                  ;THEN ON READING RHDB THE
4921                                                                  ;SECOND TIME
4922                                                                  ;RHDB SHOULD HAVE 1
4923                                                                  ;BUT CONTAINED WHAT IS
4924                                                                  ;GIVEN IN BAD RHDB
4925  015340                          71$:
4926
4927  015340  012737  000003  004664          MOV     #3,SILONM       ;THIRD WORD TO BE READ
4928                                          ;CHECK THAT RHDB HAS 2
4929  015346  012737  000002  001124          MOV     #2,$GDDAT       ;GET GOOD = 0
4930
4931  015354  017737  166522  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
4932  015362  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4933                                                                  ;DATA WITH DATA READ FROM
4934                                                                  ;RHDB
4935  015370  001401                          BEQ     73$             ;BRANCH IF GOOD
4936  015372  104024                          ERROR   24
4937                                                                  ;AFTER SETTING "CLR" BIT #5
4938                                                                  ;IN RHCS2 TO INIT THE RH
```

```
                                                                        ;AND WRITING A
                                                                        ;COUNT PATTERN 0 THRU 7
                                                                        ;INTO RHDB TO FILL IT
                                                                        ;THEN ON READING RHDB THE
                                                                        ;THIRD TIME
                                                                        ;RHDB SHOULD HAVE 2
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHDB
015374                                  73$:
015374  012737  000004  004664          MOV     #4,SILONM               ;FOURTH WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 3
015402  012737  000003  001124          MOV     #3,$GDDAT               ;GET GOOD = 0
015410  017737  166466  001126          MOV     @RHDB,$BDDAT            ;READ RHDB FOR COMPARISON
015416  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHDB
015424  001401                          BEQ     75$                     ;BRANCH IF GOOD
015426  104024                          ERROR   24
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;AND WRITING A
                                                                        ;COUNT PATTERN 0 THRU 7
                                                                        ;INTO RHDB TO FILL IT
                                                                        ;THEN ON READING RHDB THE
                                                                        ;FOURTH TIME
                                                                        ;RHDB SHOULD HAVE 3
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHDB
015430                                  75$:
015430  012737  000005  004664          MOV     #5,SILONM               ;FIFTH WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 4
015436  012737  000004  001124          MOV     #4,$GDDAT               ;GET GOOD = 0
015444  017737  166432  001126          MOV     @RHDB,$BDDAT            ;READ RHDB FOR COMPARISON
015452  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHDB
015460  001401                          BEQ     77$                     ;BRANCH IF GOOD
015462  104024                          ERROR   24
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;AND WRITING A
                                                                        ;COUNT PATTERN 0 THRU 7
                                                                        ;INTO RHDB TO FILL IT
                                                                        ;THEN ON READING RHDB THE
                                                                        ;FIFTH TIME
                                                                        ;RHDB SHOULD HAVE 4
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHDB
015464                                  77$:
015464  012737  000006  004664          MOV     #6,SILONM               ;SIXTH WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 5
```

```
4995  015472  012737  000005  001124          MOV     #5,$GDDAT       ;GET GOOD = 0
4996
4997  015500  017737  166376  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
4998  015506  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
4999                                                                  ;DATA WITH DATA READ FROM
5000                                                                  ;RHDB
5001  015514  001401                          BEQ     79$             ;BRANCH IF GOOD
5002  015516  104024                          ERROR   24
5003                                                                  ;AFTER SETTING "CLR" BIT #5
5004                                                                  ;IN RHCS2 TO INIT THE RH
5005                                                                  ;AND WRITING A
5006                                                                  ;COUNT PATTERN 0 THRU 7
5007                                                                  ;INTO RHDB TO FILL IT
5008                                                                  ;THEN ON READING RHDB THE
5009                                                                  ;SIXTH TIME
5010                                                                  ;RHDB SHOULD HAVE 5
5011                                                                  ;BUT CONTAINED WHAT IS
5012                                                                  ;GIVEN IN BAD RHDB
5013  015520                          79$:
5014
5015  015520  012737  000007  004664          MOV     #7,SILONM       ;SEVENTH WORD TO BE READ
5016                                          ;CHECK THAT RHDB HAS 6
5017  015526  012737  000006  001124          MOV     #6,$GDDAT       ;GET GOOD = 0
5018
5019  015534  017737  166342  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5020  015542  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5021                                                                  ;DATA WITH DATA READ FROM
5022                                                                  ;RHDB
5023  015550  001401                          BEQ     81$             ;BRANCH IF GOOD
5024  015552  104024                          ERROR   24
5025                                                                  ;AFTER SETTING "CLR" BIT #5
5026                                                                  ;IN RHCS2 TO INIT THE RH
5027                                                                  ;AND WRITING A
5028                                                                  ;COUNT PATTERN 0 THRU 7
5029                                                                  ;INTO RHDB TO FILL IT
5030                                                                  ;THEN ON READING RHDB THE
5031                                                                  ;SEVENTH TIME
5032                                                                  ;RHDB SHOULD HAVE 6
5033                                                                  ;BUT CONTAINED WHAT IS
5034                                                                  ;GIVEN IN BAD RHDB
5035  015554                          81$:
5036
5037  015554  012737  000010  004664          MOV     #8.,SILONM      ;EIGHTH WORD TO BE READ
5038                                          ;CHECK THAT RHDB HAS 7
5039  015562  012737  000007  001124          MOV     #7,$GDDAT       ;GET GOOD = 0
5040
5041  015570  017737  166306  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5042  015576  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5043                                                                  ;DATA WITH DATA READ FROM
5044                                                                  ;RHDB
5045  015604  001401                          BEQ     83$             ;BRANCH IF GOOD
5046  015606  104024                          ERROR   24
5047                                                                  ;AFTER SETTING "CLR" BIT #5
5048                                                                  ;IN RHCS2 TO INIT THE RH
5049                                                                  ;AND WRITING A
5050                                                                  ;COUNT PATTERN 0 THRU 7
```

```
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;EIGHTH TIME
                                                                ;RHDB SHOULD HAVE 7
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
015610                                  83$:

                                        ;CHECK THAT RHCS2 HAS IR
015610  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
015616  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

015624  017737  166240  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
015632  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
015640  001401                          BEQ     85$             ;BRANCH IF GOOD
015642  104025                          ERROR   25
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A
                                                                ;COUNT PATTERN 0 THRU 7
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHCS2 SHOULD HAVE IR
                                                                ;=100
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
015644                                  85$:
                                        ;CHECK THAT RHCS1 HAS DVA!RDY
015644  012737  004200  001124          MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200

015652  017737  166202  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
015660  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
015666  001401                          BEQ     87$             ;BRANCH IF GOOD
015670  104026                          ERROR   26
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A
                                                                ;COUNT PATTERN 0 THRU 7
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHCS1 SHOULD HAVE DVA!RDY
                                                                ;=4200
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
015672                                  87$:
                                        ;CHECK THAT RHCS3 HAS 0
015672  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
```

```
5107  015700  017737  166226  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
5108  015706  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5109                                                                  ;DATA WITH DATA READ FROM
5110                                                                  ;RHCS3
5111  015714  001401                          BEQ     89$             ;BRANCH IF GOOD
5112  015716  104027                          ERROR   27
5113                                                                  ;AFTER SETTING "CLR" BIT #5
5114                                                                  ;IN RHCS2 TO INIT THE RH
5115                                                                  ;AND WRITING A
5116                                                                  ;COUNT PATTERN 0 THRU 7
5117                                                                  ;INTO RHDB TO FILL IT
5118                                                                  ;THEN ON READING RHDB THE
5119                                                                  ;TOTAL 8 TIMES
5120                                                                  ;RHCS3 SHOULD HAVE 0
5121                                                                  ;BUT CONTAINED WHAT IS
5122                                                                  ;GIVEN IN BAD RHCS3
5123  015720                          89$:
5124                                          ;CHECK THAT RHBA HAS 0
5125  015720  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
5126
5127  015726  017737  166132  001126          MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
5128  015734  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5129                                                                  ;DATA WITH DATA READ FROM
5130                                                                  ;RHBA
5131  015742  001401                          BEQ     91$             ;BRANCH IF GOOD
5132  015744  104030                          ERROR   30
5133                                                                  ;AFTER SETTING "CLR" BIT #5
5134                                                                  ;IN RHCS2 TO INIT THE RH
5135                                                                  ;AND WRITING A
5136                                                                  ;COUNT PATTERN 0 THRU 7
5137                                                                  ;INTO RHDB TO FILL IT
5138                                                                  ;THEN ON READING RHDB THE
5139                                                                  ;TOTAL 8 TIMES
5140                                                                  ;RHBA SHOULD HAVE 0
5141                                                                  ;BUT CONTAINED WHAT IS
5142                                                                  ;GIVEN IN BAD RHBA
5143  015746                          91$:
5144                                          ;CHECK THAT RHBAE HAS 0
5145  015746  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
5146
5147  015754  017737  166150  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
5148  015762  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5149                                                                  ;DATA WITH DATA READ FROM
5150                                                                  ;RHBAE
5151  015770  001401                          BEQ     93$             ;BRANCH IF GOOD
5152  015772  104031                          ERROR   31
5153                                                                  ;AFTER SETTING "CLR" BIT #5
5154                                                                  ;IN RHCS2 TO INIT THE RH
5155                                                                  ;AND WRITING A
5156                                                                  ;COUNT PATTERN 0 THRU 7
5157                                                                  ;INTO RHDB TO FILL IT
5158                                                                  ;THEN ON READING RHDB THE
5159                                                                  ;TOTAL 8 TIMES
5160                                                                  ;RHBAE SHOULD HAVE 0
5161                                                                  ;BUT CONTAINED WHAT IS
5162                                                                  ;GIVEN IN BAD RHBAE
```

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5163  015774                          93$:
5164                                          ;CHECK THAT RHWC HAS 0
5165  015774  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
5166
5167  016002  017737  166054  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
5168  016010  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5169                                                                  ;DATA WITH DATA READ FROM
5170                                                                  ;RHWC
5171  016016  001401                          BEQ     95$             ;BRANCH IF GOOD
5172  016020  104032                          ERROR   32
5173                                                                  ;AFTER SETTING "CLR" BIT #5
5174                                                                  ;IN RHCS2 TO INIT THE RH
5175                                                                  ;AND WRITING A
5176                                                                  ;COUNT PATTERN 0 THRU 7
5177                                                                  ;INTO RHDB TO FILL IT
5178                                                                  ;THEN ON READING RHDB THE
5179                                                                  ;TOTAL 8 TIMES
5180                                                                  ;RHWC SHOULD HAVE 0
5181                                                                  ;BUT CONTAINED WHAT IS
5182                                                                  ;GIVEN IN BAD RHWC
5183  016022                          95$:
5184
5185
5186                                  ;;*****************************************************************
5187                                  ;*TEST 15       SILO TEST 5 (FLOATING ONES)
5188
5189                                  ;*      AFTER ARH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
5190                                  ;*      RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
5191                                  ;*      TOGETHER WITH UNIT NUMBER
5192                                  ;*      EIGHT WORDS, A PATTERN OF FLOATING ONES (1,2,4,10,20,40,100,200)
5193                                  ;*      IS WRITTEN INTO RHDB
5194                                  ;*      "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
5195                                  ;*      INSTRUCTION CALLED "WAT"
5196                                  ;*      THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
5197                                  ;*      "OR" HIGH TOGETHER WITH THE UNIT NUMBER
5198                                  ;*      THEN RHDB IS READ AND COMPARED TO HAVE THE
5199                                  ;*      RIGHT VALUE AFTER EACH OF THE EIGHT READS.
5200                                  ;*      THEN RHCS2 IS CHECKED TO HAVE "IR"
5201                                  ;*      AND UNIT NUMBER
5202                                  ;*      THEN RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
5203                                  ;*      CHECKED TO HAVE THE APPROPIATE VALUE
5204                                  ;;*****************************************************************
5205  016022  000004                  TST15:  SCOPE
5206  016024  012706  001000                  MOV     #STACK,SP       ;RESET STACK
5207  016030  012737  000015  004656          MOV     #15,@#TSTNM     ;SAVE TEST NUMBER
5208
5209  016036  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
5210                                                                  ;SETUP UNIT NUBER
5211                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
5212
5213
5214                                          ;CHECK THAT RHCS2 HAS IR
5215  016042  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
5216  016050  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
5217
5218  016056  017737  166006  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
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5219  016064  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5220                                                                    ;DATA WITH DATA READ FROM
5221                                                                    ;RHCS2
5222  016072  001401                          BEQ     65$             ;BRANCH IF GOOD
5223  016074  104006                          ERROR   6
5224                                                                    ;AFTER SETTING "CLR" BIT #5
5225                                                                    ;IN RHCS2 TO INIT THE RH
5226                                                                    ;AND HAVING DONE NOTHING
5227                                                                    ;ELSE
5228                                                                    ;RHCS2 SHOULD HAVE IR
5229                                                                    ;=100
5230                                                                    ;TOGETHER WITH UNIT NUMBER
5231                                                                    ;BUT CONTAINED WHAT IS
5232                                                                    ;GIVEN IN BAD RHCS2
5233  016076                          65$:
5234
5235                                          ;WRITE EIGHT WORDS INTO RHDB TO FILL IT
5236                                          ;DATA IS 1,2,4,10,20,40,100,200
5237  016076  012701  000001                 MOV     #1,R1           ;GETTING READY TO FLOAT ONES
5238  016102  012702  000010                 MOV     #8.,R2          ;COUNTER -8 DATA WORDS
5239  016106  010177  165770          1$:    MOV     R1,@RHDB        ;WRITE INTO RHDB
5240  016112  006301                 ASL     R1              ;SHIFT 1 ONE POSITION LEFT
5241  016114  005302                 DEC     R2              ;COUNT TO 8
5242  016116  001373                 BNE     1$              ;BRANCH IF 8 NOT DONE
5243                                  ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
5244  016120  104411                 WAT                     ;TRAP TO WAIT.T SUBROUTINE
5245  016122  004070                 RHCS2                   ;AND WAIT FOR OR BIT IN
5246  016124  000200                 OR                      ;RHCS2 REGISTER
5247                                                          ;IF ERROR OCCURS HERE
5248                                                          ;IT MEANS "OR" DID NOT
5249                                                          ;SET FOR THE FULL COUNT
5250                                                          ;DOWN OF THE WAIT.T SUBROUTINE
5251                                                          ;THIS TIME IS APPROXIMATELY
5252                                                          ;LARGER THAN 500 MILLISECONDS
5253
5254
5255                                  ;CHECK THAT RHCS2 HAS OR
5256  016126  012737  000200  001124  MOV     #OR,$GDDAT      ;GET GOOD = 200
5257  016134  053737  005010  001124  BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
5258
5259  016142  017737  165722  001126  MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
5260  016150  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5261                                                          ;DATA WITH DATA READ FROM
5262                                                          ;RHCS2
5263  016156  001401                  BEQ     67$             ;BRANCH IF GOOD
5264  016160  104023                  ERROR   23
5265                                                          ;AFTER SETTING "CLR" BIT #5
5266                                                          ;IN RHCS2 TO INIT THE RH
5267                                                          ;AND HAVING WRITTEN A
5268                                                          ;FLOATING ONES PATTERN
5269                                                          ;1,2,4,10,20,40,100,200
5270                                                          ;INTO RHDB TO FILL IT
5271                                                          ;RHCS2 SHOULD HAVE OR
5272                                                          ;=200
5273                                                          ;TOGETHER WITH UNIT NUMBER
5274                                                          ;BUT CONTAINED WHAT IS
```

```
                                                                ;GIVEN IN BAD RHCS2
016162                          67$:
                                
                                
                                
016162  012737  000001  004664        MOV     #1,SILONM       ;FIRST WORD TO BE READ
                                    ;CHECK THAT RHDB HAS 1
016170  012737  000001  001124        MOV     #1,$GDDAT       ;GET GOOD = 0
                                
016176  017737  165700  001126        MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
016204  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
016212  001401                      BEQ     69$             ;BRANCH IF GOOD
016214  104024                      ERROR   24
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF
                                                                ;FLOATING ONES (WHICH IS
                                                                ;1,2,4,10,20,40,100,200)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;FIRST TIME
                                                                ;RHDB SHOULD HAVE 1
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
016216                          69$:
                                
                                
016216  012737  000002  004664        MOV     #2,SILONM       ;SECOND WORD TO BE READ
                                    ;CHECK THAT RHDB HAS 2
016224  012737  000002  001124        MOV     #2,$GDDAT       ;GET GOOD = 0
                                
016232  017737  165644  001126        MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
016240  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
016246  001401                      BEQ     71$             ;BRANCH IF GOOD
016250  104024                      ERROR   24
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF
                                                                ;FLOATING ONES (WHICH IS
                                                                ;1,2,4,10,20,40,100,200)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;SECOND TIME
                                                                ;RHDB SHOULD HAVE 2
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
016252                          71$:
                                
                                
016252  012737  000003  004664        MOV     #3,SILONM       ;THIRD WORD TO BE READ
                                    ;CHECK THAT RHDB HAS 4
016260  012737  000004  001124        MOV     #4,$GDDAT       ;GET GOOD = 0
```

```
5331
5332  016266  017737  165610  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5333  016274  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5334                                                                  ;DATA WITH DATA READ FROM
5335                                                                  ;RHDB
5336  016302  001401                          BEQ     73$             ;BRANCH IF GOOD
5337  016304  104024                          ERROR   24
5338                                                                  ;AFTER SETTING "CLR" BIT #5
5339                                                                  ;IN RHCS2 TO INIT THE RH
5340                                                                  ;AND WRITING A PATTERN OF
5341                                                                  ;FLOATING ONES (WHICH IS
5342                                                                  ;1,2,4,10,20,40,100,200)
5343                                                                  ;INTO RHDB TO FILL IT
5344                                                                  ;THEN ON READING RHDB THE
5345                                                                  ;THIRD TIME
5346                                                                  ;RHDB SHOULD HAVE 4
5347                                                                  ;BUT CONTAINED WHAT IS
5348                                                                  ;GIVEN IN BAD RHDB
5349  016306                          73$:
5350
5351
5352  016306  012737  000004  004664          MOV     #4,SILONM       ;FOURTH WORD TO BE READ
5353                                          ;CHECK THAT RHDB HAS 10
5354  016314  012737  000010  001124          MOV     #10,$GDDAT      ;GET GOOD = 0
5355
5356  016322  017737  165554  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5357  016330  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5358                                                                  ;DATA WITH DATA READ FROM
5359                                                                  ;RHDB
5360  016336  001401                          BEQ     75$             ;BRANCH IF GOOD
5361  016340  104024                          ERROR   24
5362                                                                  ;AFTER SETTING "CLR" BIT #5
5363                                                                  ;IN RHCS2 TO INIT THE RH
5364                                                                  ;AND WRITING A PATTERN OF
5365                                                                  ;FLOATING ONES (WHICH IS
5366                                                                  ;1,2,4,10,20,40,100,200)
5367                                                                  ;INTO RHDB TO FILL IT
5368                                                                  ;THEN ON READING RHDB THE
5369                                                                  ;FOURTH TIME
5370                                                                  ;RHDB SHOULD HAVE 10
5371                                                                  ;BUT CONTAINED WHAT IS
5372                                                                  ;GIVEN IN BAD RHDB
5373  016342                          75$:
5374
5375
5376  016342  012737  000005  004664          MOV     #5,SILONM       ;FIFTH WORD TO BE READ
5377                                          ;CHECK THAT RHDB HAS 20
5378  016350  012737  000020  001124          MOV     #20,$GDDAT      ;GET GOOD = 0
5379
5380  016356  017737  165520  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5381  016364  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5382                                                                  ;DATA WITH DATA READ FROM
5383                                                                  ;RHDB
5384  016372  001401                          BEQ     77$             ;BRANCH IF GOOD
5385  016374  104024                          ERROR   24
5386                                                                  ;AFTER SETTING "CLR" BIT #5
```

```
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF
                                                                ;FLOATING ONES (WHICH IS
                                                                ;1,2,4,10,20,40,100,200)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;FIFTH TIME
                                                                ;RHDB SHOULD HAVE 20
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
016376                          77$:

016376  012737  000006  004664          MOV     #6,SILONM       ;SIXTH WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 40
016404  012737  000040  001124          MOV     #40,$GDDAT      ;GET GOOD = 0

016412  017737  165464  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
016420  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
016426  001401                          BEQ     79$             ;BRANCH IF GOOD
016430  104024                          ERROR   24

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF
                                                                ;FLOATING ONES (WHICH IS
                                                                ;1,2,4,10,20,40,100,200)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;SIXTH TIME
                                                                ;RHDB SHOULD HAVE 40
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
016432                          79$:

016432  012737  000007  004664          MOV     #7,SILONM       ;SEVENTH WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 100
016440  012737  000100  001124          MOV     #100,$GDDAT     ;GET GOOD = 0

016446  017737  165430  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
016454  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
016462  001401                          BEQ     81$             ;BRANCH IF GOOD
016464  104024                          ERROR   24

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF
                                                                ;FLOATING ONES (WHICH IS
                                                                ;1,2,4,10,20,40,100,200)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;SEVENTH TIME
                                                                ;RHDB SHOULD HAVE 100
```

```
5443                                                                    ;BUT CONTAINED WHAT IS
5444                                                                    ;GIVEN IN BAD RHDB
5445  016466                                81$:
5446
5447
5448  016466  012737  000010  004664              MOV     #8.,SILONM    ;EIGHTH WORD TO BE READ
5449                                                ;CHECK THAT RHDB HAS 200
5450  016474  012737  000200  001124              MOV     #200,$GDDAT   ;GET GOOD = 0
5451
5452  016502  017737  165374  001126              MOV     @RHDB,$BDDAT  ;READ RHDB FOR COMPARISON
5453  016510  023737  001124  001126              CMP     $GDDAT,$BDDAT ;COMPARE EXPECTED
5454                                                                    ;DATA WITH DATA READ FROM
5455                                                                    ;RHDB
5456  016516  001401                              BEQ     83$           ;BRANCH IF GOOD
5457  016520  104024                              ERROR   24
5458                                                                    ;AFTER SETTING "CLR" BIT #5
5459                                                                    ;IN RHCS2 TO INIT THE RH
5460                                                                    ;AND WRITING A PATTERN OF
5461                                                                    ;FLOATING ONES (WHICH IS
5462                                                                    ;1,2,4,10,20,40,100,200)
5463                                                                    ;INTO RHDB TO FILL IT
5464                                                                    ;THEN ON READING RHDB THE
5465                                                                    ;EIGHTH TIME
5466                                                                    ;RHDB SHOULD HAVE 200
5467                                                                    ;BUT CONTAINED WHAT IS
5468                                                                    ;GIVEN IN BAD RHDB
5469  016522                                83$:
5470
5471
5472                                                ;CHECK THAT RHCS2 HAS IR
5473  016522  012737  000100  001124              MOV     #IR,$GDDAT    ;GET GOOD = 100
5474  016530  053737  005010  001124              BIS     UNIT,$GDDAT   ;INCLUDE UNIT NUMBER
5475
5476  016536  017737  165326  001126              MOV     @RHCS2,$BDDAT ;READ RHCS2 FOR COMPARISON
5477  016544  023737  001124  001126              CMP     $GDDAT,$BDDAT ;COMPARE EXPECTED
5478                                                                    ;DATA WITH DATA READ FROM
5479                                                                    ;RHCS2
5480  016552  001401                              BEQ     85$           ;BRANCH IF GOOD
5481  016554  104025                              ERROR   25
5482                                                                    ;AFTER SETTING "CLR" BIT #5
5483                                                                    ;IN RHCS2 TO INIT THE RH
5484                                                                    ;AND WRITING A PATTERN OF
5485                                                                    ;FLOATING ONES (WHICH IS
5486                                                                    ;1,2,4,10,20,40,100,200)
5487                                                                    ;INTO RHDB TO FILL IT
5488                                                                    ;THEN ON READING RHDB THE
5489                                                                    ;TOTAL 8 TIMES
5490                                                                    ;RHCS2 SHOULD HAVE IR
5491                                                                    ;=100
5492                                                                    ;TOGETHER WITH UNIT NUMBER
5493                                                                    ;BUT CONTAINED WHAT IS
5494                                                                    ;GIVEN IN BAD RHCS2
5495  016556                                85$:
5496                                                ;CHECK THAT RHCS1 HAS DVA!RDY
5497  016556  012737  004200  001124              MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200
5498
```

```
5499  016564  017737  165270  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
5500  016572  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5501                                                                  ;DATA WITH DATA READ FROM
5502                                                                  ;RHCS1
5503  016600  001401                          BEQ     87$             ;BRANCH IF GOOD
5504  016602  104026                          ERROR   26
5505                                                                  ;AFTER SETTING "CLR" BIT #5
5506                                                                  ;IN RHCS2 TO INIT THE RH
5507                                                                  ;AND WRITING A PATTERN OF
5508                                                                  ;FLOATING ONES (WHICH IS
5509                                                                  ;1,2,4,10,20,40,100,200)
5510                                                                  ;INTO RHDB TO FILL IT
5511                                                                  ;THEN ON READING RHDB THE
5512                                                                  ;TOTAL 8 TIMES
5513                                                                  ;RHCS1 SHOULD HAVE DVA!RDY
5514                                                                  ;=4200
5515                                                                  ;BUT CONTAINED WHAT IS
5516                                                                  ;GIVEN IN BAD RHCS1
5517  016604                          87$:
5518                                          ;CHECK THAT RHCS3 HAS 0
5519  016604  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
5520
5521  016612  017737  165314  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
5522  016620  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5523                                                                  ;DATA WITH DATA READ FROM
5524                                                                  ;RHCS3
5525  016626  001401                          BEQ     89$             ;BRANCH IF GOOD
5526  016630  104027                          ERROR   27
5527                                                                  ;AFTER SETTING "CLR" BIT #5
5528                                                                  ;IN RHCS2 TO INIT THE RH
5529                                                                  ;AND WRITING A PATTERN OF
5530                                                                  ;FLOATING ONES (WHICH IS
5531                                                                  ;1,2,4,10,20,40,100,200)
5532                                                                  ;INTO RHDB TO FILL IT
5533                                                                  ;THEN ON READING RHDB THE
5534                                                                  ;TOTAL 8 TIMES
5535                                                                  ;RHCS3 SHOULD HAVE 0
5536                                                                  ;BUT CONTAINED WHAT IS
5537                                                                  ;GIVEN IN BAD RHCS3
5538  016632                          89$:
5539                                          ;CHECK THAT RHBA HAS 0
5540  016632  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
5541
5542  016640  017737  165220  001126          MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
5543  016646  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5544                                                                  ;DATA WITH DATA READ FROM
5545                                                                  ;RHBA
5546  016654  001401                          BEQ     91$             ;BRANCH IF GOOD
5547  016656  104030                          ERROR   30
5548                                                                  ;AFTER SETTING "CLR" BIT #5
5549                                                                  ;IN RHCS2 TO INIT THE RH
5550                                                                  ;AND WRITING A PATTERN OF
5551                                                                  ;FLOATING ONES (WHICH IS
5552                                                                  ;1,2,4,10,20,40,100,200)
5553                                                                  ;INTO RHDB TO FILL IT
5554                                                                  ;THEN ON READING RHDB THE
```

```
                                                                ;TOTAL 8 TIMES
                                                                ;RHBA SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBA
016660                          91$:
                                        ;CHECK THAT RHBAE HAS 0
016660  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0

016666  017737  165236  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
016674  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHBAE
016702  001401                          BEQ     93$             ;BRANCH IF GOOD
016704  104031                          ERROR   31
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF
                                                                ;FLOATING ONES (WHICH IS
                                                                ;1,2,4,10,20,40,100,200)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHBAE SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBAE
016706                          93$:
                                        ;CHECK THAT RHWC HAS 0
016706  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0

016714  017737  165142  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
016722  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHWC
016730  001401                          BEQ     95$             ;BRANCH IF GOOD
016732  104032                          ERROR   32

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF
                                                                ;FLOATING ONES (WHICH IS
                                                                ;1,2,4,10,20,40,100,200)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHWC SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHWC
016734                          95$:


                        ;;******************************************************************
                        ;*TEST 16       SILO TEST 6 (FLOATING ONES IN UPPER BYTE)

                        ;*      AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                        ;*      RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
                        ;*      TOGETHER WITH UNIT NUMBER
```

```
                                        ;*      EIGHT WORDS, A PATTERN OF FLOATING ONES IN UPPER BYTE
                                        ;*      400,1000,2000,4000,10000,20000,40000,100000
                                        ;*      IS WRITTEN INTO RHDB
                                        ;*      "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                        ;*      INSTRUCTION CALLED "WAT"
                                        ;*      THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
                                        ;*      "OR" HIGH TOGETHER WITH THE UNIT NUMBER
                                        ;*      THEN RHDB IS READ AND COMPARED TO HAVE THE
                                        ;*      RIGHT VALUE AFTER EACH OF THE EIGHT READS.
                                        ;*      THEN RHCS2 IS CHECKED TO HAVE "IR"
                                        ;*      AND UNIT NUMBER
                                        ;*      THEN RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
                                        ;*      CHECKED TO HAVE THE APPROPIATE VALUE
                                        ;;*****************************************************************
016734  000004                        TST16:  SCOPE
016736  012706  001000                        MOV     #STACK,SP       ;RESET STACK
016742  012737  000016  004656                MOV     #16,@#TSTNM     ;SAVE TEST NUMBER
016750  004737  040322                        JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                        ;SETUP UNIT NUBER
                                                                        ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
                                        ;CHECK THAT RHCS2 HAS IR
016754  012737  000100  001124                MOV     #IR,$GDDAT      ;GET GOOD = 100
016762  053737  005010  001124                BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
016770  017737  165074  001126                MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
016776  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHCS2
017004  001401                              BEQ     65$             ;BRANCH IF GOOD
017006  104006                              ERROR   6
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;AND HAVING DONE NOTHING
                                                                        ;ELSE
                                                                        ;RHCS2 SHOULD HAVE IR
                                                                        ;=100
                                                                        ;TOGETHER WITH UNIT NUMBER
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS2
017010                                  65$:
                                        ;WRITE EIGHT WORDS INTO RHDB TO FILL IT
                                        ;DATA IS 400,1000,2000,4000,10000,20000,40000
                                        ;100000
017010  012701  000400                        MOV     #400,R1         ;GETTING READY TO FLOAT ONES
                                                                        ;IN UPPER BYTE
017014  012702  000010                        MOV     #8.,R2          ;COUNTER -8 DATA WORDS
017020  010177  165056                1$:     MOV     R1,@RHDB        ;WRITE INTO RHDB
017024  006301                              ASL     R1              ;SHIFT 1 ONE POSITION LEFT
017026  005302                              DEC     R2              ;COUNT TO 8
017030  001373                              BNE     1$              ;BRANCH IF 8 NOT DONE
                                        ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
017032  104411                              WAT                     ;TRAP TO WAIT.T SUBROUTINE
```

```
017034  004070                          RHCS2                   ;AND WAIT FOR OR BIT IN
017036  000200                          OR                      ;RHCS2 REGISTER
                                                                ;IF ERROR OCCURS HERE
                                                                ;IT MEANS "OR" DID NOT
                                                                ;SET FOR THE FULL COUNT
                                                                ;DOWN OF THE WAIT.T SUBROUTINE
                                                                ;THIS TIME IS APPROXIMATELY
                                                                ;LARGER THAN 500 MILLISECONDS


                                        ;CHECK THAT RHCS2 HAS OR
017040  012737  000200  001124          MOV     #OR,$GDDAT      ;GET GOOD = 200
017046  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

017054  017737  165010  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
017062  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
017070  001401                          BEQ     67$             ;BRANCH IF GOOD
017072  104023                          ERROR   23
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND HAVING WRITTEN A
                                                                ;FLOATING ONES PATTERN INTO UPPER BYTE
                                                                ;400,1000,2000,4000,10000,20000
                                                                ;40000,100000
                                                                ;INTO RHDB TO FILL IT
                                                                ;RHCS2 SHOULD HAVE OR
                                                                ;=200
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
017074                          67$:


017074  012737  000001  004664          MOV     #1,SILONM       ;FIRST WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 400
017102  012737  000400  001124          MOV     #400,$GDDAT     ;GET GOOD = 0

017110  017737  164766  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
017116  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
017124  001401                          BEQ     69$             ;BRANCH IF GOOD
017126  104024                          ERROR   24

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ONES (WHICH IS 400,1000,2000,4000,
                                                                ;10000,20000,40000,100000)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;FIRST TIME
                                                                ;RHDB SHOULD HAVE 400
                                                                ;BUT CONTAINED WHAT IS
```

```
                                                        ;GIVEN IN BAD RHDB
017130                          69$:
                        MOV     #2,SILONM               ;SECOND WORD TO BE READ
                        ;CHECK THAT RHDB HAS 1000
017136  012737  001000  001124  MOV     #1000,$GDDAT    ;GET GOOD = 0

017144  017737  164732  001126  MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
017152  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHDB
017160  001401                  BEQ     71$             ;BRANCH IF GOOD
017162  104024                  ERROR   24
                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;AND WRITING A PATTERN OF FLOATING
                                                        ;ONES (WHICH IS 400,1000,2000,4000,
                                                        ;10000,20000,40000,100000)
                                                        ;INTO RHDB TO FILL IT
                                                        ;THEN ON READING RHDB THE
                                                        ;SECOND TIME
                                                        ;RHDB SHOULD HAVE 1000
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHDB
017164                          71$:

                        MOV     #3,SILONM               ;THIRD WORD TO BE READ
                        ;CHECK THAT RHDB HAS 2000
017172  012737  002000  001124  MOV     #2000,$GDDAT    ;GET GOOD = 0

017200  017737  164676  001126  MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
017206  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHDB
017214  001401                  BEQ     73$             ;BRANCH IF GOOD
017216  104024                  ERROR   24
                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;AND WRITING A PATTERN OF FLOATING
                                                        ;ONES (WHICH IS 400,1000,2000,4000,
                                                        ;10000,20000,40000,100000)
                                                        ;INTO RHDB TO FILL IT
                                                        ;THEN ON READING RHDB THE
                                                        ;THIRD TIME
                                                        ;RHDB SHOULD HAVE 2000
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHDB
017220                          73$:

                        MOV     #4,SILONM               ;FOURTH WORD TO BE READ
                        ;CHECK THAT RHDB HAS 4000
017226  012737  004000  001124  MOV     #4000,$GDDAT    ;GET GOOD = 0
```

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5779  017234  017737  164642  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5780  017242  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5781                                                                  ;DATA WITH DATA READ FROM
5782                                                                  ;RHDB
5783  017250  001401                          BEQ     75$             ;BRANCH IF GOOD
5784  017252  104024                          ERROR   24
5785                                                                  ;AFTER SETTING "CLR" BIT #5
5786                                                                  ;IN RHCS2 TO INIT THE RH
5787                                                                  ;AND WRITING A PATTERN OF FLOATING
5788                                                                  ;ONES (WHICH IS 400,1000,2000,4000,
5789                                                                  ;10000,20000,40000,100000)
5790                                                                  ;INTO RHDB TO FILL IT
5791                                                                  ;THEN ON READING RHDB THE
5792                                                                  ;FOURTH TIME
5793                                                                  ;RHDB SHOULD HAVE 4000
5794                                                                  ;BUT CONTAINED WHAT IS
5795                                                                  ;GIVEN IN BAD RHDB
5796  017254                          75$:
5797
5798
5799  017254  012737  000005  004664          MOV     #5,SILONM       ;FIFTH WORD TO BE READ
5800                                          ;CHECK THAT RHDB HAS 10000
5801  017262  012737  010000  001124          MOV     #10000,$GDDAT   ;GET GOOD = 0
5802
5803  017270  017737  164606  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5804  017276  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5805                                                                  ;DATA WITH DATA READ FROM
5806                                                                  ;RHDB
5807  017304  001401                          BEQ     77$             ;BRANCH IF GOOD
5808  017306  104024                          ERROR   24
5809                                                                  ;AFTER SETTING "CLR" BIT #5
5810                                                                  ;IN RHCS2 TO INIT THE RH
5811                                                                  ;AND WRITING A PATTERN OF FLOATING
5812                                                                  ;ONES (WHICH IS 400,1000,2000,4000,
5813                                                                  ;10000,20000,40000,100000)
5814                                                                  ;INTO RHDB TO FILL IT
5815                                                                  ;THEN ON READING RHDB THE
5816                                                                  ;FIFTH TIME
5817                                                                  ;RHDB SHOULD HAVE 10000
5818                                                                  ;BUT CONTAINED WHAT IS
5819                                                                  ;GIVEN IN BAD RHDB
5820  017310                          77$:
5821
5822
5823  017310  012737  000006  004664          MOV     #6,SILONM       ;SIXTH WORD TO BE READ
5824                                          ;CHECK THAT RHDB HAS 20000
5825  017316  012737  020000  001124          MOV     #20000,$GDDAT   ;GET GOOD = 0
5826
5827  017324  017737  164552  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5828  017332  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5829                                                                  ;DATA WITH DATA READ FROM
5830                                                                  ;RHDB
5831  017340  001401                          BEQ     79$             ;BRANCH IF GOOD
5832  017342  104024                          ERROR   24
5833                                                                  ;AFTER SETTING "CLR" BIT #5
5834                                                                  ;IN RHCS2 TO INIT THE RH
```

```
5835                                                    ;AND WRITING A PATTERN OF FLOATING
5836                                                    ;ONES (WHICH IS 400,1000,2000,4000,
5837                                                    ;10000,20000,40000,100000)
5838                                                    ;INTO RHDB TO FILL IT
5839                                                    ;THEN ON READING RHDB THE
5840                                                    ;SIXTH TIME
5841                                                    ;RHDB SHOULD HAVE 20000
5842                                                    ;BUT CONTAINED WHAT IS
5843                                                    ;GIVEN IN BAD RHDB
5844  017344                          79$:
5845
5846
5847  017344  012737  000007  004664          MOV     #7,SILONM       ;SEVENTH WORD TO BE READ
5848                                          ;CHECK THAT RHDB HAS 40000
5849  017352  012737  040000  001124          MOV     #40000,$GDDAT   ;GET GOOD = 0
5850
5851  017360  017737  164516  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5852  017366  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5853                                                                  ;DATA WITH DATA READ FROM
5854                                                                  ;RHDB
5855  017374  001401                          BEQ     81$             ;BRANCH IF GOOD
5856  017376  104024                          ERROR   24
5857                                                    ;AFTER SETTING "CLR" BIT #5
5858                                                    ;IN RHCS2 TO INIT THE RH
5859                                                    ;AND WRITING A PATTERN OF FLOATING
5860                                                    ;ONES (WHICH IS 400,1000,2000,4000,
5861                                                    ;10000,20000,40000,100000)
5862                                                    ;INTO RHDB TO FILL IT
5863                                                    ;THEN ON READING RHDB THE
5864                                                    ;SEVENTH TIME
5865                                                    ;RHDB SHOULD HAVE 40000
5866                                                    ;BUT CONTAINED WHAT IS
5867                                                    ;GIVEN IN BAD RHDB
5868  017400                          81$:
5869
5870
5871  017400  012737  000010  004664          MOV     #8.,SILONM      ;EIGHTH WORD TO BE READ
5872                                          ;CHECK THAT RHDB HAS 100000
5873  017406  012737  100000  001124          MOV     #100000,$GDDAT  ;GET GOOD = 0
5874
5875  017414  017737  164462  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
5876  017422  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
5877                                                                  ;DATA WITH DATA READ FROM
5878                                                                  ;RHDB
5879  017430  001401                          BEQ     83$             ;BRANCH IF GOOD
5880  017432  104024                          ERROR   24
5881                                                    ;AFTER SETTING "CLR" BIT #5
5882                                                    ;IN RHCS2 TO INIT THE RH
5883                                                    ;AND WRITING A PATTERN OF FLOATING
5884                                                    ;ONES (WHICH IS 400,1000,2000,4000,
5885                                                    ;10000,20000,40000,100000)
5886                                                    ;INTO RHDB TO FILL IT
5887                                                    ;THEN ON READING RHDB THE
5888                                                    ;EIGHTH TIME
5889                                                    ;RHDB SHOULD HAVE 100000
5890                                                    ;BUT CONTAINED WHAT IS
```

```
                                                        ;GIVEN IN BAD RHDB
017434                          83$:
                                
                                
                                        ;CHECK THAT RHCS2 HAS IR
017434  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
017442  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
                                
017450  017737  164414  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
017456  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
017464  001401                          BEQ     85$             ;BRANCH IF GOOD
017466  104025                          ERROR   25
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ONES (WHICH IS 400,1000,2000,4000,
                                                                ;10000,20000,40000,100000)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHCS2 SHOULD HAVE IR
                                                                ;=100
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
017470                          85$:
                                        ;CHECK THAT RHCS1 HAS DVA!RDY
017470  012737  004200  001124          MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200
                                
017476  017737  164356  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
017504  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
017512  001401                          BEQ     87$             ;BRANCH IF GOOD
017514  104026                          ERROR   26
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ONES (WHICH IS 400,1000,2000,4000,
                                                                ;10000,20000,40000,100000)
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHCS1 SHOULD HAVE DVA!RDY
                                                                ;=4200
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
017516                          87$:
                                        ;CHECK THAT RHCS3 HAS 0
017516  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
                                
017524  017737  164402  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
017532  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
```

```
                                                        ;RHCS3
017540  001401                      BEQ     89$           ;BRANCH IF GOOD
017542  104027                      ERROR   27

                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;AND WRITING A PATTERN OF FLOATING
                                                        ;ONES (WHICH IS 400,1000,2000,4000,
                                                        ;10000,20000,40000,100000)
                                                        ;INTO RHDB TO FILL IT
                                                        ;THEN ON READING RHDB THE
                                                        ;TOTAL 8 TIMES
                                                        ;RHCS3 SHOULD HAVE 0
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHCS3
017544                          89$:
                                        ;CHECK THAT RHBA HAS 0
017544  012737  000000  001124      MOV     #0,$GDDAT     ;GET GOOD = 0

017552  017737  164306  001126      MOV     @RHBA,$BDDAT  ;READ RHBA FOR COMPARISON
017560  023737  001124  001126      CMP     $GDDAT,$BDDAT ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHBA
017566  001401                      BEQ     91$           ;BRANCH IF GOOD
017570  104030                      ERROR   30

                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;AND WRITING A PATTERN OF FLOATING
                                                        ;ONES (WHICH IS 400,1000,2000,4000,
                                                        ;10000,20000,40000,100000)
                                                        ;INTO RHDB TO FILL IT
                                                        ;THEN ON READING RHDB THE
                                                        ;TOTAL 8 TIMES
                                                        ;RHBA SHOULD HAVE 0
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHBA
017572                          91$:
                                        ;CHECK THAT RHBAE HAS 0
017572  012737  000000  001124      MOV     #0,$GDDAT     ;GET GOOD = 0

017600  017737  164324  001126      MOV     @RHBAE,$BDDAT ;READ RHBAE FOR COMPARISON
017606  023737  001124  001126      CMP     $GDDAT,$BDDAT ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHBAE
017614  001401                      BEQ     93$           ;BRANCH IF GOOD
017616  104031                      ERROR   31

                                                        ;AFTER SETTING "CLR" BI   #5
                                                        ;IN RHCS2 TO INIT THE
                                                        ;AND WRITING A PATTER  OF FLOATING
                                                        ;ONES (WHICH IS 400,  J0,2000,4000,
                                                        ;10000,20000,40000,  J000)
                                                        ;INTO RHDB TO FILL
                                                        ;THEN ON READING R   3 THE
                                                        ;TOTAL 8 TIMES
                                                        ;RHBAE SHOULD HA\   0
                                                        ;BUT CONTAINED W    T IS
                                                        ;GIVEN IN BAD R!  4E
```

```
 6003  017620                          93$:
 6004                                          ;CHECK THAT RHWC HAS 0
 6005  017620  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
 6006
 6007  017626  017737  164230  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
 6008  017634  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 6009                                                                  ;DATA WITH DATA READ FROM
 6010                                                                  ;RHWC
 6011  017642  001401                          BEQ     95$             ;BRANCH IF GOOD
 6012  017644  104032                          ERROR   32
 6013                                                                  ;AFTER SETTING "CLR" BIT #5
 6014                                                                  ;IN RHCS2 TO INIT THE RH
 6015                                                                  ;AND WRITING A PATTERN OF FLOATING
 6016                                                                  ;ONES (WHICH IS 400,1000,2000,4000,
 6017                                                                  ;10000,20000,40000,100000)
 6018                                                                  ;INTO RHDB TO FILL IT
 6019                                                                  ;THEN ON READING RHDB THE
 6020                                                                  ;TOTAL 8 TIMES
 6021                                                                  ;RHWC SHOULD HAVE 0
 6022                                                                  ;BUT CONTAINED WHAT IS
 6023                                                                  ;GIVEN IN BAD RHWC
 6024  017646                          95$:
 6025
 6026
 6027                                  ;;******************  ****************************************
 6028                                  ;*TEST 17        SILO  EST 7 (FLOATING 0 IN LOWER BYTE)
 6029
 6030                                  ;*      AFTER A RH ( EAR IS GIVEN (SET BIT #5 IN RHCS2)
 6031                                  ;*      RHCS2 IS CH  KED TO HAVE "IR" (BIT #6) HIGH,
 6032                                  ;*      TOGETHER W  H UNIT NUMBER
 6033                                  ;*      EIGHT WORD  OF FLOATING ZEROS 177776, 177775, 177773,
 6034                                  ;*      177767,  757, 177737, 177677, 177577
 6035                                  ;*      IS WRITT  INTO RHDB
 6036                                  ;*      "OR" (B  #7 IN RHCS2) IS WAITED FOR BY A TRAP
 6037                                  ;*      INSTRUC ON CALLED "WAT"
 6038                                  ;*      THEN R  S2 IS CHECKED TO HAVE "IR" LOW AND
 6039                                  ;*      "OR"  GH TOGETHER WITH THE UNIT NUMBER
 6040                                  ;*      THEN  DB IS READ AND COMPARED TO HAVE THE
 6041                                  ;*      RIG  VALUE AFTER EACH OF THE EIGHT READS.
 6042                                  ;*      THE  RHCS2 IS CHECKED TO HAVE "IR"
 6043                                  ;*      AN  UNIT NUMBER
 6044                                  ;*      T  N RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
 6045                                  ;*       ECKED TO HAVE THE APPROPIATE VALUE
 6046                                  ;*****  ****************************************************
 6047  017646  000004                  TST17:  SCOPE
 6048  017650  012706  001000                  MOV     #STACK,SP       ;RESET STACK
 6049  017654  012737  000017  004656          MOV     #17,@#TSTNM     ;SAVE TEST NUMBER
 6050
 6051  017662  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
 6052                                                                  ;SETUP UNIT NUBER
 6053                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
 6054
 6055
 6056                                          ;CHECK THAT RHCS2 HAS IR
 6057  017666  012737  000100  00  24          MOV     #IR,$GDDAT      ;GET GOOD = 100
 6058  017674  053737  005010  0  124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
```

```
6059
6060  017702  ' 7737  164162  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
6061  017710   23737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6062                                                                   ;DATA WITH DATA READ FROM
6063                                                                   ;RHCS2
6064  0177'   001401                          BEQ     65$             ;BRANCH IF GOOD
6065  0177 J  104006                          ERROR   6
6066                                                                   ;AFTER SETTING "CLR" BIT #5
6067                                                                   ;IN RHCS2 TO INIT THE RH
6068                                                                   ;AND HAVING DONE NOTHING
6069                                                                   ;ELSE
6070                                                                   ;RHCS2 SHOULD HAVE IR
6071                                                                   ;=100
6072                                                                   ;TOGETHER WITH UNIT NUMBER
607                                                                    ;BUT CONTAINED WHAT IS
607                                                                    ;GIVEN IN BAD RHCS2
60  3  017722                          65$:
6  6
 77                                            ;WRITE EIGHT WORDS INTO RHDB TO FILL IT
 078                                           ;DATA IS FLOATING ZEROS 177776, 177775, 177773, 177767, 177757, 177737,
 079                                           ;177677, 177577
6080  017722  012701  177776                  MOV     #177776,R1      ;GETTING READY TO FLOAT ZEROS
6081  017726  012702  000010                  MOV     #8.,R2          ;COUNTER -8 DATA WORDS
6082  017732  010177  164144          1$:     MOV     R1,@RHDB        ;WRITE INTO RHDB
6083  017736  000261                          SEC                     ;SET CARRY
6084  017740  006101                          ROL     R1              ;GET ZERO ONE BIT LEFT
6085  017742  005302                          DEC     R2              ;COUNT TO 8
6086  017744  001372                          BNE     1$              ;BRANCH IF 8 NOT DONE
6087                                         ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
6088  017746  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
6089  017750  004070                          RHCS2                   ;AND WAIT FOR OR BIT IN
6090  017752  000200                          OR                      ;RHCS2 REGISTER
6091                                                                   ;IF ERROR OCCURS HERE
6092                                                                   ;IT MEANS "OR" DID NOT
6093                                                                   ;SET FOR THE FULL COUNT
6094                                                                   ;DOWN OF THE WAIT.T SUBROUTINE
6095                                                                   ;THIS TIME IS APPROXIMATELY
6096                                                                   ;LARGER THAN 500 MILLISECONDS
6097
6098
6099                                         ;CHECK THAT RHCS2 HAS OR
6100  017754  012737  000200  001124          MOV     #OR,$GDDAT      ;GET GOOD = 200
6101  017762  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
6102
6103  017770  017737  164074  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
6104  017776  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6105                                                                   ;DATA WITH DATA READ FROM
6106                                                                   ;RHCS2
6107  020004  001401                          BEQ     67$             ;BRANCH IF GOOD
6108  020006  104023                          ERROR   23
6109                                                                   ;AFTER SETTING "CLR" BIT #5
6110                                                                   ;IN RHCS2 TO INIT THE RH
6111                                                                   ;AND HAVING WRITTEN A PATTERN
6112                                                                   ;OF FLOATING ZEROS - 177776, 177775,
6113                                                                   ;177773, 177767, 177757, 177737, 177677, 177577
6114                                                                   ;INTO RHDB TO FILL IT
```

```
                                                                ;RHCS2 SHOULD HAVE OR
                                                                ;=200
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
020010                                  67$:

020010  012737  000001  004664          MOV     #1,SILONM       ;FIRST WORD TC BE READ
                                        ;CHECK THAT RHDB HAS 177776
020016  012737  177776  001124          MOV     #177776,$GDDAT  ;GET GOOD = 0

020024  017737  164052  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
020032  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
020040  001401                          BEQ     69$             ;BRANCH IF GOOD
020042  104024                          ERROR   24

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ZEROS - 177776, 177775, 177773, 177767,
                                                                ;177757, 177737, 177677, 177577
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;FIRST TIME
                                                                ;RHDB SHOULD HAVE 177776
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
020044                                  69$:

020044  012737  000002  004664          MOV     #2,SILONM       ;SECOND WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 177775
020052  012737  177775  001124          MOV     #177775,$GDDAT  ;GET GOOD = 0

020060  017737  164016  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
020066  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
020074  001401                          BEQ     71$             ;BRANCH IF GOOD
020076  104024                          ERROR   24

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ZEROS - 177776, 177775, 177773, 177767,
                                                                ;177757, 177737, 177677, 177577
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;SECOND TIME
                                                                ;RHDB SHOULD HAVE 177775
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
020100                                  71$:
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6171
6172  020100  012737  000003  004664          MOV     #3,SILONM       ;THIRD WORD TO BE READ
6173                                          ;CHECK THAT RHDB HAS 177773
6174  020106  012737  177773  001124          MOV     #177773,$GDDAT  ;GET GOOD = 0
6175
6176  020114  017737  163762  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
6177  020122  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6178                                                                  ;DATA WITH DATA READ FROM
6179                                                                  ;RHDB
6180  020130  001401                          BEQ     73$             ;BRANCH IF GOOD
6181  020132  104024                          ERROR   24
6182                                                                  ;AFTER SETTING "CLR" BIT #5
6183                                                                  ;IN RHCS2 TO INIT THE RH
6184                                                                  ;AND WRITING A PATTERN OF FLOATING
6185                                                                  ;ZEROS - 177776, 177775, 177773, 177767,
6186                                                                  ;177757, 177737, 177677, 177577
6187                                                                  ;INTO RHDB TO FILL IT
6188                                                                  ;THEN ON READING RHDB THE
6189                                                                  ;THIRD TIME
6190                                                                  ;RHDB SHOULD HAVE 177773
6191                                                                  ;BUT CONTAINED WHAT IS
6192                                                                  ;GIVEN IN BAD RHDB
6193  020134                          73$:
6194
6195
6196  020134  012737  000004  004664          MOV     #4,SILONM       ;FOURTH WORD TO BE READ
6197                                          ;CHECK THAT RHDB HAS 177767
6198  020142  012737  177767  001124          MOV     #177767,$GDDAT  ;GET GOOD = 0
6199
6200  020150  017737  163726  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
6201  020156  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6202                                                                  ;DATA WITH DATA READ FROM
6203                                                                  ;RHDB
6204  020164  001401                          BEQ     75$             ;BRANCH IF GOOD
6205  020166  104024                          ERROR   24
6206                                                                  ;AFTER SETTING "CLR" BIT #5
6207                                                                  ;IN RHCS2 TO INIT THE RH
6208                                                                  ;AND WRITING A PATTERN OF FLOATING
6209                                                                  ;ZEROS - 177776, 177775, 177773, 177767,
6210                                                                  ;177757, 177737, 177677, 177577
6211                                                                  ;INTO RHDB TO FILL IT
6212                                                                  ;THEN ON READING RHDB THE
6213                                                                  ;FOURTH TIME
6214                                                                  ;RHDB SHOULD HAVE 177767
6215                                                                  ;BUT CONTAINED WHAT IS
6216                                                                  ;GIVEN IN BAD RHDB
6217  020170                          75$:
6218
6219
6220  020170  012737  000005  004664          MOV     #5,SILONM       ;FIFTH WORD TO BE READ
6221                                          ;CHECK THAT RHDB HAS 177757
6222  020176  012737  177757  001124          MOV     #177757,$GDDAT  ;GET GOOD = 0
6223
6224  020204  017737  163672  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
6225  020212  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6226                                                                  ;DATA WITH DATA READ FROM
```

```
                                                        ;RHDB
020220  001401                      BEQ     77$           ;BRANCH IF GOOD
020222  104024                      ERROR   24
                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;AND WRITING A PATTERN OF FLOATING
                                                        ;ZEROS - 177776, 177775, 177773, 177767,
                                                        ;177757, 177737, 177677, 177577
                                                        ;INTO RHDB TO FILL IT
                                                        ;THEN ON READING RHDB THE
                                                        ;FIFTH TIME
                                                        ;RHDB SHOULD HAVE 177757
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHDB
020224                          77$:

020224  012737  000006  004664      MOV     #6,SILONM     ;SIXTH WORD TO BE READ
                                    ;CHECK THAT RHDB HAS 177737
020232  012737  177737  001124      MOV     #177737,$GDDAT ;GET GOOD = 0

020240  017737  163636  001126      MOV     @RHDB,$BDDAT  ;READ RHDB FOR COMPARISON
020246  023737  001124  001126      CMP     $GDDAT,$BDDAT ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHDB
020254  001401                      BEQ     79$           ;BRANCH IF GOOD
020256  104024                      ERROR   24
                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;AND WRITING A PATTERN OF FLOATING
                                                        ;ZEROS - 177776, 177775, 177773, 177767,
                                                        ;177757, 177737, 177677, 177577
                                                        ;INTO RHDB TO FILL IT
                                                        ;THEN ON READING RHDB THE
                                                        ;SIXTH TIME
                                                        ;RHDB SHOULD HAVE 177737
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHDB
020260                          79$:

020260  012737  000007  004664      MOV     #7,SILONM     ;SEVENTH WORD TO BE READ
                                    ;CHECK THAT RHDB HAS 177677
020266  012737  177677  001124      MOV     #177677,$GDDAT ;GET GOOD = 0

020274  017737  163602  001126      MOV     @RHDB,$BDDAT  ;READ RHDB FOR COMPARISON
020302  023737  001124  001126      CMP     $GDDAT,$BDDAT ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHDB
020310  001401                      BEQ     81$           ;BRANCH IF GOOD
020312  104024                      ERROR   24
                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;AND WRITING A PATTERN OF FLOATING
                                                        ;ZEROS - 177776, 177775, 177773, 177767,
                                                        ;177757, 177737, 177677, 177577
```

```
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;SEVENTH TIME
                                                                ;RHDB SHOULD HAVE 177677
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
020314                                  81$:

020314  012737  000010  004664            MOV     #8.,SILONM      ;EIGHTH WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 177577
020322  012737  177577  001124            MOV     #177577,$GDDAT  ;GET GOOD = 0

020330  017737  163546  001126            MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
020336  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
020344  001401                            BEQ     83$             ;BRANCH IF GOOD
020346  104024                            ERROR   24
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ZEROS - 177776, 177775, 177773, 177767,
                                                                ;177757, 177737, 177677, 177577
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;EIGHTH TIME
                                                                ;RHDB SHOULD HAVE 177577
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
020350                                  83$:

                                        ;CHECK THAT RHCS2 HAS IR
020350  012737  000100  001124            MOV     #IR,$GDDAT      ;GET GOOD = 100
020356  053737  005010  001124            BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

020364  017737  163500  001126            MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
020372  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
020400  001401                            BEQ     85$             ;BRANCH IF GOOD
020402  104025                            ERROR   25
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ZEROS - 177776, 177775, 177773, 177767,
                                                                ;177757, 177737, 177677, 177577
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHCS2 SHOULD HAVE IR
                                                                ;=100
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
```

```
020404                                  85$:
                                                ;CHECK THAT RHCS1 HAS DVA!RDY
020404  012737  004200  001124                MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200

020412  017737  163442  001126                MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
020420  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                      ;DATA WITH DATA READ FROM
                                                                      ;RHCS1
020426  001401                                BEQ     87$             ;BRANCH IF GOOD
020430  104026                                ERROR   26
                                                                      ;AFTER SETTING "CLR" BIT #5
                                                                      ;IN RHCS2 TO INIT THE RH
                                                                      ;AND WRITING A PATTERN OF FLOATING
                                                                      ;ZEROS - 177776, 177775, 177773, 177767,
                                                                      ;177757, 177737, 177677, 177577
                                                                      ;INTO RHDB TO FILL IT
                                                                      ;THEN ON READING RHDB THE
                                                                      ;TOTAL 8 TIMES
                                                                      ;RHCS1 SHOULD HAVE DVA!RDY
                                                                      ;=4200
                                                                      ;BUT CONTAINED WHAT IS
                                                                      ;GIVEN IN BAD RHCS1
020432                                  87$:
                                                ;CHECK THAT RHCS3 HAS 0
020432  012737  000000  001124                MOV     #0,$GDDAT       ;GET GOOD = 0

020440  017737  163466  001126                MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
020446  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                      ;DATA WITH DATA READ FROM
                                                                      ;RHCS3
020454  001401                                BEQ     89$             ;BRANCH IF GOOD
020456  104027                                ERROR   27

                                                                      ;AFTER SETTING "CLR" BIT #5
                                                                      ;IN RHCS2 TO INIT THE RH
                                                                      ;AND WRITING A PATTERN OF FLOATING
                                                                      ;ZEROS - 177776, 177775, 177773, 177767,
                                                                      ;177757, 177737, 177677, 177577
                                                                      ;INTO RHDB TO FILL IT
                                                                      ;THEN ON READING RHDB THE
                                                                      ;TOTAL 8 TIMES
                                                                      ;RHCS3 SHOULD HAVE 0
                                                                      ;BUT CONTAINED WHAT IS
                                                                      ;GIVEN IN BAD RHCS3
020460                                  89$:
                                                ;CHECK THAT RHBA HAS 0
020460  012737  000000  001124                MOV     #0,$GDDAT       ;GET GOOD = 0

020466  017737  163372  001126                MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
020474  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                      ;DATA WITH DATA READ FROM
                                                                      ;RHBA
020502  001401                                BEQ     91$             ;BRANCH IF GOOD
020504  104030                                ERROR   30

                                                                      ;AFTER SETTING "CLR" BIT #5
                                                                      ;IN RHCS2 TO INIT THE RH
                                                                      ;AND WRITING A PATTERN OF FLOATING
```

```
                                                                        ;ZEROS - 177776, 177775, 177773, 177767,
                                                                        ;177757, 177737, 177677, 177577
                                                                        ;INTO RHDB TO FILL IT
                                                                        ;THEN ON READING RHDB THE
                                                                        ;TOTAL 8 TIMES
                                                                        ;RHBA SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
020506                                  91$:
                                                ;CHECK THAT RHBAE HAS 0
020506  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

020514  017737  163410  001126                  MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
020522  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
020530  001401                                  BEQ     93$             ;BRANCH IF GOOD
020532  104031                                  ERROR   31

                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;AND WRITING A PATTERN OF FLOATING
                                                                        ;ZEROS - 177776, 177775, 177773, 177767,
                                                                        ;177757, 177737, 177677, 177577
                                                                        ;INTO RHDB TO FILL IT
                                                                        ;THEN ON READING RHDB THE
                                                                        ;TOTAL 8 TIMES
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
020534                                  93$:
                                                ;CHECK THAT RHWC HAS 0
020534  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

020542  017737  163314  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
020550  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
020556  001401                                  BEQ     95$             ;BRANCH IF GOOD
020560  104032                                  ERROR   32

                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;AND WRITING A PATTERN OF FLOATING
                                                                        ;ZEROS - 177776, 177775, 177773, 177767,
                                                                        ;177757, 177737, 177677, 177577
                                                                        ;INTO RHDB TO FILL IT
                                                                        ;THEN ON READING RHDB THE
                                                                        ;TOTAL 8 TIMES
                                                                        ;RHWC SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHWC
020562                                  95$:


                                        ;;*****************************************************************
                                        ;*TEST 20       SILO TEST 8 (FLOATING ZEROS IN UPPER BYTE)
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                                        ;*      AFTER A RH CLEAR IS GIVEN (SET BIT #5 IN RHCS2)
                                        ;*      RHCS2 IS CHECKED TO HAVE "IR" (BIT #6) HIGH,
                                        ;*      TOGETHER WITH UNIT NUMBER
                                        ;*      EIGHT WORDS, A PATTERN OF FLOATING ZEROS IN UPPER BYTE
                                        ;*      177377, 177677, 175777, 173777, 167777, 157777, 137777, 77777
                                        ;*      IS WRITTEN INTO RHDB
                                        ;*      "OR" (BIT #7 IN RHCS2) IS WAITED FOR BY A TRAP
                                        ;*      INSTRUCTION CALLED "WAT"
                                        ;*      THEN RHCS2 IS CHECKED TO HAVE "IR" LOW AND
                                        ;*      "OR" HIGH TOGETHER WITH THE UNIT NUMBER
                                        ;*      THEN RHDB IS READ AND COMPARED TO HAVE THE
                                        ;*      RIGHT VALUE AFTER EACH OF THE EIGHT READS.
                                        ;*      THEN RHCS2 IS CHECKED TO HAVE "IR"
                                        ;*      AND UNIT NUMBER
                                        ;*      THEN RHCS1, RHCS3, RHBA, RHBAE, RHWC ARE
                                        ;*      CHECKED TO HAVE THE APPROPIATE VALUE
                                        ;**************************************************************
020562  000004                  TST20:  SCOPE
020564  012706  001000                  MOV     #STACK,SP       ;RESET STACK
020570  012737  000020  004656          MOV     #20,@#TSTNM     ;SAVE TEST NUMBER

020576  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                        ;CHECK THAT RHCS2 HAS IR
020602  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
020610  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

020616  017737  163246  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
020624  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
020632  001401                          BEQ     65$             ;BRANCH IF GOOD
020634  104006                          ERROR   6
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND HAVING DONE NOTHING
                                                                ;ELSE
                                                                ;RHCS2 SHOULD HAVE IR
                                                                ;=100
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
020636                          65$:

                                        ;WRITE EIGHT WORDS INTO RHDB TO FILL IT
                                        ;A PATTERN OF FLOATING ZEROS IN UPPER BYTE
                                        ;DATA IS - 177377, 176777, 175777, 173777, 167777,
                                        ;157777, 137777, 77777
020636  012701  177377                  MOV     #177377,R1      ;GETTING READY TO FLOAT ZEROS
                                                                ;IN UPPER BYTE
020642  012702  000010                  MOV     #8.,R2          ;COUNTER -8 DATA WORDS
020646  010177  163230          1$:     MOV     R1,@RHDB        ;WRITE INTO RHDB
020652  000261                          SEC                     ;SET CARRY
```

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6507  020654  006101                          ROL     R1              ;GET ZERO ONE BIT LEFT
6508  020656  005302                          DEC     R2              ;COUNT TO 8
6509  020660  001372                          BNE     1$              ;BRANCH IF 8 NOT DONE
6510                                          ;WAIT FOR OR BIT IN RHCS2 REGISTER TO SET
6511  020662  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
6512  020664  004070                          RHCS2                   ;AND WAIT FOR OR BIT IN
6513  020666  000200                          OR                      ;RHCS2 REGISTER
6514                                                                  ;IF ERROR OCCURS HERE
6515                                                                  ;IT MEANS "OR" DID NOT
6516                                                                  ;SET FOR THE FULL COUNT
6517                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
6518                                                                  ;THIS TIME IS APPROXIMATELY
6519                                                                  ;LARGER THAN 500 MILLISECONDS
6520
6521
6522                                          ;CHECK THAT RHCS2 HAS OR
6523  020670  012737  000200  001124          MOV     #OR,$GDDAT      ;GET GOOD = 200
6524  020676  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
6525
6526  020704  017737  163160  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
6527  020712  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6528                                                                  ;DATA WITH DATA READ FROM
6529                                                                  ;RHCS2
6530  020720  001401                          BEQ     67$             ;BRANCH IF GOOD
6531  020722  104023                          ERROR   23
6532                                                                  ;AFTER SETTING "CLR" BIT #5
6533                                                                  ;IN RHCS2 TO INIT THE RH
6534                                                                  ;AND HAVING WRITTEN A
6535                                                                  ;PATTERN OF FLOATING ZEROS IN UPPER BYTE
6536                                                                  ;177377, 176777, 175777, 173777,
6537                                                                  ;167777, 157777, 137777, 77777
6538                                                                  ;INTO RHDB TO FILL IT
6539                                                                  ;RHCS2 SHOULD HAVE OR
6540                                                                  ;=200
6541                                                                  ;TOGETHER WITH UNIT NUMBER
6542                                                                  ;BUT CONTAINED WHAT IS
6543                                                                  ;GIVEN IN BAD RHCS2
6544  020724                          67$:
6545
6546
6547
6548  020724  012737  000001  004664          MOV     #1,SILONM       ;FIRST WORD TO BE READ
6549                                          ;CHECK THAT RHDB HAS 177377
6550  020732  012737  177377  001124          MOV     #177377,$GDDAT  ;GET GOOD = 0
6551
6552  020740  017737  163136  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
6553  020746  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6554                                                                  ;DATA WITH DATA READ FROM
6555                                                                  ;RHDB
6556  020754  001401                          BEQ     69$             ;BRANCH IF GOOD
6557  020756  104024                          ERROR   24
6558                                                                  ;AFTER SETTING "CLR" BIT #5
6559                                                                  ;IN RHCS2 TO INIT THE RH
6560                                                                  ;AND WRITING A PATTERN OF FLOATING
6561                                                                  ;ZEROS IN UPPER BYTE
6562                                                                  ;177377, 176777, 175777, 173777,
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                                                                ;167777, 157777, 137777, 77777
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;FIRST TIME
                                                                ;RHDB SHOULD HAVE 177377
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
020760                                  69$:

020760  012737  000002  004664          MOV     #2,SILONM       ;SECOND WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 176777
020766  012737  176777  001124          MOV     #176777,$GDDAT  ;GET GOOD = 0

020774  017737  163102  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
021002  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
021010  001401                          BEQ     71$             ;BRANCH IF GOOD
021012  104034                          ERROR   34
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ZEROS IN UPPER BYTE
                                                                ;177377, 176777, 175777, 173777,
                                                                ;167777, 157777, 137777, 77777
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;SECOND TIME
                                                                ;RHDB SHOULD HAVE 176777
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHDB
021014                                  71$:

021014  012737  000003  004664          MOV     #3,SILONM       ;THIRD WORD TO BE READ
                                        ;CHECK THAT RHDB HAS 175777
021022  012737  175777  001124          MOV     #175777,$GDDAT  ;GET GOOD = 0

021030  017737  163046  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
021036  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHDB
021044  001401                          BEQ     73$             ;BRANCH IF GOOD
021046  104024                          ERROR   24
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ZEROS IN UPPER BYTE
                                                                ;177377, 176777, 175777, 173777,
                                                                ;167777, 157777, 137777, 77777
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;THIRD TIME
                                                                ;RHDB SHOULD HAVE 175777
                                                                ;BUT CONTAINED WHAT IS
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6619                                                                    ;GIVEN IN BAD RHDB
6620  021050                            73$:
6621
6622
6623  021050  012737  000004  004664          MOV     #4,SILONM         ;FOURTH WORD TO BE READ
6624                                          ;CHECK THAT RHDB HAS 173777
6625  021056  012737  173777  001124          MOV     #173777,$GDDAT    ;GET GOOD = 0
6626
6627  021064  017737  163012  001126          MOV     @RHDB,$BDDAT      ;READ RHDB FOR COMPARISON
6628  021072  023737  001124  001126          CMP     $GDDAT,$BDDAT     ;COMPARE EXPECTED
6629                                                                    ;DATA WITH DATA READ FROM
6630                                                                    ;RHDB
6631  021100  001401                          BEQ     75$               ;BRANCH IF GOOD
6632  021102  104024                          ERROR   24
6633                                                                    ;AFTER SETTING "CLR" BIT #5
6634                                                                    ;IN RHCS2 TO INIT THE RH
6635                                                                    ;AND WRITING A PATTERN OF FLOATING
6636                                                                    ;ZEROS IN UPPER BYTE
6637                                                                    ;177377, 176777, 175777, 173777,
6638                                                                    ;167777, 157777, 137777, 77777
6639                                                                    ;INTO RHDB TO FILL IT
6640                                                                    ;THEN ON READING RHDB THE
6641                                                                    ;FOURTH TIME
6642                                                                    ;RHDB SHOULD HAVE 173777
6643                                                                    ;BUT CONTAINED WHAT IS
6644                                                                    ;GIVEN IN BAD RHDB
6645  021104                            75$:
6646
6647
6648  021104  012737  000005  004664          MOV     #5,SILONM         ;FIFTH WORD TO BE READ
6649                                          ;CHECK THAT RHDB HAS 167777
6650  021112  012737  167777  001124          MOV     #167777,$GDDAT    ;GET GOOD = 0
6651
6652  021120  017737  162756  001126          MOV     @RHDB,$BDDAT      ;READ RHDB FOR COMPARISON
6653  021126  023737  001124  001126          CMP     $GDDAT,$BDDAT     ;COMPARE EXPECTED
6654                                                                    ;DATA WITH DATA READ FROM
6655                                                                    ;RHDB
6656  021134  001401                          BEQ     77$               ;BRANCH IF GOOD
6657  021136  104024                          ERROR   24
6658                                                                    ;AFTER SETTING "CLR" BIT #5
6659                                                                    ;IN RHCS2 TO INIT THE RH
6660                                                                    ;AND WRITING A PATTERN OF FLOATING
6661                                                                    ;ZEROS IN UPPER BYTE
6662                                                                    ;177377, 176777, 175777, 173777,
6663                                                                    ;167777, 157777, 137777, 77777
6664                                                                    ;INTO RHDB TO FILL IT
6665                                                                    ;THEN ON READING RHDB THE
6666                                                                    ;FIFTH TIME
6667                                                                    ;RHDB SHOULD HAVE 167777
6668                                                                    ;BUT CONTAINED WHAT IS
6669                                                                    ;GIVEN IN BAD RHDB
6670  021140                            77$:
6671
6672
6673  021140  012737  000006  004664          MOV     #6,SILONM         ;SIXTH WORD TO BE READ
6674                                          ;CHECK THAT RHDB HAS 157777
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6675  021146  012737  157777  001124          MOV     #157777,$GDDAT  ;GET GOOD = 0
6676
6677  021154  017737  162722  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
6678  021162  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6679                                                                  ;DATA WITH DATA READ FROM
6680                                                                  ;RHDB
6681  021170  001401                          BEQ     79$             ;BRANCH IF GOOD
6682  021172  104024                          ERROR   24
6683                                                                  ;AFTER SETTING "CLR" BIT #5
6684                                                                  ;IN RHCS2 TO INIT THE RH
6685                                                                  ;AND WRITING A PATTERN OF FLOATING
6686                                                                  ;ZEROS IN UPPER BYTE
6687                                                                  ;177377, 176777, 175777, 173777,
6688                                                                  ;167777, 157777, 137777, 77777
6689                                                                  ;INTO RHDB TO FILL IT
6690                                                                  ;THEN ON READING RHDB THE
6691                                                                  ;SIXTH TIME
6692                                                                  ;RHDB SHOULD HAVE 157777
6693                                                                  ;BUT CONTAINED WHAT IS
6694                                                                  ;GIVEN IN BAD RHDB
6695  021174                          79$:
6696
6697
6698  021174  012737  000007  004664          MOV     #7,SILONM       ;SEVENTH WORD TO BE READ
6699                                          ;CHECK THAT RHDB HAS 137777
6700  021202  012737  137777  001124          MOV     #137777,$GDDAT  ;GET GOOD = 0
6701
6702  021210  017737  162666  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
6703  021216  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6704                                                                  ;DATA WITH DATA READ FROM
6705                                                                  ;RHDB
6706  021224  001401                          BEQ     81$             ;BRANCH IF GOOD
6707  021226  104024                          ERROR   24
6708                                                                  ;AFTER SETTING "CLR" BIT #5
6709                                                                  ;IN RHCS2 TO INIT THE RH
6710                                                                  ;AND WRITING A PATTERN OF FLOATING
6711                                                                  ;ZEROS IN UPPER BYTE
6712                                                                  ;177377, 176777, 175777, 173777,
6713                                                                  ;167777, 157777, 137777, 77777
6714                                                                  ;INTO RHDB TO FILL IT
6715                                                                  ;THEN ON READING RHDB THE
6716                                                                  ;SEVENTH TIME
6717                                                                  ;RHDB SHOULD HAVE 137777
6718                                                                  ;BUT CONTAINED WHAT IS
6719                                                                  ;GIVEN IN BAD RHDB
6720  021230                          81$:
6721
6722
6723  021230  012737  000010  004664          MOV     #8.,SILONM      ;EIGHTH WORD TO BE READ
6724                                          ;CHECK THAT RHDB HAS 77777
6725  021236  012737  077777  001124          MOV     #77777,$GDDAT   ;GET GOOD = 0
6726
6727  021244  017737  162632  001126          MOV     @RHDB,$BDDAT    ;READ RHDB FOR COMPARISON
6728  021252  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6729                                                                  ;DATA WITH DATA READ FROM
6730                                                                  ;RHDB
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6731  021260  001401                          BEQ     83$             ;BRANCH IF GOOD
6732  021262  104024                          ERROR   24
6733                                                                  ;AFTER SETTING "CLR" BIT #5
6734                                                                  ;IN RHCS2 TO INIT THE RH
6735                                                                  ;AND WRITING A PATTERN OF FLOATING
6736                                                                  ;ZEROS IN UPPER BYTE
6737                                                                  ;177377, 176777, 175777, 173777,
6738                                                                  ;167777, 157777, 137777, 77777
6739                                                                  ;INTO RHDB TO FILL IT
6740                                                                  ;THEN ON READING RHDB THE
6741                                                                  ;EIGHTH TIME
6742                                                                  ;RHDB SHOULD HAVE 77777
6743                                                                  ;BUT CONTAINED WHAT IS
6744                                                                  ;GIVEN IN BAD RHDB
6745  021264                          83$:
6746
6747
6748                                          ;CHECK THAT RHCS2 HAS IR
6749  021264  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
6750  021272  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
6751
6752  021300  017737  162564  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
6753  021306  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6754                                                                  ;DATA WITH DATA READ FROM
6755                                                                  ;RHCS2
6756  021314  001401                          BEQ     85$             ;BRANCH IF GOOD
6757  021316  104025                          ERROR   25
6758                                                                  ;AFTER SETTING "CLR" BIT #5
6759                                                                  ;IN RHCS2 TO INIT THE RH
6760                                                                  ;AND WRITING A PATTERN OF FLOATING
6761                                                                  ;ZEROS IN UPPER BYTE
6762                                                                  ;177377, 176777, 175777, 173777,
6763                                                                  ;167777, 157777, 137777, 77777
6764                                                                  ;INTO RHDB TO FILL IT
6765                                                                  ;THEN ON READING RHDB THE
6766                                                                  ;TOTAL 8 TIMES
6767                                                                  ;RHCS2 SHOULD HAVE IR
6768                                                                  ;=100
6769                                                                  ;TOGETHER WITH UNIT NUMBER
6770                                                                  ;BUT CONTAINED WHAT IS
6771                                                                  ;GIVEN IN BAD RHCS2
6772  021320                          85$:
6773                                          ;CHECK THAT RHCS1 HAS DVA!RDY
6774  021320  012737  004200  001124          MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200
6775
6776  021326  017737  162526  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
6777  021334  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6778                                                                  ;DATA WITH DATA READ FROM
6779                                                                  ;RHCS1
6780  021342  001401                          BEQ     87$             ;BRANCH IF GOOD
6781  021344  104026                          ERROR   26
6782                                                                  ;AFTER SETTING "CLR" BIT #5
6783                                                                  ;IN RHCS2 TO INIT THE RH
6784                                                                  ;AND WRITING A PATTERN OF FLOATING
6785                                                                  ;ZEROS IN UPPER BYTE
6786                                                                  ;177377, 176777, 175777, 173777,
```

```
                                                                ;167777, 157777, 137777, 77777
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHCS1 SHOULD HAVE DVA!RDY
                                                                ;=4200
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
021346                                  87$:
                                                ;CHECK THAT RHCS3 HAS 0
021346  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0

021354  017737  162552  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
021362  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS3
021370  001401                          BEQ     89$             ;BRANCH IF GOOD
021372  104027                          ERROR   27

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ZEROS IN UPPER BYTE
                                                                ;177377, 176777, 175777, 173777,
                                                                ;167777, 157777, 137777, 77777
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHCS3 SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS3
021374                                  89$:
                                                ;CHECK THAT RHBA HAS 0
021374  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0

021402  017737  162456  001126          MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
021410  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHBA
021416  001401                          BEQ     91$             ;BRANCH IF GOOD
021420  104030                          ERROR   30

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;AND WRITING A PATTERN OF FLOATING
                                                                ;ZEROS IN UPPER BYTE
                                                                ;177377, 176777, 175777, 173777,
                                                                ;167777, 157777, 137777, 77777
                                                                ;INTO RHDB TO FILL IT
                                                                ;THEN ON READING RHDB THE
                                                                ;TOTAL 8 TIMES
                                                                ;RHBA SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBA
021422                                  91$:
                                                ;CHECK THAT RHBAE HAS 0
021422  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
```

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6843  021430  017737  162474  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
6844  021436  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6845                                                                  ;DATA WITH DATA READ FROM
6846                                                                  ;RHBAE
6847  021444  001401                          BEQ     93$             ;BRANCH IF GOOD
6848  021446  104031                          ERROR   31
6849                                                                  ;AFTER SETTING "CLR" BIT #5
6850                                                                  ;IN RHCS2 TO INIT THE RH
6851                                                                  ;AND WRITING A PATTERN OF FLOATING
6852                                                                  ;ZEROS IN UPPER BYTE
6853                                                                  ;177377, 176777, 175777, 173777,
6854                                                                  ;167777, 157777, 137777, 77777
6855                                                                  ;INTO RHDB TO FILL IT
6856                                                                  ;THEN ON READING RHDB THE
6857                                                                  ;TOTAL 8 TIMES
6858                                                                  ;RHBAE SHOULD HAVE 0
6859                                                                  ;BUT CONTAINED WHAT IS
6860                                                                  ;GIVEN IN BAD RHBAE
6861  021450                          93$:
6862                                          ;CHECK THAT RHWC HAS 0
6863  021450  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
6864
6865  021456  017737  162400  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
6866  021464  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
6867                                                                  ;DATA WITH DATA READ FROM
6868                                                                  ;RHWC
6869  021472  001401                          BEQ     95$             ;BRANCH IF GOOD
6870  021474  104032                          ERROR   32
6871                                                                  ;AFTER SETTING "CLR" BIT #5
6872                                                                  ;IN RHCS2 TO INIT THE RH
6873                                                                  ;AND WRITING A PATTERN OF FLOATING
6874                                                                  ;ZEROS IN UPPER BYTE
6875                                                                  ;177377, 176777, 175777, 173777,
6876                                                                  ;167777, 157777, 137777, 77777
6877                                                                  ;INTO RHDB TO FILL IT
6878                                                                  ;THEN ON READING RHDB THE
6879                                                                  ;TOTAL 8 TIMES
6880                                                                  ;RHWC SHOULD HAVE 0
6881                                                                  ;BUT CONTAINED WHAT IS
6882                                                                  ;GIVEN IN BAD RHWC
6883  021476                          95$:
6884
6885
6886                                  ;;*****************************************************************
6887                                  ;*TEST 21       RHCS1 - MCPE BIT #13 (PARITY LINE = 0)
6888
6889                                  ;*      AN RH CLEAR (SET BIT #5 IN RHCS2) IS GIVEN TO
6890                                  ;*      CLEAR ALL DEVICE REGISTERS
6891                                  ;*      THEN RHER1 (ERROR REGISTER 1) IS CHECKED TO HAVE
6892                                  ;*      ZEROS
6893                                  ;*      SET "PAT" (BIT #4 IN RHCS2) TO INVERT PARITY CHECKING
6894                                  ;*      READ ANY DEVICE REGISTER - HERE RHER1
6895                                  ;*      READ AND CHECK RHCS1 TO CONTAIN SC (BIT #15)
6896                                  ;*      AND MCPE (BIT #13)
6897                                  ;*      WRITE "1" INTO TRE (BIT #14 IN RHCS1)
6898                                  ;*      READ RHCS1 SC, MCPE, AND RDY SHOULD BE SET
```

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                                        ;*      GIVE AN RH CLEAR (CLR - BIT #5 IN RHCS2)
                                        ;*      CHECK RHCS1 TO HAVE RDY
                                        ;*      CHECK RHCS2 TO HAVE ONLY IR AND UNIT NUMBER
                                        ;*      CHECK RHCS3, RHBA, RHBAE, RHWC TO HAVE APPROPIATE
                                        ;*      VALUES.
                                        ;;*****************************************************************
021476  000004                          TST21:  SCOPE
021500  012706  001000                          MOV     #STACK,SP       ;RESET STACK
021504  012737  000021  004656                  MOV     #21,@#TSTNM     ;SAVE TEST NUMBER

021512  004737  040322                          JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                        ;SETUP UNIT NUBER
                                                                        ;CLEAR RHWC AND FUNCTION BITS IN RHCS1


                                                ;CHECK THAT RHER1 HAS 0
021516  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

021524  017737  162344  001126                  MOV     @RHER1,$BDDAT   ;READ RHER1 FOR COMPARISON
021532  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHER1
021540  001401                                  BEQ     65$             ;BRANCH IF GOOD
021542  104033                                  ERROR   33
                                                                        ;AFTER SETTING "CLR" BIT #15
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;AND HAVING DONE NOTHING ELSE
                                                                        ;RHER1 SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHER1
021544                                  65$:

                                                ;TO INVERT THE PARITY CHECKING ON THE CONTROL BUS
                                                ;"PAT" BIT #4 IN RHCS2 IS SET
021544  052777  000020  162316                  BIS     #PAT,@RHCS2     ;SET PAT = 20 IN RHCS2


                                                ;CHECK THAT RHER1 HAS 0
021552  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

021560  017737  162310  001126                  MOV     @RHER1,$BDDAT   ;READ RHER1 FOR COMPARISON
021566  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHER1
021574  001401                                  BEQ     67$             ;BRANCH IF GOOD
021576  104034                                  ERROR   34
                                                                        ;AFTER CLEARING THE RH AND
                                                                        ;DEVICE BY AN RH CLEAR
                                                                        ;AND READING RHER1 WITH
                                                                        ;WRONG PARITY CHECKING
                                                                        ;RHER1 SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHER1
021600                                  67$:

                                                ;HAVING READ RHER1 WITH WRONG PARITY BEING
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                                        ;CHECKED MCPE - BIT #13 AND SC BIT #15 IN RHCS1 SHOULD BE SET

                                        ;CHECK THAT RHCS1 HAS 4200
021600  012737  004200  001124          MOV     #4200,$GDDAT    ;GET GOOD = 124200

021606  017737  162246  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
021614  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
021622  001401                          BEQ     69$             ;BRANCH IF GOOD
021624  104035                          ERROR   35
                                                                ;AFTER CLEARING THE RH AND
                                                                ;DEVICE BY AN RH CLEAR
                                                                ;AND READING RHER1 WITH
                                                                ;WRONG PARITY CHECKING
                                                                ;RHCS1 SHOULD HAVE 4200
                                                                ;=124200
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
021626                          69$:

                                        ;WRITE A ONE INTO TRE (RHCS1 - BIT #14)
                                        ;THIS SHOULD NOT CLEAR MCPE OR SC
021626  012777  040000  162224          MOV     #TRE,@RHCS1     ;WRITE "1" INTO TRE IN RHCS1

                                        ;CHECK THAT RHCS1 HAS 104200
021634  012737  104200  001124          MOV     #104200,$GDDAT  ;GET GOOD = 124200

021642  017737  162212  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
021650  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
021656  001401                          BEQ     71$             ;BRANCH IF GOOD
021660  104036                          ERROR   36
                                                                ;AFTER CLEARING THE RH AND
                                                                ;DEVICE REGISTERS BY AN
                                                                ;RH CLEAR
                                                                ;RHER1 WAS CHECKED TO HAVE
                                                                ;ZEROS
                                                                ;WRONG PARITY CHECKING WAS
                                                                ;SET BY "PAT" BIT IN RHCS2
                                                                ;RHER1 WAS READ TO SET
                                                                ;MCPE AND SC IN RHCS1
                                                                ;ON WRITING "1" INTO TRE
                                                                ;RHCS1 SHOULD HAVE 104200
                                                                ;=124200
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
021662                          71$:

                                        ;NOW ERRORS WILL BE CLEARED BY RH CLEAR
                                        ;SET "CLR" BIT #5 IN RHCS2
021662  012777  000040  162200          MOV     #CLR,@RHCS2     ;CLEAR BY RH INIT
021670  013777  005010  162172          MOV     UNIT,@RHCS2     ;REINSTATE UNIT NUMBER
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                                        ;CHECK THAT RHCS1 HAS DVA!RDY
021676  012737  004200  001124        MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200

021704  017737  162150  001126        MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
021712  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                              ;DATA WITH DATA READ FROM
                                                              ;RHCS1
021720  001401                        BEQ     73$             ;BRANCH IF GOOD
021722  104037                        ERROR   37
                                                              ;AFTER CLEARING THE RH AND
                                                              ;DEVICE REGISTERS BY AN
                                                              ;RH CLEAR
                                                              ;RHER1 WAS CHECKED TO HAVE
                                                              ;ZEROS
                                                              ;WRONG PARITY CHECKING WAS
                                                              ;SET BY "PAT" BIT IN RHCS2
                                                              ;RHER1 WAS READ TO SET
                                                              ;MCPE AND SC IN RHCS1
                                                              ;ON WRITING "1" INTO TRE
                                                              ;THEN SETTING "CLR" IN RHCS1
                                                              ;RHCS1 SHOULD HAVE DVA!RDY
                                                              ;=4200
                                                              ;BUT CONTAINED WHAT IS
                                                              ;GIVEN IN BAD RHCS1
021724                          73$:
                                        ;CHECK THAT RHCS2 HAS IR
021724  012737  000100  001124        MOV     #IR,$GDDAT      ;GET GOOD = 100
021732  053737  005010  001124        BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

021740  017737  162124  001126        MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
021746  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                              ;DATA WITH DATA READ FROM
                                                              ;RHCS2
021754  001401                        BEQ     75$             ;BRANCH IF GOOD
021756  104040                        ERROR   40
                                                              ;AFTER CLEARING THE RH AND
                                                              ;DEVICE REGISTERS BY AN
                                                              ;RH CLEAR
                                                              ;RHER1 WAS CHECKED TO HAVE
                                                              ;ZEROS
                                                              ;WRONG PARITY CHECKING WAS
                                                              ;SET BY "PAT" BIT IN RHCS2
                                                              ;RHER1 WAS READ TO SET
                                                              ;MCPE AND SC IN RHCS1
                                                              ;ON WRITING "1" INTO TRE
                                                              ;THEN SETTING "CLR" IN RHCS1
                                                              ;RHCS2 SHOULD HAVE IR
                                                              ;=100
                                                              ;TOGETHER WITH UNIT NUMBER
                                                              ;BUT CONTAINED WHAT IS
                                                              ;GIVEN IN BAD RHCS2
021760                          75$:
                                        ;CHECK THAT RHCS3 HAS 0
021760  012737  000000  001124        MOV     #0,$GDDAT       ;GET GOOD = 0
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7067
7068  021766  017737  162140  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
7069  021774  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7070                                                                  ;DATA WITH DATA READ FROM
7071                                                                  ;RHCS3
7072  022002  001401                          BEQ     77$             ;BRANCH IF GOOD
7073  022004  104041                          ERROR   41
7074                                                                  ;AFTER CLEARING THE RH AND
7075                                                                  ;DEVICE REGISTERS BY AN
7076                                                                  ;RH CLEAR
7077                                                                  ;RHER1 WAS CHECKED TO HAVE
7078                                                                  ;ZEROS
7079                                                                  ;WRONG PARITY CHECKING WAS
7080                                                                  ;SET BY "PAT" BIT IN RHCS2
7081                                                                  ;RHER1 WAS READ TO SET
7082                                                                  ;MCPE AND SC IN RHCS1
7083                                                                  ;ON WRITING "1" INTO TRE
7084                                                                  ;THEN SETTING "CLR" IN RHCS1
7085                                                                  ;RHCS3 SHOULD HAVE 0
7086                                                                  ;BUT CONTAINED WHAT IS
7087                                                                  ;GIVEN IN BAD RHCS3
7088  022006                          77$:
7089                                          ;CHECK THAT RHBA HAS 0
7090  022006  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
7091
7092  022014  017737  162044  001126          MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
7093  022022  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7094                                                                  ;DATA WITH DATA READ FROM
7095                                                                  ;RHBA
7096  022030  001401                          BEQ     79$             ;BRANCH IF GOOD
7097  022032  104042                          ERROR   42
7098                                                                  ;AFTER CLEARING THE RH AND
7099                                                                  ;DEVICE REGISTERS BY AN
7100                                                                  ;RH CLEAR
7101                                                                  ;RHER1 WAS CHECKED TO HAVE
7102                                                                  ;ZEROS
7103                                                                  ;WRONG PARITY CHECKING WAS
7104                                                                  ;SET BY "PAT" BIT IN RHCS2
7105                                                                  ;RHER1 WAS READ TO SET
7106                                                                  ;MCPE AND SC IN RHCS1
7107                                                                  ;ON WRITING "1" INTO TRE
7108                                                                  ;THEN SETTING "CLR" IN RHCS1
7109                                                                  ;RHBA SHOULD HAVE 0
7110                                                                  ;BUT CONTAINED WHAT IS
7111                                                                  ;GIVEN IN BAD RHBA
7112  022034                          79$:
7113                                          ;CHECK THAT RHBAE HAS 0
7114  022034  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
7115
7116  022042  017737  162062  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
7117  022050  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7118                                                                  ;DATA WITH DATA READ FROM
7119                                                                  ;RHBAE
7120  022056  001401                          BEQ     81$             ;BRANCH IF GOOD
7121  022060  104043                          ERROR   43
7122                                                                  ;AFTER CLEARING THE RH AND
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                                                                        ;DEVICE REGISTERS BY AN
                                                                        ;RH CLEAR
                                                                        ;RHER1 WAS CHECKED TO HAVE
                                                                        ;ZEROS
                                                                        ;WRONG PARITY CHECKING WAS
                                                                        ;SET BY "PAT" BIT IN RHCS2
                                                                        ;RHER1 WAS READ TO SET
                                                                        ;MCPE AND SC IN RHCS1
                                                                        ;ON WRITING "1" INTO TRE
                                                                        ;THEN SETTING "CLR" IN RHCS1
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
022062                                  81$:
                                                ;CHECK THAT RHWC HAS 0
022062  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

022070  017737  161766  001126          MOV     @RHWC,$BDDAT            ;READ RHWC FOR COMPARISON
022076  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
022104  001401                          BEQ     83$                     ;BRANCH IF GOOD
022106  104044                          ERROR   44

                                                                        ;AFTER CLEARING THE RH AND
                                                                        ;DEVICE REGISTERS BY AN
                                                                        ;RH CLEAR
                                                                        ;RHER1 WAS CHECKED TO HAVE
                                                                        ;ZEROS
                                                                        ;WRONG PARITY CHECKING WAS
                                                                        ;SET BY "PAT" BIT IN RHCS2
                                                                        ;RHER1 WAS READ TO SET
                                                                        ;MCPE AND SC IN RHCS1
                                                                        ;ON WRITING "1" INTO TRE
                                                                        ;THEN SETTING "CLR" IN RHCS1
                                                                        ;RHWC SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHWC
022110                                  83$:


                                        ;;*****************************************************************
                                        ;*TEST 22       RHCS1 - MCPE BIT #13 (PARITY LINE = 1)

                                        ;*      AN RH CLEAR (SET BIT #5 IN RHCS2) IS GIVEN TO CLEAR
                                        ;*      ALL DEVICE REGISTERS
                                        ;*      WRITE A ONE INTO DISK ADDRESS REGISTER (RHDA)
                                        ;*      (IN TAPE DRIVES CALLED REGISTER)
                                        ;*      SET "PAT" (RHCS2 BIT #4) THIS WILL INVERT THE PARITY CHECKING
                                        ;*      READ RHDA AND COMPARE IT HAS ONE IN IT
                                        ;*      THIS READING SHOULD SET SC, MCPE IN RHCS1
                                        ;*      CHECK RHCS1 TO HAVE ONLY RDY SET
                                        ;*      CHECK RHCS2, RHCS3, RHBA, RHBAE, RHWC TO HAVE APPROPIATE
                                        ;*      VALUES
                                        ;;*****************************************************************
022110  000004                          TST22:  SCOPE
022112  012706  001000                          MOV     #STACK,SP       ;RESET STACK
```

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7179  022116  012737  000022  004656          MOV     #22,@#TSTNM     ;SAVE TEST NUMBER
7180
7181  022124  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
7182                                                                  ;SETUP UNIT NUBER
7183                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
7184
7185                                          ;WRITE A ONE INTO RHDA - DISK ADDRESS REGISTER
7186                                          ;THIS REGISTER IN TAPE DRIVES IS CALLED "RHFC FRAME COUNT"
7187                                          ;AFTER WRITING THIS "1" THEN ON READING THIS REGISTER
7188                                          ;THE CONTROL PARITY LINE WILL HAVE ZERO
7189  022130  012777  000001  161730          MOV     #BIT0,@RHDA     ;WRITE "1" INTO RHDA
7190                                                                  ;IN TAPE DRIVES CALLED RHFC
7191
7192                                          ;INVERT THE PARITY TO BE CHECKED BY SETTING "PAT" BIT #4 IN RHCS2
7193  022136  052777  000020  161724          BIS     #PAT,@RHCS2     ;SET PAT IN RHCS2
7194
7195
7196                                          ;CHECK THAT RHDA HAS BIT0
7197  022144  012737  000001  001124          MOV     #BIT0,$GDDAT    ;GET GOOD = 1
7198
7199  022152  017737  161710  001126          MOV     @RHDA,$BDDAT    ;READ RHDA FOR COMPARISON
7200  022160  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7201                                                                  ;DATA WITH DATA READ FROM
7202                                                                  ;RHDA
7203  022166  001401                          BEQ     65$             ;BRANCH IF GOOD
7204  022170  104045                          ERROR   45
7205                                                                  ;AFTER AN RH CLEAR "1"
7206                                                                  ;WAS WRITTEN INTO ADDRESS REGISTER
7207                                                                  ;(FRAME COUNT IN TAPE)
7208                                                                  ;PAT IN RHCS2 WAS SET
7209                                                                  ;THEN THE ADDRESS REGISTER
7210                                                                  ;WAS READ BACK
7211                                                                  ;RHDA SHOULD HAVE BIT0
7212                                                                  ;=1
7213                                                                  ;BUT CONTAINED WHAT IS
7214                                                                  ;GIVEN IN BAD RHDA
7215  022172                          65$:
7216
7217                                          ;CHECK THAT RHCS1 HAS 4200
7218  022172  012737  004200  001124          MOV     #4200,$GDDAT    ;GET GOOD = 124000
7219
7220  022200  017737  161654  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
7221  022206  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7222                                                                  ;DATA WITH DATA READ FROM
7223                                                                  ;RHCS1
7224  022214  001401                          BEQ     67$             ;BRANCH IF GOOD
7225  022216  104046                          ERROR   46
7226                                                                  ;AFTER AN RH CLEAR "1"
7227                                                                  ;WAS WRITTEN INTO ADDRESS REGISTER
7228                                                                  ;(FRAME COUNT IN TAPE)
7229                                                                  ;PAT IN RHCS2 WAS SET
7230                                                                  ;THEN THE ADDRESS REGISTER
7231                                                                  ;WAS READ BACK
7232                                                                  ;RHCS1 SHOULD HAVE 4200
7233                                                                  ;=124000
7234                                                                  ;BUT CONTAINED WHAT IS
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7235                                                                    ;GIVEN IN BAD RHCS1
7236  022220                            67$:
7237                                          ;CHECK THAT RHCS2 HAS IR!PAT
7238  022220  012737  000120  001124          MOV     #IR!PAT,$GDDAT    ;GET GOOD = 120
7239  022226  053737  005010  001124          BIS     UNIT,$GDDAT       ;INCLUDE UNIT NUMBER
7240
7241  022234  017737  161630  001126          MOV     @RHCS2,$BDDAT     ;READ RHCS2 FOR COMPARISON
7242  022242  023737  001124  001126          CMP     $GDDAT,$BDDAT     ;COMPARE EXPECTED
7243                                                                    ;DATA WITH DATA READ FROM
7244                                                                    ;RHCS2
7245  022250  001401                          BEQ     69$               ;BRANCH IF GOOD
7246  022252  104047                          ERROR   47
7247                                                                    ;AFTER AN RH CLEAR "1"
7248                                                                    ;WAS WRITTEN INTO ADDRESS REGISTER
7249                                                                    ;(FRAME COUNT IN TAPE)
7250                                                                    ;PAT IN RHCS2 WAS SET
7251                                                                    ;THEN THE ADDRESS REGISTER
7252                                                                    ;WAS READ BACK
7253                                                                    ;RHCS2 SHOULD HAVE IR!PAT
7254                                                                    ;=120
7255                                                                    ;TOGETHER WITH UNIT NUMBER
7256                                                                    ;BUT CONTAINED WHAT IS
7257                                                                    ;GIVEN IN BAD RHCS2
7258  022254                            69$:
7259                                          ;CHECK THAT RHCS3 HAS 0
7260  022254  012737  000000  001124          MOV     #0,$GDDAT         ;GET GOOD = 0
7261
7262  022262  017737  161644  001126          MOV     @RHCS3,$BDDAT     ;READ RHCS3 FOR COMPARISON
7263  022270  023737  001124  001126          CMP     $GDDAT,$BDDAT     ;COMPARE EXPECTED
7264                                                                    ;DATA WITH DATA READ FROM
7265                                                                    ;RHCS3
7266  022276  001401                          BEQ     71$               ;BRANCH IF GOOD
7267  022300  104050                          ERROR   50
7268                                                                    ;AFTER AN RH CLEAR "1"
7269                                                                    ;WAS WRITTEN INTO ADDRESS REGISTER
7270                                                                    ;(FRAME COUNT IN TAPE)
7271                                                                    ;PAT IN RHCS2 WAS SET
7272                                                                    ;THEN THE ADDRESS REGISTER
7273                                                                    ;WAS READ BACK
7274                                                                    ;RHCS3 SHOULD HAVE 0
7275                                                                    ;BUT CONTAINED WHAT IS
7276                                                                    ;GIVEN IN BAD RHCS3
7277  022302                            71$:
7278                                          ;CHECK THAT RHBA HAS 0
7279  022302  012737  000000  001124          MOV     #0,$GDDAT         ;GET GOOD = 0
7280
7281  022310  017737  161550  001126          MOV     @RHBA,$BDDAT      ;READ RHBA FOR COMPARISON
7282  022316  023737  001124  001126          CMP     $GDDAT,$BDDAT     ;COMPARE EXPECTED
7283                                                                    ;DATA WITH DATA READ FROM
7284                                                                    ;RHBA
7285  022324  001401                          BEQ     73$               ;BRANCH IF GOOD
7286  022326  104051                          ERROR   51
7287                                                                    ;AFTER AN RH CLEAR "1"
7288                                                                    ;WAS WRITTEN INTO ADDRESS REGISTER
7289                                                                    ;(FRAME COUNT IN TAPE)
7290                                                                    ;PAT IN RHCS2 WAS SET
```

```
                                                                ;THEN THE ADDRESS REGISTER
                                                                ;WAS READ BACK
                                                                ;RHBA SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBA
022330                                  73$:
                                                MOV     #0,$GDDAT       ;GET GOOD = 0
022330  012737  000000  001124                 MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
022336  017737  161566  001126                 CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
022344  023737  001124  001126                                         ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
022352  001401                                  BEQ     75$             ;BRANCH IF GOOD
022354  104052                                  ERROR   52
                                                                ;AFTER AN RH CLEAR "1"
                                                                ;WAS WRITTEN INTO ADDRESS REGISTER
                                                                ;(FRAME COUNT IN TAPE)
                                                                ;PAT IN RHCS2 WAS SET
                                                                ;THEN THE ADDRESS REGISTER
                                                                ;WAS READ BACK
                                                                ;RHBAE SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBAE
022356                                  75$:
                                                ;CHECK THAT RHWC HAS 0
022356  012737  000000  001124                 MOV     #0,$GDDAT       ;GET GOOD = 0
022364  017737  161472  001126                 MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
022372  023737  001124  001126                 CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
022400  001401                                  BEQ     77$             ;BRANCH IF GOOD
022402  104053                                  ERROR   53
                                                                ;AFTER AN RH CLEAR "1"
                                                                ;WAS WRITTEN INTO ADDRESS REGISTER
                                                                ;(FRAME COUNT IN TAPE)
                                                                ;PAT IN RHCS2 WAS SET
                                                                ;THEN THE ADDRESS REGISTER
                                                                ;WAS READ BACK
                                                                ;RHWC SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHWC
022404                                  77$:


                                        ;;*****************************************************************
                                        ;*TEST 23       TEST DUPLICATED A16 (RHCS1 BIT #8)

                                        ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        ;*      MOVE 400 (ONE INTO A16) IN RHCS1
                                        ;*      READ RHCS1 TO CONTAIN 600 (BIT #8 AND RDY)
                                        ;*      READ RHBAE TO CONTAIN "1" (BIT #0 HIGH)
                                        ;*
                                        ;*
                                        ;*      MOVE 0 INTO RHBAE (WRITING 0 INTO RHBAE BIT #0)
```

```
                                        ;*      READ RHBAE TO CONTAIN 0
                                        ;*      READ RHCS1 TO CONTAIN ONLY RDY (BIT #8 IN RHCS1 IS ZERO)
                                        ;*
                                        ;*
                                        ;**************************************************************
022404  000004                          TST23:  SCOPE
022406  012706  001000                          MOV     #STACK,SP       ;RESET STACK
022412  012737  000023  004656                  MOV     #23,@#†STNM     ;SAVE TEST NUMBER

022420  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                        ;WRITE "1" INTO A16 IN RHCS1
022424  012777  000400  161426          MOV     #A16,@RHCS1     ;MOVE 400 INTO RHCS1


                                        ;CHECK THAT RHCS1 HAS A16!DVA!RDY
022432  012737  004600  001124          MOV     #A16!DVA!RDY,$GDDAT     ;GET GOOD = 4600

022440  017737  161414  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
022446  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
022454  001401                          BEQ     65$             ;BRANCH IF GOOD
022456  104054                          ERROR   54
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A16 WAS WRITTEN INTO RHCS1
                                                                ;RHCS1 WAS READ
                                                                ;RHCS1 SHOULD HAVE A16!DVA!RDY
                                                                ;=4600
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
022460                          65$:


                                        ;CHECK THAT RHBAE HAS BIT0
022460  012737  000001  001124          MOV     #BIT0,$GDDAT    ;GET GOOD = 1

022466  017737  161436  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
022474  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHBAE
022502  001401                          BEQ     67$             ;BRANCH IF GOOD
022504  104055                          ERROR   55
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A16 WAS WRITTEN INTO RHCS1
                                                                ;RHCS1 WAS READ
                                                                ;THEN RHBAE WAS READ
                                                                ;RHBAE SHOULD HAVE BIT0
                                                                ;=1
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBAE
```

```
7403  022506                          67$:
7404
7405                                          ;NOW MOVE 0 INTO RHBAE (WRITING 0 INTO RHBAE BIT #0)
7406  022506  005077  161416                 CLR     @RHBAE          ;WRITE ZERO INTO RHBAE
7407
7408
7409                                          ;CHECK THAT RHBAE HAS 0
7410  022512  012737  000000  001124         MOV     #0,$GDDAT       ;GET GOOD = 0
7411
7412  022520  017737  161404  001126         MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
7413  022526  023737  001124  001126         CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7414                                                                ;DATA WITH DATA READ FROM
7415                                                                ;RHBAE
7416  022534  001401                         BEQ     69$             ;BRANCH IF GOOD
7417  022536  104056                         ERROR   56
7418                                                                ;AFTER SETTING "CLR" BIT #5
7419                                                                ;IN RHCS2 TO INIT THE RH
7420                                                                ;A16 WAS WRITTEN INTO RHCS1
7421                                                                ;RHCS1 WAS READ
7422                                                                ;RHBAE WAS READ
7423                                                                ;THEN ZERO WAS WRITTEN
7424                                                                ;INTO RHBAE
7425                                                                ;ON READING RHBAE
7426                                                                ;RHBAE SHOULD HAVE 0
7427                                                                ;BUT CONTAINED WHAT IS
7428                                                                ;GIVEN IN BAD RHBAE
7429  022540                          69$:
7430
7431
7432                                          ;CHECK THAT RHCS1 HAS DVA!RDY
7433  022540  012737  004200  001124         MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200
7434
7435  022546  017737  161306  001126         MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
7436  022554  023737  001124  001126         CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7437                                                                ;DATA WITH DATA READ FROM
7438                                                                ;RHCS1
7439  022562  001401                         BEQ     71$             ;BRANCH IF GOOD
7440  022564  104057                         ERROR   57
7441                                                                ;AFTER SETTING "CLR" BIT #5
7442                                                                ;IN RHCS2 TO INIT THE RH
7443                                                                ;A16 WAS WRITTEN INTO RHCS1
7444                                                                ;RHCS1 WAS READ
7445                                                                ;RHBAE WAS READ
7446                                                                ;THEN ZERO WAS WRITTEN
7447                                                                ;INTO RHBAE
7448                                                                ;RHBAE WAS READ
7449                                                                ;ON READING RHCS1
7450                                                                ;RHCS1 SHOULD HAVE DVA!RDY
7451                                                                ;=4200
7452                                                                ;BUT CONTAINED WHAT IS
7453                                                                ;GIVEN IN BAD RHCS1
7454  022566                          71$:
7455
7456
7457                                          ;;*****************************************************************
7458                                          ;*TEST 24       TEST DUPLICATED A17 (RHCS1 BIT #9)
```

```
                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                ;*      MOVE 400 (ONE INTO A17) IN RHCS1
                                ;*      READ RHCS1 TO CONTAIN 1200 (BIT #9 AND RDY)
                                ;*      READ RHBAE TO CONTAIN "2" (BIT #1 HIGH)
                                ;*
                                ;*
                                ;*      MOVE 0 INTO RHBAE (WRITING 0 INTO RHBAE BIT #1)
                                ;*      READ RHBAE TO CONTAIN 2
                                ;*      READ RHCS1 TO CONTAIN ONLY RDY (BIT #9 IN RHCS1 IS ZERO)
                                ;*
                                ;*
                                ;;*****************************************************************
022566  000004                  TST24:  SCOPE
022570  012706  001000                  MOV     #STACK,SP       ;RESET STACK
022574  012737  000024  004656          MOV     #24,@#TSTNM     ;SAVE TEST NUMBER

022602  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                        ;WRITE "1" INTO A17 IN RHCS1
022606  012777  001000  161244          MOV     #A17,@RHCS1     ;MOVE 1200 INTO RHCS1


                                        ;CHECK THAT RHCS1 HAS A17!DVA!RDY
022614  012737  005200  001124          MOV     #A17!DVA!RDY,$GDDAT     ;GET GOOD = 4600

022622  017737  161232  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
022630  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
022636  001401                          BEQ     65$             ;BRANCH IF GOOD
022640  104060                          ERROR   60

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A17 WAS WRITTEN INTO RHCS1
                                                                ;RHCS1 WAS READ
                                                                ;RHCS1 SHOULD HAVE A17!DVA!RDY
                                                                ;=4600
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
022642                          65$:


                                        ;CHECK THAT RHBAE HAS BIT1
022642  012737  000002  001124          MOV     #BIT1,$GDDAT    ;GET GOOD = 2

022650  017737  161254  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
022656  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHBAE
022664  001401                          BEQ     67$             ;BRANCH IF GOOD
022666  104061                          ERROR   61

                                                                ;AFTER SETTING "CLR" BIT #5
```

```
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A17 WAS WRITTEN INTO RHCS1
                                                                ;RHCS1 WAS READ
                                                                ;THEN RHBAE WAS READ
                                                                ;RHBAE SHOULD HAVE BIT1
                                                                ;=2
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBAE
022670                          67$:

                                        ;NOW MOVE 0 INTO RHBAE (WRITING 0 INTO RHBAE BIT #0)
022670  005077  161234                CLR     @RHBAE          ;WRITE ZERO INTO RHBAE

                                        ;CHECK THAT RHBAE HAS 0
022674  012737  000000  001124        MOV     #0,$GDDAT       ;GET GOOD = 0

022702  017737  161222  001126        MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
022710  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHBAE
022716  001401                      BEQ     69$             ;BRANCH IF GOOD
022720  104062                      ERROR   62

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A17 WAS WRITTEN INTO RHCS1
                                                                ;RHCS1 WAS READ
                                                                ;RHBAE WAS READ
                                                                ;THEN ZERO WAS WRITTEN
                                                                ;INTO RHBAE
                                                                ;ON READING RHBAE
                                                                ;RHBAE SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHBAE
022722                          69$:

                                        ;CHECK THAT RHCS1 HAS DVA!RDY
022722  012737  004200  001124        MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200

022730  017737  161124  001126        MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
022736  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
022744  001401                      BEQ     71$             ;BRANCH IF GOOD
022746  104063                      ERROR   63

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A17 WAS WRITTEN INTO RHCS1
                                                                ;RHCS1 WAS READ
                                                                ;RHBAE WAS READ
                                                                ;THEN ZERO WAS WRITTEN
                                                                ;INTO RHBAE
                                                                ;RHBAE WAS READ
                                                                ;ON READING RHCS1
                                                                ;RHCS1 SHOULD HAVE DVA!RDY
```

```
                                                        ;=4200
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHCS1
022750                          71$:


                                ;;*********************************************************
                                ;*TEST 25       TEST DUPLICATED IE (RHCS1 BIT #6)

                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                ;*      MOVE 100 (ONE INTO IE) IN RHCS1
                                ;*      READ RHCS1 TO CONTAIN 300 (BIT #6 AND RDY)
                                ;*      READ RHCS3 TO CONTAIN "100" (BIT #6 HIGH)
                                ;*
                                ;*
                                ;*      MOVE 0 INTO RHCS3 (WRITING 0 INTO RHCS3 BIT #6)
                                ;*      READ RHCS3 TO CONTAIN 100
                                ;*      READ RHCS1 TO CONTAIN ONLY RDY (BIT #6 IN RHCS1 IS ZERO)
                                ;*
                                ;*
                                ;*********************************************************
022750  000004                  TST25:  SCOPE
022752  012706  001000                  MOV     #STACK,SP       ;RESET STACK
022756  012737  000025  004656          MOV     #25,@#TSTNM     ;SAVE TEST NUMBER

022764  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                ;WRITE "1" INTO IE IN RHCS1
022770  012777  000100  161062  MOV     #IE,@RHCS1      ;MOVE 100 INTO RHCS1


                                ;CHECK THAT RHCS1 HAS IE!DVA!RDY
022776  012737  004300  001124  MOV     #IE!DVA!RDY,$GDDAT      ;GET GOOD = 4300

023004  017737  161050  001126  MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
023012  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHCS1
023020  001401                  BEQ     65$             ;BRANCH IF GOOD
023022  104064                  ERROR   64
                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;IE WAS WRITTEN INTO RHCS1
                                                        ;RHCS1 WAS READ
                                                        ;RHCS1 SHOULD HAVE IE!DVA!RDY
                                                        ;=4300
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHCS1
023024                          65$:


                                ;CHECK THAT RHCS3 HAS IE
023024  012737  000100  001124  MOV     #IE,$GDDAT      ;GET GOOD = 1
```

```
7627
7628  023032  017737  161074  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
7629  023040  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7630                                                                  ;DATA WITH DATA READ FROM
7631                                                                  ;RHCS3
7632  023046  001401                          BEQ     67$             ;BRANCH IF GOOD
7633  023050  104065                          ERROR   65
7634                                                                  ;AFTER SETTING "CLR" BIT #5
7635                                                                  ;IN RHCS2 TO INIT THE RH
7636                                                                  ;IE WAS WRITTEN INTO RHCS1
7637                                                                  ;RHCS1 WAS READ
7638                                                                  ;THEN RHCS3 WAS READ
7639                                                                  ;RHCS3 SHOULD HAVE IE
7640                                                                  ;=1
7641                                                                  ;BUT CONTAINED WHAT IS
7642                                                                  ;GIVEN IN BAD RHCS3
7643  023052                          67$:
7644
7645                                          ;NOW MOVE 0 INTO RHCS3 (WRITING 0 INTO RHCS3 BIT #1)
7646  023052  005077  161054                  CLR     @RHCS3          ;WRITE ZERO INTO RHCS3
7647
7648
7649                                          ;CHECK THAT RHCS3 HAS 0
7650  023056  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
7651
7652  023064  017737  161042  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
7653  023072  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7654                                                                  ;DATA WITH DATA READ FROM
7655                                                                  ;RHCS3
7656  023100  001401                          BEQ     69$             ;BRANCH IF GOOD
7657  023102  104066                          ERROR   66
7658                                                                  ;AFTER SETTING "CLR" BIT #5
7659                                                                  ;IN RHCS2 TO INIT THE RH
7660                                                                  ;IE WAS WRITTEN INTO RHCS1
7661                                                                  ;RHCS1 WAS READ
7662                                                                  ;RHCS3 WAS READ
7663                                                                  ;THEN ZERO WAS WRITTEN
7664                                                                  ;INTO RHCS3
7665                                                                  ;ON READING RHCS3
7666                                                                  ;RHCS3 SHOULD HAVE 0
7667                                                                  ;BUT CONTAINED WHAT IS
7668                                                                  ;GIVEN IN BAD RHCS3
7669  023104                          69$:
7670
7671
7672                                          ;CHECK THAT RHCS1 HAS DVA!RDY
7673  023104  012737  004200  001124          MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200
7674
7675  023112  017737  160742  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
7676  023120  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7677                                                                  ;DATA WITH DATA READ FRCM
7678                                                                  ;RHCS1
7679  023126  001401                          BEQ     71$             ;BRANCH IF GOOD
7680  023130  104067                          ERROR   67
7681                                                                  ;AFTER SETTING "CLR" BIT #5
7682                                                                  ;IN RHCS2 TO INIT THE RH
```

```
                                                        ;IE WAS WRITTEN INTO RHCS1
                                                        ;RHCS1 WAS READ
                                                        ;RHCS3 WAS READ
                                                        ;THEN ZERO WAS WRITTEN
                                                        ;INTO RHCS3
                                                        ;RHCS3 WAS READ
                                                        ;ON READING RHCS1
                                                        ;RHCS1 SHOULD HAVE DVA!RDY
                                                        ;=4200
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHCS1
023132                          71$:

                                ;;*****************************************************************
                                ;*TEST 26       RHCS1 PROGRAM ERROR (PGE BIT #10)

                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                ;*      SET UP FOR A 10 WORD WRITE
                                ;*      SET "GO" (RHCS1 BIT #0) TWICE IN TWO SUCCESSIVE
                                ;*      INSTRUCTIONS
                                ;*      THIS SHOULD SET, SC AND TRE IN RHCS1
                                ;*      AND PGE SHOULD BE SET IN RHCS2
                                ;*      RHCS3, ARE CHECKED
                                ;*      THE NUMBER OF WORDS ARE LARGE ENOUGH SO THAT AFTER
                                ;*      ONE "BIS" INSTRUCTION TO SET "GO" IN RHCS1
                                ;*      THERE IS SUFFICIENT TIME TO GIVE ANOTHER "BIS" INSTRUCTION
                                ;*      TO SET "GO" BEFORE THE FIRST "GO" HAS TIME TO COMPLETE
                                ;*
                                ;*****************************************************************
023132  000004                ↑ST26:  SCOPE
023134  012706  001000                MOV     #STACK,SP       ;RESET STACK
023140  012737  000026  004656        MOV     #26,@#↑STNM     ;SAVE TEST NUMBER

023146  004737  040322                JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                              ;SETUP UNIT NUBER
                                                              ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                      ;SET UP RH FOR A 10 WORD WRITE
023152  012777  177766  160702        MOV     #-10.,@RHWC     ;WORD COUNT REGISTER=10
023160  012777  004210  160676        MOV     #WRFROM,@RHBA   ;BUS ADDRESS REGISTER=WRITBUF
                                      ;WRITE 10 WORDS FROM "WRFROM" INTO
                                      ;WHAT EVER RH DEVICE IS AVAILABLE
023166  012737  177777  004644        MOV     #-1,NOGO        ;DO NOT GIVE GO IN COMMAND ROUTINE
023174  004077  161440                JSR     R0,@COMND       ;GO TO DO COMMAND
023200  004154                        WRIDAT                  ;WRITE DATA
023202  052777  000001  160650        BIS     #GO,@RHCS1      ;SET GO
023210  052777  000001  160642        BIS     #GO,@RHCS1      ;SET GO WITHOUT TIME TO COMPLET LAST GO

                                      ;CHECK THAT RHCS1 HAS SC!DVA!TRE!61
023216  012737  144061  001124        MOV     #SC!DVA!TRE!61,$GDDAT   ;GET GOOD = 144000

023224  017737  160630  001126        MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
023232  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                              ;DATA WITH DATA READ FROM
```

```
7739
7740  023240  001401                          BEQ     65$             ;RHCS1
7741  023242  104070                          ERROR   70              ;BRANCH IF GOOD
7742                                                                  ;AFTER SETTING "CLR" BIT #5
7743                                                                  ;IN RHCS2 TO INIT THE RH
7744                                                                  ;AND GIVING TWO SUCCESSIVE
7745                                                                  ;"GO" WITHOUT GIVING TIME FOR
7746                                                                  ;THE FIRST TO COMPLETE
7747                                                                  ;RHCS1 SHOULD HAVE SC!DVA!TRE!51
7748                                                                  ;=144000
7749                                                                  ;BUT CONTAINED WHAT IS
7750                                                                  ;GIVEN IN BAD RHCS1
7751  023244                          65$:
7752                                          ;CHECK THAT RHCS2 HAS PGE!OR
7753  023244  012737  002200  001124          MOV     #PGE!OR,$GDDAT  ;GET GOOD = 2000
7754  023252  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
7755
7756  023260  017737  160604  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
7757  023266  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7758                                                                  ;DATA WITH DATA READ FROM
7759                                                                  ;RHCS2
7760  023274  001401                          BEQ     67$             ;BRANCH IF GOOD
7761  023276  104071                          ERROR   71
7762                                                                  ;AFTER SETTING "CLR" BIT #5
7763                                                                  ;IN RHCS2 TO INIT THE RH
7764                                                                  ;AND GIVING TWO SUCCESSIVE
7765                                                                  ;"GO" WITHOUT GIVING TIME FOR
7766                                                                  ;THE FIRST TO COMPLETE
7767                                                                  ;RHCS2 SHOULD HAVE PGE!OR
7768                                                                  ;=2000
7769                                                                  ;TOGETHER WITH UNIT NUMBER
7770                                                                  ;BUT CONTAINED WHAT IS
7771                                                                  ;GIVEN IN BAD RHCS2
7772  023300                          67$:
7773                                          ;CHECK THAT RHCS3 HAS DBL
7774  023300  012737  002000  001124          MOV     #DBL,$GDDAT     ;GET GOOD = 0
7775
7776  023306  017737  160620  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
7777  023314  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7778                                                                  ;DATA WITH DATA READ FROM
7779                                                                  ;RHCS3
7780  023322  001401                          BEQ     69$             ;BRANCH IF GOOD
7781  023324  104072                          ERROR   72
7782                                                                  ;AFTER SETTING "CLR" BIT #5
7783                                                                  ;IN RHCS2 TO INIT THE RH
7784                                                                  ;AND GIVING TWO SUCCESSIVE
7785                                                                  ;"GO" WITHOUT GIVING TIME FOR
7786                                                                  ;THE FIRST TO COMPLETE
7787                                                                  ;RHCS3 SHOULD HAVE DBL
7788                                                                  ;BUT CONTAINED WHAT IS
7789                                                                  ;GIVEN IN BAD RHCS3
7790  023326                          69$:
7791
7792
7793                                  ;;*****************************************************************
7794                                  ;*TEST 27       RHCS2 - BUS ADDRESS INHIBIT BIT #3
```

```
                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #6)
                                ;*      SET UP FOR A 2 WORD WRITE FROM A BUFFER TAGGED "WRFROM"
                                ;*      SET BUS ADDRESS INHIBIT RHCS2 BIT #3 "BAI"
                                ;*      AT THE END OF WRITE CHECK
                                ;*      RHCS1 TO HAVE ONLY RDY AND COMMAND
                                ;*      RHCS2 TO HAVE BAI
                                ;*      RHCS3 TO HAVE 0
                                ;*      RHBA TO HAVE ADDRESS OF "WRFROM"
                                ;*      RHBAE AND RHWC TO HAVE ZEROS
                                ;*
                                ;*      NOW SET UP READ FOR THE SAME DATA WITH
                                ;*      BAI SET TO READ INTO A BUFFER TAGGED "REINTO"
                                ;*      AFTER READ CHECK
                                ;*      RHCS1 TO HAVE ONLY RDY AND COMMAND
                                ;*      RHCS2 TO HAVE BAI
                                ;*      RHCS3 TO HAVE 0
                                ;*      RHBA TO HAVE ADDRESS OF "REINTO"
                                ;*      RHBAE AND RHWC TO HAVE ZEROS
                                ;*      DATA IN REINTO BUFFER IS CHECKED WITH DATA IN
                                ;*      WRFROM BUFFER
                                ;**************************************************************
023326  000004                  TST27:  SCOPE
023330  012706  001000                  MOV     #STACK,SP       ;RESET STACK
023334  012737  000027  004656          MOV     #27,@#TSTNM     ;SAVE TEST NUMBER
023342  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
                                ;SET UP 10 WORD WRITE FROM BUFFER TAGGED "WRFROM"
                                ;WITH BAI IN RHCS2
023346  012777  177766  160506  MOV     #-10.,@RHWC     ;WORD COUNT REGISTER=10
023354  052777  000010  160506  BIS     #BAI,@RHCS2     ;BUS ADDRESS INHIBIT IN RHCS2
023362  012777  004210  160474  MOV     #WRFROM,@RHBA   ;BUS ADDRESS REGISTER=WRFROM
023370  004077  161244          JSR     R0,@COMND       ;GO TO DO COMMAND
023374  004154                  WRIDAT                  ;WRITE DATA

                                ;CHECK THAT RHCS1 HAS DVA!RDY!60
023376  012737  004260  001124  MOV     #DVA!RDY!60,$GDDAT      ;GET GOOD = 4252

023404  017737  160450  001126  MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
023412  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                        ;DATA WITH DATA READ FROM
                                                        ;RHCS1
023420  001401                  BEQ     65$             ;BRANCH IF GOOD
023422  104076                  ERROR   76

                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;A 2 WORD WRITE WAS DONE
                                                        ;WITH BAI BIT IN RHCS2 SET
                                                        ;AT END OF WRITE
                                                        ;RHCS1 SHOULD HAVE DVA!RDY!60
                                                        ;=4252
                                                        ;BUT CONTAINED WHAT IS
```

```
                                                                ;GIVEN IN BAD RHCS1
023424                                  65$:
                                        ;CHECK THAT RHCS2 HAS BAI!IR
023424  012737  000110  001124        MOV     #BAI!IR,$GDDAT  ;GET GOOD = 10
023432  053737  005010  001124        BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

023440  017737  160424  001126        MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
023446  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
023454  001401                        BEQ     67$             ;BRANCH IF GOOD
023456  104077                        ERROR   77
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A 2 WORD WRITE WAS DONE
                                                                ;WITH BAI BIT IN RHCS2 SET
                                                                ;AT END OF WRITE
                                                                ;RHCS2 SHOULD HAVE BAI!IR
                                                                ;=10
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
023460                                  67$:
                                        ;CHECK THAT RHCS3 HAS 0
023460  012737  000000  001124        MOV     #0,$GDDAT       ;GET GOOD = 0

023466  017737  160440  001126        MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
023474  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS3
023502  001401                        BEQ     69$             ;BRANCH IF GOOD
023504  104100                        ERROR   100
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A 2 WORD WRITE WAS DONE
                                                                ;WITH BAI BIT IN RHCS2 SET
                                                                ;AT END OF WRITE
                                                                ;RHCS3 SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS3
023506                                  69$:
                                        ;CHECK THAT RHBA HAS WRFROM
023506  012737  004210  001124        MOV     #WRFROM,$GDDAT  ;GET GOOD = 0

023514  017737  160344  001126        MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
023522  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHBA
023530  001401                        BEQ     71$             ;BRANCH IF GOOD
023532  104101                        ERROR   101
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A 2 WORD WRITE WAS DONE
                                                                ;WITH BAI BIT IN RHCS2 SET
                                                                ;AT END OF WRITE
                                                                ;RHBA SHOULD HAVE WRFROM
```

```
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
023534                                  71$:
                                                ;CHECK THAT RHBAE HAS 0
023534  012737  000000  001124                MOV     #0,$GDDAT       ;GET GOOD = 0

023542  017737  160362  001126                MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
023550  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
023556  001401                                BEQ     73$             ;BRANCH IF GOOD
023560  104102                                ERROR   102
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;A 2 WORD WRITE WAS DONE
                                                                        ;WITH BAI BIT IN RHCS2 SET
                                                                        ;AT END OF WRITE
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
023562                                  73$:
                                                ;CHECK THAT RHWC HAS 0
023562  012737  000000  001124                MOV     #0,$GDDAT       ;GET GOOD = 0

023570  017737  160266  001126                MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
023576  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
023604  001401                                BEQ     75$             ;BRANCH IF GOOD
023606  104103                                ERROR   103
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;A 2 WORD WRITE WAS DONE
                                                                        ;WITH BAI BIT IN RHCS2 SET
                                                                        ;AT END OF WRITE
                                                                        ;RHWC SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHWC
023610                                  75$:


                                        ;;*****************************************************************
                                        ;*TEST 30       RHSC2 MDPE BIT #8 AND RHCS3 IPCKO BIT #0
                                        ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        ;*      SET IPCKO (RHCS3 BIT #0)
                                        ;*      MOVE ALL ZEROS INTO RHDB ONCE
                                        ;*      THIS SHOULD SET TRE SC IN RHCS1
                                        ;*      READ RHDB ONCE THIS SHOULD SET MDPE (RHCS2 BIT #8)
                                        ;*      CHECK RHCS1 FOR RDY (BIT #7), TRE (BIT #14), SC (BIT #15)
                                        ;*      "CLR" (RHCS2 BIT #5) IS GIVEN
                                        ;*      ALL ERRORS ARE CLEARED
                                        ;*      CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC
                                        ;;*****************************************************************
023610  000004                        TST30:  SCOPE
```

```
7963  023612  012706  001000                  MOV     #STACK,SP       ;RESET STACK
7964  023616  012737  000030  004656          MOV     #30,@#TSTNM     ;SAVE TEST NUMBER
7965
7966  023624  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
7967                                                                  ;SETUP UNIT NUBER
7968                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
7969  023630  012737  000000  004662          MOV     #0,IP           ;IPCK BIT NO. FOR PRINTOUT
7970
7971  023636  052777  000001  160266          BIS     #IPCKO,@RHCS3 ;SET IPCKO IN RHCS3-BIT #0
7972  023644  005037  004210                  CLR     WRFROM          ;WRITE ZERO INTO LOCATION
7973  023650  013777  004210  160224          MOV     WRFROM,@RHDB    ;WRITE ZEROS INTO RHDB ONCE
7974
7975                                          ;CHECK THAT RHCS1 HAS SC!TRE!DVA!RDY
7976  023656  012737  144200  001124          MOV     #SC!TRE!DVA!RDY,$GDDAT  ;GET GOOD = 144200
7977
7978  023664  017737  160170  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
7979  023672  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
7980                                                                  ;DATA WITH DATA READ FROM
7981                                                                  ;RHCS1
7982  023700  001401                          BEQ     65$             ;BRANCH IF GOOD
7983  023702  104140                          ERROR   140
7984                                                                  ;AFTER SETTING "CLR" BIT #5
7985                                                                  ;IN RHCS2 TO INIT THE RH
7986                                                                  ;IPCKO BIT #0 RHCS3 WAS SET
7987                                                                  ;ZEROS WERE MOVED INTO RHDB
7988                                                                  ;RHCS1 SHOULD HAVE SC!TRE!DVA!RDY
7989                                                                  ;=144200
7990                                                                  ;BUT CONTAINED WHAT IS
7991                                                                  ;GIVEN IN BAD RHCS1
7992  023704                          65$:
7993  023704  017737  160172  001200          MOV     @RHDB,$TMP1     ;READ RHDB ONCE
7994
7995
7996                                          ;CHECK THAT RHCS3 HAS 1
7997  023712  012737  000001  001124          MOV     #1,$GDDAT       ;GET GOOD = 1
7998
7999  023720  017737  160206  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
8000  023726  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8001                                                                  ;DATA WITH DATA READ FROM
8002                                                                  ;RHCS3
8003  023734  001401                          BEQ     67$             ;BRANCH IF GOOD
8004  023736  104104                          ERROR   104
8005                                                                  ;AFTER SETTING "CLR" BIT #5
8006                                                                  ;IN RHCS2 TO INIT THE RH
8007                                                                  ;IPCKO BIT #0 RHCS3 WAS SET
8008                                                                  ;ZEROS WERE MOVED INTO
8009                                                                  ;RHDB
8010                                                                  ;RHDB WAS READ THEN
8011                                                                  ;RHCS3 SHOULD HAVE 1
8012                                                                  ;=1
8013                                                                  ;BUT CONTAINED WHAT IS
8014                                                                  ;GIVEN IN BAD RHCS3
8015  023740                          67$:
8016
8017                                          ;CHECK THAT RHCS2 HAS MDPE!IR
8018  023740  012737  000500  001124          MOV     #MDPE!IR,$GDDAT ;GET GOOD = 500
```

```
 8019  023746  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
 8020
 8021  023754  017737  160110  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
 8022  023762  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 8023                                                                  ;DATA WITH DATA READ FROM
 8024                                                                  ;RHCS2
 8025  023770  001401                          BEQ     69$             ;BRANCH IF GOOD
 8026  023772  104105                          ERROR   105
 8027                                                                  ;AFTER SETTING "CLR" BIT #5
 8028                                                                  ;IN RHCS2 TO INIT THE RH
 8029                                                                  ;IPCKO BIT #0 RHCS3 WAS SET
 8030                                                                  ;ZEROS WERE MOVED INTO
 8031                                                                  ;RHDB
 8032                                                                  ;RHDB WAS READ THEN
 8033                                                                  ;RHCS2 SHOULD HAVE MDPE!IR
 8034                                                                  ;=500
 8035                                                                  ;TOGETHER WITH UNIT NUMBER
 8036                                                                  ;BUT CONTAINED WHAT IS
 8037                                                                  ;GIVEN IN BAD RHCS2
 8038  023774                          69$:
 8039
 8040
 8041  023774  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
 8042                                                                  ;SETUP UNIT NUBER
 8043                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
 8044
 8045
 8046                                          ;CHECK THAT RHCS1 HAS RDY!DVA
 8047  024000  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
 8048
 8049  024006  017737  160046  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
 8050  024014  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 8051                                                                  ;DATA WITH DATA READ FROM
 8052                                                                  ;RHCS1
 8053  024022  001401                          BEQ     71$             ;BRANCH IF GOOD
 8054  024024  104106                          ERROR   106
 8055                                                                  ;AFTER SETTING "CLR" BIT #5
 8056                                                                  ;IN RHCS2 TO INIT THE RH
 8057                                                                  ;IPCKO BIT #0 RHCS3 WAS SET
 8058                                                                  ;ZEROS WERE MOVED INTO
 8059                                                                  ;RHDB
 8060                                                                  ;RHDB WAS READ THEN
 8061                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
 8062                                                                  ;WAS GIVEN THIS SHOULD
 8063                                                                  ;CLEAR ALL ERRORS
 8064                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
 8065                                                                  ;=4200
 8066                                                                  ;BUT CONTAINED WHAT IS
 8067                                                                  ;GIVEN IN BAD RHCS1
 8068  024026                          71$:
 8069                                          ;CHECK THAT RHCS2 HAS IR
 8070  024026  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
 8071  024034  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
 8072
 8073  024042  017737  160022  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
 8074  024050  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
```

```
8075                                                            ;DATA WITH DATA READ FROM
8076                                                            ;RHCS2
8077  024056  001401                    BEQ     73$            ;BRANCH IF GOOD
8078  024060  104107                    ERROR   107
8079                                                            ;AFTER SETTING "CLR" BIT #5
8080                                                            ;IN RHCS2 TO INIT THE RH
8081                                                            ;IPCKO BIT #0 RHCS3 WAS SET
8082                                                            ;ZEROS WERE MOVED INTO
8083                                                            ;RHDB
8084                                                            ;RHDB WAS READ THEN
8085                                                            ;AN RH CLEAR (RHCS2 BIT #5)
8086                                                            ;WAS GIVEN THIS SHOULD
8087                                                            ;CLEAR ALL ERRORS
8088                                                            ;RHCS2 SHOULD HAVE IR
8089                                                            ;=100
8090                                                            ;TOGETHER WITH UNIT NUMBER
8091                                                            ;BUT CONTAINED WHAT IS
8092                                                            ;GIVEN IN BAD RHCS2
8093  024062                        73$:
8094                                    ;CHECK THAT RHCS3 HAS 0
8095  024062  012737  000000  001124    MOV     #0,$GDDAT       ;GET GOOD = 0
8096
8097  024070  017737  160036  001126    MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
8098  024076  023737  001124  001126    CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8099                                                            ;DATA WITH DATA READ FROM
8100                                                            ;RHCS3
8101  024104  001401                    BEQ     75$             ;BRANCH IF GOOD
8102  024106  104110                    ERROR   110
8103                                                            ;AFTER SETTING "CLR" BIT #5
8104                                                            ;IN RHCS2 TO INIT THE RH
8105                                                            ;IPCKO BIT #0 RHCS3 WAS SET
8106                                                            ;ZEROS WERE MOVED INTO
8107                                                            ;RHDB
8108                                                            ;RHDB WAS READ THEN
8109                                                            ;AN RH CLEAR (RHCS2 BIT #5)
8110                                                            ;WAS GIVEN THIS SHOULD
8111                                                            ;CLEAR ALL ERRORS
8112                                                            ;RHCS3 SHOULD HAVE 0
8113                                                            ;BUT CONTAINED WHAT IS
8114                                                            ;GIVEN IN BAD RHCS3
8115  024110                        75$:
8116                                    ;CHECK THAT RHBA HAS 0
8117  024110  012737  000000  001124    MOV     #0,$GDDAT       ;GET GOOD = 0
8118
8119  024116  017737  157742  001126    MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
8120  024124  023737  001124  001126    CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8121                                                            ;DATA WITH DATA READ FROM
8122                                                            ;RHBA
8123  024132  001401                    BEQ     77$             ;BRANCH IF GOOD
8124  024134  104111                    ERROR   111
8125                                                            ;AFTER SETTING "CLR" BIT #5
8126                                                            ;IN RHCS2 TO INIT THE RH
8127                                                            ;IPCKO BIT #0 RHCS3 WAS SET
8128                                                            ;ZEROS WERE MOVED INTO
8129                                                            ;RHDB
8130                                                            ;RHDB WAS READ THEN
```

```
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBA SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
024136                                  77$:
                                                ;CHECK THAT RHBAE HAS 0
024136  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

024144  017737  157760  001126                  MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
024152  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
024160  001401                                  BEQ     79$             ;BRANCH IF GOOD
024162  104112                                  ERROR   112

                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;IPCKO BIT #0 RHCS3 WAS SET
                                                                        ;ZEROS WERE MOVED INTO
                                                                        ;RHDB
                                                                        ;RHDB WAS READ THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
024164                                  79$:
                                                ;CHECK THAT RHWC HAS 0
024164  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

024172  017737  157664  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
024200  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
024206  001401                                  BEQ     81$             ;BRANCH IF GOOD
024210  104113                                  ERROR   113

                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;IPCKO BIT #0 RHCS3 WAS SET
                                                                        ;ZEROS WERE MOVED INTO
                                                                        ;RHDB
                                                                        ;RHDB WAS READ THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHWC SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHWC
024212                                  81$:


                                        ;;*****************************************************************
                                        ;*TEST 31       RHSC2 MDPE BIT #8 AND RHCS3 IPCK1 BIT #1
```

```
                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                ;*      SET IPCK1 (RHCS3 BIT #1)
                                ;*      MOVE ALL ZEROS INTO RHDB ONCE
                                ;*      THIS SHOULD SET TRE SC IN RHCS1
                                ;*      READ RHDB ONCE THIS SHOULD SET MDPE (RHCS2 BIT #8)
                                ;*      CHECK RHCS1 FOR RDY (BIT #7), TRE (BIT #14), SC (BIT #15)
                                ;*      "CLR" (RHCS2 BIT #5) IS GIVEN
                                ;*      ALL ERRORS ARE CLEARED
                                ;*      CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                ;;*****************************************************************
024212  000004                  TST31:  SCOPE
024214  012706  001000                  MOV     #STACK,SP       ;RESET STACK
024220  012737  000031  004656          MOV     #31,@#TSTNM     ;SAVE TEST NUMBER

024226  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
024232  012737  000001  004662          MOV     #1,IP           ;IPCK BIT NO. FOR PRINTOUT

024240  052777  000002  157664          BIS     #IPCK1,@RHCS3 ;SET IPCK1 IN RHCS3-BIT #1
024246  005037  004210                  CLR     WRFROM          ;WRITE ZERO INTO LOCATION
024252  013777  004210  157622          MOV     WRFROM,@RHDB    ;WRITE ZEROS INTO RHDB ONCE

                                        ;CHECK THAT RHCS1 HAS SC!TRE!DVA!RDY
024260  012737  144200  001124          MOV     #SC!TRE!DVA!RDY,$GDDAT  ;GET GOOD = 144200

024266  017737  157566  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
024274  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
024302  001401                          BEQ     65$             ;BRANCH IF GOOD
024304  104140                          ERROR   140

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;IPCK1 BIT #1 RHCS3 WAS SET
                                                                ;ZEROS WERE MOVED INTO RHDB
                                                                ;RHCS1 SHOULD HAVE SC!TRE!DVA!RDY
                                                                ;=144200
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
024306                  65$:
024306  017737  157570  001200          MOV     @RHDB,$TMP1     ;READ RHDB ONCE

                                        ;CHECK THAT RHCS3 HAS 2
024314  012737  000002  001124          MOV     #2,$GDDAT       ;GET GOOD = 2

024322  017737  157604  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
024330  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS3
024336  001401                          BEQ     67$             ;BRANCH IF GOOD
024340  104104                          ERROR   104

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
```

```
                                                                ;IPCK1 BIT #1 RHCS3 WAS SET
                                                                ;ZEROS WERE MOVED INTO
                                                                ;RHDB
                                                                ;RHDB WAS READ THEN
                                                                ;RHCS3 SHOULD HAVE 2
                                                                ;=2
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS3
024342                          67$:

                                        ;CHECK THAT RHCS2 HAS MDPE!IR
024342  012737  000500  001124          MOV     #MDPE!IR,$GDDAT ;GET GOOD = 500
024350  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

024356  017737  157506  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
024364  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
024372  001401                          BEQ     69$             ;BRANCH IF GOOD
024374  104105                          ERROR   105
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;IPCK1 BIT #1 RHCS3 WAS SET
                                                                ;ZEROS WERE MOVED INTO
                                                                ;RHDB
                                                                ;RHDB WAS READ THEN
                                                                ;RHCS2 SHOULD HAVE MDPE!IR
                                                                ;=500
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
024376                          69$:

024376  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                        ;CHECK THAT RHCS1 HAS RDY!DVA
024402  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200

024410  017737  157444  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
024416  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
024424  001401                          BEQ     71$             ;BRANCH IF GOOD
024426  104106                          ERROR   106

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;IPCK1 BIT #1 RHCS3 WAS SET
                                                                ;ZEROS WERE MOVED INTO
                                                                ;RHDB
                                                                ;RHDB WAS READ THEN
                                                                ;AN RH CLEAR (RHCS2 BIT #5)
                                                                ;WAS GIVEN THIS SHOULD
```

```
                                                                ;CLEAR ALL ERRORS
                                                                ;RHCS1 SHOULD HAVE RDY!DVA
                                                                ;=4200
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
024430                                  71$:
                                                ;CHECK THAT RHCS2 HAS IR
024430  012737  000100  001124            MOV     #IR,$GDDAT    ;GET GOOD = 100
024436  053737  005010  001124            BIS     UNIT,$GDDAT   ;INCLUDE UNIT NUMBER

024444  017737  157420  001126            MOV     @RHCS2,$BDDAT ;READ RHCS2 FOR COMPARISON
024452  023737  001124  001126            CMP     $GDDAT,$BDDAT ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
024460  001401                            BEQ     73$           ;BRANCH IF GOOD
024462  104107                            ERROR   107

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;IPCK1 BIT #1 RHCS3 WAS SET
                                                                ;ZEROS WERE MOVED INTO
                                                                ;RHDB
                                                                ;RHDB WAS READ THEN
                                                                ;AN RH CLEAR (RHCS2 BIT #5)
                                                                ;WAS GIVEN THIS SHOULD
                                                                ;CLEAR ALL ERRORS
                                                                ;RHCS2 SHOULD HAVE IR
                                                                ;=100
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
024464                                  73$:
                                                ;CHECK THAT RHCS3 HAS 0
024464  012737  000000  001124            MOV     #0,$GDDAT     ;GET GOOD = 0

024472  017737  157434  001126            MOV     @RHCS3,$BDDAT ;READ RHCS3 FOR COMPARISON
024500  023737  001124  001126            CMP     $GDDAT,$BDDAT ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS3
024506  001401                            BEQ     75$           ;BRANCH IF GOOD
024510  104110                            ERROR   110

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;IPCK1 BIT #1 RHCS3 WAS SET
                                                                ;ZEROS WERE MOVED INTO
                                                                ;RHDB
                                                                ;RHDB WAS READ THEN
                                                                ;AN RH CLEAR (RHCS2 BIT #5)
                                                                ;WAS GIVEN THIS SHOULD
                                                                ;CLEAR ALL ERRORS
                                                                ;RHCS3 SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS3
024512                                  75$:
                                                ;CHECK THAT RHBA HAS 0
024512  012737  000000  001124            MOV     #0,$GDDAT     ;GET GOOD = 0
```

```
8355  024520  017737  157340  001126          MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
8356  024526  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8357                                                                  ;DATA WITH DATA READ FROM
8358                                                                  ;RHBA
8359  024534  001401                          BEQ     77$             ;BRANCH IF GOOD
8360  024536  104111                          ERROR   111
8361                                                                  ;AFTER SETTING "CLR" BIT #5
8362                                                                  ;IN RHCS2 TO INIT THE RH
8363                                                                  ;IPCK1 BIT #1 RHCS3 WAS SET
8364                                                                  ;ZEROS WERE MOVED INTO
8365                                                                  ;RHDB
8366                                                                  ;RHDB WAS READ THEN
8367                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
8368                                                                  ;WAS GIVEN THIS SHOULD
8369                                                                  ;CLEAR ALL ERRORS
8370                                                                  ;RHBA SHOULD HAVE 0
8371                                                                  ;BUT CONTAINED WHAT IS
8372                                                                  ;GIVEN IN BAD RHBA
8373  024540                          77$:
8374                                          ;CHECK THAT RHBAE HAS 0
8375  024540  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
8376
8377  024546  017737  157356  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
8378  024554  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8379                                                                  ;DATA WITH DATA READ FROM
8380                                                                  ;RHBAE
8381  024562  001401                          BEQ     79$             ;BRANCH IF GOOD
8382  024564  104112                          ERROR   112
8383                                                                  ;AFTER SETTING "CLR" BIT #5
8384                                                                  ;IN RHCS2 TO INIT THE RH
8385                                                                  ;IPCK1 BIT #1 RHCS3 WAS SET
8386                                                                  ;ZEROS WERE MOVED INTO
8387                                                                  ;RHDB
8388                                                                  ;RHDB WAS READ THEN
8389                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
8390                                                                  ;WAS GIVEN THIS SHOULD
8391                                                                  ;CLEAR ALL ERRORS
8392                                                                  ;RHBAE SHOULD HAVE 0
8393                                                                  ;BUT CONTAINED WHAT IS
8394                                                                  ;GIVEN IN BAD RHBAE
8395  024566                          79$:
8396                                          ;CHECK THAT RHWC HAS 0
8397  024566  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
8398
8399  024574  017737  157262  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
8400  024602  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8401                                                                  ;DATA WITH DATA READ FROM
8402                                                                  ;RHWC
8403  024610  001401                          BEQ     81$             ;BRANCH IF GOOD
8404  024612  104113                          ERROR   113
8405                                                                  ;AFTER SETTING "CLR" BIT #5
8406                                                                  ;IN RHCS2 TO INIT THE RH
8407                                                                  ;IPCK1 BIT #1 RHCS3 WAS SET
8408                                                                  ;ZEROS WERE MOVED INTO
8409                                                                  ;RHDB
8410                                                                  ;RHDB WAS READ THEN
```

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8411                                                    ;AN RH CLEAR (RHCS2 BIT #5)
8412                                                    ;WAS GIVEN THIS SHOULD
8413                                                    ;CLEAR ALL ERRORS
8414                                                    ;RHWC SHOULD HAVE 0
8415                                                    ;BUT CONTAINED WHAT IS
8416                                                    ;GIVEN IN BAD RHWC
8417  024614                        81$:
8418
8419
8420
8421                                ;;*****************************************************************
8422                                ;*TEST 32       RHSC2 MDPE BIT #8 AND RHCS3 IPCK2 BIT #2
8423                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
8424                                ;*      SET IPCK2 (RHCS3 BIT #2)
8425                                ;*      MOVE ALL ZEROS INTO RHDB TWICE
8426                                ;*      THIS SHOULD NOT SET TRE SC IN RHCS1
8427                                ;*      READ RHDB ONCE THIS SHOULD SET MDPE (RHCS2 BIT #8)
8428                                ;*      CHECK RHCS1 FOR RDY (BIT #7), TRE (BIT #14), SC (BIT #15)
8429                                ;*      READ RHDB A SECOND TIME. CHECK RHCS1, RHCS2, RHCS3
8430                                ;*      "CLR" (RHCS2 BIT #5) IS GIVEN
8431                                ;*      ALL ERRORS ARE CLEARED
8432                                ;*      CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC
8433
8434                                ;;*****************************************************************
8435  024614  000004                TST32:  SCOPE
8436  024616  012706  001000               MOV     #STACK,SP       ;RESET STACK
8437  024622  012737  000032  004656       MOV     #32,@#TSTNM     ;SAVE TEST NUMBER
8438
8439  024630  004737  040322               JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
8440                                                                ;SETUP UNIT NUBER
8441                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
8442  024634  012737  000002  004662       MOV     #2,IP           ;IPCK BIT NO. FOR PRINTOUT
8443
8444  024642  052777  000004  157262       BIS     #IPCK2,@RHCS3 ;SET IPCK2 IN RHCS3-BIT #2
8445  024650  005037  004210               CLR     WRFROM          ;WRITE ZERO INTO LOCATION
8446  024654  013777  004210  157220       MOV     WRFROM,@RHDB    ;WRITE ZEROS INTO RHDB ONCE
8447  024662  013777  004210  157212       MOV     WRFROM,@RHDB    ;WRITE ZERO SECOND TIME
8448
8449                                       ;CHECK THAT RHCS1 HAS DVA!RDY
8450  024670  012737  004200  001124       MOV     #DVA!RDY,$GDDAT ;GET GOOD = 4200
8451
8452  024676  017737  157156  001126       MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
8453  024704  023737  001124  001126       CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8454                                                                ;DATA WITH DATA READ FROM
8455                                                                ;RHCS1
8456  024712  001401                       BEQ     65$             ;BRANCH IF GOOD
8457  024714  104140                       ERROR   14C
8458                                                                ;AFTER SETTING "CLR" BIT #5
8459                                                                ;IN RHCS2 TO INIT THE RH
8460                                                                ;IPCK2 BIT #2 RHCS3 WAS SET
8461                                                                ;ZEROS WERE MOVED INTO RHDB
8462                                                                ;TWICE
8463                                                                ;RHCS1 SHOULD HAVE DVA!RDY
8464                                                                ;=4200
8465                                                                ;BUT CONTAINED WHAT IS
8466                                                                ;GIVEN IN BAD RHCS1
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8467  024716                          65$:
8468  024716  017737  157160  001200          MOV     @RHDB,$TMP1     ;READ RHDB ONCE
8469
8470
8471                                          ;CHECK THAT RHCS3 HAS 4
8472  024724  012737  000004  001124          MOV     #4,$GDDAT       ;GET GOOD = 4
8473
8474  024732  017737  157174  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
8475  024740  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8476                                                                  ;DATA WITH DATA READ FROM
8477                                                                  ;RHCS3
8478  024746  001401                          BEQ     67$             ;BRANCH IF GOOD
8479  024750  104104                          ERROR   104
8480                                                                  ;AFTER SETTING "CLR" BIT #5
8481                                                                  ;IN RHCS2 TO INIT THE RH
8482                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
8483                                                                  ;ZEROS WERE MOVED INTO
8484                                                                  ;RHDB
8485                                                                  ;RHDB WAS READ THEN
8486                                                                  ;RHCS3 SHOULD HAVE 4
8487                                                                  ;=4
8488                                                                  ;BUT CONTAINED WHAT IS
8489                                                                  ;GIVEN IN BAD RHCS3
8490  024752                          67$:
8491
8492                                          ;CHECK THAT RHCS2 HAS MDPE!OR!IR
8493  024752  012737  000700  001124          MOV     #MDPE!OR!IR,$GDDAT      ;GET GOOD = 700
8494  024760  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
8495
8496  024766  017737  157076  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
8497  024774  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8498                                                                  ;DATA WITH DATA READ FROM
8499                                                                  ;RHCS2
8500  025002  001401                          BEQ     69$             ;BRANCH IF GOOD
8501  025004  104105                          ERROR   105
8502                                                                  ;AFTER SETTING "CLR" BIT #5
8503                                                                  ;IN RHCS2 TO INIT THE RH
8504                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
8505                                                                  ;ZEROS WERE MOVED INTO
8506                                                                  ;RHDB
8507                                                                  ;RHDB WAS READ THEN
8508                                                                  ;RHCS2 SHOULD HAVE MDPE!OR!IR
8509                                                                  ;=700
8510                                                                  ;TOGETHER WITH UNIT NUMBER
8511                                                                  ;BUT CONTAINED WHAT IS
8512                                                                  ;GIVEN IN BAD RHCS2
8513  025006                          69$:
8514
8515  025006  017737  157070  001202          MOV     @RHDB,$TMP2     ;READ RHDB SECOND TIME
8516                                          ;CHECK THAT RHCS1 HAS SC!TRE!DVA!RDY
8517  025014  012737  144200  001124          MOV     #SC!TRE!DVA!RDY,$GDDAT  ;GET GOOD = 144200
8518
8519  025022  017737  157032  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
8520  025030  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8521                                                                  ;DATA WITH DATA READ FROM
8522                                                                  ;RHCS1
```

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8523  025036  001401                          BEQ     71$             ;BRANCH IF GOOD
8524  025040  104140                          ERROR   140
8525                                                                  ;AFTER SETTING "CLR" BIT #5
8526                                                                  ;IN RHCS2 TO INIT THE RH
8527                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
8528                                                                  ;ZEROS WERE MOVED INTO
8529                                                                  ;RHDB
8530                                                                  ;RHDB WAS READ THEN
8531                                                                  ;RHCS1 SHOULD HAVE SC!TRE!DVA!RDY
8532                                                                  ;=144200
8533                                                                  ;BUT CONTAINED WHAT IS
8534                                                                  ;GIVEN IN BAD RHCS1
8535  025042                            71$:
8536                                    ;CHECK THAT RHCS2 HAS MDPE!IR
8537  025042  012737  000500  001124            MOV     #MDPE!IR,$GDDAT ;GET GOOD = 500
8538  025050  053737  005010  001124            BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
8539
8540  025056  017737  157006  001126            MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
8541  025064  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8542                                                                  ;DATA WITH DATA READ FROM
8543                                                                  ;RHCS2
8544  025072  001401                          BEQ     73$             ;BRANCH IF GOOD
8545  025074  104105                          ERROR   105
8546                                                                  ;AFTER SETTING "CLR" BIT #5
8547                                                                  ;IN RHCS2 TO INIT THE RH
8548                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
8549                                                                  ;ZEROS WERE MOVED INTO
8550                                                                  ;RHDB
8551                                                                  ;RHDB WAS READ THEN
8552                                                                  ;RHCS2 SHOULD HAVE MDPE!IR
8553                                                                  ;=500
8554                                                                  ;TOGETHER WITH UNIT NUMBER
8555                                                                  ;BUT CONTAINED WHAT IS
8556                                                                  ;GIVEN IN BAD RHCS2
8557  025076                            73$:
8558                                    ;CHECK THAT RHCS3 HAS 4
8559  025076  012737  000004  001124            MOV     #4,$GDDAT       ;GET GOOD = 4
8560
8561  025104  017737  157022  001126            MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
8562  025112  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8563                                                                  ;DATA WITH DATA READ FROM
8564                                                                  ;RHCS3
8565  025120  001401                          BEQ     75$             ;BRANCH IF GOOD
8566  025122  104104                          ERROR   104
8567                                                                  ;AFTER SETTING "CLR" BIT #5
8568                                                                  ;IN RHCS2 TO INIT THE RH
8569                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
8570                                                                  ;ZEROS WERE MOVED INTO
8571                                                                  ;RHDB
8572                                                                  ;RHDB WAS READ THEN
8573                                                                  ;RHCS3 SHOULD HAVE 4
8574                                                                  ;=4
8575                                                                  ;BUT CONTAINED WHAT IS
8576                                                                  ;GIVEN IN BAD RHCS3
8577  025124                            75$:
8578
```

```
8579  025124  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
8580                                                                  ;SETUP UNIT NUBER
8581                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
8582
8583
8584                                          ;CHECK THAT RHCS1 HAS RDY!DVA
8585  025130  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
8586
8587  025136  017737  156716  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
8588  025144  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8589                                                                  ;DATA WITH DATA READ FROM
8590                                                                  ;RHCS1
8591  025152  001401                          BEQ     77$             ;BRANCH IF GOOD
8592  025154  104106                          ERROR   106
8593                                                                  ;AFTER SETTING "CLR" BIT #5
8594                                                                  ;IN RHCS2 TO INIT THE RH
8595                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
8596                                                                  ;ZEROS WERE MOVED INTO
8597                                                                  ;RHDB
8598                                                                  ;RHDB WAS READ THEN
8599                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
9600                                                                  ;WAS GIVEN THIS SHOULD
8601                                                                  ;CLEAR ALL ERRORS
8602                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
8603                                                                  ;=4200
8604                                                                  ;BUT CONTAINED WHAT IS
8605                                                                  ;GIVEN IN BAD RHCS1
8606  025156                          77$:
8607                                          ;CHECK THAT RHCS2 HAS IR
8608  025156  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
8609  025164  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
8610
8611  025172  017737  156672  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
8612  025200  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8613                                                                  ;DATA WITH DATA READ FROM
8614                                                                  ;RHCS2
8615  025206  001401                          BEQ     79$             ;BRANCH IF GOOD
8616  025210  104107                          ERROR   107
8617                                                                  ;AFTER SETTING "CLR" BIT #5
8618                                                                  ;IN RHCS2 TO INIT THE RH
8619                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
8620                                                                  ;ZEROS WERE MOVED INTO
8621                                                                  ;RHDB
8622                                                                  ;RHDB WAS READ THEN
8623                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
8624                                                                  ;WAS GIVEN THIS SHOULD
8625                                                                  ;CLEAR ALL ERRORS
8626                                                                  ;RHCS2 SHOULD HAVE IR
8627                                                                  ;=100
8628                                                                  ;TOGETHER WITH UNIT NUMBER
8629                                                                  ;BUT CONTAINED WHAT IS
8630                                                                  ;GIVEN IN BAD RHCS2
8631  025212                          79$:
8632                                          ;CHECK THAT RHCS3 HAS 0
8633  025212  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
8634
```

```
 8635  025220  017737  156706  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
 8636  025226  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
-8637                                                                  ;DATA WITH DATA READ FROM
 8638                                                                  ;RHCS3
 8639  025234  001401                          BEQ     81$             ;BRANCH IF GOOD
 8640  025236  104110                          ERROR   110
 8641                                                                  ;AFTER SETTING "CLR" BIT #5
 8642                                                                  ;IN RHCS2 TO INIT THE RH
 8643                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
 8644                                                                  ;ZEROS WERE MOVED INTO
 8645                                                                  ;RHDB
 8646                                                                  ;RHDB WAS READ THEN
 8647                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
 8648                                                                  ;WAS GIVEN THIS SHOULD
 8649                                                                  ;CLEAR ALL ERRORS
 8650                                                                  ;RHCS3 SHOULD HAVE 0
 8651                                                                  ;BUT CONTAINED WHAT IS
 8652                                                                  ;GIVEN IN BAD RHCS3
 8653  025240                          81$:
 8654                                          ;CHECK THAT RHBA HAS 0
 8655  025240  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
 8656
 8657  025246  017737  156612  001126          MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
 8658  025254  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 8659                                                                  ;DATA WITH DATA READ FROM
 8660                                                                  ;RHBA
 8661  025262  001401                          BEQ     83$             ;BRANCH IF GOOD
 8662  025264  104111                          ERROR   111
 8663                                                                  ;AFTER SETTING "CLR" BIT #5
 8664                                                                  ;IN RHCS2 TO INIT THE RH
 8665                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
 8666                                                                  ;ZEROS WERE MOVED INTO
 8667                                                                  ;RHDB
 8668                                                                  ;RHDB WAS READ THEN
 8669                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
 8670                                                                  ;WAS GIVEN THIS SHOULD
 8671                                                                  ;CLEAR ALL ERRORS
 8672                                                                  ;RHBA SHOULD HAVE 0
 8673                                                                  ;BUT CONTAINED WHAT IS
 8674                                                                  ;GIVEN IN BAD RHBA
 8675  025266                          83$:
 8676                                          ;CHECK THAT RHBAE HAS 0
 8677  025266  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
 8678
 8679  025274  017737  156630  001126          MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
 8680  025302  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 8681                                                                  ;DATA WITH DATA READ FROM
 8682                                                                  ;RHBAE
 8683  025310  001401                          BEQ     85$             ;BRANCH IF GOOD
 8684  025312  104112                          ERROR   112
 8685                                                                  ;AFTER SETTING "CLR" BIT #5
 8686                                                                  ;IN RHCS2 TO INIT THE RH
 8687                                                                  ;IPCK2 BIT #2 RHCS3 WAS SET
 8688                                                                  ;ZEROS WERE MOVED INTO
 8689                                                                  ;RHDB
 8690                                                                  ;RHDB WAS READ THEN
```

```
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
025314                                  85$:
                                                ;CHECK THAT RHWC HAS 0
025314  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

025322  017737  156534  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
025330  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
025336  001401                                  BEQ     87$             ;BRANCH IF GOOD
025340  104113                                  ERROR   113

                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;IPCK2 BIT #2 RHCS3 WAS SET
                                                                        ;ZEROS WERE MOVED INTO
                                                                        ;RHDB
                                                                        ;RHDB WAS READ THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHWC SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHWC
025342                                  87$:


                                        ;;*****************************************************************
                                        ;*TEST 33       RHSC2 MDPE BIT #8 AND RHCS3 IPCK3 BIT #3
                                        ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        ;*      SET IPCK3 (RHCS3 BIT #3)
                                        ;*      MOVE ALL ZEROS INTO RHDB TWICE
                                        ;*      THIS SHOULD NOT SET TRE SC IN RHCS1
                                        ;*      READ RHDB ONCE THIS SHOULD SET MDPE (RHCS2 BIT #8)
                                        ;*      CHECK RHCS1 FOR RDY (BIT #7), TRE (BIT #14), SC (BIT #15)
                                        ;*      READ RHDB A SECOND TIME. CHECK RHCS1, RHCS2, RHCS3
                                        ;*      "CLR" (RHCS2 BIT #5) IS GIVEN
                                        ;*      ALL ERRORS ARE CLEARED
                                        ;*      CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                        ;;*****************************************************************
025342  000004                          1ST33:  SCOPE
025344  012706  001000                          MOV     #STACK,SP       ;RESET STACK
025350  012737  000033  004656                  MOV     #33,@#.TSTNM    ;SAVE TEST NUMBER

025356  004737  040322                          JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                        ;SETUP UNIT NUBER
                                                                        ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
025362  012737  000003  004662                  MOV     #3,IP           ;IPCK BIT NO. FOR PRINTOUT

025370  052777  000010  156534                  BIS     #IPCK3,@RHCS3 ;SET IPCK3 IN RHCS3-BIT #3
```

```
8747  025376  005037  004210                  CLR     WRFROM              ;WRITE ZERO INTO LOCATION
8748  025402  013777  004210  156472          MOV     WRFROM,@RHDB        ;WRITE ZEROS INTO RHDB ONCE
8749  025410  013777  004210  156464          MOV     WRFROM,@RHDB        ;WRITE ZERO SECOND TIME
8750
8751                                          ;CHECK THAT RHCS1 HAS DVA!RDY
8752  025416  012737  004200  001124          MOV     #DVA!RDY,$GDDAT     ;GET GOOD = 4200
8753
8754  025424  017737  156430  001126          MOV     @RHCS1,$BDDAT       ;READ RHCS1 FOR COMPARISON
8755  025432  023737  001124  001126          CMP     $GDDAT,$BDDAT       ;COMPARE EXPECTED
8756                                                                      ;DATA WITH DATA READ FROM
8757                                                                      ;RHCS1
8758  025440  001401                          BEQ     65$                 ;BRANCH IF GOOD
8759  025442  104140                          ERROR   140
8760                                                                      ;AFTER SETTING "CLR" BIT #5
8761                                                                      ;IN RHCS2 TO INIT THE RH
8762                                                                      ;IPCK3 BIT #3 RHCS3 WAS SET
8763                                                                      ;ZEROS WERE MOVED INTO RHDB
8764                                                                      ;TWICE
8765                                                                      ;RHCS1 SHOULD HAVE DVA!RDY
8766                                                                      ;=4200
8767                                                                      ;BUT CONTAINED WHAT IS
8768                                                                      ;GIVEN IN BAD RHCS1
8769  025444                          65$:
8770  025444  017737  156432  001200          MOV     @RHDB,$TMP1         ;READ RHDB ONCE
8771
8772
8773                                          ;CHECK THAT RHCS3 HAS 10
8774  025452  012737  000010  001124          MOV     #10,$GDDAT          ;GET GOOD = 10
8775
8776  025460  017737  156446  001126          MOV     @RHCS3,$BDDAT       ;READ RHCS3 FOR COMPARISON
8777  025466  023737  001124  001126          CMP     $GDDAT,$BDDAT       ;COMPARE EXPECTED
8778                                                                      ;DATA WITH DATA READ FROM
8779                                                                      ;RHCS3
8780  025474  001401                          BEQ     67$                 ;BRANCH IF GOOD
8781  025476  104104                          ERROR   104
8782                                                                      ;AFTER SETTING "CLR" BIT #5
8783                                                                      ;IN RHCS2 TO INIT THE RH
8784                                                                      ;IPCK3 BIT #3 RHCS3 WAS SET
8785                                                                      ;ZEROS WERE MOVED INTO
8786                                                                      ;RHDB
8787                                                                      ;RHDB WAS READ THEN
8788                                                                      ;RHCS3 SHOULD HAVE 10
8789                                                                      ;=10
8790                                                                      ;BUT CONTAINED WHAT IS
8791                                                                      ;GIVEN IN BAD RHCS3
8792  025500                          67$:
8793
8794                                          ;CHECK THAT RHCS2 HAS MDPE!OR!IR
8795  025500  012737  000700  001124          MOV     #MDPE!OR!IR,$GDDAT      ;GET GOOD = 700
8796  025506  053737  005010  001124          BIS     UNIT,$GDDAT         ;INCLUDE UNIT NUMBER
8797
8798  025514  017737  156350  001126          MOV     @RHCS2,$BDDAT       ;READ RHCS2 FOR COMPARISON
8799  025522  023737  001124  001126          CMP     $GDDAT,$BDDAT       ;COMPARE EXPECTED
8800                                                                      ;DATA WITH DATA READ FROM
8801                                                                      ;RHCS2
8802  025530  001401                          BEQ     69$                 ;BRANCH IF GOOD
```

```
8803  025532  104105                          ERROR   105
8804                                                      ;AFTER SETTING "CLR" BIT #5
8805                                                      ;IN RHCS2 TO INIT THE RH
8806                                                      ;IPCK3 BIT #3 RHCS3 WAS SET
8807                                                      ;ZEROS WERE MOVED INTO
8808                                                      ;RHDB
8809                                                      ;RHDB WAS READ THEN
8810                                                      ;RHCS2 SHOULD HAVE MDPE!OR!IR
8811                                                      ;=700
8812                                                      ;TOGETHER WITH UNIT NUMBER
8813                                                      ;BUT CONTAINED WHAT IS
8814                                                      ;GIVEN IN BAD RHCS2
8815  025534                              69$:
8816
9817  025534  017737  156342  001202          MOV     @RHDB,$TMP2     ;READ RHDB SECOND TIME
8818                                          ;CHECK THAT RHCS1 HAS SC!TRE!DVA!RDY
8819  025542  012737  144200  001124          MOV     #SC!TRE!DVA!RDY,$GDDAT  ;GET GOOD = 144200
8820
8821  025550  017737  156304  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
8822  025556  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8823                                                      ;DATA WITH DATA READ FROM
8824                                                      ;RHCS1
8825  025564  001401                          BEQ     71$             ;BRANCH IF GOOD
8826  025566  104140                          ERROR   140
8827                                                      ;AFTER SETTING "CLR" BIT #5
8828                                                      ;IN RHCS2 TO INIT THE RH
8829                                                      ;IPCK3 BIT #3 RHCS3 WAS SET
8830                                                      ;ZEROS WERE MOVED INTO
8831                                                      ;RHDB
8832                                                      ;RHDB WAS READ THEN
8833                                                      ;RHCS1 SHOULD HAVE SC!TRE!DVA!RDY
8834                                                      ;=144200
8835                                                      ;BUT CONTAINED WHAT IS
8836                                                      ;GIVEN IN BAD RHCS1
8837  025570                              71$:
8838                                          ;CHECK THAT RHCS2 HAS MDPE!IR
8839  025570  012737  000500  001124          MOV     #MDPE!IR,$GDDAT ;GET GOOD = 500
8840  025576  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
8841
8842  025604  017737  156260  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
8843  025612  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8844                                                      ;DATA WITH DATA READ FROM
8845                                                      ;RHCS2
8846  025620  001401                          BEQ     73$             ;BRANCH IF GOOD
8847  025622  104105                          ERROR   105
8848                                                      ;AFTER SETTING "CLR" BIT #5
8849                                                      ;IN RHCS2 TO INIT THE RH
8850                                                      ;IPCK3 BIT #3 RHCS3 WAS SET
8851                                                      ;ZEROS WERE MOVED INTO
8852                                                      ;RHDB
8853                                                      ;RHDB WAS READ THEN
8854                                                      ;RHCS2 SHOULD HAVE MDPE!IR
8855                                                      ;=500
8856                                                      ;TOGETHER WITH UNIT NUMBER
8857                                                      ;BUT CONTAINED WHAT IS
8858                                                      ;GIVEN IN BAD RHCS2
```

```
8859  025624                                73$:
8860                                              ;CHECK THAT RHCS3 HAS 10
8861  025624  012737  000010  001124              MOV     #10,$GDDAT      ;GET GOOD = 10
8862
8863  025632  017737  156274  001126              MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
8864  025640  023737  001124  001126              CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8865                                                                    ;DATA WITH DATA READ FROM
8866                                                                    ;RHCS3
8867  025646  001401                              BEQ     75$             ;BRANCH IF GOOD
8868  025650  104104                              ERROR   104
8869                                                                    ;AFTER SETTING "CLR" BIT #5
8870                                                                    ;IN RHCS2 TO INIT THE RH
8871                                                                    ;IPCK3 BIT #3 RHCS3 WAS SET
8872                                                                    ;ZEROS WERE MOVED INTO
8873                                                                    ;RHDB
8874                                                                    ;RHDB WAS READ THEN
8875                                                                    ;RHCS3 SHOULD HAVE 10
8876                                                                    ;=10
8877                                                                    ;BUT CONTAINED WHAT IS
8878                                                                    ;GIVEN IN BAD RHCS3
8879  025652                                75$:
8880
8881  025652  004737  040322                      JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
8882                                                                    ;SETUP UNIT NUBER
8883                                                                    ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
8884
8885
8886                                              ;CHECK THAT RHCS1 HAS RDY!DVA
8887  025656  012737  004200  001124              MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
8888
8889  025664  017737  156170  001126              MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
8890  025672  023737  001124  001126              CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
8891                                                                    ;DATA WITH DATA READ FROM
8892                                                                    ;RHCS1
8893  025700  001401                              BEQ     77$             ;BRANCH IF GOOD
8894  025702  104106                              ERROR   106
8895                                                                    ;AFTER SETTING "CLR" BIT #5
8896                                                                    ;IN RHCS2 TO INIT THE RH
8897                                                                    ;IPCK3 BIT #3 RHCS3 WAS SET
8898                                                                    ;ZEROS WERE MOVED INTO
8899                                                                    ;RHDB
8900                                                                    ;RHDB WAS READ THEN
8901                                                                    ;AN RH CLEAR (RHCS2 BIT #5)
8902                                                                    ;WAS GIVEN THIS SHOULD
8903                                                                    ;CLEAR ALL ERRORS
8904                                                                    ;RHCS1 SHOULD HAVE RDY!DVA
8905                                                                    ;=4200
8906                                                                    ;BUT CONTAINED WHAT IS
8907                                                                    ;GIVEN IN BAD RHCS1
8908  025704                                77$:
8909                                              ;CHECK THAT RHCS2 HAS IR
8910  025704  012737  000100  001124              MOV     #IR,$GDDAT      ;GET GOOD = 100
8911  025712  053737  005010  001124              BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
8912
8913  025720  017737  156144  001126              MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
8914  025726  023737  001124  001126              CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
```

```
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHCS2
025734  001401                          BEQ     79$                     ;BRANCH IF GOOD
025736  104107                          ERROR   107
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;IPCK3 BIT #3 RHCS3 WAS SET
                                                                        ;ZEROS WERE MOVED INTO
                                                                        ;RHDB
                                                                        ;RHDB WAS READ THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHCS2 SHOULD HAVE IR
                                                                        ;=100
                                                                        ;TOGETHER WITH UNIT NUMBER
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS2
025740                          79$:
                                        ;CHECK THAT RHCS3 HAS 0
025740  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

025746  017737  156160  001126          MOV     @RHCS3,$BDDAT           ;READ RHCS3 FOR COMPARISON
025754  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHCS3
025762  001401                          BEQ     81$                     ;BRANCH IF GOOD
025764  104110                          ERROR   110
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;IPCK3 BIT #3 RHCS3 WAS SET
                                                                        ;ZEROS WERE MOVED INTO
                                                                        ;RHDB
                                                                        ;RHDB WAS READ THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHCS3 SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS3
025766                          81$:
                                        ;CHECK THAT RHBA HAS 0
025766  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

025774  017737  156064  001126          MOV     @RHBA,$BDDAT            ;READ RHBA FOR COMPARISON
026002  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBA
026010  001401                          BEQ     83$                     ;BRANCH IF GOOD
026012  104111                          ERROR   111
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;IPCK3 BIT #3 RHCS3 WAS SET
                                                                        ;ZEROS WERE MOVED INTO
                                                                        ;RHDB
                                                                        ;RHDB WAS READ THEN
```

```
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBA SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
026014                                  83$:
                                                ;CHECK THAT RHBAE HAS 0
026014  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

026022  017737  156102  001126                  MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
026030  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
026036  001401                                  BEQ     85$             ;BRANCH IF GOOD
026040  104112                                  ERROR   112
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;IPCK3 BIT #3 RHCS3 WAS SET
                                                                        ;ZEROS WERE MOVED INTO
                                                                        ;RHDB
                                                                        ;RHDB WAS READ THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
026042                                  85$:
                                                ;CHECK THAT RHWC HAS 0
026042  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

026050  017737  156006  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
026056  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
026064  001401                                  BEQ     87$             ;BRANCH IF GOOD
026066  104113                                  ERROR   113
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;IPCK3 BIT #3 RHCS3 WAS SET
                                                                        ;ZEROS WERE MOVED INTO
                                                                        ;RHDB
                                                                        ;RHDB WAS READ THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHWC SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHWC
026070                                  87$:


                                        ;;*****************************************************************
```

```
                                ;*TEST 34       RHCS2-WCE BIT #14 AND RHCS3-WCE OW BIT #12
                                ;*
                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                ;*      WRITE NINE WORD OF ALL NINES ON TO THE DEVICE
                                ;*      SET UP TO DO WRITE CHECK ON THAT WORD FROM AN
                                ;*      ODD WORD BOUNDARY
                                ;*      DO A ONE WORD WRITE CHECK WITH RHBA FROM AN
                                ;*      ODD WORD BOUNDARY
                                ;*      THIS SHOULD SET WCE OW (RHCS3 BIT #12)
                                ;*      AND WCE (RHCS2 BIT #14)
                                ;*      "CLR" (RHCS2 BIT #5) IS GIVEN
                                ;*      ALL ERRORS ARE CLEARED
                                ;*      CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC
                                ;
                                ;;*****************************************************************
026070  000004                  TST34:  SCOPE
026072  012706  001000                  MOV     #STACK,SP       ;RESET STACK
026076  012737  000034  004656          MOV     #34,@#TSTNM     ;SAVE TEST NUMBER
                                ;
026104  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
                                ;
                                        ;WRITE ONE WORD OF ALL ONES ON THE DEVICE
026110  012737  177777  004210          MOV     #-1,WRFROM      ;ALL ONES INTO WRITE FROM
026116  012777  177767  155736          MOV     #-9.,@RHWC      ;NINE WORD FOR WORD COUNT REGISTER
026124  012777  004210  155732          MOV     #WRFROM,@RHBA   ;WRITE FROM BUFFER INTO BUS ADDRESS
                                ;
026132  004077  156502                  JSR     R0,@COMND       ;GO TO DO COMMAND
026136  004154                  WRIDAT                          ;WRITE DATA
                                ;
                                        ;SET UP FOR WRITE CHECK
026140  005037  003002          CLR     BUFOW                   ;WRITE DATA FOR WRITE CHECK ERROR
026144  012777  177767  155710  MOV     #-9.,@RHWC              ;NINE WORD FOR WORD COUNT REGISTER
026152  012777  003002  155704  MOV     #BUFOW,@RHBA            ;WRITE FROM BUFFER INTO BUS ADDRESS
                                                                ;FROM ODD WORD BOUNDRY
                                        ;WRITE CHECK ON ODD WORD BOUNDARY
026160  004077  156454          JSR     R0,@COMND               ;GO TO DC COMMAND
026164  004150                  WRCHEK                          ;WRITE CHECK DATA
                                ;
                                ;
                                ;
                                ;
                                        ;CHECK THAT RHCS2 HAS WCE!OR!IR
026166  012737  040300  001124  MOV     #WCE!OR!IR,$GDDAT       ;GET GOOD = 40300
026174  053737  005010  001124  BIS     UNIT,$GDDAT             ;INCLUDE UNIT NUMBER
                                ;
026202  017737  155662  001126  MOV     @RHCS2,$BDDAT           ;READ RHCS2 FOR COMPARISON
026210  023737  001124  001126  CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
026216  001401                  BEQ     65$                     ;BRANCH IF GOOD
026220  104114                  ERROR   114
                                ;
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;ONE WORD OF ALL ONES IS
```

```
                                                                ;WRITTEN ON THE DEVICE
                                                                ;A WRITE CHECK WAS DONE
                                                                ;ON AN ODD WORD BOUNDARY THEN
                                                                ;RHCS2 SHOULD HAVE WCE!OR!IR
                                                                ;=40300
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
026222                                  65$:

                                        ;CHECK THAT RHCS3 HAS DBL!WCEOW
026222  012737  012000  001124          MOV     #DBL!WCEOW,$GDDAT       ;GET GOOD = 12000

026230  017737  155676  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
026236  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS3
026244  001401                          BEQ     67$             ;BRANCH IF GOOD
026246  104115                          ERROR   115

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;ONE WORD OF ALL ONES IS
                                                                ;WRITTEN ON THE DEVICE
                                                                ;A WRITE CHECK WAS DONE
                                                                ;ON AN ODD WORD BOUNDARY THEN
                                                                ;RHCS3 SHOULD HAVE DBL!WCEOW
                                                                ;=12000
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS3
026250                                  67$:


026250  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1


                                        ;CHECK THAT RHCS1 HAS RDY!DVA
026254  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200

026262  017737  155572  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
026270  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
026276  001401                          BEQ     69$             ;BRANCH IF GOOD
026300  104116                          ERROR   116

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;ONE WORD OF ALL ONES IS
                                                                ;WRITTEN ON THE DEVICE
                                                                ;A WRITE CHECK WAS DONE
                                                                ;ON AN ODD WORD BOUNDARY THEN
                                                                ;AN RH CLEAR (RHCS2 BIT #5)
                                                                ;WAS GIVEN THIS SHOULD
                                                                ;CLEAR ALL ERRORS
                                                                ;RHCS1 SHOULD HAVE RDY!DVA
```

```
                                                                        ;=4200
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS1
026302                                  69$:
                                        ;CHECK THAT RHCS2 HAS IR
026302  012737  000100  001124          MOV     #IR,$GDDAT              ;GET GOOD = 100
026310  053737  005010  001124          BIS     UNIT,$GDDAT             ;INCLUDE UNIT NUMBER

026316  017737  155546  001126          MOV     @RHCS2,$BDDAT           ;READ RHCS2 FOR COMPARISON
026324  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHCS2
026332  001401                          BEQ     71$                     ;BRANCH IF GOOD
026334  104117                          ERROR   117
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHCS2 SHOULD HAVE IR
                                                                        ;=100
                                                                        ;TOGETHER WITH UNIT NUMBER
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS2
026336                                  71$:
                                        ;CHECK THAT RHCS3 HAS 0
026336  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

026344  017737  155562  001126          MOV     @RHCS3,$BDDAT           ;READ RHCS3 FOR COMPARISON
026352  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHCS3
026360  001401                          BEQ     73$                     ;BRANCH IF GOOD
026362  104120                          ERROR   120
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHCS3 SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS3
026364                                  73$:
                                        ;CHECK THAT RHBA HAS 0
026364  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

026372  017737  155466  001126          MOV     @RHBA,$BDDAT            ;READ RHBA FOR COMPARISON
026400  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
```

```
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBA
026406  001401                          BEQ     75$                     ;BRANCH IF GOOD
026410  104121                          ERROR   121
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBA SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
026412                          75$:
                                        ;CHECK THAT RHBAE HAS 0
026412  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

026420  017737  155504  001126          MOV     @RHBAE,$BDDAT           ;READ RHBAE FOR COMPARISON
026426  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
026434  001401                          BEQ     77$                     ;BRANCH IF GOOD
026436  104122                          ERROR   122
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
026440                          77$:
                                        ;CHECK THAT RHWC HAS 0
026440  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

026446  017737  155410  001126          MOV     @RHWC,$BDDAT            ;READ RHWC FOR COMPARISON
026454  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
026462  001401                          BEQ     79$                     ;BRANCH IF GOOD
026464  104123                          ERROR   123
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
```

```
                                                        ;CLEAR ALL ERRORS
                                                        ;RHWC SHOULD HAVE 0
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHWC
026466                          79$:
;;*****************************************************************
;*TEST 35       RHCS2-WCE BIT #14 AND RHCS3-WCE OW BIT #12

;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
;*      WRITE NINE WORD OF ALL NINES ON TO THE DEVICE
;*      SET UP TO DO WRITE CHECK ON THAT WORD FROM AN
;*      ODD WORD BOUNDARY
;*      DO A ONE WORD WRITE CHECK WITH RHBA FROM AN
;*      ODD WORD BOUNDARY
;*      THIS SHOULD SET WCE OW (RHCS3 BIT #12)
;*      AND WCE (RHCS2 BIT #14)
;*      "CLR" (RHCS2 BIT #5) IS GIVEN
;*      ALL ERRORS ARE CLEARED
;*      CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

;;*****************************************************************
026466  000004          TST35:  SCOPE
026470  012706  001000          MOV     #STACK,SP       ;RESET STACK
026474  012737  000035  004656  MOV     #35,@#TSTNM     ;SAVE TEST NUMBER

026502  004737  040322          JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                        ;SETUP UNIT NUBER
                                                        ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                ;WRITE ONE WORD OF ALL ONES ON THE DEVICE
026506  012737  177777  004210  MOV     #-1,WRFROM      ;ALL ONES INTO WRITE FROM
026514  012777  177767  155340  MOV     #-9.,@RHWC      ;NINE WORD FOR WORD COUNT REGISTER
026522  012777  004210  155334  MOV     #WRFROM,@RHBA   ;WRITE FROM BUFFER INTO BUS ADDRESS

026530  004077  156104          JSR     R0,@COMND       ;GO TO DO COMMAND
026534  004154                  WRIDAT                  ;WRITE DATA

                                ;SET UP FOR WRITE CHECK
026536  005037  003002          CLR     BUFOW           ;WRITE DATA FOR WRITE CHECK ERROR
026542  012777  177767  155312  MOV     #-9.,@RHWC      ;NINE WORD FOR WORD COUNT REGISTER
026550  012777  003002  155306  MOV     #BUFOW,@RHBA    ;WRITE FROM BUFFER INTO BUS ADDRESS
                                                        ;FROM ODD WORD BOUNDRY

                                ;WRITE CHECK ON ODD WORD BOUNDARY
026556  004077  156056          JSR     R0,@COMND       ;GO TO DO COMMAND
026562  004150                  WRCHEK                  ;WRITE CHECK DATA


                                ;CHECK THAT RHCS2 HAS WCE!OR!IR
026564  012737  040300  001124  MOV     #WCE!OR!IR,$GDDAT       ;GET GOOD = 40300
026572  053737  005010  001124  BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
```

```
 9307  026600  017737  155264  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
 9308  026606  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 9309                                                                  ;DATA WITH DATA READ FROM
 9310                                                                  ;RHCS2
 9311  026614  001401                          BEQ     65$             ;BRANCH IF GOOD
 9312  026616  104114                          ERROR   114
 9313                                                                  ;AFTER SETTING "CLR" BIT #5
 9314                                                                  ;IN RHCS2 TO INIT THE RH
 9315                                                                  ;ONE WORD OF ALL ONES IS
 9316                                                                  ;WRITTEN ON THE DEVICE
 9317                                                                  ;A WRITE CHECK WAS DONE
 9318                                                                  ;ON AN ODD WORD BOUNDARY THEN
 9319                                                                  ;RHCS2 SHOULD HAVE WCE!OR!IR
 9320                                                                  ;=40300
 9321                                                                  ;TOGETHER WITH UNIT NUMBER
 9322                                                                  ;BUT CONTAINED WHAT IS
 9323                                                                  ;GIVEN IN BAD RHCS2
 9324  026620                          65$:
 9325
 9326                                          ;CHECK THAT RHCS3 HAS DBL!WCEOW
 9327  026620  012737  012000  001124          MOV     #DBL!WCEOW,$GDDAT       ;GET GOOD = 12000
 9328
 9329  026626  017737  155300  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
 9330  026634  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 9331                                                                  ;DATA WITH DATA READ FROM
 9332                                                                  ;RHCS3
 9333  026642  001401                          BEQ     67$             ;BRANCH IF GOOD
 9334  026644  104115                          ERROR   115
 9335                                                                  ;AFTER SETTING "CLR" BIT #5
 9336                                                                  ;IN RHCS2 TO INIT THE RH
 9337                                                                  ;ONE WORD OF ALL ONES IS
 9338                                                                  ;WRITTEN ON THE DEVICE
 9339                                                                  ;A WRITE CHECK WAS DONE
 9340                                                                  ;ON AN ODD WORD BOUNDARY THEN
 9341                                                                  ;RHCS3 SHOULD HAVE DBL!WCEOW
 9342                                                                  ;=12000
 9343                                                                  ;BUT CONTAINED WHAT IS
 9344                                                                  ;GIVEN IN BAD RHCS3
 9345  026646                          67$:
 9346
 9347
 9348  026646  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
 9349                                                                  ;SETUP UNIT NUBER
 9350                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
 9351
 9352
 9353                                          ;CHECK THAT RHCS1 HAS RDY!DVA
 9354  026652  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
 9355
 9356  026660  017737  155174  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
 9357  026666  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 9358                                                                  ;DATA WITH DATA READ FROM
 9359                                                                  ;RHCS1
 9360  026674  001401                          BEQ     69$             ;BRANCH IF GOOD
 9361  026676  104116                          ERROR   116
 9362                                                                  ;AFTER SETTING "CLR" BIT #5
```

```
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHCS1 SHOULD HAVE RDY!DVA
                                                                        ;=4200
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS1
026700                                  69$:
                                        ;CHECK THAT RHCS2 HAS IR
026700  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
026706  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

026714  017737  155150  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
026722  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
026730  001401                          BEQ     71$             ;BRANCH IF GOOD
026732  104117                          ERROR   117

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;ONE WORD OF ALL ONES IS
                                                                ;WRITTEN ON THE DEVICE
                                                                ;A WRITE CHECK WAS DONE
                                                                ;ON AN ODD WORD BOUNDARY THEN
                                                                ;AN RH CLEAR (RHCS2 BIT #5)
                                                                ;WAS GIVEN THIS SHOULD
                                                                ;CLEAR ALL ERRORS
                                                                ;RHCS2 SHOULD HAVE IR
                                                                ;=100
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
026734                                  71$:
                                        ;CHECK THAT RHCS3 HAS 0
026734  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0

026742  017737  155164  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
026750  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS3
026756  001401                          BEQ     73$             ;BRANCH IF GOOD
026760  104120                          ERROR   120

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;ONE WORD OF ALL ONES IS
                                                                ;WRITTEN ON THE DEVICE
                                                                ;A WRITE CHECK WAS DONE
                                                                ;ON AN ODD WORD BOUNDARY THEN
                                                                ;AN RH CLEAR (RHCS2 BIT #5)
                                                                ;WAS GIVEN THIS SHOULD
                                                                ;CLEAR ALL ERRORS
```

```
                                                                        ;RHCS3 SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS3
026762                                  73$:
                                                ;CHECK THAT RHBA HAS 0
026762  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

026770  017737  155070  001126                  MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
026776  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBA
027004  001401                                  BEQ     75$             ;BRANCH IF GOOD
027006  104121                                  ERROR   121
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBA SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
027010                                  75$:
                                                ;CHECK THAT RHBAE HAS 0
027010  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

027016  017737  155106  001126                  MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
027024  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
027032  001401                                  BEQ     77$             ;BRANCH IF GOOD
027034  104122                                  ERROR   122
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
027036                                  77$:
                                                ;CHECK THAT RHWC HAS 0
027036  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0

027044  017737  155012  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
027052  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
027060  001401                                  BEQ     79$             ;BRANCH IF GOOD
```

```
                                        ERROR   123
                                                        ;AFTER SETTING "CLR" BIT #5
                                                        ;IN RHCS2 TO INIT THE RH
                                                        ;ONE WORD OF ALL ONES IS
                                                        ;WRITTEN ON THE DEVICE
                                                        ;A WRITE CHECK WAS DONE
                                                        ;ON AN ODD WORD BOUNDARY THEN
                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                        ;WAS GIVEN THIS SHOULD
                                                        ;CLEAR ALL ERRORS
                                                        ;RHWC SHOULD HAVE 0
                                                        ;BUT CONTAINED WHAT IS
                                                        ;GIVEN IN BAD RHWC
027064                          79$:


                                ;;*****************************************************************
                                ;*TEST 36       RHCS2-WCE BIT #14 AND RHCS3-WCE EW BIT #11

                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                ;*      WRITE NINE WORD OF ALL NINES ON TO THE DEVICE
                                ;*      SET UP TO DO WRITE CHECK ON THAT WORD FROM AN
                                ;*      EVEN WORD BOUNDARY
                                ;*      DO A ONE WORD WRITE CHECK WITH RHBA FROM AN
                                ;*      EVEN WORD BOUNDARY
                                ;*      THIS SHOULD SET WCE EW (RHCS3 BIT #11)
                                ;*      AND WCE (RHCS2 BIT #14)
                                ;*      "CLR" (RHCS2 BIT #5) IS GIVEN
                                ;*      ALL ERRORS ARE CLEARED
                                ;*      CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC

                                ;;*****************************************************************
027064  000004                  TST36:  SCOPE
027066  012706  001000                  MOV     #STACK,SP       ;RESET STACK
027072  012737  000036  004656          MOV     #36,@#TSTNM     ;SAVE TEST NUMBER

027100  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                ;SETUP UNIT NUBER
                                                                ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                        ;WRITE ONE WORD OF ALL ONES ON THE DEVICE
027104  012737  177777  004210          MOV     #-1,WRFROM      ;ALL ONES INTO WRITE FROM
027112  012777  177767  154742          MOV     #-9.,@RHWC      ;NINE WORD FOR WORD COUNT REGISTER
027120  012777  004210  154736          MOV     #WRFROM,@RHBA   ;WRITE FROM BUFFER INTO BUS ADDRESS

027126  004077  155506                  JSR     R0,@COMND       ;GO TO DO COMMAND
027132  004154                          WRIDAT                  ;WRITE DATA

                                        ;SET UP FOR WRITE CHECK
027134  005037  003000                  CLR     BUFEW           ;WRITE DATA FOR WRITE CHECK ERROR
027140  012777  177767  154714          MOV     #-9.,@RHWC      ;NINE WORD FOR WORD COUNT REGISTER
027146  012777  003000  154710          MOV     #BUFEW,@RHBA    ;WRITE FROM BUFFER INTO BUS ADDRESS
                                                                ;FROM EVEN WORD BOUNDRY

                                        ;WRITE CHECK ON EVEN WORD BOUNDARY
027154  004077  155460                  JSR     R0,@COMND       ;GO TO DO COMMAND
```

K14


```
9531  027160  004150                          WRCHEK                  ;WRITE CHECK DATA
9532
9533
9534
9535
9536                                          ;CHECK THAT RHCS2 HAS WCE!OR!IR
9537  027162  012737  040300  001124          MOV     #WCE!OR!IR,$GDDAT       ;GET GOOD = 40300
9538  027170  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
9539
9540  027176  017737  154666  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
9541  027204  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
9542                                                                  ;DATA WITH DATA READ FROM
9543                                                                  ;RHCS2
9544  027212  001401                          BEQ     65$             ;BRANCH IF GOOD
9545  027214  104114                          ERROR   114
9546                                                                  ;AFTER SETTING "CLR" BIT #5
9547                                                                  ;IN RHCS2 TO INIT THE RH
9548                                                                  ;ONE WORD OF ALL ONES IS
9549                                                                  ;WRITTEN ON THE DEVICE
9550                                                                  ;A WRITE CHECK WAS DONE
9551                                                                  ;ON AN EVEN WORD BOUNDARY THEN
9552                                                                  ;RHCS2 SHOULD HAVE WCE!OR!IR
9553                                                                  ;=40300
9554                                                                  ;TOGETHER WITH UNIT NUMBER
9555                                                                  ;BUT CONTAINED WHAT IS
9556                                                                  ;GIVEN IN BAD RHCS2
9557  027216                          65$:
9558
9559                                          ;CHECK THAT RHCS3 HAS DBL!WCEEW
9560  027216  012737  006000  001124          MOV     #DBL!WCEEW,$GDDAT       ;GET GOOD = 6000
9561
9562  027224  017737  154702  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
9563  027232  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
9564                                                                  ;DATA WITH DATA READ FROM
9565                                                                  ;RHCS3
9566  027240  001401                          BEQ     67$             ;BRANCH IF GOOD
9567  027242  104115                          ERROR   115
9568                                                                  ;AFTER SETTING "CLR" BIT #5
9569                                                                  ;IN RHCS2 TO INIT THE RH
9570                                                                  ;ONE WORD OF ALL ONES IS
9571                                                                  ;WRITTEN ON THE DEVICE
9572                                                                  ;A WRITE CHECK WAS DONE
9573                                                                  ;ON AN EVEN WORD BOUNDARY THEN
9574                                                                  ;RHCS3 SHOULD HAVE DBL!WCEEW
9575                                                                  ;=6000
9576                                                                  ;BUT CONTAINED WHAT IS
9577                                                                  ;GIVEN IN BAD RHCS3
9578  027244                          67$:
9579
9580
9581  027244  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
9582                                                                  ;SETUP UNIT NUBER
9583                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
9584
9585
9586                                          ;CHECK THAT RHCS1 HAS RDY!DVA
```

```
 9587  027250  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
 9588
 9589  027256  017737  154576  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
 9590  027264  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 3591                                                                  ;DATA WITH DATA READ FROM
 9592                                                                  ;RHCS1
 9593  027272  001401                          BEQ     69$             ;BRANCH IF GOOD
 9594  027274  104116                          ERROR   116
 9595                                                                  ;AFTER SETTING "CLR" BIT #5
 9596                                                                  ;IN RHCS2 TO INIT THE RH
 9597                                                                  ;ONE WORD OF ALL ONES IS
 9598                                                                  ;WRITTEN ON THE DEVICE
 9599                                                                  ;A WRITE CHECK WAS DONE
 9600                                                                  ;ON AN EVEN WORD BOUNDARY THEN
 9601                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
 9602                                                                  ;WAS GIVEN THIS SHOULD
 9603                                                                  ;CLEAR ALL ERRORS
 9604                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
 9605                                                                  ;=4200
 9606                                                                  ;BUT CONTAINED WHAT IS
 9607                                                                  ;GIVEN IN BAD RHCS1
 9608  027276                          69$:
 9609                                          ;CHECK THAT RHCS2 HAS IR
 9610  027276  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
 9611  027304  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
 9612
 9613  027312  017737  154552  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
 9614  027320  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 9615                                                                  ;DATA WITH DATA READ FROM
 9616                                                                  ;RHCS2
 9617  027326  001401                          BEQ     71$             ;BRANCH IF GOOD
 9618  027330  104117                          ERROR   117
 9619                                                                  ;AFTER SETTING "CLR" BIT #5
 9620                                                                  ;IN RHCS2 TO INIT THE RH
 9621                                                                  ;ONE WORD OF ALL ONES IS
 9622                                                                  ;WRITTEN ON THE DEVICE
 9623                                                                  ;A WRITE CHECK WAS DONE
 9624                                                                  ;ON AN EVEN WORD BOUNDARY THEN
 9625                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
 9626                                                                  ;WAS GIVEN THIS SHOULD
 9627                                                                  ;CLEAR ALL ERRORS
 9628                                                                  ;RHCS2 SHOULD HAVE IR
 9629                                                                  ;=100
 9630                                                                  ;TOGETHER WITH UNIT NUMBER
 9631                                                                  ;BUT CONTAINED WHAT IS
 9632                                                                  ;GIVEN IN BAD RHCS2
 9633  027332                          71$:
 9634                                          ;CHECK THAT RHCS3 HAS 0
 9635  027332  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
 9636
 9637  027340  017737  154566  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
 9638  027346  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 9639                                                                  ;DATA WITH DATA READ FROM
 9640                                                                  ;RHCS3
 9641  027354  001401                          BEQ     73$             ;BRANCH IF GOOD
 9642  027356  104120                          ERROR   120
```

```
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN EVEN WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHCS3 SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHCS3
027360                                  73$:
                                                ;CHECK THAT RHBA HAS 0
027360  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

027366  017737  154472  001126          MOV     @RHBA,$BDDAT            ;READ RHBA FOR COMPARISON
027374  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBA
027402  001401                          BEQ     75$                     ;BRANCH IF GOOD
027404  104121                          ERROR   121
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN EVEN WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBA SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBA
027406                                  75$:
                                                ;CHECK THAT RHBAE HAS 0
027406  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0

027414  017737  154510  001126          MOV     @RHBAE,$BDDAT           ;READ RHBAE FOR COMPARISON
027422  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHBAE
027430  001401                          BEQ     77$                     ;BRANCH IF GOOD
027432  104122                          ERROR   122
                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN EVEN WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
```

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9699  027434                          77$:
9700                                          ;CHECK THAT RHWC HAS 0
9701  027434  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
9702
9703  027442  017737  154414  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
9704  027450  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
9705                                                                  ;DATA WITH DATA READ FROM
9706                                                                  ;RHWC
9707  027456  001401                          BEQ     79$             ;BRANCH IF GOOD
9708  027460  104123                          ERROR   123
9709                                                                  ;AFTER SETTING "CLR" BIT #5
9710                                                                  ;IN RHCS2 TO INIT THE RH
9711                                                                  ;ONE WORD OF ALL ONES IS
9712                                                                  ;WRITTEN ON THE DEVICE
9713                                                                  ;A WRITE CHECK WAS DONE
9714                                                                  ;ON AN EVEN WORD BOUNDARY THEN
9715                                                                  ;AN RH CLEAR (RHCS2 BIT #5)
9716                                                                  ;WAS GIVEN THIS SHOULD
9717                                                                  ;CLEAR ALL ERRORS
9718                                                                  ;RHWC SHOULD HAVE 0
9719                                                                  ;BUT CONTAINED WHAT IS
9720                                                                  ;GIVEN IN BAD RHWC
9721  027462                          79$:
9722
9723
9724
9725                                  ;;*****************************************************************
9726                                  ;*TEST 37       RHCS2-WCE BIT #14 AND RHCS3-WCE EW BIT #11
9727
9728                                  ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
9729                                  ;*      WRITE NINE WORD OF ALL NINES ON TO THE DEVICE
9730                                  ;*      SET UP TO DO WRITE CHECK ON THAT WORD FROM AN
9731                                  ;*      EVEN WORD BOUNDARY
9732                                  ;*      DO A ONE WORD WRITE CHECK WITH RHBA FROM AN
9733                                  ;*      EVEN WORD BOUNDARY
9734                                  ;*      THIS SHOULD SET WCE EW (RHCS3 BIT #11)
9735                                  ;*      AND WCE (RHCS2 BIT #14)
9736                                  ;*      "CLR" (RHCS2 BIT #5) IS GIVEN
9737                                  ;*      ALL ERRORS ARE CLEARED
9738                                  ;*      CHECK RHCS1, RHCS2, RHCS3, RHBA, RHBAE, RHWC
9739
9740                                  ;;*****************************************************************
9741  027462  000004                  TST37:  SCOPE
9742  027464  012706  001000                  MOV     #STACK,SP       ;RESET STACK
9743  027470  012737  000037  004656          MOV     #37,@#TSTNM     ;SAVE TEST NUMBER
9744
9745  027476  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
9746                                                                  ;SETUP UNIT NUBER
9747                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
9748
9749                                          ;WRITE ONE WORD OF ALL ONES ON THE DEVICE
9750  027502  012737  177777  004210          MOV     #-1,WRFROM      ;ALL ONES INTO WRITE FROM
9751  027510  012777  177767  154344          MOV     #-9.,@RHWC      ;NINE WORD FOR WORD COUNT REGISTER
9752  027516  012777  004210  154340          MOV     #WRFROM,@RHBA   ;WRITE FROM BUFFER INTO BUS ADDRESS
9753
9754  027524  004077  155110                  JSR     R0,@COMND       ;GO TO DO COMMAND
```

```
                                        WRIDAT                  ;WRITE DATA

                                        ;SET UP FOR WRITE CHECK
027532  005037  003000                  CLR     BUFEW           ;WRITE DATA FOR WRITE CHECK ERROR
027536  012777  177767  154316          MOV     #-9.,@RHWC      ;NINE WORD FOR WORD COUNT REGISTER
027544  012777  003000  154312          MOV     #BUFEW,@RHBA    ;WRITE FROM BUFFER INTO BUS ADDRESS
                                                                ;FROM EVEN WORD BOUNDRY

                                        ;WRITE CHECK ON EVEN WORD BOUNDARY
027552  004077  155062                  JSR     R0,@COMND       ;GO TO DO COMMAND
027556  004150                          WRCHEK                  ;WRITE CHECK DATA

                                        ;CHECK THAT RHCS2 HAS WCE!OR!IR
027562  012737  040300  001124          MOV     #WCE!OR!IR,$GDDAT       ;GET GOOD = 40300
027566  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

027574  017737  154270  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
027602  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
027610  001401                          BEQ     65$             ;BRANCH IF GOOD
027612  104114                          ERROR   114
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;ONE WORD OF ALL ONES IS
                                                                ;WRITTEN ON THE DEVICE
                                                                ;A WRITE CHECK WAS DONE
                                                                ;ON AN EVEN WORD BOUNDARY THEN
                                                                ;RHCS2 SHOULD HAVE WCE!OR!IR
                                                                ;=40300
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
027614                          65$:

                                        ;CHECK THAT RHCS3 HAS DBL!WCEEW
027614  012737  006000  001124          MOV     #DBL!WCEEW,$GDDAT       ;GET GOOD = 6000

027622  017737  154304  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
027630  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS3
027636  001401                          BEQ     67$             ;BRANCH IF GOOD
027640  104115                          ERROR   115
                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;ONE WORD OF ALL ONES IS
                                                                ;WRITTEN ON THE DEVICE
                                                                ;A WRITE CHECK WAS DONE
                                                                ;ON AN EVEN WORD BOUNDARY THEN
                                                                ;RHCS3 SHOULD HAVE DBL!WCEEW
                                                                ;=6000
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS3
```

```
                                67$:

                                        ;CHECK THAT RHCS1 HAS RDY!DVA
027646  012737  004200  001124        MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200

027654  017737  154200  001126        MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
027662  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                              ;DATA WITH DATA READ FROM
                                                              ;RHCS1
027670  001401                        BEQ     69$             ;BRANCH IF GOOD
027672  104116                        ERROR   116
                                                              ;AFTER SETTING "CLR" BIT #5
                                                              ;IN RHCS2 TO INIT THE RH
                                                              ;ONE WORD OF ALL ONES IS
                                                              ;WRITTEN ON THE DEVICE
                                                              ;A WRITE CHECK WAS DONE
                                                              ;ON AN EVEN WORD BOUNDARY THEN
                                                              ;AN RH CLEAR (RHCS2 BIT #5)
                                                              ;WAS GIVEN THIS SHOULD
                                                              ;CLEAR ALL ERRORS
                                                              ;RHCS1 SHOULD HAVE RDY!DVA
                                                              ;=4200
                                                              ;BUT CONTAINED WHAT IS
                                                              ;GIVEN IN BAD RHCS1
                                69$:
                                        ;CHECK THAT RHCS2 HAS IR
027674  012737  000100  001124        MOV     #IR,$GDDAT      ;GET GOOD = 100
027702  053737  005010  001124        BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

027710  017737  154154  001126        MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
027716  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                              ;DATA WITH DATA READ FROM
                                                              ;RHCS2
027724  001401                        BEQ     71$             ;BRANCH IF GOOD
027726  104117                        ERROR   117
                                                              ;AFTER SETTING "CLR" BIT #5
                                                              ;IN RHCS2 TO INIT THE RH
                                                              ;ONE WORD OF ALL ONES IS
                                                              ;WRITTEN ON THE DEVICE
                                                              ;A WRITE CHECK WAS DONE
                                                              ;ON AN EVEN WORD BOUNDARY THEN
                                                              ;AN RH CLEAR (RHCS2 BIT #5)
                                                              ;WAS GIVEN THIS SHOULD
                                                              ;CLEAR ALL ERRORS
                                                              ;RHCS2 SHOULD HAVE IR
                                                              ;=100
                                                              ;TOGETHER WITH UNIT NUMBER
                                                              ;BUT CONTAINED WHAT IS
                                                              ;GIVEN IN BAD RHCS2
                                71$:
```

```
                                        ;CHECK THAT RHCS3 HAS 0
027730  012737  000000  001124        MOV     #0,$GDDAT       ;GET GOOD = 0

027736  017737  154170  001126        MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
027744  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                              ;DATA WITH DATA READ FROM
                                                              ;RHCS3
027752  001401                        BEQ     73$             ;BRANCH IF GOOD
027754  104120                        ERROR   120

                                                              ;AFTER SETTING "CLR" BIT #5
                                                              ;IN RHCS2 TO INIT THE RH
                                                              ;ONE WORD OF ALL ONES IS
                                                              ;WRITTEN ON THE DEVICE
                                                              ;A WRITE CHECK WAS DONE
                                                              ;ON AN EVEN WORD BOUNDARY THEN
                                                              ;AN RH CLEAR (RHCS2 BIT #5)
                                                              ;WAS GIVEN THIS SHOULD
                                                              ;CLEAR ALL ERRORS
                                                              ;RHCS3 SHOULD HAVE 0
                                                              ;BUT CONTAINED WHAT IS
                                                              ;GIVEN IN BAD RHCS3
027756                          73$:
                                        ;CHECK THAT RHBA HAS 0
027756  012737  000000  001124        MOV     #0,$GDDAT       ;GET GOOD = 0

027764  017737  154074  001126        MOV     @RHBA,$BDDAT    ;READ RHBA FOR COMPARISON
027772  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                              ;DATA WITH DATA READ FROM
                                                              ;RHBA
030000  001401                        BEQ     75$             ;BRANCH IF GOOD
030002  104121                        ERROR   121

                                                              ;AFTER SETTING "CLR" BIT #5
                                                              ;IN RHCS2 TO INIT THE RH
                                                              ;ONE WORD OF ALL ONES IS
                                                              ;WRITTEN ON THE DEVICE
                                                              ;A WRITE CHECK WAS DONE
                                                              ;ON AN EVEN WORD BOUNDARY THEN
                                                              ;AN RH CLEAR (RHCS2 BIT #5)
                                                              ;WAS GIVEN THIS SHOULD
                                                              ;CLEAR ALL ERRORS
                                                              ;RHBA SHOULD HAVE 0
                                                              ;BUT CONTAINED WHAT IS
                                                              ;GIVEN IN BAD RHBA
030004                          75$:
                                        ;CHECK THAT RHBAE HAS 0
030004  012737  000000  001124        MOV     #0,$GDDAT       ;GET GOOD = 0

030012  017737  154112  001126        MOV     @RHBAE,$BDDAT   ;READ RHBAE FOR COMPARISON
030020  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                              ;DATA WITH DATA READ FROM
                                                              ;RHBAE
030026  001401                        BEQ     77$             ;BRANCH IF GOOD
030030  104122                        ERROR   122

                                                              ;AFTER SETTING "CLR" BIT #5
                                                              ;IN RHCS2 TO INIT THE RH
                                                              ;ONE WORD OF ALL ONES IS
```

```
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN EVEN WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHBAE SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHBAE
030032                                  77$:
                                                ;CHECK THAT RHWC HAS 0
030032  012737  000000  001124                 MOV     #0,$GDDAT       ;GET GOOD = 0

030040  017737  154016  001126                 MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
030046  023737  001124  001126                 CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                        ;DATA WITH DATA READ FROM
                                                                        ;RHWC
030054  001401                                 BEQ     79$             ;BRANCH IF GOOD
030056  104123                                 ERROR   123

                                                                        ;AFTER SETTING "CLR" BIT #5
                                                                        ;IN RHCS2 TO INIT THE RH
                                                                        ;ONE WORD OF ALL ONES IS
                                                                        ;WRITTEN ON THE DEVICE
                                                                        ;A WRITE CHECK WAS DONE
                                                                        ;ON AN EVEN WORD BOUNDARY THEN
                                                                        ;AN RH CLEAR (RHCS2 BIT #5)
                                                                        ;WAS GIVEN THIS SHOULD
                                                                        ;CLEAR ALL ERRORS
                                                                        ;RHWC SHOULD HAVE 0
                                                                        ;BUT CONTAINED WHAT IS
                                                                        ;GIVEN IN BAD RHWC
030060                                  79$:


                                        ;;*****************************************************************
                                        ;*TEST 40       TEST DBL (RHCS3 BIT #10) TEST A

                                        ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                        ;*      SET UP FOR A NINE WORD WRITE FROM AN EVEN WORD BOUNDARY
                                        ;*      DO A NINE WORD WRITE FROM AN EVEN WORD BOUNDARY
                                        ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
                                        ;*      CHECK RHCS3
                                        ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC

                                        ;;*****************************************************************
030060  000004                          TST40:  SCOPE
030062  012706  001000                         MOV     #STACK,SP       ;RESET STACK
030066  012737  000040  004656                 MOV     #40,@#TSTNM     ;SAVE TEST NUMBER

030074  004737  040322                         JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                                                        ;SETUP UNIT NUBER
                                                                        ;CLEAR RHWC AND FUNCTION BITS IN RHCS1

                                                ;SET UP FOR A NINE WORD WRITE FROM AN EVEN WORD BOUNDARY
```

```
 9979  030100  012701  000003                MOV     #3,R1           ;COUNT OF THREE
 9980  030104  012702  003000                MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
 9981                                                                ;FROM AN EVEN WORD BOUNDARY
 9982  030110  012722  052525          1$:   MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
 9983  030114  005301                      DEC     R1              ;COUNT
 9984  030116  001374                      BNE     1$              ;BRANCH IF THREE NOT DONE
 9985  030120  012777  003000  153736        MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
 9986                                                                ;FROM AN EVEN WORD BOUNDARY
 9987  030126  012777  177767  153726        MOV #-9.,@RHWC ;WORD COUNT NINE
 9988  030134  004077  154500                JSR     R0,@COMND       ;GO TO DO COMMAND
 9989  030140  004154                      WRIDAT                  ;WRITE DATA
 9990
 9991
 9992                                      ;CHECK THAT RHCS3 HAS 0
 9993  030142  012737  000000  001124        MOV     #0,$GDDAT       ;GET GOOD = 0
 9994
 9995  030150  017737  153756  001126        MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
 9996  030156  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
 9997                                                                ;DATA WITH DATA READ FROM
 9998                                                                ;RHCS3
 9999  030164  001401                      BEQ     65$             ;BRANCH IF GOOD
10000  030166  104124                      ERROR   124
10001                                                               ;AFTER SETTING "CLR" BIT #5
10002                                                               ;IN RHCS2 TO INIT THE RH
10003                                                               ;A NINE WORD WRITE FROM AN
10004                                                               ;EVEN WORD BOUNDARY WAS DONE
10005                                                               ;THEN
10006                                                               ;RHCS3 SHOULD HAVE 0
10007                                                               ;BUT CONTAINED WHAT IS
10008                                                               ;GIVEN IN BAD RHCS3
10009  030170                           65$:
10010  030170  042777  000076  153662        BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10011                                      ;CHECK THAT RHCS1 HAS RDY!DVA
10012  030176  012737  004200  001124        MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10013
10014  030204  017737  153650  001126        MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10015  030212  023737  001124  001126        CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10016                                                                ;DATA WITH DATA READ FROM
10017                                                                ;RHCS1
10018  030220  001401                      BEQ     67$             ;BRANCH IF GOOD
10019  030222  104125                      ERROR   125
10020                                                               ;AFTER SETTING "CLR" BIT #5
10021                                                               ;IN RHCS2 TO INIT THE RH
10022                                                               ;A NINE WORD WRITE FROM AN
10023                                                               ;EVEN WORD BOUNDARY WAS DONE
10024                                                               ;THEN
10025                                                               ;RHCS1 SHOULD HAVE RDY!DVA
10026                                                               ;=4200
10027                                                               ;BUT CONTAINED WHAT IS
10028                                                               ;GIVEN IN BAD RHCS1
10029  030224                           67$:
10030                                      ;CHECK THAT RHCS2 HAS IR
10031  030224  012737  000100  001124        MOV     #IR,$GDDAT      ;GET GOOD = 100
10032  030232  053737  005010  001124        BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
10033
10034  030240  017737  153624  001126        MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
```

```
10035  030246  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10036                                                                   ;DATA WITH DATA READ FROM
10037                                                                   ;RHCS2
10038  030254  001401                          BEQ     69$             ;BRANCH IF GOOD
10039  030256  104126                          ERROR   126
10040                                                                   ;AFTER SETTING "CLR" BIT #5
10041                                                                   ;IN RHCS2 TO INIT THE RH
10042                                                                   ;A NINE WORD WRITE FROM AN
10043                                                                   ;EVEN WORD BOUNDARY WAS DONE
10044                                                                   ;THEN
10045                                                                   ;RHCS2 SHOULD HAVE IR
10046                                                                   ;=100
10047                                                                   ;TOGETHER WITH UNIT NUMBER
10048                                                                   ;BUT CONTAINED WHAT IS
10049                                                                   ;GIVEN IN BAD RHCS2
10050  030260                           69$:
10051                                          ;CHECK THAT RHWC HAS 0
10052  030260  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10053
10054  030266  017737  153570  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10055  030274  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10056                                                                   ;DATA WITH DATA READ FROM
10057                                                                   ;RHWC
10058  030302  001401                          BEQ     71$             ;BRANCH IF GOOD
10059  030304  104131                          ERROR   131
10060                                                                   ;AFTER SETTING "CLR" BIT #5
10061                                                                   ;IN RHCS2 TO INIT THE RH
10062                                                                   ;A NINE WORD WRITE FROM AN
10063                                                                   ;EVEN WORD BOUNDARY WAS DONE
10064                                                                   ;THEN
10065                                                                   ;RHWC SHOULD HAVE 0
10066                                                                   ;BUT CONTAINED WHAT IS
10067                                                                   ;GIVEN IN BAD RHWC
10068  030306                           71$:
10069
10070
10071
10072                                  ;;*****************************************************************
10073                                  ;*TEST 41       TEST DBL (RHCS3 BIT #10) TEST B
10074
10075                                  ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
10076                                  ;*      SET UP FOR A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10077                                  ;*      DO A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10078                                  ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
10079                                  ;*      CHECK RHCS3
10080                                  ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10081
10082                                  ;;*****************************************************************
10083  030306  000004                  TST41:  SCOPE
10084  030310  012706  001000                  MOV     #STACK,SP       ;RESET STACK
10085  030314  012737  000041  004656          MOV     #41,@#TSTNM     ;SAVE TEST NUMBER
10086
10087  030322  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
10088                                                                   ;SETUP UNIT NUBER
10089                                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
10090
```

```
10091
10092  030326  012701  000003                    ;SET UP FOR A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10093  030332  012702  003000                    MOV     #3,R1           ;COUNT OF THREE
10094                                             MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
10095  030336  012722  052525            1$:     MOV     #52525,(R2)+    ;FROM AN EVEN WORD BOUNDARY
10096  030342  005301                            DEC     R1              ;MOVE THREE 52525 INTO BUFFER
10097  030344  001374                            BNE     1$              ;COUNT
10098  030346  012777  003000  153510            MOV     #BFEVEN,@RHBA   ;BRANCH IF THREE NOT DONE
10099                                                                     ;SET BUS ADDRESS TO START
10100  030354  012777  177766  153500            MOV #-10.,@RHWC ;WORD COUNT TEN
10101  030362  004077  154252                    JSR     R0,@COMND       ;FROM AN EVEN WORD BOUNDARY
10102  030366  004154                            WRIDAT                  ;GO TO DO COMMAND
10103                                                                     ;WRITE DATA
10104
10105                                             ;CHECK THAT RHCS3 HAS DBL
10106  030370  012737  002000  001124            MOV     #DBL,$GDDAT     ;GET GOOD = 2000
10107
10108  030376  017737  153530  001126            MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
10109  030404  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10110                                                                    ;DATA WITH DATA READ FROM
10111                                                                    ;RHCS3
10112  030412  001401                            BEQ     65$             ;BRANCH IF GOOD
10113  030414  104124                            ERROR   124
10114                                                                    ;AFTER SETTING "CLR" BIT #5
10115                                                                    ;IN RHCS2 TO INIT THE RH
10116                                                                    ;A TEN WORD WRITE FROM AN
10117                                                                    ;EVEN WORD BOUNDARY WAS DONE
10118                                                                    ;THEN
10119                                                                    ;RHCS3 SHOULD HAVE DBL
10120                                                                    ;=2000
10121                                                                    ;BUT CONTAINED WHAT IS
10122                                                                    ;GIVEN IN BAD RHCS3
10123  030416                            65$:
10124  030416  042777  000076  153434            BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10125                                             ;CHECK THAT RHCS1 HAS RDY!DVA
10126  030424  012737  004200  001124            MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10127
10128  030432  017737  153422  001126            MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10129  030440  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10130                                                                    ;DATA WITH DATA READ FROM
10131                                                                    ;RHCS1
10132  030446  001401                            BEQ     67$             ;BRANCH IF GOOD
10133  030450  104125                            ERROR   125
10134                                                                    ;AFTER SETTING "CLR" BIT #5
10135                                                                    ;IN RHCS2 TO INIT THE RH
10136                                                                    ;A TEN WORD WRITE FROM AN
10137                                                                    ;EVEN WORD BOUNDARY WAS DONE
10138                                                                    ;THEN
10139                                                                    ;RHCS1 SHOULD HAVE RDY!DVA
10140                                                                    ;=4200
10141                                                                    ;BUT CONTAINED WHAT IS
10142                                                                    ;GIVEN IN BAD RHCS1
10143  030452                            67$:
10144                                             ;CHECK THAT RHCS2 HAS IR
10145  030452  012737  000100  001124            MOV     #IR,$GDDAT      ;GET GOOD = 100
10146  030460  053737  005010  001124            BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
```

```
10147
10148  030466  017737  153376  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
10149  030474  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10150                                                                  ;DATA WITH DATA READ FROM
10151                                                                  ;RHCS2
10152  030502  001401                          BEQ     69$             ;BRANCH IF GOOD
10153  030504  104126                          ERROR   126
10154                                                                  ;AFTER SETTING "CLR" BIT #5
10155                                                                  ;IN RHCS2 TO INIT THE RH
10156                                                                  ;A TEN WORD WRITE FROM AN
10157                                                                  ;EVEN WORD BOUNDARY WAS DONE
10158                                                                  ;THEN
10159                                                                  ;RHCS2 SHOULD HAVE IR
10160                                                                  ;=100
10161                                                                  ;TOGETHER WITH UNIT NUMBER
10162                                                                  ;BUT CONTAINED WHAT IS
10163                                                                  ;GIVEN IN BAD RHCS2
10164  030506                          69$:
10165                                          ;CHECK THAT RHWC HAS 0
10166  030506  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10167
10168  030514  017737  153342  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10169  030522  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10170                                                                  ;DATA WITH DATA READ FROM
10171                                                                  ;RHWC
10172  030530  001401                          BEQ     71$             ;BRANCH IF GOOD
10173  030532  104131                          ERROR   131
10174                                                                  ;AFTER SETTING "CLR" BIT #5
10175                                                                  ;IN RHCS2 TO INIT THE RH
10176                                                                  ;A TEN WORD WRITE FROM AN
10177                                                                  ;EVEN WORD BOUNDARY WAS DONE
10178                                                                  ;THEN
10179                                                                  ;RHWC SHOULD HAVE 0
10180                                                                  ;BUT CONTAINED WHAT IS
10181                                                                  ;GIVEN IN BAD RHWC
10182  030534                          71$:
10183
10184
10185
10186                                  ;;*************************************************************
10187                                  ;*TEST 42       TEST DBL (RHCS3 BIT #10) TEST C
10188
10189                                  ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
10190                                  ;*      SET UP FOR A TEN WORD WRITE FROM AN ODD WORD BOUNDARY
10191                                  ;*      DO A TEN WORD WRITE FROM AN ODD WORD BOUNDARY
10192                                  ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
10193                                  ;*      CHECK RHCS3
10194                                  ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10195
10196                                  ;;*************************************************************
10197  030534  000004                  TST42:  SCOPE
10198  030536  012706  001000                  MOV     #STACK,SP       ;RESET STACK
10199  030542  012737  000042  004656          MOV     #42,@#TSTNM     ;SAVE TEST NUMBER
10200
10201  030550  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
10202                                                                  ;SETUP UNIT NUBER
```

```
10203                                                           ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
10204
10205                                           ;SET UP FOR A TEN WORD WRITE FROM AN ODD WORD BOUNDARY
10206  030554  012701  000003                   MOV     #3,R1           ;COUNT OF THREE
10207  030560  012702  003002                   MOV     #BFODD,R2       ;START THREE WORD BUFFER
10208                                                                   ;FROM AN ODD WORD BOUNDARY
10209  030564  012722  052525           1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
10210  030570  005301                           DEC     R1              ;COUNT
10211  030572  001374                           BNE     1$              ;BRANCH IF THREE NOT DONE
10212  030574  012777  003002  153262           MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
10213                                                                   ;FROM AN ODD WORD BOUNDARY
10214  030602  012777  177766  153252           MOV #-10.,@RHWC ;WORD COUNT TEN
10215  030610  004077  154024                   JSR     R0,@COMND       ;GO TO DO COMMAND
10216  030614  004154                           WRIDAT                  ;WRITE DATA
10217
10218
10219                                           ;CHECK THAT RHCS3 HAS 0
10220  030616  012737  000000  001124           MOV     #0,$GDDAT       ;GET GOOD = 0
10221
10222  030624  017737  153302  001126           MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
10223  030632  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10224                                                                   ;DATA WITH DATA READ FROM
10225                                                                   ;RHCS3
10226  030640  001401                           BEQ     65$             ;BRANCH IF GOOD
10227  030642  104124                           ERROR   124
10228                                                                   ;AFTER SETTING "CLR" BIT #5
10229                                                                   ;IN RHCS2 TO INIT THE RH
10230                                                                   ;A TEN WORD WRITE FROM AN
10231                                                                   ;ODD WORD BOUNDARY WAS DONE
10232                                                                   ;THEN
10233                                                                   ;RHCS3 SHOULD HAVE 0
10234                                                                   ;BUT CONTAINED WHAT IS
10235                                                                   ;GIVEN IN BAD RHCS3
10236  030644                           65$:
10237  030644  042777  000076  153206           BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10238                                           ;CHECK THAT RHCS1 HAS RDY!DVA
10239  030652  012737  004200  001124           MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10240
10241  030660  017737  153174  001126           MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10242  030666  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;COMFARE EXPECTED
10243                                                                   ;DATA WITH DATA READ FROM
10244                                                                   ;RHCS1
10245  030674  001401                           BEQ     67$             ;BRANCH IF GOOD
10246  030676  104125                           ERROR   125
10247                                                                   ;AFTER SETTING "CLR" BIT #5
10248                                                                   ;IN RHCS2 TO INIT THE RH
10249                                                                   ;A TEN WORD WRITE FROM AN
10250                                                                   ;ODD WORD BOUNDARY WAS DONE
10251                                                                   ;THEN
10252                                                                   ;RHCS1 SHOULD HAVE RDY!DVA
10253                                                                   ;=4200
10254                                                                   ;BUT CONTAINED WHAT IS
10255                                                                   ;GIVEN IN BAD RHCS1
10256  030700                           67$:
10257                                           ;CHECK THAT RHCS2 HAS IR
10258  030700  012737  000100  001124           MOV     #IR,$GDDAT      ;GET GOOD = 100
```

```
10259  030706  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
10260
10261  030714  017737  153150  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
10262  030722  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10263                                                                  ;DATA WITH DATA READ FROM
10264                                                                  ;RHCS2
10265  030730  001401                          BEQ     69$             ;BRANCH IF GOOD
10266  030732  104126                          ERROR   126
10267                                                                  ;AFTER SETTING "CLR" BIT #5
10268                                                                  ;IN RHCS2 TO INIT THE RH
10269                                                                  ;A TEN WORD WRITE FROM AN
10270                                                                  ;ODD WORD BOUNDARY WAS DONE
10271                                                                  ;THEN
10272                                                                  ;RHCS2 SHOULD HAVE IR
10273                                                                  ;=100
10274                                                                  ;TOGETHER WITH UNIT NUMBER
10275                                                                  ;BUT CONTAINED WHAT IS
10276                                                                  ;GIVEN IN BAD RHCS2
10277  030734                          69$:
10278                                          ;CHECK THAT RHWC HAS 0
10279  030734  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10280
10281  030742  017737  153114  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10282  030750  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10283                                                                  ;DATA WITH DATA READ FROM
10284                                                                  ;RHWC
10285  030756  001401                          BEQ     71$             ;BRANCH IF GOOD
10286  030760  104131                          ERROR   131
10287                                                                  ;AFTER SETTING "CLR" BIT #5
10288                                                                  ;IN RHCS2 TO INIT THE RH
10289                                                                  ;A TEN WORD WRITE FROM AN
10290                                                                  ;ODD WORD BOUNDARY WAS DONE
10291                                                                  ;THEN
10292                                                                  ;RHWC SHOULD HAVE 0
10293                                                                  ;BUT CONTAINED WHAT IS
10294                                                                  ;GIVEN IN BAD RHWC
10295  030762                          71$:
10296
10297
10298
10299                                  ;;*****************************************************************
10300                                  ;*TEST 43       TEST DBL (RHCS3 BIT #10) TEST D
10301
10302                                  ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
10303                                  ;*      SET UP FOR A ELEVEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10304                                  ;*      DO A ELEVEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10305                                  ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
10306                                  ;*      CHECK RHCS3
10307                                  ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10308
10309                                  ;;*****************************************************************
10310  030762  000004                  TST43:  SCOPE
10311  030764  012706  001000                  MOV     #STACK,SP       ;RESET STACK
10312  030770  012737  000043  004656          MOV     #43,@#TSTNM     ;SAVE TEST NUMBER
10313
10314  030776  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
```

```
10315                                                   ;SETUP UNIT NUBER
10316                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
10317
10318                                   ;SET UP FOR A ELEVEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10319  031002  012701  000003          MOV     #3,R1           ;COUNT OF THREE
10320  031006  012702  003000          MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
10321                                                   ;FROM AN EVEN WORD BOUNDARY
10322  031012  012722  052525  1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
10323  031016  005301                  DEC     R1              ;COUNT
10324  031020  001374                  BNE     1$              ;BRANCH IF THREE NOT DONE
10325  031022  012777  003000  153034  MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
10326                                                   ;FROM AN EVEN WORD BOUNDARY
10327  031030  012777  177765  153024  MOV #-11.,@RHWC ;WORD COUNT ELEVEN
10328  031036  004077  153576          JSR     R0,@COMND       ;GO TO DO COMMAND
10329  031042  004154                  WRIDAT                  ;WRITE DATA
10330
10331
10332                                   ;CHECK THAT RHCS3 HAS 0
10333  031044  012737  000000  001124  MOV     #0,$GDDAT       ;GET GOOD = 0
10334
10335  031052  017737  153054  001126  MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
10336  031060  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10337                                                   ;DATA WITH DATA READ FROM
10338                                                   ;RHCS3
10339  031066  001401                  BEQ     65$             ;BRANCH IF GOOD
10340  031070  104124                  ERROR   124
10341                                                   ;AFTER SETTING "CLR" BIT #5
10342                                                   ;IN RHCS2 TO INIT THE RH
10343                                                   ;A ELEVEN WORD WRITE FROM AN
10344                                                   ;EVEN WORD BOUNDARY WAS DONE
10345                                                   ;THEN
10346                                                   ;RHCS3 SHOULD HAVE 0
10347                                                   ;BUT CONTAINED WHAT IS
10348                                                   ;GIVEN IN BAD RHCS3
10349  031072                  65$:
10350  031072  042777  000076  152760  BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10351                                   ;CHECK THAT RHCS1 HAS RDY!DVA
10352  031100  012737  004200  001124  MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10353
10354  031106  017737  152746  001126  MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10355  031114  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10356                                                   ;DATA WITH DATA READ FROM
10357                                                   ;RHCS1
10358  031122  001401                  BEQ     67$             ;BRANCH IF GOOD
10359  031124  104125                  ERROR   125
10360                                                   ;AFTER SETTING "CLR" BIT #5
10361                                                   ;IN RHCS2 TO INIT THE RH
10362                                                   ;A ELEVEN WORD WRITE FROM AN
10363                                                   ;EVEN WORD BOUNDARY WAS DONE
10364                                                   ;THEN
10365                                                   ;RHCS1 SHOULD HAVE RDY!DVA
10366                                                   ;=4200
10367                                                   ;BUT CONTAINED WHAT IS
10368                                                   ;GIVEN IN BAD RHCS1
10369  031126                  67$:
10370                                   ;CHECK THAT RHCS2 HAS IR
```

```
10371  031126  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
10372  031134  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
10373
10374  031142  017737  152722  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
10375  031150  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10376                                                                  ;DATA WITH DATA READ FROM
10377                                                                  ;RHCS2
10378  031156  001401                          BEQ     69$             ;BRANCH IF GOOD
10379  031160  104126                          ERROR   126
10380                                                                  ;AFTER SETTING "CLR" BIT #5
10381                                                                  ;IN RHCS2 TO INIT THE RH
10382                                                                  ;A ELEVEN WORD WRITE FROM AN
10383                                                                  ;EVEN WORD BOUNDARY WAS DONE
10384                                                                  ;THEN
10385                                                                  ;RHCS2 SHOULD HAVE IR
10386                                                                  ;=100
10387                                                                  ;TOGETHER WITH UNIT NUMBER
10388                                                                  ;BUT CONTAINED WHAT IS
10389                                                                  ;GIVEN IN BAD RHCS2
10390  031162                          69$:
10391                                          ;CHECK THAT RHWC HAS 0
10392  031162  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10393
10394  031170  017737  152666  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10395  031176  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10396                                                                  ;DATA WITH DATA READ FROM
10397                                                                  ;RHWC
10398  031204  001401                          BEQ     71$             ;BRANCH IF GOOD
10399  031206  104131                          ERROR   131
10400                                                                  ;AFTER SETTING "CLR" BIT #5
10401                                                                  ;IN RHCS2 TO INIT THE RH
10402                                                                  ;A ELEVEN WORD WRITE FROM AN
10403                                                                  ;EVEN WORD BOUNDARY WAS DONE
10404                                                                  ;THEN
10405                                                                  ;RHWC SHOULD HAVE 0
10406                                                                  ;BUT CONTAINED WHAT IS
10407                                                                  ;GIVEN IN BAD RHWC
10408  031210                          71$:
10409
10410
10411
10412                                  ;;*****************************************************************
10413                                  ;*TEST 44       TEST DBL (RHCS3 BIT #10) TEST E
10414
10415                                  ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
10416                                  ;*      SET UP FOR A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10417                                  ;*      WITH BAI IN RHCS2 BIT #3 SET
10418                                  ;*      DO A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10419                                  ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
10420                                  ;*      CHECK RHCS3
10421                                  ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10422
10423                                  ;;*****************************************************************
10424  031210  000004                  TST44:  SCOPE
10425  031212  012706  001000                  MOV     #STACK,SP       ;RESET STACK
10426  031216  012737  000044  004656          MOV     #44,@#TSTNM     ;SAVE TEST NUMBER
```

```
10427
10428  031224  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
10429                                                                   ;SETUP UNIT NUBER
10430                                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
10431
10432                                           ;SET UP FOR A TEN WORD WRITE FROM AN EVEN WORD BOUNDARY
10433  031230  012701  000003                  MOV     #3,R1           ;COUNT OF THREE
10434  031234  012702  003000                  MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
10435                                                                   ;FROM AN EVEN WORD BOUNDARY
10436  031240  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
10437  031244  005301                          DEC     R1              ;COUNT
10438  031246  001374                          BNE     1$              ;BRANCH IF THREE NOT DONE
10439  031250  012777  003000  152606          MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
10440                                                                   ;FROM AN EVEN WORD BOUNDARY
10441  031256  012777  177766  152576          MOV #-10.,@RHWC ;WORD COUNT TEN
10442  031264  052777  000010  152576  BIS #BAI,@RHCS2 ;SET BAI IN RHCS2
10443  031272  004077  153342                  JSR     R0,@COMND       ;GO TO DO COMMAND
10444  031276  004154                          WRIDAT                  ;WRITE DATA
10445
10446
10447                                           ;CHECK THAT RHCS3 HAS 0
10448  031300  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10449
10450  031306  017737  152620  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
10451  031314  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10452                                                                   ;DATA WITH DATA READ FROM
10453                                                                   ;RHCS3
10454  031322  001401                          BEQ     65$             ;BRANCH IF GOOD
10455  031324  104124                          ERROR   124
10456                                                                   ;AFTER SETTING "CLR" BIT #5
10457                                                                   ;IN RHCS2 TO INIT THE RH
10458                                                                   ;A TEN WORD WRITE FROM AN
10459                                                                   ;EVEN WORD BOUNDARY WAS DONE
10460                                                                   ;WITH BAI IN RHCS2 SET
10461                                                                   ;THEN
10462                                                                   ;RHCS3 SHOULD HAVE 0
10463                                                                   ;BUT CONTAINED WHAT IS
10464                                                                   ;GIVEN IN BAD RHCS3
10465  031326                           65$:
10466  031326  042777  000076  152524          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10467                                          ;CHECK THAT RHCS1 HAS RDY!DVA
10468  031334  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10469
10470  031342  017737  152512  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10471  031350  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10472                                                                   ;DATA WITH DATA READ FROM
10473                                                                   ;RHCS1
10474  031356  001401                          BEQ     67$             ;BRANCH IF GOOD
10475  031360  104125                          ERROR   125
10476                                                                   ;AFTER SETTING "CLR" BIT #5
10477                                                                   ;IN RHCS2 TO INIT THE RH
10478                                                                   ;A TEN WORD WRITE FROM AN
10479                                                                   ;EVEN WORD BOUNDARY WAS DONE
10480                                                                   ;WITH BAI IN RHCS2 SET
10481                                                                   ;THEN
10482                                                                   ;RHCS1 SHOULD HAVE RDY!DVA
```

```
10483                                                           ;=4200
10484                                                           ;BUT CONTAINED WHAT IS
10485                                                           ;GIVEN IN BAD RHCS1
10486  031362                                67$:
10487                                                   ;CHECK THAT RHCS2 HAS IR!BAI
10488  031362  012737  000110  001124              MOV     #IR!BAI,$GDDAT  ;GET GOOD = 110
10489  031370  053737  005010  001124              BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
10490
10491  031376  017737  152466  001126              MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
10492  031404  023737  001124  001126              CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10493                                                           ;DATA WITH DATA READ FROM
10494                                                           ;RHCS2
10495  031412  001401                              BEQ     69$             ;BRANCH IF GOOD
10496  031414  104126                              ERROR   126
10497                                                           ;AFTER SETTING "CLR" BIT #5
10498                                                           ;IN RHCS2 TO INIT THE RH
10499                                                           ;A TEN WORD WRITE FROM AN
10500                                                           ;EVEN WORD BOUNDARY WAS DONE
10501                                                           ;WITH BAI IN RHCS2 SET
10502                                                           ;THEN
10503                                                           ;RHCS2 SHOULD HAVE IR!BAI
10504                                                           ;=110
10505                                                           ;TOGETHER WITH UNIT NUMBER
10506                                                           ;BUT CONTAINED WHAT IS
10507                                                           ;GIVEN IN BAD RHCS2
10508  031416                                69$:
10509                                                   ;CHECK THAT RHWC HAS 0
10510  031416  012737  000000  001124              MOV     #0,$GDDAT       ;GET GOOD = 0
10511
10512  031424  017737  152432  001126              MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10513  031432  023737  001124  001126              CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10514                                                           ;DATA WITH DATA READ FROM
10515                                                           ;RHWC
10516  031440  001401                              BEQ     71$             ;BRANCH IF GOOD
10517  031442  104131                              ERROR   131
10518                                                           ;AFTER SETTING "CLR" BIT #5
10519                                                           ;IN RHCS2 TO INIT THE RH
10520                                                           ;A TEN WORD WRITE FROM AN
10521                                                           ;EVEN WORD BOUNDARY WAS DONE
10522                                                           ;WITH BAI IN RHCS2 SET
10523                                                           ;THEN
10524                                                           ;RHWC SHOULD HAVE 0
10525                                                           ;BUT CONTAINED WHAT IS
10526                                                           ;GIVEN IN BAD RHWC
10527  031444                                71$:
10528
10529
10530
10531                                   ;;*****************************************************************
10532                                   ;*TEST 45        TEST DBL (RHCS3 BIT #10) TEST F
10533
10534                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
10535                                   ;*      SET UP FOR A ELEVEN WORD WRITE FROM AN ODD WORD BOUNDARY
10536                                   ;*      DO A ELEVEN WORD WRITE FROM AN ODD WORD BOUNDARY
10537                                   ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
10538                                   ;*      CHECK RHCS3
```

```
10539                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10540
10541                                   ;;*****************************************************************
10542  031444  000004                   TST45:  SCOPE
10543  031446  012706  001000                   MOV     #STACK,SP       ;RESET STACK
10544  031452  012737  000045  004656           MOV     #45,@#TSTNM     ;SAVE TEST NUMBER
10545
10546  031460  004737  040322                   JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
10547                                                                   ;SETUP UNIT NUBER
10548                                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
10549
10550                                   ;SET UP FOR A ELEVEN WORD WRITE FROM AN ODD WORD BOUNDARY
10551  031464  012701  000003                   MOV     #3,R1           ;COUNT OF THREE
10552  031470  012702  003002                   MOV     #BFODD,R2       ;START THREE WORD BUFFER
10553                                                                   ;FROM AN ODD WORD BOUNDARY
10554  031474  012722  052525           1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
10555  031500  005301                           DEC     R1              ;COUNT
10556  031502  001374                           BNE     1$              ;BRANCH IF THREE NOT DONE
10557  031504  012777  003002  152352           MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
10558                                                                   ;FROM AN ODD WORD BOUNDARY
10559  031512  012777  177765  152342           MOV #-11.,@RHWC ;WORD COUNT ELEVEN
10560  031520  004077  153114                   JSR     R0,@COMND       ;GO TO DO COMMAND
10561  031524  004154                           WRIDAT                  ;WRITE DATA
10562
10563
10564                                   ;CHECK THAT RHCS3 HAS DBL
10565  031526  012737  002000  001124           MOV     #DBL,$GDDAT     ;GET GOOD = 2000
10566
10567  031534  017737  152372  001126           MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
10568  031542  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10569                                                                   ;DATA WITH DATA READ FROM
10570                                                                   ;RHCS3
10571  031550  001401                           BEQ     65$             ;BRANCH IF GOOD
10572  031552  104124                           ERROR   124
10573                                                                   ;AFTER SETTING "CLR" BIT #5
10574                                                                   ;IN RHCS2 TO INIT THE RH
10575                                                                   ;A ELEVEN WORD WRITE FROM AN
10576                                                                   ;ODD WORD BOUNDARY WAS DONE
10577                                                                   ;THEN
10578                                                                   ;RHCS3 SHOULD HAVE DBL
10579                                                                   ;=2000
10580                                                                   ;BUT CONTAINED WHAT IS
10581                                                                   ;GIVEN IN BAD RHCS3
10582  031554                           65$:
10583  031554  042777  000076  152276           BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10584                                   ;CHECK THAT RHCS1 HAS RDY!DVA
10585  031562  012737  004200  001124           MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10586
10587  031570  017737  152264  001126           MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10588  031576  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10589                                                                   ;DATA WITH DATA READ FROM
10590                                                                   ;RHCS1
10591  031604  001401                           BEQ     67$             ;BRANCH IF GOOD
10592  031606  104125                           ERROR   125
10593                                                                   ;AFTER SETTING "CLR" BIT #5
10594                                                                   ;IN RHCS2 TO INIT THE RH
```

```
10595                                                           ;A ELEVEN WORD WRITE FROM AN
10596                                                           ;ODD WORD BOUNDARY WAS DONE
10597                                                           ;THEN
10598                                                           ;RHCS1 SHOULD HAVE RDY!DVA
10599                                                           ;=4200
10600                                                           ;BUT CONTAINED WHAT IS
10601                                                           ;GIVEN IN BAD RHCS1
10602  031610                          67$:
10603                                          ;CHECK THAT RHCS2 HAS IR
10604  031610  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
10605  031616  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
10606
10607  031624  017737  152240  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
10608  031632  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10609                                                          ;DATA WITH DATA READ FROM
10610                                                          ;RHCS2
10611  031640  001401                          BEQ     69$             ;BRANCH IF GOOD
10612  031642  104126                          ERROR   126
10613                                                          ;AFTER SETTING "CLR" BIT #5
10614                                                          ;IN RHCS2 TO INIT THE RH
10615                                                          ;A ELEVEN WORD WRITE FROM AN
10616                                                          ;ODD WORD BOUNDARY WAS DONE
10617                                                          ;THEN
10618                                                          ;RHCS2 SHOULD HAVE IR
10619                                                          ;=100
10620                                                          ;TOGETHER WITH UNIT NUMBER
10621                                                          ;BUT CONTAINED WHAT IS
10622                                                          ;GIVEN IN BAD RHCS2
10623  031644                          69$:
10624                                          ;CHECK THAT RHWC HAS 0
10625  031644  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10626
10627  031652  017737  152204  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10628  031660  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10629                                                          ;DATA WITH DATA READ FROM
10630                                                          ;RHWC
10631  031666  001401                          BEQ     71$             ;BRANCH IF GOOD
10632  031670  104131                          ERROR   131
10633                                                          ;AFTER SETTING "CLR" BIT #5
10634                                                          ;IN RHCS2 TO INIT THE RH
10635                                                          ;A ELEVEN WORD WRITE FROM AN
10636                                                          ;ODD WORD BOUNDARY WAS DONE
10637                                                          ;THEN
10638                                                          ;RHWC SHOULD HAVE 0
10639                                                          ;BUT CONTAINED WHAT IS
10640                                                          ;GIVEN IN BAD RHWC
10641  031672                          71$:
10642
10643
10644
10645
10646                          ;;*****************************************************************
10647                          ;*TEST 46       TEST DBL (RHCS3 BIT #10) TEST G
10648
10649                          ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
10650                          ;*      SET UP FOR A NINE WORD READ FROM AN EVEN WORD BOUNDARY
```

```
10651                                   ;*      DO A NINE WORD READ FROM AN EVEN WORD BOUNDARY
10652                                   ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
10653                                   ;*      CHECK RHCS3
10654                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10655
10656                                   ;;*****************************************************************
10657  031672  000004                  TST46:  SCOPE
10658  031674  012706  001000                  MOV     #STACK,SP       ;RESET STACK
10659  031700  012737  000046  004656          MOV     #46,@#TSTNM     ;SAVE TEST NUMBER
10660
10661  031706  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
10662                                                                  ;SETUP UNIT NUBER
10663                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
10664
10665                                   ;SET UP FOR A NINE WORD READ FROM AN EVEN WORD BOUNDARY
10666  031712  012701  000003          MOV     #3,R1           ;COUNT OF THREE
10667  031716  012702  003000          MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
10668                                                          ;FROM AN EVEN WORD BOUNDARY
10669  031722  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
10670  031726  005301                  DEC     R1              ;COUNT
10671  031730  001374                  BNE     1$              ;BRANCH IF THREE NOT DONE
10672  031732  012777  003000  152124  MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
10673                                                          ;FROM AN EVEN WORD BOUNDARY
10674  031740  012777  177767  152114  MOV #-9.,@RHWC ;WORD COUNT NINE
10675  031746  004077  152666          JSR     R0,@COMND       ;GO TO DO COMMAND
10676  031752  004160                  READAT                  ;READ DATA
10677
10678
10679                                   ;CHECK THAT RHCS3 HAS 0
10680  031754  012737  000000  001124  MOV     #0,$GDDAT       ;GET GOOD = 0
10681
10682  031762  017737  152144  001126  MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
10683  031770  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10684                                                          ;DATA WITH DATA READ FROM
10685                                                          ;RHCS3
10686  031776  001401                  BEQ     65$             ;BRANCH IF GOOD
10687  032000  104124                  ERROR   124
10688                                                          ;AFTER SETTING "CLR" BIT #5
10689                                                          ;IN RHCS2 TO INIT THE RH
10690                                                          ;A NINE WORD READ FROM AN
10691                                                          ;EVEN WORD BOUNDARY WAS DONE
10692                                                          ;THEN
10693                                                          ;RHCS3 SHOULD HAVE 0
10694                                                          ;BUT CONTAINED WHAT IS
10695                                                          ;GIVEN IN BAD RHCS3
10696  032002                  65$:
10697  032002  042777  000076  152050          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10698                                  ;CHECK THAT RHCS1 HAS RDY!DVA
10699  032010  012737  004200  001124  MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10700
10701  032016  017737  152036  001126  MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10702  032024  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10703                                                          ;DATA WITH DATA READ FROM
10704                                                          ;RHCS1
10705  032032  001401                  BEQ     67$             ;BRANCH IF GOOD
10706  032034  104125                  ERROR   125
```

```
10707                                                                   ;AFTER SETTING "CLR" BIT #5
10708                                                                   ;IN RHCS2 TO INIT THE RH
10709                                                                   ;A NINE WORD READ FROM AN
10710                                                                   ;EVEN WORD BOUNDARY WAS DONE
10711                                                                   ;THEN
10712                                                                   ;RHCS1 SHOULD HAVE RDY!DVA
10713                                                                   ;=4200
10714                                                                   ;BUT CONTAINED WHAT IS
10715                                                                   ;GIVEN IN BAD RHCS1
10716  032036                                67$:
10717                                                ;CHECK THAT RHCS2 HAS IR
10718  032036  012737  000100  001124                MOV     #IR,$GDDAT      ;GET GOOD = 100
10719  032044  053737  005010  001124                BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
10720
10721  032052  017737  152012  001126                MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
10722  032060  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10723                                                                   ;DATA WITH DATA READ FROM
10724                                                                   ;RHCS2
10725  032066  001401                                BEQ     69$             ;BRANCH IF GOOD
10726  032070  104126                                ERROR   126
10727                                                                   ;AFTER SETTING "CLR" BIT #5
10728                                                                   ;IN RHCS2 TO INIT THE RH
10729                                                                   ;A NINE WORD READ FROM AN
10730                                                                   ;EVEN WORD BOUNDARY WAS DONE
10731                                                                   ;THEN
10732                                                                   ;RHCS2 SHOULD HAVE IR
10733                                                                   ;=100
10734                                                                   ;TOGETHER WITH UNIT NUMBER
10735                                                                   ;BUT CONTAINED WHAT IS
10736                                                                   ;GIVEN IN BAD RHCS2
10737  032072                                69$:
10738                                                ;CHECK THAT RHWC HAS 0
10739  032072  012737  000000  001124                MOV     #0,$GDDAT       ;GET GOOD = 0
10740
10741  032100  017737  151756  001126                MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10742  032106  023737  001124  001126                CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10743                                                                   ;DATA WITH DATA READ FROM
10744                                                                   ;RHWC
10745  032114  001401                                BEQ     71$             ;BRANCH IF GOOD
10746  032116  104131                                ERROR   131
10747                                                                   ;AFTER SETTING "CLR" BIT #5
10748                                                                   ;IN RHCS2 TO INIT THE RH
10749                                                                   ;A NINE WORD READ FROM AN
10750                                                                   ;EVEN WORD BOUNDARY WAS DONE
10751                                                                   ;THEN
10752                                                                   ;RHWC SHOULD HAVE 0
10753                                                                   ;BUT CONTAINED WHAT IS
10754                                                                   ;GIVEN IN BAD RHWC
10755  032120                                71$:
10756
10757
10758
10759                                ;;*****************************************************************
10760                                ;*TEST 47        TEST DBL (RHCS3 BIT #10) TEST H
10761
10762                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
```

```
10763                                   ;*      SET UP FOR A TEN WORD READ FROM AN EVEN WORD BOUNDARY
10764                                   ;*      DO A TEN WORD READ FROM AN EVEN WORD BOUNDARY
10765                                   ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
10766                                   ;*      CHECK RHCS3
10767                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10768
10769                                   ;;*****************************************************************
10770  032120  000004                  TST47:  SCOPE
10771  032122  012706  001000                  MOV     #STACK,SP       ;RESET STACK
10772  032126  012737  000047  004656          MOV     #47,@#TSTNM     ;SAVE TEST NUMBER
10773
10774  032134  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
10775                                                                  ;SETUP UNIT NUBER
10776                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
10777
10778                                   ;SET UP FOR A TEN WORD READ FROM AN EVEN WORD BOUNDARY
10779  032140  012701  000003                  MOV     #3,R1           ;COUNT OF THREE
10780  032144  012702  003000                  MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
10781                                                                  ;FROM AN EVEN WORD BOUNDARY
10782  032150  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
10783  032154  005301                          DEC     R1              ;COUNT
10784  032156  001374                          BNE     1$              ;BRANCH IF THREE NOT DONE
10785  032160  012777  003000  151676          MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
10786                                                                  ;FROM AN EVEN WORD BOUNDARY
10787  032166  012777  177766  151666          MOV #-10.,@RHWC ;WORD COUNT TEN
10788  032174  004077  152440                  JSR     R0,@COMND       ;GO TO DO COMMAND
10789  032200  004160                          READAT                  ;READ DATA
10790
10791
10792                                   ;CHECK THAT RHCS3 HAS DBL
10793  032202  012737  002000  001124          MOV     #DBL,$GDDAT     ;GET GOOD = 2000
10794
10795  032210  017737  151716  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
10796  032216  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10797                                                                  ;DATA WITH DATA READ FROM
10798                                                                  ;RHCS3
10799  032224  001401                          BEQ     65$             ;BRANCH IF GOOD
10800  032226  104124                          ERROR   124
10801                                                                  ;AFTER SETTING "CLR" BIT #5
10802                                                                  ;IN RHCS2 TO INIT THE RH
10803                                                                  ;A TEN WORD READ FROM AN
10804                                                                  ;EVEN WORD BOUNDARY WAS DONE
10805                                                                  ;THEN
10806                                                                  ;RHCS3 SHOULD HAVE DBL
10807                                                                  ;=2000
10808                                                                  ;BUT CONTAINED WHAT IS
10809                                                                  ;GIVEN IN BAD RHCS3
10810  032230                           65$:
10811  032230  042777  000076  151622          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10812                                   ;CHECK THAT RHCS1 HAS RDY!DVA
10813  032236  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10814
10815  032244  017737  151610  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10816  032252  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10817                                                                  ;DATA WITH DATA READ FROM
10818                                                                  ;RHCS1
```

```
10819  032260  001401                          BEQ     67$             ;BRANCH IF GOOD
10820  032262  104125                          ERROR   125
10821                                                                  ;AFTER SETTING "CLR" BIT #5
10822                                                                  ;IN RHCS2 TO INIT THE RH
10823                                                                  ;A TEN WORD READ FROM AN
10824                                                                  ;EVEN WORD BOUNDARY WAS DONE
10825                                                                  ;THEN
10826                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
10827                                                                  ;=4200
10828                                                                  ;BUT CONTAINED WHAT IS
10829                                                                  ;GIVEN IN BAD RHCS1
10830  032264                          67$:
10831                                          ;CHECK THAT RHCS2 HAS IR
10832  032264  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
10833  032272  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
10834
10835  032300  017737  151564  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
10836  032306  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10837                                                                  ;DATA WITH DATA READ FROM
10838                                                                  ;RHCS2
10839  032314  001401                          BEQ     69$             ;BRANCH IF GOOD
10840  032316  104126                          ERROR   126
10841                                                                  ;AFTER SETTING "CLR" BIT #5
10842                                                                  ;IN RHCS2 TO INIT THE RH
10843                                                                  ;A TEN WORD READ FROM AN
10844                                                                  ;EVEN WORD BOUNDARY WAS DONE
10845                                                                  ;THEN
10846                                                                  ;RHCS2 SHOULD HAVE IR
10847                                                                  ;=100
10848                                                                  ;TOGETHER WITH UNIT NUMBER
10849                                                                  ;BUT CONTAINED WHAT IS
10850                                                                  ;GIVEN IN BAD RHCS2
10851  032320                          69$:
10852                                          ;CHECK THAT RHWC HAS 0
10853  032320  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10854
10855  032326  017737  151530  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10856  032334  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10857                                                                  ;DATA WITH DATA READ FROM
10858                                                                  ;RHWC
10859  032342  001401                          BEQ     71$             ;BRANCH IF GOOD
10860  032344  104131                          ERROR   131
10861                                                                  ;AFTER SETTING "CLR" BIT #5
10862                                                                  ;IN RHCS2 TO INIT THE RH
10863                                                                  ;A TEN WORD READ FROM AN
10864                                                                  ;EVEN WORD BOUNDARY WAS DONE
10865                                                                  ;THEN
10866                                                                  ;RHWC SHOULD HAVE 0
10867                                                                  ;BUT CONTAINED WHAT IS
10868                                                                  ;GIVEN IN BAD RHWC
10869  032346                          71$:
10870
10871
10872
10873                                  ;;*****************************************************************
10874                                  ;*TEST 50        TEST DBL (RHCS3 BIT #10) TEST I
```

```
10875
10876                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
10877                                   ;*      SET UP FOR A TEN WORD READ FROM AN ODD WORD BOUNDARY
10878                                   ;*      DO A TEN WORD READ FROM AN ODD WORD BOUNDARY
10879                                   ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
10880                                   ;*      CHECK RHCS3
10881                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10882
10883                                   ;;*****************************************************************
10884  032346  000004                  T5T50:  SCOPE
10885  032350  012706  001000                  MOV     #STACK,SP       ;RESET STACK
10886  032354  012737  000050  004656          MOV     #50,@#T5TNM     ;SAVE TEST NUMBER
10887
10888  032362  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
10889                                                                  ;SETUP UNIT NUBER
10890                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
10891
10892                                   ;SET UP FOR A TEN WORD READ FROM AN ODD WORD BOUNDARY
10893  032366  012701  000003                  MOV     #3,R1           ;COUNT OF THREE
10894  032372  012702  003002                  MOV     #BFODD,R2       ;START THREE WORD BUFFER
10895                                                                  ;FROM AN ODD WORD BOUNDARY
10896  032376  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
10897  032402  005301                          DEC     R1              ;COUNT
10898  032404  001374                          BNE     1$              ;BRANCH IF THREE NOT DONE
10899  032406  012777  003002  151450          MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
10900                                                                  ;FROM AN ODD WORD BOUNDARY
10901  032414  012777  177766  151440          MOV #-10.,@RHWC ;WORD COUNT TEN
10902  032422  004077  152212                  JSR     R0,@COMND       ;GO TO DO COMMAND
10903  032426  004160                          READAT                  ;READ DATA
10904
10905
10906                                   ;CHECK THAT RHCS3 HAS 0
10907  032430  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10908
10909  032436  017737  151470  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
10910  032444  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10911                                                                  ;DATA WITH DATA READ FROM
10912                                                                  ;RHCS3
10913  032452  001401                          BEQ     65$             ;BRANCH IF GOOD
10914  032454  104124                          ERROR   124
10915                                                                  ;AFTER SETTING "CLR" BIT #5
10916                                                                  ;IN RHCS2 TO INIT THE RH
10917                                                                  ;A TEN WORD READ FROM AN
10918                                                                  ;ODD WORD BOUNDARY WAS DONE
10919                                                                  ;THEN
10920                                                                  ;RHCS3 SHOULD HAVE 0
10921                                                                  ;BUT CONTAINED WHAT IS
10922                                                                  ;GIVEN IN BAD RHCS3
10923  032456                   65$:
10924  032456  042777  000076  151374          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
10925                                   ;CHECK THAT RHCS1 HAS RDY!DVA
10926  032464  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
10927
10928  032472  017737  151362  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
10929  032500  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10930                                                                  ;DATA WITH DATA READ FROM
```

```
10931
10932  032506  001401                          BEQ     67$             ;RHCS1
10933  032510  104125                          ERROR   125             ;BRANCH IF GOOD
10934                                                                  ;AFTER SETTING "CLR" BIT #5
10935                                                                  ;IN RHCS2 TO INIT THE RH
10936                                                                  ;A TEN WORD READ FROM AN
10937                                                                  ;ODD WORD BOUNDARY WAS DONE
10938                                                                  ;THEN
10939                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
10940                                                                  ;=4200
10941                                                                  ;BUT CONTAINED WHAT IS
10942                                                                  ;GIVEN IN BAD RHCS1
10943  032512                          67$:
10944                                          ;CHECK THAT RHCS2 HAS IR
10945  032512  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
10946  032520  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
10947
10948  032526  017737  151336  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
10949  032534  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10950                                                                  ;DATA WITH DATA READ FROM
10951                                                                  ;RHCS2
10952  032542  001401                          BEQ     69$             ;BRANCH IF GOOD
10953  032544  104126                          ERROR   126
10954                                                                  ;AFTER SETTING "CLR" BIT #5
10955                                                                  ;IN RHCS2 TO INIT THE RH
10956                                                                  ;A TEN WORD READ FROM AN
10957                                                                  ;ODD WORD BOUNDARY WAS DONE
10958                                                                  ;THEN
10959                                                                  ;RHCS2 SHOULD HAVE IR
10960                                                                  ;=100
10961                                                                  ;TOGETHER WITH UNIT NUMBER
10962                                                                  ;BUT CONTAINED WHAT IS
10963                                                                  ;GIVEN IN BAD RHCS2
10964  032546                          69$:
10965                                          ;CHECK THAT RHWC HAS 0
10966  032546  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
10967
10968  032554  017737  151302  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
10969  032562  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
10970                                                                  ;DATA WITH DATA READ FROM
10971                                                                  ;RHWC
10972  032570  001401                          BEQ     71$             ;BRANCH IF GOOD
10973  032572  104131                          ERROR   131
10974                                                                  ;AFTER SETTING "CLR" BIT #5
10975                                                                  ;IN RHCS2 TO INIT THE RH
10976                                                                  ;A TEN WORD READ FROM AN
10977                                                                  ;ODD WORD BOUNDARY WAS DONE
10978                                                                  ;THEN
10979                                                                  ;RHWC SHOULD HAVE 0
10980                                                                  ;BUT CONTAINED WHAT IS
10981                                                                  ;GIVEN IN BAD RHWC
10982  032574                          71$:
10983
10984
10985
10986                                  ;;*****************************************************************
```

```
10987                                   ;*TEST 51       TEST DBL (RHCS3 BIT #10) TEST J
10988
10989                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
10990                                   ;*      SET UP FOR A ELEVEN WORD READ FROM AN EVEN WORD BOUNDARY
10991                                   ;*      DO A ELEVEN WORD READ FROM AN EVEN WORD BOUNDARY
10992                                   ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
10993                                   ;*      CHECK RHCS3
10994                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
10995
10996                                   ;;*****************************************************************
10997  032574  000004                  TST51:  SCOPE
10998  032576  012706  001000                  MOV     #STACK,SP       ;RESET STACK
10999  032602  012737  000051  004656          MOV     #51,@#TSTNM     ;SAVE TEST NUMBER
11000
11001  032610  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11002                                                                  ;SETUP UNIT NUBER
11003                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11004
11005                                   ;SET UP FOR A ELEVEN WORD READ FROM AN EVEN WORD BOUNDARY
11006  032614  012701  000003                  MOV     #3,R1           ;COUNT OF THREE
11007  032620  012702  003000                  MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
11008                                                                  ;FROM AN EVEN WORD BOUNDARY
11009  032624  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11010  032630  005301                          DEC     R1              ;COUNT
11011  032632  001374                          BNE     1$              ;BRANCH IF THREE NOT DONE
11012  032634  012777  003000  151222          MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
11013                                                                  ;FROM AN EVEN WORD BOUNDARY
11014  032642  012777  177765  151212          MOV #-11.,@RHWC ;WORD COUNT ELEVEN
11015  032650  004077  151764                  JSR     R0,@COMND       ;GO TO DO COMMAND
11016  032654  004160                          READAT                  ;READ DATA
11017
11018
11019                                   ;CHECK THAT RHCS3 HAS 0
11020  032656  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
11021
11022  032664  017737  151242  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
11023  032672  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11024                                                                  ;DATA WITH DATA READ FROM
11025                                                                  ;RHCS3
11026  032700  001401                          BEQ     65$             ;BRANCH IF GOOD
11027  032702  104124                          ERROR   124
11028                                                                  ;AFTER SETTING "CLR" BIT #5
11029                                                                  ;IN RHCS2 TO INIT THE RH
11030                                                                  ;A ELEVEN WORD READ FROM AN
11031                                                                  ;EVEN WORD BOUNDARY WAS DONE
11032                                                                  ;THEN
11033                                                                  ;RHCS3 SHOULD HAVE 0
11034                                                                  ;BUT CONTAINED WHAT IS
11035                                                                  ;GIVEN IN BAD RHCS3
11036  032704                  65$:
11037  032704  042777  000076  151146          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
11038                                  ;CHECK THAT RHCS1 HAS RDY!DVA
11039  032712  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
11040
11041  032720  017737  151134  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
11042  032726  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
```

```
11043
11044
11045  032734  001401                          BEQ     67$             ;DATA WITH DATA READ FROM
11046  032736  104125                          ERROR   125             ;RHCS1
11047                                                                  ;BRANCH IF GOOD
11048                                                                  ;AFTER SETTING "CLR" BIT #5
11049                                                                  ;IN RHCS2 TO INIT THE RH
11050                                                                  ;A ELEVEN WORD READ FROM AN
11051                                                                  ;EVEN WORD BOUNDARY WAS DONE
11052                                                                  ;THEN
11053                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
11054                                                                  ;=4200
11055                                                                  ;BUT CONTAINED WHAT IS
11056  032740                          67$:                            ;GIVEN IN BAD RHCS1
11057                                          ;CHECK THAT RHCS2 HAS IR
11058  032740  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
11059  032746  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
11060
11061  032754  017737  151110  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
11062  032762  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11063                                                                  ;DATA WITH DATA READ FROM
11064                                                                  ;RHCS2
11065  032770  001401                          BEQ     69$             ;BRANCH IF GOOD
11066  032772  104126                          ERROR   126
11067                                                                  ;AFTER SETTING "CLR" BIT #5
11068                                                                  ;IN RHCS2 TO INIT THE RH
11069                                                                  ;A ELEVEN WORD READ FROM AN
11070                                                                  ;EVEN WORD BOUNDARY WAS DONE
11071                                                                  ;THEN
11072                                                                  ;RHCS2 SHOULD HAVE IR
11073                                                                  ;=100
11074                                                                  ;TOGETHER WITH UNIT NUMBER
11075                                                                  ;BUT CONTAINED WHAT IS
11076                                                                  ;GIVEN IN BAD RHCS2
11077  032774                          69$:
11078                                          ;CHECK THAT RHWC HAS 0
11079  032774  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
11080
11081  033002  017737  151054  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
11082  033010  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11083                                                                  ;DATA WITH DATA READ FROM
11084                                                                  ;RHWC
11085  033016  001401                          BEQ     71$             ;BRANCH IF GOOD
11086  033020  104131                          ERROR   131
11087                                                                  ;AFTER SETTING "CLR" BIT #5
11088                                                                  ;IN RHCS2 TO INIT THE RH
11089                                                                  ;A ELEVEN WORD READ FROM AN
11090                                                                  ;EVEN WORD BOUNDARY WAS DONE
11091                                                                  ;THEN
11092                                                                  ;RHWC SHOULD HAVE 0
11093                                                                  ;BUT CONTAINED WHAT IS
11094                                                                  ;GIVEN IN BAD RHWC
11095  033022                          71$:
11096
11097
11098
```

```
11099                                   ;;*****************************************************************
11100                                   ;*TEST 52       TEST DBL (RHCS3 BIT #10) TEST K
11101
11102                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
11103                                   ;*      SET UP FOR A ELEVEN WORD READ FROM AN ODD WORD BOUNDARY
11104                                   ;*      DO A ELEVEN WORD READ FROM AN ODD WORD BOUNDARY
11105                                   ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
11106                                   ;*      CHECK RHCS3
11107                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
11108
11109                                   ;;*****************************************************************
11110  033022  000004                   TST52:  SCOPE
11111  033024  012706  001000                   MOV     #STACK,SP       ;RESET STACK
11112  033030  012737  000052  004656           MOV     #52,@#TSTNM     ;SAVE TEST NUMBER
11113
11114  033036  004737  040322           JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11115                                                           ;SETUP UNIT NUBER
11116                                                           ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11117
11118                                   ;SET UP FOR A ELEVEN WORD READ FROM AN ODD WORD BOUNDARY
11119  033042  012701  000003           MOV     #3,R1           ;COUNT OF THREE
11120  033046  012702  003002           MOV     #BFODD,R2       ;START THREE WORD BUFFER
11121                                                           ;FROM AN ODD WORD BOUNDARY
11122  033052  012722  052525           1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11123  033056  005301                   DEC     R1              ;COUNT
11124  033060  001374                   BNE     1$              ;BRANCH IF THREE NOT DONE
11125  033062  012777  003002  150774           MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
11126                                                           ;FROM AN ODD WORD BOUNDARY
11127  033070  012777  177765  150764   MOV #-11.,@RHWC ;WORD COUNT ELEVEN
11128  033076  004077  151536           JSR     R0,@COMND       ;GO TO DO COMMAND
11129  033102  004160                   READAT                  ;READ DATA
11130
11131
11132                                   ;CHECK THAT RHCS3 HAS DBL
11133  033104  012737  002000  001124           MOV     #DBL,$GDDAT     ;GET GOOD = 2000
11134
11135  033112  017737  151014  001126           MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
11136  033120  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11137                                                           ;DATA WITH DATA READ FROM
11138                                                           ;RHCS3
11139  033126  001401                   BEQ     65$             ;BRANCH IF GOOD
11140  033130  104124                   ERROR   124
11141                                                           ;AFTER SETTING "CLR" BIT #5
11142                                                           ;IN RHCS2 TO INIT THE RH
11143                                                           ;A ELEVEN WORD READ FROM AN
11144                                                           ;ODD WORD BOUNDARY WAS DONE
11145                                                           ;THEN
11146                                                           ;RHCS3 SHOULD HAVE DBL
11147                                                           ;=2000
11148                                                           ;BUT CONTAINED WHAT IS
11149                                                           ;GIVEN IN BAD RHCS3
11150  033132                           65$:
11151  033132  042777  000076  150720           BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
11152                                   ;CHECK THAT RHCS1 HAS RDY!DVA
11153  033140  012737  004200  001124           MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
11154
```

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11155  033146  017737  150706  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
11156  033154  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11157                                                                   ;DATA WITH DATA READ FROM
11158                                                                   ;RHCS1
11159  033162  001401                          BEQ     67$             ;BRANCH IF GOOD
11160  033164  104125                          ERROR   125
11161                                                                   ;AFTER SETTING "CLR" BIT #5
11162                                                                   ;IN RHCS2 TO INIT THE RH
11163                                                                   ;A ELEVEN WORD READ FROM AN
11164                                                                   ;ODD WORD BOUNDARY WAS DONE
11165                                                                   ;THEN
11166                                                                   ;RHCS1 SHOULD HAVE RDY!DVA
11167                                                                   ;=4200
11168                                                                   ;BUT CONTAINED WHAT IS
11169                                                                   ;GIVEN IN BAD RHCS1
11170  033166                          67$:
11171                                          ;CHECK THAT RHCS2 HAS IR
11172  033166  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
11173  033174  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
11174
11175  033202  017737  150662  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
11176  033210  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11177                                                                   ;DATA WITH DATA READ FROM
11178                                                                   ;RHCS2
11179  033216  001401                          BEQ     69$             ;BRANCH IF GOOD
11180  033220  104126                          ERROR   126
11181                                                                   ;AFTER SETTING "CLR" BIT #5
11182                                                                   ;IN RHCS2 TO INIT THE RH
11183                                                                   ;A ELEVEN WORD READ FROM AN
11184                                                                   ;ODD WORD BOUNDARY WAS DONE
11185                                                                   ;THEN
11186                                                                   ;RHCS2 SHOULD HAVE IR
11187                                                                   ;=100
11188                                                                   ;TOGETHER WITH UNIT NUMBER
11189                                                                   ;BUT CONTAINED WHAT IS
11190                                                                   ;GIVEN IN BAD RHCS2
11191  033222                          69$:
11192                                          ;CHECK THAT RHWC HAS 0
11193  033222  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
11194
11195  033230  017737  150626  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
11196  033236  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11197                                                                   ;DATA WITH DATA READ FROM
11198                                                                   ;RHWC
11199  033244  001401                          BEQ     71$             ;BRANCH IF GOOD
11200  033246  104131                          ERROR   131
11201                                                                   ;AFTER SETTING "CLR" BIT #5
11202                                                                   ;IN RHCS2 TO INIT THE RH
11203                                                                   ;A ELEVEN WORD READ FROM AN
11204                                                                   ;ODD WORD BOUNDARY WAS DONE
11205                                                                   ;THEN
11206                                                                   ;RHWC SHOULD HAVE 0
11207                                                                   ;BUT CONTAINED WHAT IS
11208                                                                   ;GIVEN IN BAD RHWC
11209  033250                          71$:
11210
```

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11211
11212
11213                                   ;;*****************************************************************
11214                                   ;*TEST 53       TEST DBL (RHCS3 BIT #10) TEST L
11215
11216                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
11217                                   ;*      SET UP FOR A TEN WORD READ FROM AN EVEN WORD BOUNDARY
11218                                   ;*      WITH BAI IN RHCS2 BIT #3 SET
11219                                   ;*      DO A TEN WORD READ FROM AN EVEN WORD BOUNDARY
11220                                   ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
11221                                   ;*      CHECK RHCS3
11222                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
11223
11224                                   ;;*****************************************************************
11225  033250  000004                   TST53:  SCOPE
11226  033252  012706  001000                   MOV     #STACK,SP       ;RESET STACK
11227  033256  012737  000053  004656           MOV     #53,@#TSTNM     ;SAVE TEST NUMBER
11228
11229  033264  004737  040322                   JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11230                                                                   ;SETUP UNIT NUBER
11231                                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11232
11233                                           ;SET UP FOR A TEN WORD READ FROM AN EVEN WORD BOUNDARY
11234  033270  012701  000003                   MOV     #3,R1           ;COUNT OF THREE
11235  033274  012702  003000                   MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
11236                                                                   ;FROM AN EVEN WORD BOUNDARY
11237  033300  012722  052525           1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11238  033304  005301                           DEC     R1              ;COUNT
11239  033306  001374                           BNE     1$              ;BRANCH IF THREE NOT DONE
11240  033310  012777  003000  150546           MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
11241                                                                   ;FROM AN EVEN WORD BOUNDARY
11242  033316  012777  177766  150536           MOV #-10.,@RHWC ;WORD COUNT TEN
11243  033324  052777  000010  150536   BIS #BAI,@RHCS2 ;SET BAI IN RHCS2
11244  033332  004077  151302                   JSR     R0,@COMND       ;GO TO DO COMMAND
11245  033336  004160                           READAT                  ;READ DATA
11246
11247
11248                                           ;CHECK THAT RHCS3 HAS 0
11249  033340  012737  000000  001124           MOV     #0,$GDDAT       ;GET GOOD = 0
11250
11251  033346  017737  150560  001126           MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
11252  033354  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11253                                                                   ;DATA WITH DATA READ FROM
11254                                                                   ;RHCS3
11255  033362  001401                           BEQ     65$             ;BRANCH IF GOOD
11256  033364  104124                           ERROR   124
11257                                                                   ;AFTER SETTING "CLR" BIT #5
11258                                                                   ;IN RHCS2 TO INIT THE RH
11259                                                                   ;A TEN WORD READ FROM AN
11260                                                                   ;EVEN WORD BOUNDARY WAS DONE
11261                                                                   ;WITH BAI IN RHCS2 SET
11262                                                                   ;THEN
11263                                                                   ;RHCS3 SHOULD HAVE 0
11264                                                                   ;BUT CONTAINED WHAT IS
11265                                                                   ;GIVEN IN BAD RHCS3
11266  033366                           65$:
```

```
11267  033366  042777  000076  150464          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
11268                                          ;CHECK THAT RHCS1 HAS RDY!DVA
11269  033374  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
11270
11271  033402  017737  150452  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
11272  033410  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11273                                                                  ;DATA WITH DATA READ FROM
11274                                                                  ;RHCS1
11275  033416  001401                          BEQ     67$             ;BRANCH IF GOOD
11276  033420  104125                          ERROR   125
11277                                                                  ;AFTER SETTING "CLR" BIT #5
11278                                                                  ;IN RHCS2 TO INIT THE RH
11279                                                                  ;A TEN WORD READ FROM AN
11280                                                                  ;EVEN WORD BOUNDARY WAS DONE
11281                                                                  ;WITH BAI IN RHCS2 SET
11282                                                                  ;THEN
11283                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
11284                                                                  ;=4200
11285                                                                  ;BUT CONTAINED WHAT IS
11286                                                                  ;GIVEN IN BAD RHCS1
11287  033422                          67$:
11288                                          ;CHECK THAT RHCS2 HAS IR!BAI
11289  033422  012737  000110  001124          MOV     #IR!BAI,$GDDAT  ;GET GOOD = 110
11290  033430  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
11291
11292  033436  017737  150426  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
11293  033444  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11294                                                                  ;DATA WITH DATA READ FROM
11295                                                                  ;RHCS2
11296  033452  001401                          BEQ     69$             ;BRANCH IF GOOD
11297  033454  104126                          ERROR   126
11298                                                                  ;AFTER SETTING "CLR" BIT #5
11299                                                                  ;IN RHCS2 TO INIT THE RH
11300                                                                  ;A TEN WORD READ FROM AN
11301                                                                  ;EVEN WORD BOUNDARY WAS DONE
11302                                                                  ;WITH BAI IN RHCS2 SET
11303                                                                  ;THEN
11304                                                                  ;RHCS2 SHOULD HAVE IR!BAI
11305                                                                  ;=110
11306                                                                  ;TOGETHER WITH UNIT NUMBER
11307                                                                  ;BUT CONTAINED WHAT IS
11308                                                                  ;GIVEN IN BAD RHCS2
11309  033456                          69$:
11310                                          ;CHECK THAT RHWC HAS 0
11311  033456  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
11312
11313  033464  017737  150372  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
11314  033472  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11315                                                                  ;DATA WITH DATA READ FROM
11316                                                                  ;RHWC
11317  033500  001401                          BEQ     71$             ;BRANCH IF GOOD
11318  033502  104131                          ERROR   131
11319                                                                  ;AFTER SETTING "CLR" BIT #5
11320                                                                  ;IN RHCS2 TO INIT THE RH
11321                                                                  ;A TEN WORD READ FROM AN
11322                                                                  ;EVEN WORD BOUNDARY WAS DONE
```

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11323                                                   ;WITH BAI IN RHCS2 SET
11324                                                   ;THEN
11325                                                   ;RHWC SHOULD HAVE 0
11326                                                   ;BUT CONTAINED WHAT IS
11327                                                   ;GIVEN IN BAD RHWC
11328  033504                       71$:
11329
11330
11331
11332
11333                                ;;*****************************************************************
11334                                ;*TEST 54       TEST DBL (RHCS3 BIT #10) TEST M
11335
11336                                ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
11337                                ;*      SET UP FOR A ONE WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11338                                ;*      DO A ONE WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11339                                ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
11340                                ;*      CHECK RHCS3
11341                                ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
11342
11343                                ;;*****************************************************************
11344  033504  000004               TST54:  SCOPE
11345  033506  012706  001000               MOV     #STACK,SP       ;RESET STACK
11346  033512  012737  000054  004656       MOV     #54,@#TSTNM     ;SAVE TEST NUMBER
11347
11348  033520  004737  040322               JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11349                                                               ;SETUP UNIT NUBER
11350                                                               ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11351
11352                                ;SET UP FOR A ONE WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11353  033524  012701  000003               MOV     #3,R1           ;COUNT OF THREE
11354  033530  012702  003000               MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
11355                                                               ;FROM AN EVEN WORD BOUNDARY
11356  033534  012722  052525       1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11357  033540  005301                       DEC     R1              ;COUNT
11358  033542  001374                       BNE     1$              ;BRANCH IF THREE NOT DONE
11359  033544  012777  003000  150312       MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
11360                                                               ;FROM AN EVEN WORD BOUNDARY
11361  033552  012777  177777  150302       MOV #-1,@RHWC ;WORD COUNT ONE
11362  033560  004077  151054               JSR     R0,@COMND       ;GO TO DO COMMAND
11363  033564  004204                       REVWRT                  ;REVERSEWRITE DATA
11364
11365
11366                                ;CHECK THAT RHCS3 HAS 0
11367  033566  012737  000000  001124       MOV     #0,$GDDAT       ;GET GOOD = 0
11368
11369  033574  017737  150332  001126       MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
11370  033602  023737  001124  001126       CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11371                                                               ;DATA WITH DATA READ FROM
11372                                                               ;RHCS3
11373  033610  001401                       BEQ     65$             ;BRANCH IF GOOD
11374  033612  104124                       ERROR   124
11375                                                               ;AFTER SETTING "CLR" BIT #5
11376                                                               ;IN RHCS2 TO INIT THE RH
11377                                                               ;A ONE WORD WRITE REVERSE FROM AN
11378                                                               ;EVEN WORD BOUNDARY WAS DONE
```

```
11379                                                          ;THEN
11380                                                          ;RHCS3 SHOULD HAVE 0
11381                                                          ;BUT CONTAINED WHAT IS
11382                                                          ;GIVEN IN BAD RHCS3
11383  033614                          65$:
11384  033614  042777  000076  150236          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
11385                                          ;CHECK THAT RHCS1 HAS SC!RDY!DVA
11386  033622  012737  104200  001124          MOV     #SC!RDY!DVA,$GDDAT      ;GET GOOD = 104200
11387
11388  033630  017737  150224  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
11389  033636  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11390                                                          ;DATA WITH DATA READ FROM
11391                                                          ;RHCS1
11392  033644  001401                          BEQ     67$             ;BRANCH IF GOOD
11393  033646  104125                          ERROR   125
11394                                                          ;AFTER SETTING "CLR" BIT #5
11395                                                          ;IN RHCS2 TO INIT THE RH
11396                                                          ;A ONE WORD WRITE REVERSE FROM AN
11397                                                          ;EVEN WORD BOUNDARY WAS DONE
11398                                                          ;THEN
11399                                                          ;RHCS1 SHOULD HAVE SC!RDY!DVA
11400                                                          ;=104200
11401                                                          ;BUT CONTAINED WHAT IS
11402                                                          ;GIVEN IN BAD RHCS1
11403  033650                          67$:
11404                                          ;CHECK THAT RHCS2 HAS IR!OR
11405  033650  012737  000300  001124          MOV     #IR!OR,$GDDAT   ;GET GOOD = 300
11406  033656  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
11407
11408  033664  017737  150200  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
11409  033672  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11410                                                          ;DATA WITH DATA READ FROM
11411                                                          ;RHCS2
11412  033700  001401                          BEQ     69$             ;BRANCH IF GOOD
11413  033702  104126                          ERROR   126
11414                                                          ;AFTER SETTING "CLR" BIT #5
11415                                                          ;IN RHCS2 TO INIT THE RH
11416                                                          ;A ONE WORD WRITE REVERSE FROM AN
11417                                                          ;EVEN WORD BOUNDARY WAS DONE
11418                                                          ;THEN
11419                                                          ;RHCS2 SHOULD HAVE IR!OR
11420                                                          ;=300
11421                                                          ;TOGETHER WITH UNIT NUMBER
11422                                                          ;BUT CONTAINED WHAT IS
11423                                                          ;GIVEN IN BAD RHCS2
11424  033704                          69$:
11425                                          ;CHECK THAT RHWC HAS 0
11426  033704  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
11427
11428  033712  017737  150144  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
11429  033720  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11430                                                          ;DATA WITH DATA READ FROM
11431                                                          ;RHWC
11432  033726  001401                          BEQ     71$             ;BRANCH IF GOOD
11433  033730  104131                          ERROR   131
11434                                                          ;AFTER SETTING "CLR" BIT #5
```

```
11435                                                           ;IN RHCS2 TO INIT THE RH
11436                                                           ;A ONE WORD WRITE REVERSE FROM AN
11437                                                           ;EVEN WORD BOUNDARY WAS DONE
11438                                                           ;THEN
11439                                                           ;RHWC SHOULD HAVE 0
11440                                                           ;BUT CONTAINED WHAT IS
11441                                                           ;GIVEN IN BAD RHWC
11442  033732                          71$:
11443
11444
11445
11446                                   ;;*****************************************************************
11447                                   ;*TEST 55       TEST DBL (RHCS3 BIT #10) TEST N
11448
11449                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
11450                                   ;*      SET UP FOR A TWO WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11451                                   ;*      DO A TWO WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11452                                   ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
11453                                   ;*      CHECK RHCS3
11454                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
11455
11456                                   ;;*****************************************************************
11457  033732  000004                  TST55:  SCOPE
11458  033734  012706  001000                  MOV     #STACK,SP       ;RESET STACK
11459  033740  012737  000055  004656          MOV     #55,@#TSTNM     ;SAVE TEST NUMBER
11460
11461  033746  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11462                                                                  ;SETUP UNIT NUBER
11463                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11464
11465                                   ;SET UP FOR A TWO WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11466  033752  012701  000003          MOV     #3,R1           ;COUNT OF THREE
11467  033756  012702  003000          MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
11468                                                          ;FROM AN EVEN WORD BOUNDARY
11469  033762  012722  052525    1$:   MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11470  033766  005301                  DEC     R1              ;COUNT
11471  033770  001374                  BNE     1$              ;BRANCH IF THREE NOT DONE
11472  033772  012777  003000  150064  MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
11473                                                          ;FROM AN EVEN WORD BOUNDARY
11474  034000  012777  177776  150054  MOV #-2,@RHWC ;WORD COUNT TWO
11475  034006  004077  150626          JSR     R0,@COMND       ;GO TO DO COMMAND
11476  034012  004204                  REVWRT                  ;REVERSEWRITE DATA
11477
11478
11479                                   ;CHECK THAT RHCS3 HAS 0
11480  034014  012737  000000  001124  MOV     #0,$GDDAT       ;GET GOOD = 0
11481
11482  034022  017737  150104  001126  MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
11483  034030  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11484                                                          ;DATA WITH DATA READ FROM
11485                                                          ;RHCS3
11486  034036  001401                  BEQ     65$             ;BRANCH IF GOOD
11487  034040  104124                  ERROR   124
11488                                                          ;AFTER SETTING "CLR" BIT #5
11489                                                          ;IN RHCS2 TO INIT THE RH
11490                                                          ;A TWO WORD WRITE REVERSE FROM AN
```

```
                                                                ;EVEN WORD BOUNDARY WAS DONE
                                                                ;THEN
                                                                ;RHCS3 SHOULD HAVE 0
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS3
034042                                  65$:
034042  042777  000076  150010              BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
                                            ;CHECK THAT RHCS1 HAS SC!RDY!DVA
034050  012737  104200  001124              MOV     #SC!RDY!DVA,$GDDAT      ;GET GOOD = 104200

034056  017737  147776  001126              MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
034064  023737  001124  001126              CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS1
034072  001401                              BEQ     67$             ;BRANCH IF GOOD
034074  104125                              ERROR   125

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A TWO WORD WRITE REVERSE FROM AN
                                                                ;EVEN WORD BOUNDARY WAS DONE
                                                                ;THEN
                                                                ;RHCS1 SHOULD HAVE SC!RDY!DVA
                                                                ;=104200
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS1
034076                                  67$:
                                            ;CHECK THAT RHCS2 HAS IR!OR
034076  012737  000300  001124              MOV     #IR!OR,$GDDAT   ;GET GOOD = 300
034104  053737  005010  001124              BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER

034112  017737  147752  001126              MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
034120  023737  001124  001126              CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHCS2
034126  001401                              BEQ     69$             ;BRANCH IF GOOD
034130  104126                              ERROR   126

                                                                ;AFTER SETTING "CLR" BIT #5
                                                                ;IN RHCS2 TO INIT THE RH
                                                                ;A TWO WORD WRITE REVERSE FROM AN
                                                                ;EVEN WORD BOUNDARY WAS DONE
                                                                ;THEN
                                                                ;RHCS2 SHOULD HAVE IR!OR
                                                                ;=300
                                                                ;TOGETHER WITH UNIT NUMBER
                                                                ;BUT CONTAINED WHAT IS
                                                                ;GIVEN IN BAD RHCS2
034132                                  69$:
                                            ;CHECK THAT RHWC HAS 0
034132  012737  000000  001124              MOV     #0,$GDDAT       ;GET GOOD = 0

034140  017737  147716  001126              MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
034146  023737  001124  001126              CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
                                                                ;DATA WITH DATA READ FROM
                                                                ;RHWC
034154  001401                              BEQ     71$             ;BRANCH IF GOOD
034156  104131                              ERROR   131
```

```
11547                                                                   ;AFTER SETTING "CLR" BIT #5
11548                                                                   ;IN RHCS2 TO INIT THE RH
11549                                                                   ;A TWO WORD WRITE REVERSE FROM AN
11550                                                                   ;EVEN WORD BOUNDARY WAS DONE
11551                                                                   ;THEN
11552                                                                   ;RHWC SHOULD HAVE 0
11553                                                                   ;BUT CONTAINED WHAT IS
11554                                                                   ;GIVEN IN BAD RHWC
11555  034160                          71$:
11556
11557
11558                                   ;;*********************************************************************
11559                                   ;*TEST 56       TEST DBL (RHCS3 BIT #10) TEST 0
11560
11561                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
11562                                   ;*      SET UP FOR A TWO WORD WRITE REVERSE FROM AN ODD WORD BOUNDARY
11563                                   ;*      DO A TWO WORD WRITE REVERSE FROM AN ODD WORD BOUNDARY
11564                                   ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
11565                                   ;*      CHECK RHCS3
11566                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
11567
11568                                   ;;*********************************************************************
11569
11570  034160  000004                  TST56:  SCOPE
11571  034162  012706  001000                  MOV     #STACK,SP       ;RESET STACK
11572  034166  012767  000056  004656          MOV     #56,@#TSTNM     ;SAVE TEST NUMBER
11573
11574  034174  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11575                                                                  ;SETUP UNIT NUBER
11576                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11577
11578                                   ;SET UP FOR A TWO WORD WRITE REVERSE FROM AN ODD WORD BOUNDARY
11579  034200  012701  000003          MOV     #3,R1           ;COUNT OF THREE
11580  034204  012702  003002          MOV     #BFODD,R2       ;START THREE WORD BUFFER
11581                                                          ;FROM AN ODD WORD BOUNDARY
11582  034210  012722  052525  1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11583  034214  005301                  DEC     R1              ;COUNT
11584  034216  001374                  BNE     1$              ;BRANCH IF THREE NOT DONE
11585  034220  012777  003002  147636  MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
11586                                                          ;FROM AN ODD WORD BOUNDARY
11587  034226  012777  177776  147626  MOV #-2,@RHWC ;WORD COUNT TWO
11588  034234  004077  150400          JSR     R0,@COMND       ;GO TO DO COMMAND
11589  034240  004204                  REVWRT                  ;REVERSEWRITE DATA
11590
11591
11592                                   ;CHECK THAT RHCS3 HAS DBL
11593  034242  012737  002000  001124  MOV     #DBL,$GDDAT     ;GET GOOD = 2000
11594
11595  034250  017737  147656  001126  MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
11596  034256  023737  001124  001126  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11597                                                          ;DATA WITH DATA READ FROM
11598                                                          ;RHCS3
11599  034264  001401                  BEQ     65$             ;BRANCH IF GOOD
11600  034266  104124                  ERROR   124
11601                                                          ;AFTER SETTING "CLR" BIT #5
11602                                                          ;IN RHCS2 TO INIT THE RH
```

```
11603                                                                   ;A TWO WORD WRITE REVERSE FROM AN
11604                                                                   ;ODD WORD BOUNDARY WAS DONE
11605                                                                   ;THEN
11606                                                                   ;RHCS3 SHOULD HAVE DBL
11607                                                                   ;=2000
11608                                                                   ;BUT CONTAINED WHAT IS
11609                                                                   ;GIVEN IN BAD RHCS3
11610  034270                                  65$:
11611  034270  042777  000076  147562          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
11612                                          ;CHECK THAT RHCS1 HAS SC!RDY!DVA
11613  034276  012737  104200  001124          MOV     #SC!RDY!DVA,$GDDAT      ;GET GOOD = 104200
11614
11615  034304  017737  147550  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
11616  034312  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11617                                                                  ;DATA WITH DATA READ FROM
11618                                                                  ;RHCS1
11619  034320  001401                          BEQ     67$             ;BRANCH IF GOOD
11620  034322  104125                          ERROR   125
11621                                                                  ;AFTER SETTING "CLR" BIT #5
11622                                                                  ;IN RHCS2 TO INIT THE RH
11623                                                                  ;A TWO WORD WRITE REVERSE FROM AN
11624                                                                  ;ODD WORD BOUNDARY WAS DONE
11625                                                                  ;THEN
11626                                                                  ;RHCS1 SHOULD HAVE SC!RDY!DVA
11627                                                                  ;=104200
11628                                                                  ;BUT CONTAINED WHAT IS
11629                                                                  ;GIVEN IN BAD RHCS1
11630  034324                                  67$:
11631                                          ;CHECK THAT RHCS2 HAS IR!OR
11632  034324  012737  000300  001124          MOV     #IR!OR,$GDDAT   ;GET GOOD = 300
11633  034332  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
11634
11635  034340  017737  147524  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
11636  034346  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11637                                                                  ;DATA WITH DATA READ FROM
11638                                                                  ;RHCS2
11639  034354  001401                          BEQ     69$             ;BRANCH IF GOOD
11640  034356  104126                          ERROR   126
11641                                                                  ;AFTER SETTING "CLR" BIT #5
11642                                                                  ;IN RHCS2 TO INIT THE RH
11643                                                                  ;A TWO WORD WRITE REVERSE FROM AN
11644                                                                  ;ODD WORD BOUNDARY WAS DONE
11645                                                                  ;THEN
11646                                                                  ;RHCS2 SHOULD HAVE IR!OR
11647                                                                  ;=300
11648                                                                  ;TOGETHER WITH UNIT NUMBER
11649                                                                  ;BUT CONTAINED WHAT IS
11650                                                                  ;GIVEN IN BAD RHCS2
11651  034360                                  69$:
11652                                          ;CHECK THAT RHWC HAS 0
11653  034360  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
11654
11655  034366  017737  147470  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
11656  034374  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11657                                                                  ;DATA WITH DATA READ FROM
11658                                                                  ;RHWC
```

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11659  034402  001401                          BEQ     71$             ;BRANCH IF GOOD
11660  034404  104131                          ERROR   131
11661                                                                  ;AFTER SETTING "CLR" BIT #5
11662                                                                  ;IN RHCS2 TO INIT THE RH
11663                                                                  ;A TWO WORD WRITE REVERSE FROM AN
11664                                                                  ;ODD WORD BOUNDARY WAS DONE
11665                                                                  ;THEN
11666                                                                  ;RHWC SHOULD HAVE 0
11667                                                                  ;BUT CONTAINED WHAT IS
11668                                                                  ;GIVEN IN BAD RHWC
11669  034406                          71$:
11670
11671
11672
11673                                  ;;*****************************************************************
11674                                  ;*TEST 57        TEST DBL (RHCS3 BIT #10) TEST P
11675
11676                                  ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
11677                                  ;*      SET UP FOR A THREE WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11678                                  ;*      DO A THREE WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11679                                  ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
11680                                  ;*      CHECK RHCS3
11681                                  ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
11682
11683                                  ;;*****************************************************************
11684  034406  000004                  TST57:  SCOPE
11685  034410  012706  001000                  MOV     #STACK,SP       ;RESET STACK
11686  034414  012737  000057  004656          MOV     #57,@#TSTNM     ;SAVE TEST NUMBER
11687
11688  034422  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11689                                                                  ;SETUP UNIT NUBER
11690                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11691
11692                                          ;SET UP FOR A THREE WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11693  034426  012701  000003                  MOV     #3,R1           ;COUNT OF THREE
11694  034432  012702  003000                  MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
11695                                                                  ;FROM AN EVEN WORD BOUNDARY
11696  034436  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11697  034442  005301                          DEC     R1              ;COUNT
11698  034444  001374                          BNE     1$              ;BRANCH IF THREE NOT DONE
11699  034446  012777  003000  147410          MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
11700                                                                  ;FROM AN EVEN WORD BOUNDARY
11701  034454  012777  177775  147400          MOV #-3,@RHWC ;WORD COUNT THREE
11702  034462  004077  150152                  JSR     R0,@COMND       ;GO TO DO COMMAND
11703  034466  004204                          REVWRT                  ;REVERSEWRITE DATA
11704
11705
11706                                          ;CHECK THAT RHCS3 HAS DBL
11707  034470  012737  002000  001124          MOV     #DBL,$GDDAT     ;GET GOOD = 2000
11708
11709  034476  017737  147430  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
11710  034504  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11711                                                                  ;DATA WITH DATA READ FROM
11712                                                                  ;RHCS3
11713  034512  001401                          BEQ     65$             ;BRANCH IF GOOD
11714  034514  104124                          ERROR   124
```

```
11715                                                           ;AFTER SETTING "CLR" BIT #5
11716                                                           ;IN RHCS2 TO INIT THE RH
11717                                                           ;A THREE WORD WRITE REVERSE FROM AN
11718                                                           ;EVEN WORD BOUNDARY WAS DONE
11719                                                           ;THEN
11720                                                           ;RHCS3 SHOULD HAVE DBL
11721                                                           ;=2000
11722                                                           ;BUT CONTAINED WHAT IS
11723                                                           ;GIVEN IN BAD RHCS3
11724  034516                                  65$:
11725  034516  042777  000076  147334          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
11726                                          ;CHECK THAT RHCS1 HAS SC!RDY!DVA
11727  034524  012737  104200  001124          MOV     #SC!RDY!DVA,$GDDAT      ;GET GOOD = 104200
11728
11729  034532  017737  147322  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
11730  034540  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11731                                                          ;DATA WITH DATA READ FROM
11732                                                          ;RHCS1
11733  034546  001401                          BEQ     67$             ;BRANCH IF GOOD
11734  034550  104125                          ERROR   125
11735                                                           ;AFTER SETTING "CLR" BIT #5
11736                                                           ;IN RHCS2 TO INIT THE RH
11737                                                           ;A THREE WORD WRITE REVERSE FROM AN
11738                                                           ;EVEN WORD BOUNDARY WAS DONE
11739                                                           ;THEN
11740                                                           ;RHCS1 SHOULD HAVE SC!RDY!DVA
11741                                                           ;=104200
11742                                                           ;BUT CONTAINED WHAT IS
11743                                                           ;GIVEN IN BAD RHCS1
11744  034552                                  67$:
11745                                          ;CHECK THAT RHCS2 HAS IR!OR
11746  034552  012737  000300  001124          MOV     #IR!OR,$GDDAT   ;GET GOOD = 300
11747  034560  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
11748
11749  034566  017737  147276  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
11750  034574  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11751                                                          ;DATA WITH DATA READ FROM
11752                                                          ;RHCS2
11753  034602  001401                          BEQ     69$             ;BRANCH IF GOOD
11754  034604  104126                          ERROR   126
11755                                                           ;AFTER SETTING "CLR" BIT #5
11756                                                           ;IN RHCS2 TO INIT THE RH
11757                                                           ;A THREE WORD WRITE REVERSE FROM AN
11758                                                           ;EVEN WORD BOUNDARY WAS DONE
11759                                                           ;THEN
11760                                                           ;RHCS2 SHOULD HAVE IR!OR
11761                                                           ;=300
11762                                                           ;TOGETHER WITH UNIT NUMBER
11763                                                           ;BUT CONTAINED WHAT IS
11764                                                           ;GIVEN IN BAD RHCS2
11765  034606                                  69$:
11766                                          ;CHECK THAT RHWC HAS 0
11767  034606  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
11768
11769  034614  017737  147242  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
11770  034622  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
```

```
11771                                                                   ;DATA WITH DATA READ FROM
11772                                                                   ;RHWC
11773  034630  001401                        BEQ     71$              ;BRANCH IF GOOD
11774  034632  104131                        ERROR   131
11775                                                                   ;AFTER SETTING "CLR" BIT #5
11776                                                                   ;IN RHCS2 TO INIT THE RH
11777                                                                   ;A THREE WORD WRITE REVERSE FROM AN
11778                                                                   ;EVEN WORD BOUNDARY WAS DONE
11779                                                                   ;THEN
11780                                                                   ;RHWC SHOULD HAVE 0
11781                                                                   ;BUT CONTAINED WHAT IS
11782                                                                   ;GIVEN IN BAD RHWC
11783  034634                          71$:
11784
11785
11786
11787                           ;;*****************************************************************
11788                           ;*TEST 60        TEST DBL (RHCS3 BIT #10) TEST Q
11789
11790                           ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
11791                           ;*      SET UP FOR A THREE WORD WRITE REVERSE FROM AN ODD WORD BOUNDARY
11792                           ;*      DO A THREE WORD WRITE REVERSE FROM AN ODD WORD BOUNDARY
11793                           ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
11794                           ;*      CHECK RHCS3
11795                           ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
11796
11797                           ;;*****************************************************************
11798  034634  000004           †ST60:  SCOPE
11799  034636  012706  001000           MOV     #STACK,SP       ;RESET STACK
11800  034642  012737  000060  004656   MOV     #60,@#†STNM     ;SAVE TEST NUMBER
11801
11802  034650  004737  040322           JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11803                                                           ;SETUP UNIT NUBER
11804                                                           ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11805
11806                                   ;SET UP FOR A THREE WORD WRITE REVERSE FROM AN ODD WORD BOUNDARY
11807  034654  012701  000003           MOV     #3,R1           ;COUNT OF THREE
11808  034660  012702  003002           MOV     #BFODD,R2       ;START THREE WORD BUFFER
11809                                                           ;FROM AN ODD WORD BOUNDARY
11810  034664  012722  052525   1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11811  034670  005301                   DEC     R1              ;COUNT
11812  034672  001374                   BNE     1$              ;BRANCH IF THREE NOT DONE
11813  034674  012777  003002  147162   MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
11814                                                           ;FROM AN ODD WORD BOUNDARY
11815  034702  012777  177775  147152   MOV #-3,@RHWC ;WORD COUNT THREE
11816  034710  004077  147724           JSR     R0,@COMND       ;GO TO DO COMMAND
11817  034714  004204                   REVWRT                  ;REVERSEWRITE DATA
11818
11819
11820                                   ;CHECK THAT RHCS3 HAS 0
11821  034716  012737  000000  001124   MOV     #0,$GDDAT       ;GET GOOD = 0
11822
11823  034724  017737  147202  001126   MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
11824  034732  023737  001124  001126   CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11825                                                           ;DATA WITH DATA READ FROM
11826                                                           ;RHCS3
```

```
11827  034740  001401                          BEQ     65$             ;BRANCH IF GOOD
11828  034742  104124                          ERROR   124
11829                                                                   ;AFTER SETTING "CLR" BIT #5
11830                                                                   ;IN RHCS2 TO INIT THE RH
11831                                                                   ;A THREE WORD WRITE REVERSE FROM AN
11832                                                                   ;ODD WORD BOUNDARY WAS DONE
11833                                                                   ;THEN
11834                                                                   ;RHCS3 SHOULD HAVE 0
11835                                                                   ;BUT CONTAINED WHAT IS
11836                                                                   ;GIVEN IN BAD RHCS3
11837  034744                                  65$:
11838  034744  042777  000076  147106            BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
11839                                          ;CHECK THAT RHCS1 HAS SC!RDY!DVA
11840  034752  012737  104200  001124            MOV     #SC!RDY!DVA,$GDDAT      ;GET GOOD = 104200
11841
11842  034760  017737  147074  001126            MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
11843  034766  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11844                                                                   ;DATA WITH DATA READ FROM
11845                                                                   ;RHCS1
11846  034774  001401                          BEQ     67$             ;BRANCH IF GOOD
11847  034776  104125                          ERROR   125
11848                                                                   ;AFTER SETTING "CLR" BIT #5
11849                                                                   ;IN RHCS2 TO INIT THE RH
11850                                                                   ;A THREE WORD WRITE REVERSE FROM AN
11851                                                                   ;ODD WORD BOUNDARY WAS DONE
11852                                                                   ;THEN
11853                                                                   ;RHCS1 SHOULD HAVE SC!RDY!DVA
11854                                                                   ;=104200
11855                                                                   ;BUT CONTAINED WHAT IS
11856                                                                   ;GIVEN IN BAD RHCS1
11857  035000                                  67$:
11858                                          ;CHECK THAT RHCS2 HAS IR!OR
11859  035000  012737  000300  001124            MOV     #IR!OR,$GDDAT   ;GET GOOD = 300
11860  035006  053737  005010  001124            BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
11861
11862  035014  017737  147050  001126            MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
11863  035022  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11864                                                                   ;DATA WITH DATA READ FROM
11865                                                                   ;RHCS2
11866  035030  001401                          BEQ     69$             ;BRANCH IF GOOD
11867  035032  104126                          ERROR   126
11868                                                                   ;AFTER SETTING "CLR" BIT #5
11869                                                                   ;IN RHCS2 TO INIT THE RH
11870                                                                   ;A THREE WORD WRITE REVERSE FROM AN
11871                                                                   ;ODD WORD BOUNDARY WAS DONE
11872                                                                   ;THEN
11873                                                                   ;RHCS2 SHOULD HAVE IR!OR
11874                                                                   ;=300
11875                                                                   ;TOGETHER WITH UNIT NUMBER
11876                                                                   ;BUT CONTAINED WHAT IS
11877                                                                   ;GIVEN IN BAD RHCS2
11878  035034                                  69$:
11879                                          ;CHECK THAT RHWC HAS 0
11880  035034  012737  000000  001124            MOV     #0,$GDDAT       ;GET GOOD = 0
11881
11882  035042  017737  147014  001126            MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
```

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11883  035050  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11884                                                                   ;DATA WITH DATA READ FROM
11885                                                                   ;RHWC
11886  035056  001401                          BEQ     71$             ;BRANCH IF GOOD
11887  035060  104131                          ERROR   131
11888                                                                   ;AFTER SETTING "CLR" BIT #5
11889                                                                   ;IN RHCS2 TO INIT THE RH
11890                                                                   ;A THREE WORD WRITE REVERSE FROM AN
11891                                                                   ;ODD WORD BOUNDARY WAS DONE
11892                                                                   ;THEN
11893                                                                   ;RHWC SHOULD HAVE 0
11894                                                                   ;BUT CONTAINED WHAT IS
11895                                                                   ;GIVEN IN BAD RHWC
11896  035062                          71$:
11897
11898
11899
11900                                  ;;*****************************************************************
11901                                  ;*TEST 61        TEST DBL (RHCS3 BIT #10) TEST R
11902
11903                                  ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
11904                                  ;*      SET UP FOR A TWO WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11905                                  ;*      WITH BAI IN RHCS2 BIT #3 SET
11906                                  ;*      DO A TWO WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11907                                  ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
11908                                  ;*      CHECK RHCS3
11909                                  ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
11910
11911                                  ;;*****************************************************************
11912  035062  000004                  ↑ST61:  SCOPE
11913  035064  012706  001000                  MOV     #STACK,SP       ;RESET STACK
11914  035070  012737  000061  004656          MOV     #61,@#↑STNM     ;SAVE TEST NUMBER
11915
11916  035076  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
11917                                                                   ;SETUP UNIT NUBER
11918                                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
11919
11920                                          ;SET UP FOR A TWO WORD WRITE REVERSE FROM AN EVEN WORD BOUNDARY
11921  035102  012701  000003                  MOV     #3,R1           ;COUNT OF THREE
11922  035106  012702  003000                  MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
11923                                                                   ;FROM AN EVEN WORD BOUNDARY
11924  035112  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
11925  035116  005301                          DEC     R1              ;COUNT
11926  035120  001374                          BNE     1$              ;BRANCH IF THREE NOT DONE
11927  035122  012777  003000  146734          MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
11928                                                                   ;FROM AN EVEN WORD BOUNDARY
11929  035130  012777  177776  146724          MOV #-2,@RHWC ;WORD COUNT TWO
11930  035136  052777  000010  146724  BIS #BAI,@RHCS2 ;SET BAI IN RHCS2
11931  035144  004077  147470                  JSR     R0,@COMND       ;GO TO DO COMMAND
11932  035150  004204                          REVWRT                  ;REVERSEWRITE DATA
11933
11934
11935                                          ;CHECK THAT RHCS3 HAS 0
11936  035152  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
11937
11938  035160  017737  146746  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
```

```
11939  035166  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11940                                                                   ;DATA WITH DATA READ FROM
11941                                                                   ;RHCS3
11942  035174  001401                          BEQ     65$             ;BRANCH IF GOOD
11943  035176  104124                          ERROR   124
11944                                                                   ;AFTER SETTING "CLR" BIT #5
11945                                                                   ;IN RHCS2 TO INIT THE RH
11946                                                                   ;A TWO WORD WRITE REVERSE FROM AN
11947                                                                   ;EVEN WORD BOUNDARY WAS DONE
11948                                                                   ;WITH BAI IN RHCS2 SET
11949                                                                   ;THEN
11950                                                                   ;RHCS3 SHOULD HAVE 0
11951                                                                   ;BUT CONTAINED WHAT IS
11952                                                                   ;GIVEN IN BAD RHCS3
11953  035200                          65$:
11954  035200  042777  000076  146652          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
11955                                          ;CHECK THAT RHCS1 HAS SC!RDY!DVA
11956  035206  012737  104200  001124          MOV     #SC!RDY!DVA,$GDDAT      ;GET GOOD = 104200
11957
11958  035214  017737  146640  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
11959  035222  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11960                                                                   ;DATA WITH DATA READ FROM
11961                                                                   ;RHCS1
11962  035230  001401                          BEQ     67$             ;BRANCH IF GOOD
11963  035232  104125                          ERROR   125
11964                                                                   ;AFTER SETTING "CLR" BIT #5
11965                                                                   ;IN RHCS2 TO INIT THE RH
11966                                                                   ;A TWO WORD WRITE REVERSE FROM AN
11967                                                                   ;EVEN WORD BOUNDARY WAS DONE
11968                                                                   ;WITH BAI IN RHCS2 SET
11969                                                                   ;THEN
11970                                                                   ;RHCS1 SHOULD HAVE SC!RDY!DVA
11971                                                                   ;=104200
11972                                                                   ;BUT CONTAINED WHAT IS
11973                                                                   ;GIVEN IN BAD RHCS1
11974  035234                          67$:
11975                                          ;CHECK THAT RHCS2 HAS IR!OR!BAI
11976  035234  012737  000310  001124          MOV     #IR!OR!BAI,$GDDAT       ;GET GOOD = 310
11977  035242  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
11978
11979  035250  017737  146614  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
11980  035256  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
11981                                                                   ;DATA WITH DATA READ FROM
11982                                                                   ;RHCS2
11983  035264  001401                          BEQ     69$             ;BRANCH IF GOOD
11984  035266  104126                          ERROR   126
11985                                                                   ;AFTER SETTING "CLR" BIT #5
11986                                                                   ;IN RHCS2 TO INIT THE RH
11987                                                                   ;A TWO WORD WRITE REVERSE FROM AN
11988                                                                   ;EVEN WORD BOUNDARY WAS DONE
11989                                                                   ;WITH BAI IN RHCS2 SET
11990                                                                   ;THEN
11991                                                                   ;RHCS2 SHOULD HAVE IR!OR!BAI
11992                                                                   ;=310
11993                                                                   ;TOGETHER WITH UNIT NUMBER
11994                                                                   ;BUT CONTAINED WHAT IS
```

```
11995
11996  035270                          69$:                                    ;GIVEN IN BAD RHCS2
11997                                          ;CHECK THAT RHWC HAS 0
11998  035270  012737  000000  001124          MOV     #0,$GDDAT               ;GET GOOD = 0
11999
12000  035276  017737  146560  001126          MOV     @RHWC,$BDDAT            ;READ RHWC FOR COMPARISON
12001  035304  023737  001124  001126          CMP     $GDDAT,$BDDAT           ;COMPARE EXPECTED
12002                                                                          ;DATA WITH DATA READ FROM
12003                                                                          ;RHWC
12004  035312  001401                          BEQ     71$                     ;BRANCH IF GOOD
12005  035314  104131                          ERROR   131
12006                                                                          ;AFTER SETTING "CLR" BIT #5
12007                                                                          ;IN RHCS2 TO INIT THE RH
12008                                                                          ;A TWO WORD WRITE REVERSE FROM AN
12009                                                                          ;EVEN WORD BOUNDARY WAS DONE
12010                                                                          ;WITH BAI IN RHCS2 SET
12011                                                                          ;THEN
12012                                                                          ;RHWC SHOULD HAVE 0
12013                                                                          ;BUT CONTAINED WHAT IS
12014                                                                          ;GIVEN IN BAD RHWC
12015  035316                          71$:
12016
12017
12018
12019
12020                                  ;;*****************************************************************
12021                                  ;*TEST 62       TEST DBL (RHCS3 BIT #10) TEST S
12022
12023                                  ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
12024                                  ;*      SET UP FOR A NINE WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12025                                  ;*      DO A NINE WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12026                                  ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
12027                                  ;*      CHECK RHCS3
12028                                  ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
12029                                  ;*      IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE
12030
12031                                  ;;*****************************************************************
12032  035316  000004                  TST62:  SCOPE
12033  035320  012706  001000                  MOV     #STACK,SP               ;RESET STACK
12034  035324  012737  000062  004656          MOV     #62,@#TSTNM             ;SAVE TEST NUMBER
12035
12036  035332  004737  040322                  JSR     PC,@#CLDISK             ;GIVE RH INITIALIZE
12037                                                                          ;SETUP UNIT NUBER
12038                                                                          ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
12039  035336  022737  041710  004640          CMP     #CMNDTM,COMND           ;IS TU THERE
12040
12041  035344  001103                          BNE     TST63   ;BRANCH IF TU NOT THERE
12042
12043
12044                                          ;SET UP FOR A NINE WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12045  035346  012701  000003                  MOV     #3,R1                   ;COUNT OF THREE
12046  035352  012702  003000                  MOV     #BFEVEN,R2              ;START THREE WORD BUFFER
12047                                                                          ;FROM AN EVEN WORD BOUNDARY
12048  035356  012722  052525          1$:     MOV     #52525,(R2)+            ;MOVE THREE 52525 INTO BUFFER
12049  035362  005301                          DEC     R1                      ;COUNT
12050  035364  001374                          BNE     1$                      ;BRANCH IF THREE NOT DONE
```

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12051  035366  012777  003000  146470          MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
12052                                                                   ;FROM AN EVEN WORD BOUNDARY
12053  035374  012777  177767  146460          MOV #-9.,@RHWC ;WORD COUNT NINE
12054
12055  035402  004077  147232                  JSR     R0,@COMND       ;GO TO DO COMMAND
12056  035406  004200                          REVRED                  ;REVERSE READ
12057
12058                                          ;CHECK THAT RHCS3 HAS DBL
12059  035410  012737  002000  001124          MOV     #DBL,$GDDAT     ;GET GOOD = 2000
12060
12061  035416  017737  146510  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
12062  035424  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12063                                                                  ;DATA WITH DATA READ FROM
12064                                                                  ;RHCS3
12065  035432  001401                          BEQ     65$             ;BRANCH IF GOOD
12066  035434  104124                          ERROR   124
12067                                                                  ;AFTER SETTING "CLR" BIT #5
12068                                                                  ;IN RHCS2 TO INIT THE RH
12069                                                                  ;A NINE WORD READ REVERSE FROM AN
12070                                                                  ;EVEN WORD BOUNDARY WAS DONE
12071                                                                  ;THEN
12072                                                                  ;RHCS3 SHOULD HAVE DBL
12073                                                                  ;=2000
12074                                                                  ;BUT CONTAINED WHAT IS
12075                                                                  ;GIVEN IN BAD RHCS3
12076  035436                          65$:
12077  035436  042777  000076  146414          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
12078                                          ;CHECK THAT RHCS1 HAS RDY!DVA
12079  035444  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
12080
12081  035452  017737  146402  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
12082  035460  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12083                                                                  ;DATA WITH DATA READ FROM
12084                                                                  ;RHCS1
12085  035466  001401                          BEQ     67$             ;BRANCH IF GOOD
12086  035470  104125                          ERROR   125
12087                                                                  ;AFTER SETTING "CLR" BIT #5
12088                                                                  ;IN RHCS2 TO INIT THE RH
12089                                                                  ;A NINE WORD READ REVERSE FROM AN
12090                                                                  ;EVEN WORD BOUNDARY WAS DONE
12091                                                                  ;THEN
12092                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
12093                                                                  ;=4200
12094                                                                  ;BUT CONTAINED WHAT IS
12095                                                                  ;GIVEN IN BAD RHCS1
12096  035472                          67$:
12097                                          ;CHECK THAT RHCS2 HAS IR
12098  035472  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
12099  035500  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
12100
12101  035506  017737  146356  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
12102  035514  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12103                                                                  ;DATA WITH DATA READ FROM
12104                                                                  ;RHCS2
12105  035522  001401                          BEQ     69$             ;BRANCH IF GOOD
12106  035524  104126                          ERROR   126
```

```
12107                                                                   ;AFTER SETTING "CLR" BIT #5
12108                                                                   ;IN RHCS2 TO INIT THE RH
12109                                                                   ;A NINE WORD READ REVERSE FROM AN
12110                                                                   ;EVEN WORD BOUNDARY WAS DONE
12111                                                                   ;THEN
12112                                                                   ;RHCS2 SHOULD HAVE IR
12113                                                                   ;=100
12114                                                                   ;TOGETHER WITH UNIT NUMBER
12115                                                                   ;BUT CONTAINED WHAT IS
12116                                                                   ;GIVEN IN BAD RHCS2
12117  035526                                  69$:
12118                                                  ;CHECK THAT RHWC HAS 0
12119  035526  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0
12120
12121  035534  017737  146322  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
12122  035542  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12123                                                                   ;DATA WITH DATA READ FROM
12124                                                                   ;RHWC
12125  035550  001401                                  BEQ     71$             ;BRANCH IF GOOD
12126  035552  104131                                  ERROR   131
12127
12128                                                                   ;AFTER SETTING "CLR" BIT #5
12129                                                                   ;IN RHCS2 TO INIT THE RH
12130                                                                   ;A NINE WORD READ REVERSE FROM AN
12131                                                                   ;EVEN WORD BOUNDARY WAS DONE
12132                                                                   ;THEN
12133                                                                   ;RHWC SHOULD HAVE 0
12134                                                                   ;BUT CONTAINED WHAT IS
12135  035554                                  71$:                     ;GIVEN IN BAD RHWC
12136
12137
12138
12139                                           ;;=================================================================
12140                                           ;*TEST 63       TEST DBL (RHCS3 BIT #10) TEST T
12141
12142                                           ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
12143                                           ;*      SET UP FOR A TEN WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12144                                           ;*      DO A TEN WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12145                                           ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
12146                                           ;*      CHECK RHCS3
12147                                           ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
12148                                           ;*      IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE
12149
12150                                           ;;=================================================================
12151  035554  000004                          TST63:  SCOPE
12152  035556  012706  001000                          MOV     #STACK,SP       ;RESET STACK
12153  035562  012737  000063  004656                  MOV     #63,@#TSTNM     ;SAVE TEST NUMBER
12154
12155  035570  004737  040322                          JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
12156                                                                   ;SETUP UNIT NUBER
12157                                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
12158  035574  022737  041710  004640                  CMP     #CMNDTM,COMND   ;IS TU THERE
12159
12160  035602  001103                                  BNE     TST64   ;BRANCH IF TU NOT THERE
12161
12162
```

```
12163                                                   ;SET UP FOR A TEN WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12164  035604  012701  000003                           MOV     #3,R1           ;COUNT OF THREE
12165  035610  012702  003000                           MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
12166                                                                           ;FROM AN EVEN WORD BOUNDARY
12167  035614  012722  052525          1$:              MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
12168  035620  005301                                   DEC     R1              ;COUNT
12169  035622  001374                                   BNE     1$              ;BRANCH IF THREE NOT DONE
12170  035624  012777  003000  146232                   MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
12171                                                                           ;FROM AN EVEN WORD BOUNDARY
12172  035632  012777  177766  146222                   MOV #-10.,@RHWC ;WORD COUNT TEN
12173
12174  035640  004077  146774                           JSR     R0,@COMND       ;GO TO DO COMMAND
12175  035644  004200                                   REVRED                  ;REVERSE READ
12176
12177                                                   ;CHECK THAT RHCS3 HAS 0
12178  035646  012737  000000  001124                   MOV     #0,$GDDAT       ;GET GOOD = 0
12179
12180  035654  017737  146252  001126                   MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
12181  035662  023737  001124  001126                   CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12182                                                                           ;DATA WITH DATA READ FROM
12183                                                                           ;RHCS3
12184  035670  001401                                   BEQ     65$             ;BRANCH IF GOOD
12185  035672  104124                                   ERROR   124
12186                                                                           ;AFTER SETTING "CLR" BIT #5
12187                                                                           ;IN RHCS2 TO INIT THE RH
12188                                                                           ;A TEN WORD READ REVERSE FROM AN
12189                                                                           ;EVEN WORD BOUNDARY WAS DONE
12190                                                                           ;THEN
12191                                                                           ;RHCS3 SHOULD HAVE 0
12192                                                                           ;BUT CONTAINED WHAT IS
12193                                                                           ;GIVEN IN BAD RHCS3
12194  035674                           65$:
12195  035674  042777  000076  146156                   BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
12196                                                   ;CHECK THAT RHCS1 HAS RDY!DVA
12197  035702  012737  004200  001124                   MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
12198
12199  035710  017737  146144  001126                   MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
12200  035716  023737  001124  001126                   CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12201                                                                           ;DATA WITH DATA READ FROM
12202                                                                           ;RHCS1
12203  035724  001401                                   BEQ     67$             ;BRANCH IF GOOD
12204  035726  104125                                   ERROR   125
12205                                                                           ;AFTER SETTING "CLR" BIT #5
12206                                                                           ;IN RHCS2 TO INIT THE RH
12207                                                                           ;A TEN WORD READ REVERSE FROM AN
12208                                                                           ;EVEN WORD BOUNDARY WAS DONE
12209                                                                           ;THEN
12210                                                                           ;RHCS1 SHOULD HAVE RDY!DVA
12211                                                                           ;=4200
12212                                                                           ;BUT CONTAINED WHAT IS
12213                                                                           ;GIVEN IN BAD RHCS1
12214  035730                           67$:
12215                                                   ;CHECK THAT RHCS2 HAS IR
12216  035730  012737  000100  001124                   MOV     #IR,$GDDAT      ;GET GOOD = 100
12217  035736  053737  005010  001124                   BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
12218
```

```
12219  035744  017737  146120  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
12220  035752  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12221                                                                   ;DATA WITH DATA READ FROM
12222                                                                   ;RHCS2
12223  035760  001401                          BEQ     69$             ;BRANCH IF GOOD
12224  035762  104126                          ERROR   126

                                                                       ;AFTER SETTING "CLR" BIT #5
                                                                       ;IN RHCS2 TO INIT THE RH
                                                                       ;A TEN WORD READ REVERSE FROM AN
                                                                       ;EVEN WORD BOUNDARY WAS DONE
                                                                       ;THEN
                                                                       ;RHCS2 SHOULD HAVE IR
                                                                       ;=100
                                                                       ;TOGETHER WITH UNIT NUMBER
                                                                       ;BUT CONTAINED WHAT IS
                                                                       ;GIVEN IN BAD RHCS2

12235  035764                          69$:
                                               ;CHECK THAT RHWC HAS 0
12237  035764  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0

12239  035772  017737  146064  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
12240  036000  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12241                                                                   ;DATA WITH DATA READ FROM
12242                                                                   ;RHWC
12243  036006  001401                          BEQ     71$             ;BRANCH IF GOOD
12244  036010  104131                          ERROR   131

                                                                       ;AFTER SETTING "CLR" BIT #5
                                                                       ;IN RHCS2 TO INIT THE RH
                                                                       ;A TEN WORD READ REVERSE FROM AN
                                                                       ;EVEN WORD BOUNDARY WAS DONE
                                                                       ;THEN
                                                                       ;RHWC SHOULD HAVE 0
                                                                       ;BUT CONTAINED WHAT IS
                                                                       ;GIVEN IN BAD RHWC

12253  036012                          71$:


                                       ;;*****************************************************************
                                       ;*TEST 64       TEST DBL (RHCS3 BIT #10) TEST U

                                       ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
                                       ;*      SET UP FOR A TEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
                                       ;*      DO A TEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
                                       ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
                                       ;*      CHECK RHCS3
                                       ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
                                       ;*      IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE

                                       ;;*****************************************************************
12269  036012  000004                  TST64:  SCOPE
12270  036014  012706  001000                  MOV     #STACK,SP       ;RESET STACK
12271  036020  012737  000064  004456          MOV     #64,@#TSTNM     ;SAVE TEST NUMBER

12273  036026  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
                                               ;SETUP UNIT NUBER
```

```
12275                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
12276  036032  022737  041710  004640          CMP     #CMNDTM,COMND   ;IS TU THERE
12277
12278  036040  001103                          BNE     TST65   ;BRANCH IF TU NOT THERE
12279
12280
12281                                                   ;SET UP FOR A TEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
12282  036042  012701  000003                  MOV     #3,R1           ;COUNT OF THREE
12283  036046  012702  003002                  MOV     #BFODD,R2       ;START THREE WORD BUFFER
12284                                                   ;FROM AN ODD WORD BOUNDARY
12285  036052  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
12286  036056  005301                          DEC     R1              ;COUNT
12287  036060  001374                          BNE     1$              ;BRANCH IF THREE NOT DONE
12288  036062  012777  003002  145774          MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
12289                                                   ;FROM AN ODD WORD BOUNDARY
12290  036070  012777  177766  145764          MOV #-10.,@RHWC ;WORD COUNT TEN
12291
12292  036076  004077  146536                  JSR     R0,@COMND       ;GO TO DO COMMAND
12293  036102  004200                          REVRED                  ;REVERSE READ
12294
12295                                                   ;CHECK THAT RHCS3 HAS DBL
12296  036104  012737  002000  001124          MOV     #DBL,$GDDAT     ;GET GOOD = 2000
12297
12298  036112  017737  146014  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
12299  036120  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12300                                                   ;DATA WITH DATA READ FROM
12301                                                   ;RHCS3
12302  036126  001401                          BEQ     65$             ;BRANCH IF GOOD
12303  036130  104124                          ERROR   124
12304                                                   ;AFTER SETTING "CLR" BIT #5
12305                                                   ;IN RHCS2 TO INIT THE RH
12306                                                   ;A TEN WORD READ REVERSE FROM AN
12307                                                   ;ODD WORD BOUNDARY WAS DONE
12308                                                   ;THEN
12309                                                   ;RHCS3 SHOULD HAVE DBL
12310                                                   ;=2000
12311                                                   ;BUT CONTAINED WHAT IS
12312                                                   ;GIVEN IN BAD RHCS3
12313  036132                           65$:
12314  036132  042777  000076  145720          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
12315                                          ;CHECK THAT RHCS1 HAS RDY!DVA
12316  036140  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
12317
12318  036146  017737  145706  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
12319  036154  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12320                                                   ;DATA WITH DATA READ FROM
12321                                                   ;RHCS1
12322  036162  001401                          BEQ     67$             ;BRANCH IF GOOD
12323  036164  104125                          ERROR   125
12324                                                   ;AFTER SETTING "CLR" BIT #5
12325                                                   ;IN RHCS2 TO INIT THE RH
12326                                                   ;A TEN WORD READ REVERSE FROM AN
12327                                                   ;ODD WORD BOUNDARY WAS DONE
12328                                                   ;THEN
12329                                                   ;RHCS1 SHOULD HAVE RDY!DVA
12330                                                   ;=4200
```

```
12331                                                                   ;BUT CONTAINED WHAT IS
12332                                                                   ;GIVEN IN BAD RHCS1
12333  036166                                  67$:
12334                                                  ;CHECK THAT RHCS2 HAS IR
12335  036166  012737  000100  001124                  MOV     #IR,$GDDAT      ;GET GOOD = 100
12336  036174  053737  005010  001124                  BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
12337
12338  036202  017737  145662  001126                  MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
12339  036210  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12340                                                                   ;DATA WITH DATA READ FROM
12341                                                                   ;RHCS2
12342  036216  001401                                  BEQ     69$             ;BRANCH IF GOOD
12343  036220  104126                                  ERROR   126
12344                                                                   ;AFTER SETTING "CLR" BIT #5
12345                                                                   ;IN RHCS2 TO INIT THE RH
12346                                                                   ;A TEN WORD READ REVERSE FROM AN
12347                                                                   ;ODD WORD BOUNDARY WAS DONE
12348                                                                   ;THEN
12349                                                                   ;RHCS2 SHOULD HAVE IR
12350                                                                   ;=100
12351                                                                   ;TOGETHER WITH UNIT NUMBER
12352                                                                   ;BUT CONTAINED WHAT IS
12353                                                                   ;GIVEN IN BAD RHCS2
12354  036222                                  69$:
12355                                                  ;CHECK THAT RHWC HAS 0
12356  036222  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0
12357
12358  036230  017737  145626  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
12359  036236  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12360                                                                   ;DATA WITH DATA READ FROM
12361                                                                   ;RHWC
12362  036244  001401                                  BEQ     71$             ;BRANCH IF GOOD
12363  036246  104131                                  ERROR   131
12364                                                                   ;AFTER SETTING "CLR" BIT #5
12365                                                                   ;IN RHCS2 TO INIT THE RH
12366                                                                   ;A TEN WORD READ REVERSE FROM AN
12367                                                                   ;ODD WORD BOUNDARY WAS DONE
12368                                                                   ;THEN
12369                                                                   ;RHWC SHOULD HAVE 0
12370                                                                   ;BUT CONTAINED WHAT IS
12371                                                                   ;GIVEN IN BAD RHWC
12372  036250                                  71$:
12373
12374
12375
12376                                          ;;*****************************************************************
12377                                          ;*TEST 65       TEST DBL (RHCS3 BIT #10) TEST V
12378
12379                                          ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
12380                                          ;*      SET UP FOR A ELEVEN WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12381                                          ;*      DO A ELEVEN WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12382                                          ;*      THIS SHOULD SET RHCS3 BIT #10 DBL
12383                                          ;*      CHECK RHCS3
12384                                          ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
12385                                          ;*      IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE
12386
```

```
12387                                   ;;*****************************************************************
12388  036250  000004                    TST65:  SCOPE
12389  036252  012706  001000                    MOV     #STACK,SP       ;RESET STACK
12390  036256  012737  000065  004656            MOV     #65,@#TSTNM     ;SAVE TEST NUMBER
12391
12392  036264  004737  040322                    JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
12393                                                                    ;SETUP UNIT NUBER
12394                                                                    ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
12395  036270  022737  041710  004640            CMP     #CMNDTM,COMND   ;IS TU THERE
12396
12397  036276  001103                            BNE     TST66   ;BRANCH IF TU NOT THERE
12398
12399
12400                                           ;SET UP FOR A ELEVEN WORD READ REVERSE FROM AN EVEN WORD BOUNDARY
12401  036300  012701  000003                    MOV     #3,R1           ;COUNT OF THREE
12402  036304  012702  003000                    MOV     #BFEVEN,R2      ;START THREE WORD BUFFER
12403                                                                    ;FROM AN EVEN WORD BOUNDARY
12404  036310  012722  052525            1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
12405  036314  005301                            DEC     R1              ;COUNT
12406  036316  001374                            BNE     1$              ;BRANCH IF THREE NOT DONE
12407  036320  012777  003000  145536            MOV     #BFEVEN,@RHBA   ;SET BUS ADDRESS TO START
12408                                                                    ;FROM AN EVEN WORD BOUNDARY
12409  036326  012777  177765  145526            MOV #-11.,@RHWC ;WORD COUNT ELEVEN
12410
12411  036334  004077  146300                    JSR     R0,@COMND       ;GO TO DO COMMAND
12412  036340  004200                            REVRED                  ;REVERSE READ
12413
12414                                           ;CHECK THAT RHCS3 HAS DBL
12415  036342  012737  002000  001124            MOV     #DBL,$GDDAT     ;GET GOOD = 2000
12416
12417  036350  017737  145556  001126            MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
12418  036356  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12419                                                                    ;DATA WITH DATA READ FROM
12420                                                                    ;RHCS3
12421  036364  001401                            BEQ     65$             ;BRANCH IF GOOD
12422  036366  104124                            ERROR   124
12423                                                                    ;AFTER SETTING "CLR" BIT #5
12424                                                                    ;IN RHCS2 TO INIT THE RH
12425                                                                    ;A ELEVEN WORD READ REVERSE FROM AN
12426                                                                    ;EVEN WORD BOUNDARY WAS DONE
12427                                                                    ;THEN
12428                                                                    ;RHCS3 SHOULD HAVE DBL
12429                                                                    ;=2000
12430                                                                    ;BUT CONTAINED WHAT IS
12431                                                                    ;GIVEN IN BAD RHCS3
12432  036370                            65$:
12433  036370  042777  000076  145462            BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
12434                                           ;CHECK THAT RHCS1 HAS RDY!DVA
12435  036376  012737  004200  001124            MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
12436
12437  036404  017737  145450  001126            MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
12438  036412  023737  001124  001126            CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12439                                                                    ;DATA WITH DATA READ FROM
12440                                                                    ;RHCS1
12441  036420  001401                            BEQ     67$             ;BRANCH IF GOOD
12442  036422  104125                            ERROR   125
```

```
12443                                                                   ;AFTER SETTING "CLR" BIT #5
12444                                                                   ;IN RHCS2 TO INIT THE RH
12445                                                                   ;A ELEVEN WORD READ REVERSE FROM AN
12446                                                                   ;EVEN WORD BOUNDARY WAS DONE
12447                                                                   ;THEN
12448                                                                   ;RHCS1 SHOULD HAVE RDY!DVA
12449                                                                   ;=4200
12450                                                                   ;BUT CONTAINED WHAT IS
12451                                                                   ;GIVEN IN BAD RHCS1
12452  036424                                  67$:
12453                                                  ;CHECK THAT RHCS2 HAS IR
12454  036424  012737  000100  001124                  MOV     #IR,$GDDAT      ;GET GOOD = 100
12455  036432  053737  005010  001124                  BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
12456
12457  036440  017737  145424  001126                  MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
12458  036446  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12459                                                                   ;DATA WITH DATA READ FROM
12460                                                                   ;RHCS2
12461  036454  001401                                  BEQ     69$             ;BRANCH IF GOOD
12462  036456  104126                                  ERROR   126
12463                                                                   ;AFTER SETTING "CLR" BIT #5
12464                                                                   ;IN RHCS2 TO INIT THE RH
12465                                                                   ;A ELEVEN WORD READ REVERSE FROM AN
12466                                                                   ;EVEN WORD BOUNDARY WAS DONE
12467                                                                   ;THEN
12468                                                                   ;RHCS2 SHOULD HAVE IR
12469                                                                   ;=100
12470                                                                   ;TOGETHER WITH UNIT NUMBER
12471                                                                   ;BUT CONTAINED WHAT IS
12472                                                                   ;GIVEN IN BAD RHCS2
12473  036460                                  69$:
12474                                                  ;CHECK THAT RHWC HAS 0
12475  036460  012737  000000  001124                  MOV     #0,$GDDAT       ;GET GOOD = 0
12476
12477  036466  017737  145370  001126                  MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
12478  036474  023737  001124  001126                  CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12479                                                                   ;DATA WITH DATA READ FROM
12480                                                                   ;RHWC
12481  036502  001401                                  BEQ     71$             ;BRANCH IF GOOD
12482  036504  104131                                  ERROR   131
12483                                                                   ;AFTER SETTING "CLR" BIT #5
12484                                                                   ;IN RHCS2 TO INIT THE RH
12485                                                                   ;A ELEVEN WORD READ REVERSE FROM AN
12486                                                                   ;EVEN WORD BOUNDARY WAS DONE
12487                                                                   ;THEN
12488                                                                   ;RHWC SHOULD HAVE 0
12489                                                                   ;BUT CONTAINED WHAT IS
12490                                                                   ;GIVEN IN BAD RHWC
12491  036506                                  71$:
12492
12493
12494
12495                                   ;;*****************************************************************
12496                                   ;*TEST 66        TEST DBL (RHCS3 BIT #10) TEST W
12497
12498                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
```

```
12499                                   ;*      SET UP FOR A ELEVEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
12500                                   ;*      DO A ELEVEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
12501                                   ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
12502                                   ;*      CHECK RHCS3
12503                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
12504                                   ;*      IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE
12505
12506                                   ;;*****************************************************************
12507  036506  000004                  T$T66:  SCOPE
12508  036510  012706  001000                  MOV     #STACK,SP       ;RESET STACK
12509  036514  012737  000066  004656          MOV     #66,@#T$TNM     ;SAVE TEST NUMBER
12510
12511  036522  004737  040322                  JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
12512                                                                  ;SETUP UNIT NUBER
12513                                                                  ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
12514  036526  022737  041710  004640          CMP     #CMNDTM,COMND   ;IS TU THERE
12515
12516  036534  001103                          BNE     T$T67   ;BRANCH IF TU NOT THERE
12517
12518
12519                                          ;SET UP FOR A ELEVEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
12520  036536  012701  000003                  MOV     #3,R1           ;COUNT OF THREE
12521  036542  012702  003002                  MOV     #BFODD,R2       ;START THREE WORD BUFFER
12522                                                                  ;FROM AN ODD WORD BOUNDARY
12523  036546  012722  052525          1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
12524  036552  005301                          DEC     R1              ;COUNT
12525  036554  001374                          BNE     1$              ;BRANCH IF THREE NOT DONE
12526  036556  012777  003002  145300          MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
12527                                                                  ;FROM AN ODD WORD BOUNDARY
12528  036564  012777  177765  145270          MOV #-11.,@RHWC ;WORD COUNT ELEVEN
12529
12530  036572  004077  146042                  JSR     R0,@COMND       ;GO TO DO COMMAND
12531  036576  004200                          REVRED                  ;REVERSE READ
12532
12533                                          ;CHECK THAT RHCS3 HAS 0
12534  036600  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
12535
12536  036606  017737  145320  001126          MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
12537  036614  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12538                                                                  ;DATA WITH DATA READ FROM
12539                                                                  ;RHCS3
12540  036622  001401                          BEQ     65$             ;BRANCH IF GOOD
12541  036624  104124                          ERROR   124
12542                                                                  ;AFTER SETTING "CLR" BIT #5
12543                                                                  ;IN RHCS2 TO INIT THE RH
12544                                                                  ;A ELEVEN WORD READ REVERSE FROM AN
12545                                                                  ;ODD WORD BOUNDARY WAS DONE
12546                                                                  ;THEN
12547                                                                  ;RHCS3 SHOULD HAVE 0
12548                                                                  ;BUT CONTAINED WHAT IS
12549                                                                  ;GIVEN IN BAD RHCS3
12550  036626                          65$:
12551  036626  042777  000076  145224          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
12552                                          ;CHECK THAT RHCS1 HAS RDY!DVA
12553  036634  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
12554
```

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12555  036642  017737  145212  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
12556  036650  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12557                                                                   ;DATA WITH DATA READ FROM
12558                                                                   ;RHCS1
12559  036656  001401                          BEQ     67$             ;BRANCH IF GOOD
12560  036660  104125                          ERROR   125
12561                                                                   ;AFTER SETTING "CLR" BIT #5
12562                                                                   ;IN RHCS2 TO INIT THE RH
12563                                                                   ;A ELEVEN WORD READ REVERSE FROM AN
12564                                                                   ;ODD WORD BOUNDARY WAS DONE
12565                                                                   ;THEN
12566                                                                   ;RHCS1 SHOULD HAVE RDY!DVA
12567                                                                   ;=4200
12568                                                                   ;BUT CONTAINED WHAT IS
12569                                                                   ;GIVEN IN BAD RHCS1
12570  036662                          67$:
12571                                          ;CHECK THAT RHCS2 HAS IR
12572  036662  012737  000100  001124          MOV     #IR,$GDDAT      ;GET GOOD = 100
12573  036670  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
12574
12575  036676  017737  145166  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
12576  036704  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12577                                                                   ;DATA WITH DATA READ FROM
12578                                                                   ;RHCS2
12579  036712  001401                          BEQ     69$             ;BRANCH IF GOOD
12580  036714  104126                          ERROR   126
12581                                                                   ;AFTER SETTING "CLR" BIT #5
12582                                                                   ;IN RHCS2 TO INIT THE RH
12583                                                                   ;A ELEVEN WORD READ REVERSE FROM AN
12584                                                                   ;ODD WORD BOUNDARY WAS DONE
12585                                                                   ;THEN
12586                                                                   ;RHCS2 SHOULD HAVE IR
12587                                                                   ;=100
12588                                                                   ;TOGETHER WITH UNIT NUMBER
12589                                                                   ;BUT CONTAINED WHAT IS
12590                                                                   ;GIVEN IN BAD RHCS2
12591  036716                          69$:
12592                                          ;CHECK THAT RHWC HAS 0
12593  036716  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
12594
12595  036724  017737  145132  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
12596  036732  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12597                                                                   ;DATA WITH DATA READ FROM
12598                                                                   ;RHWC
12599  036740  001401                          BEQ     71$             ;BRANCH IF GOOD
12600  036742  104131                          ERROR   131
12601                                                                   ;AFTER SETTING "CLR" BIT #5
12602                                                                   ;IN RHCS2 TO INIT THE RH
12603                                                                   ;A ELEVEN WORD READ REVERSE FROM AN
12604                                                                   ;ODD WORD BOUNDARY WAS DONE
12605                                                                   ;THEN
12606                                                                   ;RHWC SHOULD HAVE 0
12607                                                                   ;BUT CONTAINED WHAT IS
12608                                                                   ;GIVEN IN BAD RHWC
12609  036744                          71$:
12610
```

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12611
12612
12613                                   ;;*****************************************************************
12614                                   ;*TEST 67       TEST DBL (RHCS3 BIT #10) TEST X
12615
12616                                   ;*      CLEAR THE SUBSYSTEM BY A CONTROLLER CLEAR (RHCS2 BIT #5)
12617                                   ;*      SET UP FOR A TEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
12618                                   ;*      WITH BAI IN RHCS2 BIT #3 SET
12619                                   ;*      DO A TEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
12620                                   ;*      THIS SHOULD NOT SET RHCS3 BIT #10 DBL
12621                                   ;*      CHECK RHCS3
12622                                   ;*      CHECK RHCS1,RHCS2,RHBA,RHBAE,RHWC
12623                                   ;*      IF MAG. TAPE NOT USED.THIS TEST IS NOT DONE
12624
12625                                   ;;*****************************************************************
12626  036744  000004                   TST67:  SCOPE
12627  036746  012706  001000                   MOV     #STACK,SP       ;RESET STACK
12628  036752  012737  000067  004656           MOV     #67,@#TSTNM     ;SAVE TEST NUMBER
12629
12630  036760  004737  040322                   JSR     PC,@#CLDISK     ;GIVE RH INITIALIZE
12631                                                                   ;SETUP UNIT NUBER
12632                                                                   ;CLEAR RHWC AND FUNCTION BITS IN RHCS1
12633  036764  022737  041710  004640           CMP     #CMNDTM,COMND   ;IS TU THERE
12634
12635  036772  001106                           BNE     TST70   ;BRANCH IF TU NOT THERE
12636
12637
12638                                           ;SET UP FOR A TEN WORD READ REVERSE FROM AN ODD WORD BOUNDARY
12639  036774  012701  000003                   MOV     #3,R1           ;COUNT OF THREE
12640  037000  012702  003002                   MOV     #BFODD,R2       ;START THREE WORD BUFFER
12641                                                                   ;FROM AN ODD WORD BOUNDARY
12642  037004  012722  052525           1$:     MOV     #52525,(R2)+    ;MOVE THREE 52525 INTO BUFFER
12643  037010  005301                           DEC     R1              ;COUNT
12644  037012  001374                           BNE     1$              ;BRANCH IF THREE NOT DONE
12645  037014  012777  003002  145042           MOV     #BFODD,@RHBA    ;SET BUS ADDRESS TO START
12646                                                                   ;FROM AN ODD WORD BOUNDARY
12647  037022  012777  177766  145032           MOV #-10.,@RHWC ;WORD COUNT TEN
12648  037030  052777  000010  145032   BIS #BAI,@RHCS2 ;SET BAI IN RHCS2
12649
12650  037036  004077  145576                   JSR     R0,@COMND       ;GO TO DO COMMAND
12651  037042  004200                           REVRED                  ;REVERSE READ
12652
12653                                           ;CHECK THAT RHCS3 HAS 0
12654  037044  012737  000000  001124           MOV     #0,$GDDAT       ;GET GOOD = 0
12655
12656  037052  017737  145054  001126           MOV     @RHCS3,$BDDAT   ;READ RHCS3 FOR COMPARISON
12657  037060  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12658                                                                   ;DATA WITH DATA READ FROM
12659                                                                   ;RHCS3
12660  037066  001401                           BEQ     65$             ;BRANCH IF GOOD
12661  037070  104124                           ERROR   124
12662                                                                   ;AFTER SETTING "CLR" BIT #5
12663                                                                   ;IN RHCS2 TO INIT THE RH
12664                                                                   ;A TEN WORD READ REVERSE FROM AN
12665                                                                   ;ODD WORD BOUNDARY WAS DONE
12666                                                                   ;WITH BAI IN RHCS2 SET
```

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12667                                                                   ;THEN
12668                                                                   ;RHCS3 SHOULD HAVE 0
12669                                                                   ;BUT CONTAINED WHAT IS
12670                                                                   ;GIVEN IN BAD RHCS3
12671  037072                                  65$:
12672  037072  042777  000076  144760          BIC     #76,@RHCS1      ;CLEAR FUNCTION BITS
12673                                          ;CHECK THAT RHCS1 HAS RDY!DVA
12674  037100  012737  004200  001124          MOV     #RDY!DVA,$GDDAT ;GET GOOD = 4200
12675
12676  037106  017737  144746  001126          MOV     @RHCS1,$BDDAT   ;READ RHCS1 FOR COMPARISON
12677  037114  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12678                                                                  ;DATA WITH DATA READ FROM
12679                                                                  ;RHCS1
12680  037122  001401                          BEQ     67$             ;BRANCH IF GOOD
12681  037124  104125                          ERROR   125
12682                                                                  ;AFTER SETTING "CLR" BIT #5
12683                                                                  ;IN RHCS2 TO INIT THE RH
12684                                                                  ;A TEN WORD READ REVERSE FROM AN
12685                                                                  ;ODD WORD BOUNDARY WAS DONE
12686                                                                  ;WITH BAI IN RHCS2 SET
12687                                                                  ;THEN
12688                                                                  ;RHCS1 SHOULD HAVE RDY!DVA
12689                                                                  ;=4200
12690                                                                  ;BUT CONTAINED WHAT IS
12691                                                                  ;GIVEN IN BAD RHCS1
12692  037126                                  67$:
12693                                          ;CHECK THAT RHCS2 HAS IR!BAI
12694  037126  012737  000110  001124          MOV     #IR!BAI,$GDDAT  ;GET GOOD = 110
12695  037134  053737  005010  001124          BIS     UNIT,$GDDAT     ;INCLUDE UNIT NUMBER
12696
12697  037142  017737  144722  001126          MOV     @RHCS2,$BDDAT   ;READ RHCS2 FOR COMPARISON
12698  037150  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12699                                                                  ;DATA WITH DATA READ FROM
12700                                                                  ;RHCS2
12701  037156  001401                          BEQ     69$             ;BRANCH IF GOOD
12702  037160  104126                          ERROR   126
12703                                                                  ;AFTER SETTING "CLR" BIT #5
12704                                                                  ;IN RHCS2 TO INIT THE RH
12705                                                                  ;A TEN WORD READ REVERSE FROM AN
12706                                                                  ;ODD WORD BOUNDARY WAS DONE
12707                                                                  ;WITH BAI IN RHCS2 SET
12708                                                                  ;THEN
12709                                                                  ;RHCS2 SHOULD HAVE IR!BAI
12710                                                                  ;=110
12711                                                                  ;TOGETHER WITH UNIT NUMBER
12712                                                                  ;BUT CONTAINED WHAT IS
12713                                                                  ;GIVEN IN BAD RHCS2
12714  037162                                  69$:
12715                                          ;CHECK THAT RHWC HAS 0
12716  037162  012737  000000  001124          MOV     #0,$GDDAT       ;GET GOOD = 0
12717
12718  037170  017737  144666  001126          MOV     @RHWC,$BDDAT    ;READ RHWC FOR COMPARISON
12719  037176  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
12720                                                                  ;DATA WITH DATA READ FROM
12721                                                                  ;RHWC
12722  037204  001401                          BEQ     71$             ;BRANCH IF GOOD
```

```
12723  037206  104131                          ERROR   131
12724                                                   ;AFTER SETTING "CLR" BIT #5
12725                                                   ;IN RHCS2 TO INIT THE RH
12726                                                   ;A TEN WORD READ REVERSE FROM AN
12727                                                   ;ODD WORD BOUNDARY WAS DONE
12728                                                   ;WITH BAI IN RHCS2 SET
12729                                                   ;THEN
12730                                                   ;RHWC SHOULD HAVE 0
12731                                                   ;BUT CONTAINED WHAT IS
12732                                                   ;GIVEN IN BAD RHWC
12733  037210                          71$:
12734
12735
12736
12737
12738
12739
12740                                   ;;*****************************************************************
12741                                   ;*TEST 70       END OF ONE RH
12742                                   ;*      THIS IS THE END OF TEST FOR ONE RH
12743                                   ;*      IF THERE ARE MORE RH THEN THE PROGRAM
12744                                   ;*      JUMPS TO TEST 2 FOR NEXT RH TEST
12745                                   ;*      END PASS IS REACHED ONLY AFTER ALL RH ARE COMPLETE
12746                                   ;;*****************************************************************
12747  037210  000004                  TST70:  SCOPE
12748  037212  012737  000001  001212          MOV     #1,$TIMES       ;;DO 1 ITERATION
12749  037220  005037  177776                  CLR     PS              ;REINSTATE PS TO 0
12750  037224  104401  037232                  TYPE    ,65$            ;;TYPE ASCIZ STRING
12751  037230  000414                          BR      64$             ;;GET OVER THE ASCIZ
12752                                  ;;65$:  .ASCIZ  <15><12>/END OF TEST FOR RH NO/
12753  037262                          64$:
12754  037262  013746  005510                  MOV     WORUNT,-(SP)    ;GET WORKING RH NUMBER LEFT
12755  037266  013702  005506                  MOV     TSTUNT,R2       ;GET TOTAL NO OF RH FOUND
12756  037272  162602                          SUB     (SP)+,R2        ;NO OF RH TESTED
12757  037274  006302                          ASL     R2              ;INDEX FOR RH TESTED
12758  037276  016246  005436                  MOV     FRHNM(R2),-(SP) ;TYPE OF RH NO.
12759  037302  104405                          TYPDS
12760  037304  104401  037312                  TYPE    ,67$            ;;TYPE ASCIZ STRING
12761  037310  000410                          BR      66$             ;;GET OVER THE ASCIZ
12762                                  ;;67$:  .ASCIZ  /          BASE /
12763  037332                          66$:
12764  037332  013746  004060                  MOV     RHCS1,-(SP)     ;TYPE BASE ADDRESS
12765  037336  104402                          TYPOC
12766  037340  104401  037346                  TYPE    ,69$            ;;TYPE ASCIZ STRING
12767  037344  000421                          BR      68$             ;;GET OVER THE ASCIZ
12768                                  ;;69$:  .ASCIZ  <15><12>/TOTAL NO OF ERRORS ON THIS PASS/
12769  037410                          68$:
12770  037410  013746  001112                  MOV     $ERTTL,-(SP)    ;TYPE TOTAL NO OF ERRORS
12771  037414  104405                          TYPDS
12772  037416  104401  037424                  TYPE    ,71$            ;;TYPE ASCIZ STRING
12773  037422  000402                          BR      70$             ;;GET OVER THE ASCIZ
12774                                  ;;71$:  .ASCIZ  <15><12>/ /
12775  037430                          70$:
12776  037430  104401  037436                  TYPE    ,73$            ;;TYPE ASCIZ STRING
12777  037434  000402                          BR      72$             ;;GET OVER THE ASCIZ
12778                                  ;;73$:  .ASCIZ  <15><12>/ /
```

```
12779  037442                                  72$:
12780  037442  005037  001112                          CLR     $ERTTL          ;CLEAR TOTAL NO OF ERRORS
12781  037446  005337  005510                          DEC     WORUNT          ;DECREASE NO. OF RH TESTED
12782  037452  001402                                  BEQ     1$
12783  037454  000137  010632                          JMP     TST2
12784  037460  013737  005506  005510  1$:     MOV     TSTUNT,WORUNT   ;MAKE WORKING RH SAME
12785                                                                  ;AS TOTAL RH
```

```
12786                                   .SBTTL  END OF PASS ROUTINE
12787
12788                                   ;;**********************************************************************
12789                                   ;*INCREMENT THE PASS NUMBER ($PASS)
12790                                   ;*TYPE "END PASS #XXXXX" (WHERE XXXXX IS A DECIMAL NUMBER)
12791                                   ;*IF THERES A MONITOR GO TO IT
12792                                   ;*IF THERE ISN'T JUMP TO TST2
12793
12794  037466                           $EOP:
12795  037466  000004                          SCOPE
12796  037470  005037  001102                  CLR     $TSTNM          ;;ZERO THE TEST NUMBER
12797  037474  005037  001212                  CLR     $TIMES          ;;ZERO THE NUMBER OF ITERATIONS
12798  037500  005237  001100                  INC     $PASS           ;;INCREMENT THE PASS NUMBER
12799  037504  042737  100000  001100          BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
12800  037512  005327                          DEC     (PC)+           ;;LOOP?
12801  037514  000001           $EOPCT: .WORD   1
12802  037516  003022                  BGT     $DOAGN          ;;YES
12803  037520  012737                  MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
12804  037522  000001           $ENDCT: .WORD   1
12805  037524  037514                          $EOPCT
12806  037526  104401  037573                  TYPE    ,$ENDMG         ;;TYPE "END PASS #"
12807  037532  013746  001100                  MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
12808  037536  104405                          TYPDS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
12809  037540  104401  037570                  TYPE    ,$ENULL         ;;TYPE A NULL CHARACTER
12810  037544  013700  000042           $GET42: MOV     @#42,R0         ;;GET MONITOR ADDRESS
12811  037550  001405                  BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
12812  037552  000005                  RESET                   ;;CLEAR THE WORLD
12813  037554  004710           $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
12814  037556  000240                  NOP                     ;;SAVE ROOM
12815  037560  000240                  NOP                     ;;FOR
12816  037562  000240                  NOP                     ;;ACT11
12817  037564                   $DOAGN:
12818  037564  000137                  JMP     @(PC)+          ;;RETURN
12819  037566  010632           $RTNAD: .WORD   TST2
12820  037570     377     377     000 $ENULL: .BYTE   -1,-1,0         ;;NULL CHARACTER STRING
12821  037573     015  042412  042116 $ENDMG: .ASCIZ  <15><12>/END PASS #/
12822  037600  050040  051501  020123
12823  037606  000043
12824
12825
12826                                           .SBTTL  SUBROUTINES
12827
12828
12829
12830
12831
12832
12833
12834                                   ;;**********************************************************************
12835                                   ;*      THIS ROUTINE HANDLES TIME OUT TRAPS THROUGH LOC. 4
12836                                   ;;**********************************************************************
12837
12838  037610                           TIEOUT:
12839  037610  104401  037616                  TYPE    ,65$            ;;TYPE ASCIZ STRING
12840  037614  000433                  BR      64$             ;;GET OVER THE ASCIZ
12841                           ;;65$:  .ASCIZ  <15><12>/TIMEOUT OCCURED THROUGH LOCATION 4 FROM PROGRAM PC/
```

```
12842  037704                          64$:
12843  037704  162716  000002                  SUB     #2,(SP)         ;TYPE PC
12844  037710  104402                          TYPOC
12845  037712  104401  037720                  TYPE    ,67$            ;;TYPE ASCIZ STRING
12846  037716  000410                          BR      66$             ;;GET OVER THE ASCIZ
12847                                  ;;67$:  .ASCIZ  <15><12>/PSW WAS     /
12848  037740                          66$:
12849  037740  104402                          TYPOC
12850  037742  000137  043120                  JMP     $SCOPE  ;RETURN TO TEST
12851
12852
12853
12854
12855
12856
12857
12858
12859                                   ;;*****************************************************************
12860                                   ;*      THIS ROUTINE HANDLES PARITY ERRORS
12861                                   ;;*****************************************************************
12862  037746                          PARITY:
12863  037746  104401  037754                  TYPE    ,65$            ;;TYPE ASCIZ STRING
12864  037752  000417                          BR      64$             ;;GET OVER THE ASCIZ
12865                                  ;;65$:  .ASCIZ  <15><12>/PARITY TRAP THRU VECTOR 114/
12866  040012                          64$:
12867  040012  104401  040020                  TYPE    ,67$            ;;TYPE ASCIZ STRING
12868  040016  000413                          BR      66$             ;;GET OVER THE ASCIZ
12869                                  ;;67$:  .ASCIZ  <15><12>/FROM PROGRAM PC   /
12870  040046                          66$:
12871  040046  162716  000002                  SUB     #2,(SP)                 ;TYPE PC
12872  040052  104402                          TYPOC
12873  040054  104401  040062                  TYPE    ,69$            ;;TYPE ASCIZ STRING
12874  040060  000407                          BR      68$             ;;GET OVER THE ASCIZ
12875                                  ;;69$:  .ASCIZ  <15><12>/PSW WAS   /
12876  040100                          68$:
12877  040100  104402                          TYPOC
12878  040102  104401  040110                  TYPE    ,71$            ;;TYPE ASCIZ STRING
12879  040106  000421                          BR      70$             ;;GET OVER THE ASCIZ
12880                                  ;;71$:  .ASCIZ  <15><1>/HIGH ERROR ADDRESS REGISTER    /
12881  040152                          70$:
12882  040152  017746  145340                MOV     @HERADD,-(SP)           ;TYPE HIGH ERROR
12883  040156  104402                          TYPOC
12884  040160  104401  040166                  TYPE    ,73$            ;;TYPE ASCIZ STRING
12885  040164  000421                          BR      72$             ;;GET OVER THE ASCIZ
12886                                  ;;73$:  .ASCIZ  <15><12>/LOW ERROR ADDRESS REGISTER    /
12887  040230                          72$:
12888  040230  017746  145260                MOV     @LERADD,-(SP)           ;TYPE LOW ERROR
12889  040234  104402                          TYPOC
12890  040236  104401  040244                  TYPE    ,75$            ;;TYPE ASCIZ STRING
12891  040242  000422                          BR      74$             ;;GET OVER THE ASCIZ
12892                                  ;;75$:  .ASCIZ  <15><12>/MEMORY SYSTEM ERROR REGISTER    /
12893  040310                          74$:
12894  040310  017746  145204                MOV     @MEMERR,-(SP)
12895  040314  104402                          TYPOC
12896  040316  000137  043120                  JMP     $SCOPE
12897
```

```
12898
12899
12900
12901
12902
12903
12904  040322  012777  000040  143540  CLDISK:  MOV     #CLR,@RHCS2              ;CLEAR ALL REG.
12905  040330  013777  005010  143532           MOV     @#UNIT,@RHCS2    ;REINSTATE UNIT NO.
12906  040336  042777  000077  143514           BIC     #77,@RHCS1                       ;CLEAR FUNCTION BITS
12907  040344  005077  143512                   CLR     @RHWC                    ;CLEAR RHWC
12908  040350  000207                           RTS     PC
```

```
12909
12910
12911
12912
12913                                   ;THIS CHECKS DEVICE AVAILABLE (DVA) AND READY (RDY) IN RHCS1
12914                                   ;AND CHECKS MEDIUM ON LINE (MOL), DEVICE PRESENT (DPR), DEVICE READY (DRY) IN RHDS1
12915  040352  000000                  PCJSR:  0                       ;PC OF JSR
12916
12917
12918
12919
12920  040354  011637  040352          CHECK:  MOV     (SP),@#PCJSR            ;SAVE PC OF JSR+4
12921  040360  162737  000004  040352          SUB     #4,@#PCJSR      ;GET PC OF JSR
12922  040366  011346                  MOV     @R3,-(SP)       ;GET RHDS1
12923  040370  052716  000100          BIS     #VV,(SP)        ;DONT CHECK VV BIT
12924  040374  000406                  BR      CHECKC          ;GOTO COMMON CHECK ROUTINE
12925  040376  011637  040352          CHECKT: MOV     (SP),@#PCJSR            ;SAVE PC OF JSR+4
12926  040402  162737  000004  040352          SUB     #4,@#PCJSR      ;GET PC OF JSR
12927  040410  011346                  MOV     @R3,-(SP)       ;GET RHDS1 & DO VV CHECK AT 3$
12928  040412  011146                  CHECKC: MOV     @R1,-(SP)       ;GET CS1
12929  040414  042716  173577                  BIC     #173577,(SP)            ;CLEAR UNWANTED BITS
12930  040420  022726  004200                  CMP     #DVA!RDY,(SP)+          ;RHCS1 SHOULD HAVE DEVICE AVAILABLE
12931                                                                  ;AND BE READY
12932  040424  001403                  BEQ     3$              ;BRANCH IF GOOD
12933  040426  011137  001122          MOV     @R1,@#$BDADR    ;BAD DATA REGISTER (RHCS1)
12934  040432  104062                  ERROR   62              ;RHCS1 DID NOT HAVE DEVICE
12935                                                          ;AVAILABLE RIGHT AT THE START
12936                                                          ;ALL OTHER BITS SHOULD BE 0
12937  040434  042716  102000          3$:     BIC     #ATA!LBT,(SP)           ;CLEAR UNWANTED BITS
12938  040440  022726  010700                  CMP     #MOL!DPR!DRY!VV,(SP)+;RHDS1 SHOULD HAVE THESE SET
12939  040444  001403                  BEQ     7$              ;BRANCH IF GOOD
12940  040446  011337  001122          MOV     @R3,@#$BDADR    ;BAD DATA IN  REGISTER (RHDS1)
12941  040452  104061                  ERROR   61              ;RHDS1 HAS SOME BITS OTHER
12942                                                          ;THAN MOL, DRY, DPR,VV SET
12943                                                          ;ALL OTHER BITS SHOULD BE 0
12944  040454  000207                  7$:     RTS     PC              ;RETURN TO TEST NO.
12945
```

```
12946
12947
12948
12949
12950
12951
12952
12953
12954
12955
12956                                   ;THIS IS A WAIT LOOP WHEN NO P-CLOCK IS AVAILABLE
12957                                   ;NO TIMING IS DONE
12958                                   ;CALL IS
12959                                   ;       WAT
12960                                   ;       A       ;POINTER TO REGISTER ADDRESS
12961                                   ;       B       ;BIT WAITED FOR
12962                                   ;R3-IS A TEMPORARY COUNTER
12963  040456  177777                  TIMCNT: 177777                  ;COUNT FOR WAIT LOOP
12964
12965  040460                          WAIT.T:
12966  040460  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
12967  040462  010346                          MOV     R3,-(SP)        ;;PUSH R3 ON STACK
12968  040464  016600  000004                  MOV     4(SP),R0        ;R0 HAS ADDRESS OF NEXT LOCATION
12969  040470  010037  004666                  MOV     R0,@#WAITPC     ;WAT PC +2 IS IN WAITPC
12970  040474  162737  000002  004665          SUB     #2,@#WAITPC     ;WAT PC IS IN WAITPC
12971  040502  013037  004670                  MOV     @(R0)+,@#WAITRE  ;WAIT ON REGISTER ADDRESS
12972  040506  012037  004672                  MOV     (R0)+,@#WAITBT  ;WAIT ON BIT
12973  040512  010066  000004                  MOV     R0,4(SP)        ;RESTORE RETURN ON STACK
12974
12975                                   ;THIS HAS THE TWO COUNT DOWNS FROM 177777
12976                                   ;FOR WAITING FOR A BIT TO SET
12977  040516  005737  004646                  TST     WAT0            ;WAITING FOR 1?
12978  040522  001025                          BNE     4$              ;BRANCH IF WAITING FOR 0
12979  040524  013703  040456                  MOV     @#TIMCNT,R3     ;R3 HAS TEMPORARY COUNT
12980  040530  033777  004672  144132  1$:     BIT     @#WAITBT,@WAITRE ;IS REQUIRED BIT THERE
12981  040536  001042                          BNE     3$              ;BRANCH IF YES
12982  040540  005303                          DEC     R3              ;COUNT IF REQUIRED BIT NOT THERE
12983  040542  001372                          BNE     1$
12984  040544  013703  040456                  MOV     @#TIMCNT,R3     ;SECOND COUNT DOWN FROM 177777
12985  040550  033777  004672  144112  2$:     BIT     @#WAITBT,@WAITRE ;IS REQUIRED BIT THERE
12986  040556  001032                          BNE     3$              ;BRANCH IF YES
12987  040560  005303                          DEC     R3              ;COUNT IF REQUIRED BIT NOOT THERE
12988  040562  001372                          BNE     2$
12989  040564  017737  144100  001126          MOV     @WAITRE,@#$BDDAT ;REGISTER CONTENTS FOR TYPEOUT
12990  040572  104135                          ERROR   135             ;WAS WAITING FOR A BIT TO SET
12991                                                                  ;BIT IN QUESTION IS IN "BIT WAITED"
12992                                                                  ;REGISTER IN QUESTION IS IN "REG ADDR"
12993  040574  000423                          BR      3$              ;BRANCH OUT
12994
12995
12996
12997                                   ;THIS HAS THE TWO COUNT DOWNS FROM 177777
12998                                   ;FOR WAITING FOR A BIT TO RESET
12999  040576  013703  040456          4$:     MOV     @#TIMCNT,R3     ;R3 HAS TEMPORARY COUNT
13000  040602  012700  000020                  MOV     #20,R0          ;R0 HAS TEMPORARY COUNT
13001  040606  033777  004672  144054  5$:     BIT     @#WAITBT,@WAITRE  ;IS REQUIRED BIT RESET?
```

```
13002  040614  001413                          BEQ     3$              ;BRANCH IF YES
13003  040616  005303                          DEC     R3              ;COUNT IF REQUIRED BIT HASN'T RESET YET
13004  040620  001372                          BNE     5$              ;TRY AGAIN
13005  040622  005300                          DEC     R0              ;DECREMENT R0 COUNT
13006  040624  001370                          BNE     5$              ;START OVER IF COUNT ISN'T ZERO YET
13007  040626  017737  144036  001126          MOV     @WAITRE,@#$BDDAT ;REGISTER CONTENTS FOR TYPEOUT
13008  040634  104136                          ERROR   136             ;WAS WAITING FOR A BIT TO RESET
13009                                                                  ;BIT IN QUESTION IS IN "BIT WAITED"
13010                                                                  ;REGISTER IN QUESTION IS IN "REG ADDR"
13011  040636  017737  144026  001126          MOV     @WAITRE,@#$BDDAT ;REGISTER CONTENTS FOR TYPEOUT
13012  040644                          3$:
13013  040644  012603                          MOV     (SP)+,R3        ;;POP STACK INTO R3
13014  040646  012600                          MOV     (SP)+,R0        ;;POP STACK INTO R0
13015  040650  000002                          RTI                     ;RETURN TO MAIN TEST
```

```
13016
13017
13018
13019                                   ;HERE IS A DETAILED EXPLAINATION OF HOW THE LOOP ON ERROR WORKS.
13020                                   ;ON HITTING AN ERROR IF THE LOOP ON ERROR SWITCH IS SET, THE
13021                                   ;PROGRAM GOES BACK - USUALLY BACK TO THE BEGINNING OF THE TEST.
13022
13023                                   ;WHEN THIS OPERATOR SELECTABLE SCOPE LOOP IS USED THEN THE POINT
13024                                   ;THE PROGRAM GOES BACK TO CAN BE CHANGED.
13025                                   ;THE RESTRICTIONS TO THE POINT WHERE THE PROGRAM CAN GO ARE: -
13026                                   ;1.  IT MUST BE WITHIN THE TEST UNDER CONSIDERATION
13027                                   ;2.  LOOP ON ERROR SWITCH MUST BE SET
13028                                   ;3.  THE ERROR MUST OCCUR WITHIN THE TEST UNDER CONSIDERATION
13029                                   ;IF THE ERROR DOES NOT OCCUR WITHIN THE TEST UNDER CONSIDERATION
13030                                   ;THE PROGRAM WILL REVERT TO NORMAL OPERATION.  HOWEVER, IF LOOP ON
13031                                   ;TEST SWITCH IS SET AND THIS OPERATOR SELECTABLE SCOPE LOOP IS USED
13032                                   ;THEN THE PROGRAM WILL LOOP BACK TO THE SELECTED POINT WHEN IT
13033                                   ;COMES TO THE END OF THE TEST UNDER CONSIDERATION.
13034                                   ;
13035                                   ;AFTER LOOPING FOR SOME TIME IF THE LOOP SWITCH IS PUT DOWN THEN
13036                                   ;NORMAL OPERATION WILL CONTINUE.
13037
13038  040652  000000                   TESTAD: 0                       ;FIRST ADDRESS OF TEST
13039  040654                          OPERSEL:
13040  040654  005037  177776                   CLR     PS              ;MAKE PROCESSOR STATUS ZERO
13041  040660  012737  177777  045100           MOV     #-1,@#PRITEM    ;CLEAR PREVIOUS ITEM NUMBER
13042  040666  104401  040674                   TYPE    ,65$            ;;TYPE ASCIZ STRING
13043  040672  000421                           BR      64$             ;;GET OVER THE ASCIZ
13044                                  ;;65$:   .ASCIZ  <15><12>/THE PROGRAM WAS IN TEST NUMBER /
13045  040736                          64$:
13046  040736  013746  004656                   MOV     @#TSTNM,-(SP)   ;GET READY TO TYPE TEST
13047  040742  104402                           TYPOC                   ;NUMBER
13048  040744  104401  040752                   TYPE    ,67$            ;;TYPE ASCIZ STRING
13049  040750  000414                           BR      66$             ;;GET OVER THE ASCIZ
13050                                  ;;67$:   .ASCIZ  <15><12>/THE LOOP BACK PC WAS /
13051  041002                          66$:
13052  041002  013746  001110                   MOV     @#$LPERR,-(SP)  ;GET READY TO TYPE LOOP BACK PC
13053  041006  104402                           TYPOC
13054  041010  104401  001223                   TYPE    ,$CRLF
13055  041014  104401  041022                   TYPE    ,69$            ;;TYPE ASCIZ STRING
13056  041020  000430                           BR      68$             ;;GET OVER THE ASCIZ
13057                                  ;;69$:   .ASCIZ  <15><12>/SET SWITCH FOR LOOP ON ERROR OR LOOP ON TEST/
13058  041102                          68$:
13059  041102  104401  041110                   TYPE    ,71$            ;;TYPE ASCIZ STRING
13060  041106  000430                           BR      70$             ;;GET OVER THE ASCIZ
13061                                  ;;71$:   .ASCIZ  <15><12>/TYPE THE FIRST PC OF THE TEST TO BE LOOPED ON/
13062  041170                          70$:
13063  041170  104401  041176                   TYPE    ,73$            ;;TYPE ASCIZ STRING
13064  041174  000422                           BR      72$             ;;GET OVER THE ASCIZ
13065                                  ;;73$:   .ASCIZ  <15><12>/ FOLLOWED BY A CARRIAGE RETURN /<15><12>
13066  041242                          72$:
13067  041242  104410                           RDOCT
13068  041244  062716  000002                   ADD     #2,(SP)         ;GET LPADR
13069  041250  012637  001106                   MOV     (SP)+,@#$LPADR
13070  041254  104401  041262                   TYPE    ,75$            ;;TYPE ASCIZ STRING
13071  041260  000417                           BR      74$             ;;GET OVER THE ASCIZ
```

```
13072                                   ;;75$:  .ASCIZ  <15><12>/TYPE THE PC WHERE YOU WANT/
13073  041320                           74$:
13074  041320  104401  041326                   TYPE    ,77$            ;;TYPE ASCIZ STRING
13075  041324  000440                           BR      76$             ;;GET OVER THE ASCIZ
13076                                   ;;77$:  .ASCIZ  <15><12>/ THE PROGRAM TO LOOP BACK TO FOLLOWED BY A CARRIAGE RETURN /<15
13077  041426                           76$:
13078  041426  104410                           RDOCT
13079  041430  012637  001110                   MOV     (SP)+,@#$LPERR  ;GET LPERR
13080  041434  013746  001106                   MOV     @#$LPADR,-(SP)
13081  041440  000002                           RTI
13082
13083
13084
13085
13086                                           ;THIS SAVES THE CONTENTS OF ALL HARDWARE REGISTERS
13087                                           ;IN MEMORY LOCATIONS TAGED FROM "WC" TO "EC2"
13088                                           ;THIS IS DONE SO THAT COMPARES ARE DONE WITH SAVED LOCATIONS
13089                                           ;AND NOT THE REGISTERS THEMSELVES.   THIS WILL MAKE
13090                                           ;ERROR PRINTOUTS FOR GOOD AND BAD DATA ALWAYS DIFFRENT
13091
13092
13093
13094
13095  041442                           PUTREG:
13096  041442  010046                           MOV     R0,-(SP)        ;;PUSH R0 ON STACK
13097  041444  010146                           MOV     R1,-(SP)        ;;PUSH R1 ON STACK
13098  041446  010246                           MOV     R2,-(SP)        ;;PUSH R2 ON STACK
13099  041450  012700  004062                   MOV     #RHWC,R0        ;STARTING ADDRESS OF REG
13100  041454  012701  000002                   MOV     #WC,R1          ;STARTING ADDRESS OF WERE SAVED
13101  041460  012702  000010                   MOV     #RHCC-RHWC+2/2,R2 ;NUMBER OF REG. INTO R2
13102  041464  013021                   10$:    MOV     @(R0)+,(R1)+    ;SAVE HARDWARE REG.
13103  041466  005302                           DEC     R2
13104  041470  001375                           BNE     10$
13105  041472  012602                           MOV     (SP)+,R2        ;;POP STACK INTO R2
13106  041474  012601                           MOV     (SP)+,R1        ;;POP STACK INTO R1
13107  041476  012600                           MOV     (SP)+,R0        ;;POP STACK INTO R0
13108  041500  000207                           RTS     PC
```

```
13109
13110                                   .SBTTL  RS DATA TRANSFER SUBROUTINE
13111
13112                                   ;*      THIS SUBROUTINE WRITES OR READS OR DOES A
13113                                   ;*      WRITE CHECK ON CYLINDER 0 TRACK 0 SECTOR 0
13114                                   ;*      IT ASSUMES THE RH REGISTERS ARE APPROPRIATELY
13115                                   ;*      FILLED
13116                                   ;*      WHEN IT RETURNS FROM THIS SUBROUTINE TO THE
13117                                   ;*      MAIN PROGRAM IT MEANS THE TRANSFER IS COMPLETE
13118                                   ;*
13119                                   ;*      THE CALL IS BY A JSR R0,@COMND COMAND
13120
13121  041502  012037  004642           CMNDRS: MOV     (R0)+,COMAND    ;GET COMMAND
13122
13123                                           ;CHECK THAT RHDS1 HAS DRY!DPR!MOL
13124  041506  012737  010600  001124           MOV     #DRY!DPR!MOL,$GDDAT     ;GET GOOD = 10300
13125
13126  041514  017737  142352  001126           MOV     @RHDS1,$BDDAT   ;READ RHDS1 FOR COMPARISON
13127  041522  023737  001124  001126           CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
13128                                                                   ;DATA WITH DATA READ FROM
13129                                                                   ;RHDS1
13130  041530  001401                           BEQ     65$             ;BRANCH IF GOOD .
13131  041532  104133                           ERROR   133
13132                                                                   ;BEFORE ANY COMMAND IS GIVEN
13133                                                                   ;RHDS1 SHOULD HAVE DRY!DPR!MOL
13134                                                                   ;=10300
13135                                                                   ;BUT CONTAINED WHAT IS
13136                                                                   ;GIVEN IN BAD RHDS1
13137  041534                           65$:
13138
13139  041534  005077  142326                   CLR     @RHDA           ;TRANSFER ON CYLINDER 0
13140                                                                   ;TRANSFER ON SECTOR 0
13141                                                                   ;TRACK 0
13142  041540  017777  143076  142312           MOV     @COMAND,@RHCS1  ;SET UP COMMAND
13143  041546  005737  004644                   TST     NOGO            ;IS GO TO BE GIVEN
13144  041552  001006                           BNE     1$              ;BRANCH IF NO
13145  041554  052777  000001  142276           BIS     #GO,@RHCS1      ;SET GO
13146
13147                                           ;WAIT FOR RDY BIT IN RHCS1 REGISTER TO SET
13148  041562  104411                           WAT                     ;TRAP TO WAIT.T SUBROUTINE
13149  041564  004060                           RHCS1                   ;AND WAIT FOR RDY BIT IN
13150  041566  000200                           RDY                     ;RHCS1 REGISTER
13151                                                                   ;IF ERROR OCCURS HERE
13152                                                                   ;IT MEANS "RDY" DID NOT
13153                                                                   ;SET FOR THE FULL COUNT
13154                                                                   ;DOWN OF THE WAIT.T SUBROUTINE
13155                                                                   ;THIS TIME IS APPROXIMATELY
13156                                                                   ;LARGER THAN 500 MILLISECONDS
13157  041570  000200                   1$:     RTS     R0
13158
13159                                   .SBTTL  RP04 DATA TRANSFER SUBROUTINE
13160
13161                                   ;*      THIS SUBROUTINE WRITE/READ/WRITE CHECK ON THE RP04 CYLINDER 0,
13162                                   ;*      TRACK 0, SECTOR 0.
13163                                   ;*      IT ASSUMES THE RH REGISTERS ARE APPROPRIATELY FILLED.
13164                                   ;*      WHEN IT RETURNS FROM THIS SUBROUTINE TO THE MAIN
```

```
13165                                   ;*      PROGRAM IT MEANS THE COMMAND IS COMPLETE
13166                                   ;*
13167                                   ;*      THE CALL IS BY A JSR R0,@COMND COMMAND.
13168
13169  041572  012037  004642          CMNDRP: MOV     (R0)+,COMAND    ;GET COMMAND
13170
13171  041576  013746  004172                  MOV     PKACK,-(SP)     ;GET READY TO SET VV
13172  041602  052716  000001                  BIS     #GO,(SP)        ;GET PACK ACKNOWLEDGE COMMAND
13173  041606  012677  142246                  MOV     (SP)+,@RHCS1    ;SET VV
13174
13175                                           ;CHECK THAT RHDS1 HAS VV!DRY!DPR!MOL
13176  041612  012737  010700  001124          MOV     #VV!DRY!DPR!MOL,$GDDAT  ;GET GOOD = 10700
13177
13178  041620  017737  142246  001126          MOV     @RHDS1,$BDDAT   ;READ RHDS1 FOR COMPARISON
13179  041626  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED
13180                                                                  ;DATA WITH DATA READ FROM
13181                                                                  ;RHDS1
13182  041634  001401                          BEQ     65$             ;BRANCH IF GOOD
13183  041636  104132                          ERROR   132
13184                                                                  ;BEFORE ANY COMMAND IS GIVEN
13185                                                                  ;RHDS1 SHOULD HAVE VV!DRY!DPR!MOL
13186                                                                  ;=10700
13187                                                                  ;BUT CONTAINED WHAT IS
13188                                                                  ;GIVEN IN BAD RHDS1
13189  041640                          65$:
13190
13191  041640  005077  142250                  CLR     @RHCA           ;TRANSFER ON CYLINDER 0
13192  041644  005077  142216                  CLR     @RHDST          ;TRANSFER ON SECTOR 0
13193                                                                  ;TRACK 0
13194  041650  012777  014000  142234          MOV     #ECI!FMT22,@RHOF;INHIBIT ECC
13195                                                                  ;FORMAT 16 BIT PER WORD
13196  041656  017777  142760  142174          MOV     @COMAND,@RHCS1  ;SET UP COMMAND
13197  041664  005737  004644                  TST     NOGO            ;IS GO TO BE GIVEN
13198  041670  001006                          BNE     1$              ;BRANCH IF NO
13199  041672  052777  000001  142160          BIS     #GO,@RHCS1      ;SET GO
13200
13201                                           ;WAIT FOR RDY BIT IN RHCS1 REGISTER TO SET
13202  041700  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
13203  041702  004060                          RHCS1                   ;AND WAIT FOR RDY BIT IN
13204  041704  000200                          RDY                     ;RHCS1 REGISTER
13205                                                                  ;IF ERROR OCCURS HERE
13206                                                                  ;IT MEANS "RDY" DID NOT
13207                                                                  ;SET FOR THE FULL COUNT
13208                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
13209                                                                  ;THIS TIME IS APPROXIMATELY
13210                                                                  ;LARGER THAN 500 MILLISECONDS
13211  041706  000200                  1$:     RTS     R0
13212
13213                                   .SBTTL  TM02 DATA TRANSFER SUBROUTINE
13214
13215                                   ;*      .THIS SUBROUTINE WRITES/READS/WRITE CHECKS ON THE TM02-TU16
13216                                   ;*      ON THE FIRST BLOCK FROM BEGINNING OF TAPE (BOT)
13217                                   ;*      IT ASSUMES THE RH REGISTERS ARE APPROPRIATELY FILLED.
13218                                   ;*      WHEN IT RETURNS FROM THIS SUBROUTINE TO THE
13219                                   ;*      MAIN PROGRAM IT MEANS THE COMMAND IS COMPLETE.
13220                                   ;*
```

```
13221                                   ;*      THE CALL IS
13222                                   ;*      JSR     R0,@COMND
13223
13224  041710  012037  004642          CMNDTM: MOV     (R0)+,COMAND
13225  041714  013777  004660  142170          MOV     SLAVE,@RHTC     ;GET SLAVE NUMBER
13226  041722  012737  010600  001124          MOV     #MOL!DPR!DRY,$GDDAT ;GET GOOD DATA
13227  041730  017737  142136  001126          MOV     @RHDS1,$BDDAT   ;GET RHDS1
13228  041736  042737  000062  001126          BIC     #BOT!BIT05!BIT04,$BDDAT ;DISREGARD BOT
13229  041744  023737  001124  001126          CMP     $GDDAT,$BDDAT   ;COMPARE EXPECTED DATA WITH
13230                                                                  ;DATA READ FROM RHDS1
13231  041752  001401                          BEQ     1$              ;BRANCH IF GOOD
13232  041754  104134                          ERROR   134             ;BEFORE ANY COMMAND
13233                                                                  ;IS GIVEN DRIVE STATUS REGISTER
13234                                                                  ;DID NOT CONTAIN WHAT IS IN
13235                                                                  ;GOOD
13236  041756  032777  000002  142106  1$:     BIT     #BOT,@RHDS1     ;IS IT ALREADY AT BOT
13237  041764  001035                          BNE     2$              ;BRANCH IF YES
13238                                  ;IF NOT AT BOT GIVE A REWIND COMMAND
13239  041766  013777  004176  142064          MOV     REWIND,@RHCS1   ;LOAD RHCS1 WITH REWIND COMMAND
13240  041774  052777  000001  142056          BIS     #GO,@RHCS1
13241                                  ;WAIT FOR PIP BIT IN RHDS1 REGISTER TO SET
13242  042002  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
13243  042004  004072                          RHDS1                   ;AND WAIT FOR PIP BIT IN
13244  042006  020000                          PIP                     ;RHDS1 REGISTER
13245                                                                  ;IF ERROR OCCURS HERE
13246                                                                  ;IT MEANS "PIP" DID NOT
13247                                                                  ;SET FOR THE FULL COUNT
13248                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
13249                                                                  ;THIS TIME IS APPROXIMATELY
13250                                                                  ;LARGER THAN 500 MILLISECONDS
13251                                  ;WAIT FOR PIP BIT IN RHDS1 REGISTER TO SET
13252  042010  012737  177777  004646          MOV     #-1,WATO        ;WAIT FOR PIP TO GO FROM 1 TO 0
13253  042016  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
13254  042020  004072                          RHDS1                   ;AND WAIT FOR PIP BIT IN
13255  042022  020000                          PIP                     ;RHDS1 REGISTER
13256                                                                  ;IF ERROR OCCURS HERE
13257                                                                  ;IT MEANS "PIP" DID NOT
13258                                                                  ;SET FOR THE FULL COUNT
13259                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
13260                                                                  ;THIS TIME IS APPROXIMATELY
13261                                                                  ;LARGER THAN 500 MILLISECONDS
13262  042024  005037  004646          CLR     WATO
13263                                  ;WAIT FOR BOT BIT IN RHDS1 REGISTER TO SET
13264  042030  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
13265  042032  004072                          RHDS1                   ;AND WAIT FOR BOT BIT IN
13266  042034  000002                          BOT                     ;RHDS1 REGISTER
13267                                                                  ;IF ERROR OCCURS HERE
13268                                                                  ;IT MEANS "BOT" DID NOT
13269                                                                  ;SET FOR THE FULL COUNT
13270                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
13271                                                                  ;THIS TIME IS APPROXIMATELY
13272                                                                  ;LARGER THAN 500 MILLISECONDS
13273
13274                                  ;CLEAR ATTENTIONS
13275  042036  013746  004142          MOV     DCLEAR,-(SP)
13276  042042  052716  000001          BIS     #GO,(SP)
```

```
13277  042046  012677  142006                 MOV     (SP)+,@RHCS1
13278
13279                                         ;WAIT FOR DRY BIT IN RHDS1 REGISTER TO SET
13280  042052  104411                         WAT                     ;TRAP TO WAIT.T SUBROUTINE
13281  042054  004072                         RHDS1                   ;AND WAIT FOR DRY BIT IN
13282  042056  000200                         DRY                     ;RHDS1 REGISTER
13283                                                                 ;IF ERROR OCCURS HERE
13284                                                                 ;IT MEANS "DRY" DID NOT
13285                                                                 ;SET FOR THE FULL COUNT
13286                                                                 ;DOWN OF THE WAIT.T SUBROUTINE
13287                                                                 ;THIS TIME IS APPROXIMATELY
:3288                                                               ;LARGER THAN 500 MILLISECONDS
13289  042060                          2$:    ;CHECK IF COMMAND IS REVERSE READ
13290                                        ;IF IT IS REVERSE READ, SPACE FORWARD ONE BLOCK
13291  042060  023777  004200  142554         CMP     REVRED,@COMAND  ;IS IT REVERSE READ
13292  042066  001035                         BNE     3$              ;BRANCH IF NOT
13293  042070  052777  001700  142014         BIS     #BPI8!NML,@RHTC ;800 BPI, NORMAL
13294  042076  042777  000010  142006         BIC     #EPAR, @RHTC    ;ODD PARITY
13295
13296  042104  012777  177777  141754         MOV     #-1,@RHFC       ;FRAME COUNT 1
13297                                                                 ;FOR SPACE FORWARD ONE BLOCK
13298  042112  013777  004202  141740         MOV     SPACFD,@RHCS1   ;SPACE FORWARD
13299  042120  052777  000001  141732         BIS     #GO,@RHCS1      ;GO
13300                                        ;WAIT FOR PIP BIT IN RHDS1 REGISTER TO SET
13301  042126  104411                         WAT                     ;TRAP TO WAIT.T SUBROUTINE
13302  042130  004072                         RHDS1                   ;AND WAIT FOR PIP BIT IN
13303  042132  020000                         PIP                     ;RHDS1 REGISTER
13304                                                                 ;IF ERROR OCCURS HERE
13305                                                                 ;IT MEANS "PIP" DID NOT
13306                                                                 ;SET FOR THE FULL COUNT
13307                                                                 ;DOWN OF THE WAIT.T SUBROUTINE
13308                                                                 ;THIS TIME IS APPROXIMATELY
13309                                                                 ;LARGER THAN 500 MILLISECONDS
13310                                        ;WAIT FOR PIP BIT IN RHDS1 REGISTER TO SET
13311  042134  012737  177777  004646                 MOV     #-1,WATO        ;WAIT FOR PIP TO GO FROM 1 TO 0
13312  042142  104411                         WAT                     ;TRAP TO WAIT.T SUBROUTINE
13313  042144  004072                         RHDS1                   ;AND WAIT FOR PIP BIT IN
13314  042146  020000                         PIP                     ;RHDS1 REGISTER
13315                                                                 ;IF ERROR OCCURS HERE
13316                                                                 ;IT MEANS "PIP" DID NOT
13317                                                                 ;SET FOR THE FULL COUNT
13318                                                                 ;DOWN OF THE WAIT.T SUBROUTINE
13319                                                                 ;THIS TIME IS APPROXIMATELY
13320                                                                 ;LARGER THAN 500 MILLISECONDS
13321  042150  005037  004646                 CLR     WATO
13322                                        ;WAIT FOR DRY BIT IN RHDS1 REGISTER TO SET
13323  042154  104411                         WAT                     ;TRAP TO WAIT.T SUBROUTINE
13324  042156  004072                         RHDS1                   ;AND WAIT FOR DRY BIT IN
13325  042160  000200                         DRY                     ;RHDS1 REGISTER
13326                                                                 ;IF ERROR OCCURS HERE
13327                                                                 ;IT MEANS "DRY" DID NOT
13328                                                                 ;SET FOR THE FULL COUNT
13329                                                                 ;DOWN OF THE WAIT.T SUBROUTINE
13330                                                                 ;THIS TIME IS APPROXIMATELY
13331                                                                 ;LARGER THAN 500 MILLISECONDS
13332  042162                          3$:    ;NOW GIVE COMMAND
```

```
13333  042162  052777  001700  141722          BIS     #BPI8!NML,@RHTC ;800 BPI, NORMAL
13334  042170  042777  000010  141714          BIC     #EPAR,@RHTC     ;ODD PARITY
13335  042176  017746  141660                  MOV     @RHWC,-(SP)     ;GET WORD COUNT
13336  042202  005416                          NEG     (SP)            ;GET POSITIVE NUMBER
13337  042204  061616                          ADD     (SP),(SP)       ;DOUBLE WORD COUNT
13338  042206  005416                          NEG     (SP)            ;GET NEGATIVE NUMBER FOR
13339                                                                  ;FRAME COUNT REGISTER
13340  042210  012677  141652                  MOV     (SP)+,@RHFC     ;FILL FRAME COUNT
13341  042214  017777  142422  141636          MOV     @COMAND,@RHCS1  ;GET COMMAND
13342
13343  042222  005737  004644                  TST     NOGO            ;IS GO TO BE GIVEN
13344  042226  001006                          BNE     4$              ;BRANCH IF NO
13345  042230  052777  000001  141622          BIS     #GO,@RHCS1      ;GO
13346
13347                                          ;WAIT FOR DRY BIT IN RHDS1 REGISTER TO SET
13348  042236  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
13349  042240  004072                          RHDS1                   ;AND WAIT FOR DRY BIT IN
13350  042242  000200                          DRY                     ;RHDS1 REGISTER
13351                                                                  ;IF ERROR OCCURS HERE
13352                                                                  ;IT MEANS "DRY" DID NOT
13353                                                                  ;SET FOR THE FULL COUNT
13354                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
13355                                                                  ;THIS TIME IS APPROXIMATELY
13356                                                                  ;LARGER THAN 500 MILLISECONDS
13357  042244                          4$:
13358                                          ;WAIT FOR RDY BIT IN RHCS1 REGISTER TO SET
13359  042244  104411                          WAT                     ;TRAP TO WAIT.T SUBROUTINE
13360  042246  004060                          RHCS1                   ;AND WAIT FOR RDY BIT IN
13361  042250  000200                          RDY                     ;RHCS1 REGISTER
13362                                                                  ;IF ERROR OCCURS HERE
13363                                                                  ;IT MEANS "RDY" DID NOT
13364                                                                  ;SET FOR THE FULL COUNT
13365                                                                  ;DOWN OF THE WAIT.T SUBROUTINE
13366                                                                  ;THIS TIME IS APPROXIMATELY
13367                                                                  ;LARGER THAN 500 MILLISECONDS
13368  042252  000200                          RTS     R0
```

```
13369
13370                                   ;*      THIS ROUTINE WILL ALLOW THE CHANGE OF THE BASE
13371                                   ;*      ADDRESS FROM 176700 TO ANY TYPED VALUE
13372
13373  042254                           BASECH:
13374  042254  104401  042262                   TYPE    ,65$            ;;TYPE ASCIZ STRING
13375  042260  000424                           BR      64$             ;;GET OVER THE ASCIZ
13376                                   ;;65$:  .ASCIZ  <15><12>/PRESENT BASE ADDRESS OF REGISTERS IS /
13377  042332                           64$:
13378  042332  013746  004060                   MOV     @#RHCS1,-(SP)   ;GET READY TO TYPE OLD BASE
13379  042336  104402                           TYPOC
13380  042340  104401  042346                   TYPE    ,67$            ;;TYPE ASCIZ STRING
13381  042344  000425                           BR      66$             ;;GET OVER THE ASCIZ
13382                                   ;;67$:  .ASCIZ  <15><12>/TYPE NEW BASE ADDRESS FOLLOWED BY 'CR'/
13383  042420                           66$:
13384  042420  104410                           RDOCT
13385  042422  012700  004102                   MOV     #RHDB,R0        ;GET STARTING ADDRESS OF RGISTERS
13386  042426  012701  000024                   MOV     #20.,R1         ;NUMBER OF REGISTERS
13387  042432  042710  177700           1$:     BIC     #^C77,(R0)      ;CLEAR OLD BASE
13388  042436  051620                           BIS     (SP),(R0)+      ;SET NEW BASE
13389  042440  005301                           DEC     R1              ;COUNT
13390  042442  001373                           BNE     1$              ;BRANCH IF 20 NOT DONE
13391  042444  104401  042452                   TYPE    ,69$            ;;TYPE ASCIZ STRING
13392  042450  000417                           BR      68$             ;;GET OVER THE ASCIZ
13393                                   ;;69$:  .ASCIZ  <15><12>/PRESENT VECTOR ADDRESS IS /
13394  042510                           68$:
13395  042510  013746  002716                   MOV     @#RPVEC,-(SP)   ;GET READY TO TYPE OLD VECTOR ADDRESS
13396  042514  104402                           TYPOC
13397  042516  104401  042524                   TYPE    ,71$            ;;TYPE ASCIZ STRING
13398  042522  000437                           BR      70$             ;;GET OVER THE ASCIZ
13399                                   ;;71$:  .ASCIZ  <15><12>/TYPE NEW VECTOR ADDRESS OR RETYPE OLD ONE FOLLOWED BY "CR"/
13400  042622                           70$:
13401  042622  104410                           RDOCT
13402  042624  012637  002716                   MOV     (SP)+,@#RPVEC   ;SETUP VECTOR ADDRESS
13403  042630  104401  042636                   TYPE    ,73$            ;;TYPE ASCIZ STRING
13404  042634  000421                           BR      72$             ;;GET OVER THE ASCIZ
13405                                   ;;73$:  .ASCIZ  <15><12>/RESTART PROGRAM FROM 200 OR 210/
13406  042700                           72$:
13407  042700  104401  042706                   TYPE    ,75$            ;;TYPE ASCIZ STRING
13408  042704  000414                           BR      74$             ;;GET OVER THE ASCIZ
13409                                   ;;75$:  .ASCIZ  <15><12>/NEW BASE WILL REMAIN/
13410  042736                           74$:
13411  042736  013746  004060                   MOV     @#RHCS1,-(SP)
13412  042742  104402                           TYPOC
13413  042744  104401  042752                   TYPE    ,77$            ;;TYPE ASCIZ STRING
13414  042750  000415                           BR      76$             ;;GET OVER THE ASCIZ
13415                                   ;;77$:  .ASCIZ  <15><12>/NEW VECTOR WILL REMAIN /
13416  043004                           76$:
13417  043004  013746  002716                   MOV     @#RPVEC,-(SP)
13418  043010  104402                           TYPOC
13419  043012  104401  043020                   TYPE    ,79$            ;;TYPE ASCIZ STRING
13420  043016  000416                           BR      78$             ;;GET OVER THE ASCIZ
13421                                   ;;79$:  .ASCIZ  <15><12>/UNTIL PROGRAM IS RELOADED/
13422  043054                           78$:
13423  043054  000000                           HALT
13424
```

```
13425  043056                          RPVECT:
13426  043056  104401  043064                  TYPE    ,65$            ;;TYPE ASCIZ STRING
13427  043062  000411                  BR      64$             ;;GET OVER THE ASCIZ
13428                                  ;;65$:  .ASCIZ  /TRAPED FROM PC = /
13429  043106                          64$:
13430  043106  104402                  TYPOC                           ;TYPE FROM PC
13431  043110  012777  043056  137600  MOV     #RPVECT,@RPVEC          ;RESTORE TRAP RP04 VECTOR
13432  043116  000000                  HALT                            ;CHANGE TO CONTINUE
13433
13434
13435
13436
```

```
13437                                                                                                   ;****************************
13438                                   .SBTTL  SCOPE HANDLER ROUTINE
13439
13440                                   ;;**********************************************************************
13441                                   ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
13442                                   ;*AND LOAD THE TEST NUMBER($TSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
13443                                   ;*AND LOAD THE ERROR FLAG ($ERFLG) INTO DISPLAY<15:08>
13444                                   ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
13445                                   ;*SW14=1        LOOP ON TEST
13446                                   ;*SW11=1        INHIBIT ITERATIONS
13447                                   ;*SW09=1        LOOP ON ERROR
13448                                   ;*SW08=1        LOOP ON TEST IN SWR<7:0>
13449                                   ;*CALL
13450                                   ;*      SCOPE           ;;SCOPE=IOT
13451
13452  043120                           $SCOPE:
13453  043120  005037  004646                  CLR     WATO            ;WAIT FOR BIT TO SET
13454                                                                   ;USED IN "WAT" WAIT ROUTINE
13455  043124  005037  004644                  CLR NOGO                ;DO GIVE GO IN COMMAND ROUTINE
13456  043130  032777  040000  136002  1$:     BIT     #BIT14,@SWR     ;;LOOP ON PRESENT TEST?
13457  043136  001111                          BNE     $OVER           ;;YES IF SW14=1
13458                                   ;#####START OF CODE FOR THE XOR TESTER#####
13459  043140  000416                  $XTSTR: BR      6$              ;;IF RUNNING ON THE "XOR" TESTER CHANGE
13460                                                                   ;;THIS INSTRUCTION TO A "NOP" (NOP=240)
13461  043142  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE THE CONTENTS OF THE ERROR VECTOR
13462  043146  012737  043166  000004          MOV     #5$,@#ERRVEC    ;;SET FOR TIMEOUT
13463  043154  005737  177060                  TST     @#177060        ;;TIME OUT ON XOR?
13464  043160  012637  000004                  MOV     (SP)+,@#ERRVEC  ;;RESTORE THE ERROR VECTOR
13465  043164  000463                          BR      $SVLAD          ;;GO TO THE NEXT TEST
13466  043166  022626                  5$:     CMP     (SP)+,(SP)+     ;;CLEAR THE STACK AFTER A TIME OUT
13467  043170  012637  000004                  MOV     (SP)+,@#ERRVEC  ;;RESTORE THE ERROR VECTOR
13468  043174  000423                          BR      7$              ;;LOOP ON THE PRESENT TEST
13469  043176                           6$:;#####END OF CODE FOR THE XOR TESTER#####
13470  043176  032777  000400  135734          BIT     #BIT08,@SWR     ;;LOOP ON SPEC. TEST?
13471  043204  001404                          BEQ     2$              ;;BR IF NO
13472  043206  127737  135726  001102          CMPB    @SWR,$TSTNM     ;;ON THE RIGHT TEST?    SWR<7:0>
13473  043214  001462                          BEQ     $OVER           ;;BR IF YES
13474  043216  105737  001103          2$:     TSTB    $ERFLG          ;;HAS AN ERROR OCCURRED?
13475  043222  001421                          BEQ     3$              ;;BR IF NO
13476  043224  123737  001115  001103          CMPB    $ERMAX,$ERFLG   ;;MAX. ERRORS FOR THIS TEST OCCURRED?
13477  043232  101015                          BHI     3$              ;;BR IF NO
13478  043234  032777  001000  135676          BIT     #BIT09,@SWR     ;;LOOP ON ERROR?
13479  043242  001404                          BEQ     4$              ;;BR IF NO
13480  043244  013737  001110  001106  7$:     MOV     $LPERR,$LPADR   ;;SET LOOP ADDRESS TO LAST SCOPE
13481  043252  000443                          BR      $OVER
13482  043254  105037  001103          4$:     CLRB    $ERFLG          ;;ZERO THE ERROR FLAG
13483  043260  005037  001212                  CLR     $TIMES          ;;CLEAR THE NUMBER OF ITERATIONS TO MAKE
13484  043264  000415                          BR      1$              ;;ESCAPE TO THE NEXT TEST
13485  043266  032777  004000  135644  3$:     BIT     #BIT11,@SWR     ;;INHIBIT ITERATIONS?
13486  043274  001011                          BNE     1$              ;;BR IF YES
13487  043276  005737  001100                  TST     $PASS           ;;IF FIRST PASS OF PROGRAM
13488  043302  001406                          BEQ     1$              ;;      INHIBIT ITERATIONS
13489  043304  005237  001104                  INC     $ICNT           ;;INCREMENT ITERATION COUNT
13490  043310  023737  001212  001104          CMP     $TIMES,$ICNT    ;;CHECK THE NUMBER OF ITERATIONS MADE
13491  043316  002021                          BGE     $OVER           ;;BR IF MORE ITERATION REQUIRED
13492  043320  012737  000001  001104  1$:     MOV     #1,$ICNT        ;;REINITIALIZE THE ITERATION COUNTER
```

```
13493  043326  013737  043376  001212          MOV     $MXCNT,$TIMES   ;;SET NUMBER OF ITERATIONS TO DO
13494  043334  105237  001102          $SVLAD: INCB    $TSTNM          ;;COUNT TEST NUMBERS
13495  043340  011637  001106                  MOV     (SP),$LPADR     ;;SAVE SCOPE LOOP ADDRESS
13496  043344  011637  001110                  MOV     (SP),$LPERR     ;;SAVE ERROR LOOP ADDRESS
13497  043350  005037  001214                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
13498  043354  112737  000001  001115          MOVB    #1,$ERMAX       ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
13499  043362  013777  001102  135552  $OVER:  MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER
13500  043370  013716  001106                  MOV     $LPADR,(SP)     ;;FUDGE RETURN ADDRESS
13501  043374  000002                          RTI                     ;;FIXES PS
13502  043376  000004          $MXCNT: 4                               ;;MAX. NUMBER OF ITERATIONS
```

```
13503                                   .SBTTL  CONVERT BINARY TO DECIMAL AND TYPE ROUTINE
13504
13505                                   ;;**********************************************************************
13506                                   ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
13507                                   ;*SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
13508                                   ;*NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
13509                                   ;*BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
13510                                   ;*REPLACED WITH SPACES.
13511                                   ;*CALL:
13512                                   ;*      MOV     NUM,-(SP)       ;;PUT THE BINARY NUMBER ON THE STACK
13513                                   ;*      TYPDS                   ;;GO TO THE ROUTINE
13514
13515  043400                           $TYPDS:
13516  043400  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
13517  043402  010146                          MOV     R1,-(SP)        ;;PUSH R1 ON STACK
13518  043404  010246                          MOV     R2,-(SP)        ;;PUSH R2 ON STACK
13519  043406  010346                          MOV     R3,-(SP)        ;;PUSH R3 ON STACK
13520  043410  010546                          MOV     R5,-(SP)        ;;PUSH R5 ON STACK
13521  043412  012746  020200                  MOV     #20200,-(SP)    ;;SET BLANK SWITCH AND SIGN
13522  043416  016605  000020                  MOV     20(SP),R5       ;;GET THE INPUT NUMBER
13523  043422  100004                          BPL     1$              ;;BR IF INPUT IS POS.
13524  043424  005405                          NEG     R5              ;;MAKE THE BINARY NUMBER POS.
13525  043426  112766  000055  000001          MOVB    #'-,1(SP)       ;;MAKE THE ASCII NUMBER NEG.
13526  043434  005000                  1$:     CLR     R0              ;;ZERO THE CONSTANTS INDEX
13527  043436  012703  043614                  MOV     #$DBLK,R3       ;;SETUP THE OUTPUT POINTER
13528  043442  112723  000040                  MOVB    #' ,(R3)+       ;;SET THE FIRST CHARACTER TO A BLANK
13529  043446  005002                  2$:     CLR     R2              ;;CLEAR THE BCD NUMBER
13530  043450  016001  043604                  MOV     $DTBL(R0),R1    ;;GET THE CONSTANT
13531  043454  160105                  3$:     SUB     R1,R5           ;;FORM THIS BCD DIGIT
13532  043456  002402                          BLT     4$              ;;BR IF DONE
13533  043460  005202                          INC     R2              ;;INCREASE THE BCD DIGIT BY 1
13534  043462  000774                          BR      3$
13535  043464  060105                  4$:     ADD     R1,R5           ;;ADD BACK THE CONSTANT
13536  043466  005702                          TST     R2              ;;CHECK IF BCD DIGIT=0
13537  043470  001002                          BNE     5$              ;;FALL THROUGH IF 0
13538  043472  105716                          TSTB    (SP)            ;;STILL DOING LEADING 0'S?
13539  043474  100407                          BMI     7$              ;;BR IF YES
13540  043476  106316                  5$:     ASLB    (SP)            ;;MSD?
13541  043500  103003                          BCC     6$              ;;BR IF NO
13542  043502  116663  000001  177777          MOVB    1(SP),-1(R3)    ;;YES--SET THE SIGN
13543  043510  052702  000060          6$:     BIS     #'0,R2          ;;MAKE THE BCD DIGIT ASCII
13544  043514  052702  000040          7$:     BIS     #' ,R2          ;;MAKE IT A SPACE IF NOT ALREADY A DIGIT
13545  043520  110223                          MOVB    R2,(R3)+        ;;PUT THIS CHARACTER IN THE OUTPUT BUFFER
13546  043522  005720                          TST     (R0)+           ;;JUST INCREMENTING
13547  043524  020027  000010                  CMP     R0,#10          ;;CHECK THE TABLE INDEX
13548  043530  002746                          BLT     2$              ;;GO DO THE NEXT DIGIT
13549  043532  003002                          BGT     8$              ;;GO TO EXIT
13550  043534  010502                          MOV     R5,R2           ;;GET THE LSD
13551  043536  000764                          BR      6$              ;;GO CHANGE TO ASCII
13552  043540  105726                  8$:     TSTB    (SP)+           ;;WAS THE LSD THE FIRST NON-ZERO?
13553  043542  100003                          BPL     9$              ;;BR IF NO
13554  043544  116663  177777  177776          MOVB    -1(SP),-2(R3)   ;;YES--SET THE SIGN FOR TYPING
13555  043552  105013                  9$:     CLRB    (R3)            ;;SET THE TERMINATOR
13556  043554  012605                          MOV     (SP)+,R5        ;;POP STACK INTO R5
13557  043556  012603                          MOV     (SP)+,R3        ;;POP STACK INTO R3
13558  043560  012602                          MOV     (SP)+,R2        ;;POP STACK INTO R2
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13559  043562  012601                          MOV     (SP)+,R1        ;;POP STACK INTO R1
13560  043564  012600                          MOV     (SP)+,R0        ;;POP STACK INTO R0
13561  043566  104401  043614                  TYPE    ,$DBLK          ;;NOW TYPE THE NUMBER
13562  043572  016666  000002  000004          MOV     2(SP),4(SP)     ;;ADJUST THE STACK
13563  043600  012616                          MOV     (SP)+,(SP)
13564  043602  000002                          RTI                     ;;RETURN TO USER
13565  043604  023420                $DTBL:    10000.
13566  043606  001750                          1000.
13567  043610  000144                          100.
13568  043612  000012                          10.
13569  043614  000004                $DBLK:    .BLKW   4
13570                                .SBTTL  TYPE ROUTINE
13571
13572                                ;;******************************************************************
13573                                ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
13574                                ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
13575                                ;*NOTE1:         $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
13576                                ;*NOTE2:         $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
13577                                ;*NOTE3:         $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
13578                                ;*
13579                                ;*CALL:
13580                                ;*1) USING A TRAP INSTRUCTION
13581                                ;*       TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
13582                                ;*OR
13583                                ;*       TYPE
13584                                ;*       MESADR
13585                                ;*
13586
13587  043624  105737  001157  $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
13588  043630  100002                  BPL     1$              ;;BR IF YES
13589  043632  000000                  HALT                    ;;HALT HERE IF NO TERMINAL
13590  043634  000407                  BR      3$              ;;LEAVE
13591  043636  010046          1$:     MOV     R0,-(SP)        ;;SAVE R0
13592  043640  017600  000002          MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
13593  043644  112046          2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
13594  043646  001005                  BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
13595  043650  005726                  TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
13596  043652  012600          60$:    MOV     (SP)+,R0        ;;RESTORE R0
13597  043654  062716  000002  3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
13598  043660  000002                  RTI                     ;;RETURN
13599  043662  122716  000011  4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
13600  043666  001430                  BEQ     8$
13601  043670  122716  000200          CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
13602  043674  001006                  BNE     5$
13603  043676  005726                  TST     (SP)+           ;;POP  <CR><LF> EQUIV
13604  043700  104401                  TYPE                    ;;TYPE A CR AND LF
13605  043702  001223                  $CRLF
13606  043704  105037  044040          CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
13607  043710  000755                  BR      2$              ;;GET NEXT CHARACTER
13608  043712  004737  043774  5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
13609  043716  123726  001156  6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
13610  043722  001350                  BNE     2$              ;;IF NO GO GET NEXT CHAR.
13611  043724  013746  001154          MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
13612                                                          ;;AND THE NULL CHAR.
13613  043730  105366  000001  7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
13614  043734  002770                  BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
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13615  043736  004737  043774                  JSR     PC,$TYPEC       ;;GO TYPE A NULL
13616  043742  105337  044040                  DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
13617  043746  000770                          BR      7$              ;;LOOP
13618
13619                                  ;HORIZONTAL TAB PROCESSOR
13620
13621  043750  112716  000040          8$:     MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
13622  043754  004737  043774          9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
13623  043760  132737  000007  044040          BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
13624  043766  001372                          BNE     9$              ;;TAB STOP
13625  043770  005726                          TST     (SP)+           ;;POP SPACE OFF STACK
13626  043772  000724                          BR      2$              ;;GET NEXT CHARACTER
13627  043774  105777  135150          $TYPEC: TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
13628  044000  100375                          BPL     $TYPEC
13629  044002  116677  000002  135142          MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
13630  044010  122766  000015  000002          CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
13631  044016  001003                          BNE     1$              ;;BRANCH IF NO
13632  044020  105037  044040                  CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
13633  044024  000406                          BR      $TYPEX          ;;EXIT
13634  044026  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
13635  044034  001402                          BEQ     $TYPEX          ;;BRANCH IF YES
13636  044036  105227                          INCB    (PC)+           ;;COUNT THE CHARACTER
13637  044040  000000          $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
13638  044042  000207          $TYPEX: RTS     PC
13639
13640                                  .SBTTL  TTY INPUT ROUTINE
13641
13642                                  ;;**************************************************************
13643                                  .ENABL  LSB
13644  044044  000000          $TKCNT: .WORD   0               ;;NUMBER OF ITEMS IN QUEUE
13645  044046  000000          $TKQIN: .WORD   0               ;;INPUT POINTER
13646  044050  000000          $TKQOUT: .WORD  0               ;;OUTPUT POINTER
13647  044052  000011          $TKQSRT: .BLKB  9.              ;;TTY KEYBOARD QUEUE
13648          044063          $TKQEND=.
13649          044064                          .EVEN
13650
13651                                  ;*TK INITIALIZE ROUTINE
13652                                  ;*THIS ROUTINE WILL INITIALIZE THE TTY KEYBOARD INPUT QUEUE
13653                                  ;*SETUP THE INTERRUPT VECTOR AND TURN ON THE KEYBOARD INTERRUPT
13654                                  ;
13655                                  ;*CALL:
13656                                  ;*      JSR     PC,$TKINT
13657                                  ;*      RETURN
13658                                  ;
13659  044064  005037  044044  $TKINT: CLR     $TKCNT          ;;CLEAR COUNT OF ITEMS IN QUEUE
13660  044070  012737  044052  044046          MOV     #$TKQSRT,$TKQIN ;;MOVE THE STARTING ADDRESS OF THE
13661  044076  013737  044046  044050          MOV     $TKQIN,$TKQOUT  ;;QUEUE INTO THE INPUT & OUTPUT POINTERS.
13662  044104  012737  044134  000060          MOV     #$TKSRV,@#TKVEC ;;INITIALIZE THE KEYBOARD VECTOR
13663  044112  012737  000200  000062          MOV     #200,@#TKVEC+2  ;;"BR" LEVEL 4
13664  044120  005777  135022                  TST     @$TKB           ;;CLEAR DONE FLAG
13665  044124  012777  000100  135012          MOV     #100,@$TKS      ;;ENABLE TTY KEYBOARD INTERRUPT
13666  044132  000207                          RTS     PC              ;;RETURN TO CALLER
13667
13668                                  ;*TK SERVICE ROUTINE
13669                                  ;*THIS ROUTINE WILL SERVICE THE TTY KEYBOARD INTERRUPT
13670                                  ;*BY READING THE CHARACTER FROM THE INPUT BUFFER AND PUTTING
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13671                                   ;*IT IN THE QUEUE.
13672                                   ;*IF THE CHARACTER IS A "CONTROL-C" (↑C) $TKINT IS CALLED AND
13673                                   ;*UPON RETURN EXIT IS MADE TO THE "CONTROL-C" RESTART ADDRESS (OPERSEL)
13674                                   ;
13675  044134  117746  135006          $TKSRV: MOVB    @$TKB,-(SP)     ;;PICKUP THE CHARACTER
13676  044140  042716  177600                  BIC     #↑C177,(SP)     ;;STRIP THE JUNK
13677  044144  021627  000003                  CMP     (SP),#3         ;;IS IT A CONTROL C?
13678  044150  001007                          BNE     1$              ;;BRANCH IF NO
13679  044152  104401  044543                  TYPE    ,$CNTLC         ;;TYPE A CONTROL-C (↑C)
13680  044156  004737  044064                  JSR     PC,$TKINT       ;;INIT THE KEYBOARD
13681  044162  005726                          TST     (SP)+           ;;CLEAN UP STACK
13682  044164  000137  040654                  JMP     OPERSEL         ;;CONTROL C RESTART
13683
13684  044170                          1$:
13685  044170  022737  000011  044044          CMP     #9.,$TKCNT      ;;IS THE QUEUE FULL?
13686  044176  001004                          BNE     3$              ;;BRANCH IF NO
13687  044200  104401  001216                  TYPE    ,$BELL          ;;RING THE TTY BELL
13688  044204  005726                          TST     (SP)+           ;;CLEAN CHARACTER OFF OF STACK
13689  044206  000451                          BR      5$              ;;EXIT
13690  044210  021627  000023          3$:     CMP     (SP),#23        ;;IS IT A CONTROL-S?
13691  044214  001021                          BNE     32$             ;;BRANCH IF NO
13692  044216  005077  134722                  CLR     @$TKS           ;;DISABLE TTY KEYBOARD INTERRUPTS
13693  044222  005726                          TST     (SP)+           ;;CLEAN CHAR OFF STACK
13694  044224  105777  134714          31$:    TSTB    @$TKS           ;;WAIT FOR A CHAR
13695  044230  100375                          BPL     31$             ;;LOOP UNTIL ITS THERE
13696  044232  117746  134710                  MOVB    @$TKB,-(SP)     ;;GET THE CHARACTER
13697  044236  042716  177600                  BIC     #↑C177,(SP)     ;;MAKE IT 7-BIT ASCII
13698  044242  022627  000021                  CMP     (SP)+,#21       ;;IS IT A CONTROL-Q?
13699  044246  001366                          BNE     31$             ;;BRANCH IF NO
13700  044250  012777  000100  134666          MOV     #100,@$TKS      ;;REENABLE TTY KEYBOARD INTERRUPTS
13701  044256  000002                          RTI                     ;;RETURN
13702  044260  005237  044044          32$:    INC     $TKCNT          ;;COUNT THIS CHARACTER
13703  044264  021627  000140                  CMP     (SP),#140       ;;IS IT UPPER CASE?
13704  044270  002405                          BLT     4$              ;;BRANCH IF YES
13705  044272  021627  000175                  CMP     (SP),#175       ;;IS IT A SPECIAL CHAR?
13706  044276  003002                          BGT     4$              ;;BRANCH IF YES
13707  044300  042716  000040                  BIC     #40,(SP)        ;;MAKE IT UPPER CASE
13708  044304  112677  177536          4$:     MOVB    (SP)+,@$TKQIN   ;;AND PUT IT IN QUEUE
13709  044310  005237  044046                  INC     $TKQIN          ;;UPDATE THE POINTER
13710  044314  023727  044046  044063          CMP     $TKQIN,#$TKQEND ;;GO OFF THE END?
13711  044322  001003                          BNE     5$              ;;BRANCH IF NO
13712  044324  012737  044052  044046          MOV     #$TKQSRT,$TKQIN ;;RESET THE POINTER
13713  044332  000002                  5$:     RTI                     ;;RETURN
13714
13715                                   .DSABL  LSB
13716
13717
13718                                   ;;*****************************************************************
13719                                   ;*THIS ROUTINE WILL INPUT A SINGLE CHARACTER FROM THE TTY
13720                                   ;*CALL:
13721                                   ;*      RDCHR                   ;;GET A CHARACTER FROM THE QUEUE
13722                                   ;*      RETURN HERE             ;;CHARACTER IS ON THE STACK
13723                                   ;*                              ;;WITH PARITY BIT STRIPPED OFF
13724                                   ;
13725
13726  044334  011646                  $RDCHR: MOV     (SP),-(SP)      ;;PUSH DOWN THE PC AND
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13727  044336  016666  000004  000002          MOV     4(SP),2(SP)     ;;THE PS
13728  044344  005066  000004                  CLR     4(SP)           ;;GET READY FOR A CHARACTER
13729  044350  005046                          CLR     -(SP)           ;;PUT NEW PS ON STACK
13730  044352  012746  044360                  MOV     #64$,-(SP)      ;;PUT NEW PC ON  STACK
13731  044356  000002                          RTI                     ;;POP NEW PC AND PS
13732  044360                          64$:
13733  044360  005737  044044          1$:     TST     $TKCNT          ;;WAIT ON A CHARACTER
13734  044364  001775                          BEQ     1$
13735  044366  005337  044044                  DEC     $TKCNT          ;;DECREMENT THE COUNTER
13736  044372  117766  177452  000004          MOVB    @$TKQOUT,4(SP)  ;;GET ONE CHARACTER
13737  044400  005237  044050                  INC     $TKQOUT         ;;UPDATE THE POINTER
13738  044404  023727  044050  044063          CMP     $TKQOUT,#$TKQEND ;;DID IT GO OFF OF THE END?
13739  044412  001003                          BNE     2$              ;;BRANCH IF NO
13740  044414  012737  044052  044050          MOV     #$TKQSRT,$TKQOUT ;;RESET THE POINTER
13741  044422  000002                  2$:     RTI                     ;;RETURN
13742                                  ;;**************************************************************
13743                                  ;*THIS ROUTINE WILL INPUT A STRING FROM THE TTY
13744                                  ;*CALL:
13745                                  ;*      RDLIN                   ;;INPUT A STRING FROM THE TTY
13746                                  ;*      RETURN HERE             ;;ADDRESS OF FIRST CHARACTER WILL BE ON THE STACK
13747                                  ;*                              ;;TERMINATOR WILL BE A BYTE OF ALL 0'S
13748
13749  044424  010346                  $RDLIN: MOV     R3,-(SP)        ;;SAVE R3
13750  044426  012703  044532          1$:     MOV     #$TTYIN,R3      ;;GET ADDRESS
13751  044432  022703  044543          2$:     CMP     #$TTYIN+9.,R3   ;;BUFFER FULL?
13752  044436  101405                          BLOS    4$              ;;BR IF YES
13753  044440  104406                          RDCHR                   ;;GO READ ONE CHARACTER FROM THE TTY
13754  044442  112613                          MOVB    (SP)+,(R3)      ;;GET CHARACTER
13755  044444  122713  000177          10$:    CMPB    #177,(R3)       ;;IS IT A RUBOUT
13756  044450  001003                          BNE     3$              ;;SKIP IF NOT
13757  044452  104401  001222          4$:     TYPE    ,$QUES          ;;TYPE A '?'
13758  044456  000763                          BR      1$              ;;CLEAR THE BUFFER AND LOOP
13759  044460  111337  044530          3$:     MOVB    (R3),9$         ;;ECHO THE CHARACTER
13760  044464  104401  044530                  TYPE    ,9$
13761  044470  122723  000015                  CMPB    #15,(R3)+       ;;CHECK FOR RETURN
13762  044474  001356                          BNE     2$              ;;LOOP IF NOT RETURN
13763  044476  105063  177777                  CLRB    -1(R3)          ;;CLEAR RETURN (THE 15)
13764  044502  104401  001224                  TYPE    ,$LF            ;;TYPE A LINE FEED
13765  044506  012603                          MOV     (SP)+,R3        ;;RESTORE R3
13766  044510  011646                          MOV     (SP),-(SP)      ;;ADJUST THE STACK AND PUT ADDRESS OF THE
13767  044512  016666  000004  000002          MOV     4(SP),2(SP)     ;;      FIRST ASCII CHARACTER ON IT
13768  044520  012766  044532  000004          MOV     #$TTYIN,4(SP)
13769  044526  000002                          RTI                     ;;RETURN
13770  044530     000                  9$:     .BYTE   0               ;;STORAGE FOR ASCII CHAR. TO TYPE
13771  044531     000                          .BYTE   0               ;;TERMINATOR
13772  044532  000011                  $TTYIN: .BLKB   9.              ;;RESERVE 9. BYTES FOR TTY INPUT
13773  044543     136  006503  000012  $CNTLC: .ASCIZ  /↑C/<15><12>    ;;CONTROL "C"
13774  044550  052536  005015     000  $CNTLU: .ASCIZ  /↑U/<15><12>    ;;CONTROL "U"
13775  044555     136  006507  000012  $CNTLG: .ASCIZ  /↑G/<15><12>    ;;CONTROL "G"
13776  044562  005015  053523  020122  $MSWR:  .ASCIZ  <15><12>/SWR = /
13777  044570  020075     000
13778  044573     040  047040  053505  $MNEW:  .ASCIZ  /  NEW = /
13779  044600  036440  000040
13780                                                           ;FROM THE TTY
13781
13782
```

```
                                        .SBTTL  READ AN OCTAL NUMBER FROM THE TTY

                                        ;;**********************************************************************
                                        ;*THIS ROUTINE WILL READ AN OCTAL (ASCII) NUMBER FROM THE TTY AND
                                        ;*CHANGE IT TO BINARY.
                                        ;*THE INPUT CHARACTERS WILL BE CHECKED TO INSURED THEY ARE LEGAL
                                        ;*OCTAL DIGITS. IF AN ILLEGAL CHARACTER IS READ A "?" WILL BE TYPED
                                        ;*FOLLOWED BY A CARRIAGE RETURN-LINE FEED. THE COMPLETE NUMBER MUST
                                        ;*THEN BE RETYPED. THE INPUT IS TERMINATED BY TYPING A CARRIAGE RETURN.
                                        ;*CALL:
                                        ;*      RDOCT                   ;;READ AN OCTAL NUMBER
                                        ;*      RETURN HERE             ;;LOW ORDER BITS ARE ON TOP OF THE STACK
                                        ;*                              ;;HIGH ORDER BITS ARE IN $HIOCT

044604  011646          $RDOCT: MOV     (SP),-(SP)      ;;PROVIDE SPACE FOR THE
044606  016666  000004  000002          MOV     4(SP),2(SP)     ;;INPUT NUMBER
044614  010046                  MOV     R0,-(SP)        ;;PUSH R0 ON STACK
044616  010146                  MOV     R1,-(SP)        ;;PUSH R1 ON STACK
044620  010246                  MOV     R2,-(SP)        ;;PUSH R2 ON STACK
044622  104407          1$:     RDLIN                   ;;READ AN ASCIZ LINE
044624  012600                  MOV     (SP)+,R0        ;;GET ADDRESS OF 1ST CHARACTER
044626  010037  044732          MOV     R0,5$           ;;AND SAVE IT
044632  005001                  CLR     R1              ;;CLEAR DATA WORD
044634  005002                  CLR     R2
044636  112046          2$:     MOVB    (R0)+,-(SP)     ;;PICKUP THIS CHARACTER
044640  001420                  BEQ     3$              ;;IF ZERO GET OUT
044642  122716  000060          CMPB    #'0,(SP)        ;;MAKE SURE THIS CHARACTER
044646  003026                  BGT     4$              ;;IS AN OCTAL DIGIT
044650  122716  000067          CMPB    #'7,(SP)
044654  002423                  BLT     4$
044656  006301                  ASL     R1              ;;*2
044660  006102                  ROL     R2
044662  006301                  ASL     R1              ;;*4
044664  006102                  ROL     R2
044666  006301                  ASL     R1              ;;*8
044670  006102                  ROL     R2
044672  042716  177770          BIC     #^C7,(SP)       ;;STRIP THE ASCII JUNK
044676  062601                  ADD     (SP)+,R1        ;;ADD IN THIS DIGIT
044700  000756                  BR      2$              ;;LOOP
044702  005726          3$:     TST     (SP)+           ;;CLEAN TERMINATOR FROM STACK
044704  010166  000012          MOV     R1,12(SP)       ;;SAVE THE RESULT
044710  010237  044742          MOV     R2,$HIOCT
044714  012602                  MOV     (SP)+,R2        ;;POP STACK INTO R2
044716  012601                  MOV     (SP)+,R1        ;;POP STACK INTO R1
044720  012600                  MOV     (SP)+,R0        ;;POP STACK INTO R0
044722  000002                  RTI                     ;;RETURN
044724  005726          4$:     TST     (SP)+           ;;CLEAN PARTIAL FROM STACK
044726  105010                  CLRB    (R0)            ;;SET A TERMINATOR
044730  104401                  TYPE                    ;;TYPE UP THRU THE BAD CHAR.
044732  000000          5$:     .WORD   0
044734  104401  001222          TYPE    ,$QUES          ;;"?" "CR" & "LF"
044740  000730                  BR      1$              ;;TRY AGAIN
044742  000000          $HIOCT: .WORD   0               ;;HIGH ORDER BITS GO HERE
```

```
13837                                   .SBTTL  ERROR HANDLER ROUTINE
13838
13839                                   ;;**********************************************************************
13840                                   ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
13841                                   ;*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
13842                                   ;*AND GO TO $ERRTYP ON ERROR
13843                                   ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
13844                                   ;*SW15=1        HALT ON ERROR
13845                                   ;*SW13=1        INHIBIT ERROR TYPEOUTS
13846                                   ;*SW10=1        BELL ON ERROR
13847                                   ;*SW09=1        LOOP ON ERROR
13848                                   ;*CALL
13849                                   ;*      ERROR   N       ;;ERROR=EMT AND N=ERROR ITEM NUMBER
13850
13851  044744                           $ERROR:
13852  044744  105237  001103          7$:     INCB    $ERFLG          ;;SET THE ERROR FLAG
13853  044750  001775                          BEQ     7$              ;;DON'T LET THE FLAG GO TO ZERO
13854  044752  013777  001102  134162          MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
13855  044760  032777  002000  134152          BIT     #BIT10,@SWR     ;;BELL ON ERROR?
13856  044766  001402                          BEQ     1$              ;;NO - SKIP
13857  044770  104401  001216                  TYPE    ,$BELL          ;;RING BELL
13858  044774  005237  001112          1$:     INC     $ERTTL          ;;COUNT THE NUMBER OF ERRORS
13859  045000  011637  001116                  MOV     (SP),$ERRPC     ;;GET ADDRESS OF ERROR INSTRUCTION
13860  045004  162737  000002  001116          SUB     #2,$ERRPC
13861  045012  117737  134100  001114          MOVB    @$ERRPC,$ITEMB  ;;STRIP AND SAVE THE ERROR ITEM CODE
13862  045020  032777  020000  134112          BIT     #BIT13,@SWR     ;;SKIP TYPEOUT IF SET
13863  045026  001004                          BNE     20$             ;;SKIP TYPEOUTS
13864  045030  004737  045102                  JSR     PC,$ERRTYP      ;;GO TO USER ERROR ROUTINE
13865  045034  104401  001223                  TYPE    ,$CRLF
13866  045040                           20$:
13867  045040  005777  134074          2$:     TST     @SWR            ;;HALT ON ERROR
13868  045044  100001                          BPL     3$              ;;SKIP IF CONTINUE
13869  045046  000000                          HALT                    ;;HALT ON ERROR!
13870  045050  032777  001000  134062  3$:     BIT     #BIT09,@SWR     ;;LOOP ON ERROR SWITCH SET?
13871  045056  001402                          BEQ     4$              ;;BR IF NO
13872  045060  013716  001110                  MOV     $LPERR,(SP)     ;;FUDGE RETURN FOR LOOPING
13873  045064  005737  001214          4$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
13874  045070  001402                          BEQ     5$              ;;BR IF NONE
13875  045072  013716  001214                  MOV     $ESCAPE,(SP)    ;;FUDGE RETURN ADDRESS FOR ESCAPE
13876  045076                           5$:
13877  045076  000002                          RTI                     ;;RETURN
13878                                   ;;**********************************************************
13879                                   .SBTTL  ERROR MESSAGE TYPEOUT ROUTINE
13880                                   ;*THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE WHICH
13881                                   ;*ERROR IS TO BE REPORTED.  IT THEN OBTAINS, FROM THE "ERROR TABLE" ($ERRTB),
13882                                   ;*AND REPORTS THE APPROPRIATE INFORMATION CONCERNING THE ERROR.
13883                                   ;*IT IS A COPY OF THE $ERRTYP SUBROUTINE FROM SYSMAC.
13884                                   ;*WITH ONLY MINOR CHANGES
13885                                   ;*FIRST IF SWITCH 6 IS SET AND SWITCH 8 RESET THEN
13886                                   ;*ALL REGISTER CONTENTS WILL BE TYPED BEFOR REPORTING THE ERROR
13887                                   ;*SECOND IF THE CURRENT ERROR HAS THE SAME ITEM NUMBER
13888                                   ;*AS THE PREVIOUS ERROR THEN ONLY THE DATA WILL BE TYPED
13889                                   ;*AND NOT THE ERROR MESSAGE AND HEADER.
13890  045100  000000                  PRITEM: 0                       ;PREVIOUS ITEM NO. LOCATION
13891  045102  013746  001140          $ERRTYP: MOV    @#SWR,-(SP)     ;GET SWITCH SETTING
13892  045106  042716  177277                   BIC    #^C500,(SP)     ;KEEP ONLY SWITCH 8 AND 6
```

```
13893  045112  022726  000100            CMP     #SW06,(SP)+     ;IS 6 SET AND 8 RESET
13894  045116  001001                    BNE     1$              ;IF NOT BRANCH
13895  045120  000402                    BR      2$              ;BRANCH IF SW 6 IS SET AND 8 RESET
13896  045122  000137  046022    1$:     JMP     @#TYPERR        ;JUMP IF SW 8 IS SET
13897                                                            ;OR IF SW 8 IS RESET AND SW 6 IS RESET
13898  045126  104401  000200    2$:     TYPE    ,CRLF
13899
13900  045132  104401  045140            TYPE    ,65$            ;;TYPE ASCIZ STRING
13901  045136  000405                    BR      64$             ;;GET OVER THE ASCIZ
13902                           ;;65$:   .ASCIZ  /   RHWC= /
13903  045152                   64$:
13904  045152  017746  136704            MOV     @RHWC,-(SP)     ;GET READY TO TYPE RHWC CONTENTS
13905  045156  104402                    TYPOC
13906
13907
13908  045160  104401  045166            TYPE    ,67$            ;;TYPE ASCIZ STRING
13909  045164  000405                    BR      66$             ;;GET OVER THE ASCIZ
13910                           ;;67$:   .ASCIZ  /   RHBA= /
13911  045200                   66$:
13912  045200  017746  136660            MOV     @RHBA,-(SP)     ;GET READY TO TYPE RHBA CONTENTS
13913  045204  104402                    TYPOC
13914
13915
13916  045206  104401  045214            TYPE    ,69$            ;;TYPE ASCIZ STRING
13917  045212  000406                    BR      68$             ;;GET OVER THE ASCIZ
13918                           ;;69$:   .ASCIZ  /   RHCS2= /
13919  045230                   68$:
13920  045230  017746  136634            MOV     @RHCS2,-(SP)    ;GET READY TO TYPE RHCS2 CONTENTS
13921  045234  104402                    TYPOC
13922
13923
13924  045236  104401  045244            TYPE    ,71$            ;;TYPE ASCIZ STRING
13925  045242  000406                    BR      70$             ;;GET OVER THE ASCIZ
13926                           ;;71$:   .ASCIZ  /   RHCS1= /
13927  045260                   70$:
13928  045260  017746  136574            MOV     @RHCS1,-(SP)    ;GET READY TO TYPE RHCS1 CONTENTS
13929  045264  104402                    TYPOC
13930
13931
13932  045266  104401  045274            TYPE    ,73$            ;;TYPE ASCIZ STRING
13933  045272  000406                    BR      72$             ;;GET OVER THE ASCIZ
13934                           ;;73$:   .ASCIZ  /   RHDS1= /
13935  045310                   72$:
13936  045310  017746  136556            MOV     @RHDS1,-(SP)    ;GET READY TO TYPE RHDS1 CONTENTS
13937  045314  104402                    TYPOC
13938
13939
13940  045316  104401  045324            TYPE    ,75$            ;;TYPE ASCIZ STRING
13941  045322  000406                    BR      74$             ;;GET OVER THE ASCIZ
13942                           ;;75$:   .ASCIZ  /   RHER1= /
13943  045340                   74$:
13944  045340  017746  136530            MOV     @RHER1,-(SP)    ;GET READY TO TYPE RHER1 CONTENTS
13945  045344  104402                    TYPOC
13946
13947
13948  045346  104401  045354            TYPE    ,77$            ;;TYPE ASCIZ STRING
```

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13949  045352  000406                          BR      76$             ;;GET OVER THE ASCIZ
13950                                  ;;77$:   .ASCIZ  /   RHER2= /
13951  045370                          76$:
13952  045370  017746  136524                  MOV     @RHER2,-(SP)    ;GET READY TO TYPE RHER2 CONTENTS
13953  045374  104402                          TYPOC
13954
13955
13956  045376  104401  045404                  TYPE    ,79$            ;;TYPE ASCIZ STRING
13957  045402  000406                          BR      78$             ;;GET OVER THE ASCIZ
13958                                  ;;79$:   .ASCIZ  /   RHER3= /
13959  045420                          78$:
13960  045420  017746  136476                  MOV     @RHER3,-(SP)    ;GET READY TO TYPE RHER3 CONTENTS
13961  045424  104402                          TYPOC
13962
13963
13964  045426  104401  045434                  TYPE    ,81$            ;;TYPE ASCIZ STRING
13965  045432  000406                          BR      80$             ;;GET OVER THE ASCIZ
13966                                  ;;81$:   .ASCIZ  /   RHDST= /
13967  045450                          80$:
13968  045450  017746  136412                  MOV     @RHDST,-(SP)    ;GET READY TO TYPE RHDST CONTENTS
13969  045454  104402                          TYPOC
13970
13971
13972  045456  104401  045464                  TYPE    ,83$            ;;TYPE ASCIZ STRING
13973  045462  000405                          BR      82$             ;;GET OVER THE ASCIZ
13974                                  ;;83$:   .ASCIZ  /   RHCA= /
13975  045476                          82$:
13976  045476  017746  136412                  MOV     @RHCA,-(SP)     ;GET READY TO TYPE RHCA CONTENTS
13977  045502  104402                          TYPOC
13978
13979
13980  045504  104401  045512                  TYPE    ,85$            ;;TYPE ASCIZ STRING
13981  045510  000405                          BR      84$             ;;GET OVER THE ASCIZ
13982                                  ;;85$:   .ASCIZ  /   RHAS= /
13983  045524                          84$:
13984  045524  017746  136346                  MOV     @RHAS,-(SP)     ;GET READY TO TYPE RHAS CONTENTS
13985  045530  104402                          TYPOC
13986
13987
13988  045532  104401  045540                  TYPE    ,87$            ;;TYPE ASCIZ STRING
13989  045536  000405                          BR      86$             ;;GET OVER THE ASCIZ
13990                                  ;;87$:   .ASCIZ  /   RHOF= /
13991  045552                          86$:
13992  045552  017746  136334                  MOV     @RHOF,-(SP)     ;GET READY TO TYPE RHOF CONTENTS
13993  045556  104402                          TYPOC
13994
13995
13996  045560  104401  045566                  TYPE    ,89$            ;;TYPE ASCIZ STRING
13997  045564  000405                          BR      88$             ;;GET OVER THE ASCIZ
13998                                  ;;89$:   .ASCIZ  /   RHMR= /
13999  045600                          88$:
14000  045600  017746  136300                  MOV     @RHMR,-(SP)     ;GET READY TO TYPE RHMR CONTENTS
14001  045604  104402                          TYPOC
14002
14003
14004  045606  104401  045614                  TYPE    ,91$            ;;TYPE ASCIZ STRING
```

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14005  045612  000405                          BR      90$             ;;GET OVER THE ASCIZ
14006                                  ;;91$:   .ASCIZ  /   RHLA= /
14007  045626                          90$:
14008  045626  017746  136246                  MOV     @RHLA,-(SP)     ;GET READY TO TYPE RHLA CONTENTS
14009  045632  104402                          TYPOC
14010
14011
14012  045634  104401  045642                  TYPE    ,93$            ;;TYPE ASCIZ STRING
14013  045640  000405                          BR      92$             ;;GET OVER THE ASCIZ
14014                                  ;;93$:   .ASCIZ  /   RHCC= /
14015  045654                          92$:
14016  045654  017746  136220                  MOV     @RHCC,-(SP)     ;GET READY TO TYPE RHCC CONTENTS
14017  045660  104402                          TYPOC
14018
14019
14020  045662  104401  045670                  TYPE    ,95$            ;;TYPE ASCIZ STRING
14021  045666  000406                          BR      94$             ;;GET OVER THE ASCIZ
14022                                  ;;95$:   .ASCIZ  /   RHEC1= /
14023  045704                          94$:
14024  045704  017746  136214                  MOV     @RHEC1,-(SP)    ;GET READY TO TYPE RHEC1 CONTENTS
14025  045710  104402                          TYPOC
14026
14027
14028  045712  104401  045720                  TYPE    ,97$            ;;TYPE ASCIZ STRING
14029  045716  000406                          BR      96$             ;;GET OVER THE ASCIZ
14030                                  ;;97$:   .ASCIZ  /   RHEC2= /
14031  045734                          96$:
14032  045734  017746  136166                  MOV     @RHEC2,-(SP)    ;GET READY TO TYPE RHEC2 CONTENTS
14033  045740  104402                          TYPOC
14034
14035
14036  045742  104401  045750                  TYPE    ,99$            ;;TYPE ASCIZ STRING
14037  045746  000405                          BR      98$             ;;GET OVER THE ASCIZ
14038                                  ;;99$:   .ASCIZ  /   RHDT= /
14039  045762                          98$:
14040  045762  017746  136120                  MOV     @RHDT,-(SP)     ;GET READY TO TYPE RHDT CONTENTS
14041  045766  104402                          TYPOC
14042
14043
14044  045770  104401  045776                  TYPE    ,101$           ;;TYPE ASCIZ STRING
14045  045774  000405                          BR      100$            ;;GET OVER THE ASCIZ
14046                                  ;;101$:  .ASCIZ  /   RHSN= /
14047  046010                          100$:
14048  046010  017746  136074                  MOV     @RHSN,-(SP)     ;GET READY TO TYPE RHSN CONTENTS
14049  046014  104402                          TYPOC
14050
14051  046016  005037  045100                  CLR     @#PRITEM        ;CLEAR PREVIOUS ERROR ITEM
14052  046022                          TYPERR:
14053  046022  104401  001223                  TYPE    ,$CRLF          ;"CARRIAGE RETURN" & "LINE FEED"
14054  046026  010046                          MOV     R0,-(SP)        ;SAVE R0
14055  046030  005000                          CLR     R0              ;PICKUP THE ITEM INDEX
14056  046032  153700  001114                  BISB    @#$ITEMB,R0
14057  046036  001004                          BNE     1$              ;IF ITEM NUMBER IS ZERO, JUST
                                                                       ;TYPE THE PC OF THE ERROR
14058
14059  046040  013746  001116                  MOV     $ERRPC,-(SP)    ;SAVE $ERRPC FOR TYPEOUT
14060                                                                  ;ERROR ADDRESS
```

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14061  046044  104402                        TYPOC                   ;GO TYPE--OCTAL ASCII(ALL DIGITS)
14062  046046  000454                        BR      10$             ;GET OUT
14063  046050  005300                1$:     DEC     R0              ;ADJUST THE INDEX SO THAT IT WILL
14064  046052  006300                        ASL     R0              ;       WORK FOR THE ERROR TABLE
14065  046054  006300                        ASL     R0
14066  046056  006300                        ASL     R0
14067  046060  062700  001226              ADD     #$ERRTB,R0      ;FORM TABLE POINTER
14068  046064  020037  045100              CMP     R0,@#PRITEM     ;WAS PREVIOUS ERROR SAME
14069  046070  001002                        BNE     13$             ;BRANCH IF NOT
14070  046072  022020                        CMP     (R0)+,(R0)+     ;POP R0 OVER EM AND DH
14071  046074  000420                        BR      5$
14072  046076  010037  045100        13$:    MOV     R0,@#PRITEM     ;SAVE NEW ERROR ITEM
14073  046102  012037  046112              MOV     (R0)+,2$        ;PICKUP "ERROR MESSAGE" POINTER
14074  046106  001404                        BEQ     3$              ;SKIP TYPEOUT IF NO POINTER
14075  046110  104401                        TYPE                    ;TYPE THE "ERROR MESSAGE"
14076  046112  000000                2$:     .WORD   0               ;"ERROR MESSAGE" POINTER GOES HERE
14077  046114  104401  001223              TYPE    ,$CRLF          ;"CARRIAGE RETURN" & "LINE FEED"
14078  046120  012037  046130        3$:     MOV     (R0)+,4$        ;PICKUP "DATA HEADER" POINTER
14079  046124  001404                        BEQ     5$              ;SKIP TYPEOUT IF 0
14080  046126  104401                        TYPE                    ;TYPE THE "DATA HEADER"
14081  046130  000000                4$:     .WORD   0               ;"DATA HEADER" POINTER GOES HERE
14082  046132  104401  001223              TYPE    ,$CRLF          ;"CARRIAGE RETURN" & "LINE FEED"
14083  046136  010146                5$:     MOV     R1,-(SP)        ;SAVE R1
14084  046140  012001                        MOV     (R0)+,R1        ;PICKUP "DATA TABLE" POINTER
14085  046142  001415                        BEQ     9$              ;BR IF NO DATA TO BE TYPED
14086  046144  012000                        MOV     (R0)+,R0        ;PICKUP "DATA FORMAT" POINTER
14087  046146  105720                6$:     TSTB    (R0)+           ;"OCTAL" OR "DECIMAL"
14088  046150  001003                        BNE     7$              ;BR IF DECIMAL
14089  046152  013146                        MOV     @(R1)+,-(SP)    ;SAVE @(R1)+ FOR TYPEOUT
14090  046154  104402                        TYPOC                   ;GO TYPE--OCTAL ASCII(ALL DIGITS)
14091  046156  000402                        BR      8$
14092  046160                        7$:
14093  046160  013146                        MOV     @(R1)+,-(SP)    ;SAVE @(R1)+ FOR TYPEOUT
14094  046162  104405                        TYPDS                   ;GO TYPE--DECIMAL ASCII WITH SIGN
14095  046164  005711                8$:     TST     (R1)            ;IS THERE ANOTHER NUMBER?
14096  046166  001403                        BEQ     9$              ;BR IF NO
14097  046170  104401  046216              TYPE    ,11$            ;TYPE TWO(2) SPACES
14098  046174  000764                        BR      6$              ;LOOP
14099
14100  046176  012601                9$:     MOV     (SP)+,R1        ;RESTORE R1
14101  046200  012600                10$:    MOV     (SP)+,R0        ;"CARRIAGE RETURN" & "LINE FEED"
14102  046202  023737  000042  000046        CMP     @#42,@#46       ;ARE WE IN QV OR AUTO ACCEPT MODE?
14103  046210  001001                        BNE     .+4             ;BRANCH OVER HALT IF NOT
14104  046212  000000                        HALT                    ;HALT AFTER ERROR MESSAGE
14105  046214  000207                        RTS     PC              ;RETURN
14106  046216  020040      000       11$:    .ASCIZ  /  /            ;TWO(2) SPACES
14107          046222                        .EVEN
14108                                ;*****************************************************************
14109                                ;*****************************************************************
14110                                .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
14111
14112                                ;;*****************************************************************
14113                                ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
14114                                ;*OCTAL (ASCII) NUMBER AND TYPE IT.
14115                                ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
14116                                ;*CALL:
```

```
14117                                   ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
14118                                   ;*      TYPOS                   ;;CALL FOR TYPEOUT
14119                                   ;*      .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
14120                                   ;*      .BYTE   M               ;;M=1 OR 0
14121                                   ;*                                      ;;1=TYPE LEADING ZEROS
14122                                   ;*                                      ;;0=SUPPRESS LEADING ZEROS
14123                                   ;*
14124                                   ;*$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
14125                                   ;*$TYPOS OR $TYPOC
14126                                   ;*CALL:
14127                                   ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
14128                                   ;*      TYPON                   ;;CALL FOR TYPEOUT
14129                                   ;*
14130                                   ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
14131                                   ;*CALL:
14132                                   ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
14133                                   ;*      TYPOC                   ;;CALL FOR TYPEOUT
14134
14135  046222  017646  000000          $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
14136  046226  116637  000001  046445          MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
14137  046234  112637  046447                  MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
14138  046240  062716  000002                  ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
14139  046244  000406                          BR      $TYPON
14140  046246  112737  000001  046445  $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
14141  046254  112737  000006  046447          MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
14142  046262  112737  000005  046444  $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
14143  046270  010346                          MOV     R3,-(SP)        ;;SAVE R3
14144  046272  010446                          MOV     R4,-(SP)        ;;SAVE R4
14145  046274  010546                          MOV     R5,-(SP)        ;;SAVE R5
14146  046276  113704  046447                  MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
14147  046302  005404                          NEG     R4
14148  046304  062704  000006                  ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
14149  046310  110437  046446                  MOVB    R4,$OMODE       ;;SAVE IT FOR USE
14150  046314  113704  046445                  MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
14151  046320  016605  000012                  MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
14152  046324  005003                          CLR     R3              ;;CLEAR THE OUTPUT WORD
14153  046326  006105                  1$:     ROL     R5              ;;ROTATE MSB INTO "C"
14154  046330  000404                          BR      3$              ;;GO DO MSB
14155  046332  006105                  2$:     ROL     R5              ;;FORM THIS DIGIT
14156  046334  006105                          ROL     R5
14157  046336  006105                          ROL     R5
14158  046340  010503                          MOV     R5,R3
14159  046342  006103                  3$:     ROL     R3              ;;GET LSB OF THIS DIGIT
14160  046344  105337  046446                  DECB    $OMODE          ;;TYPE THIS DIGIT?
14161  046350  100016                          BPL     7$              ;;BR IF NO
14162  046352  042703  177770                  BIC     #177770,R3      ;;GET RID OF JUNK
14163  046356  001002                          BNE     4$              ;;TEST FOR 0
14164  046360  005704                          TST     R4              ;;SUPPRESS THIS 0?
14165  046362  001403                          BEQ     5$              ;;BR IF YES
14166  046364  005204                  4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
14167  046366  052703  000060                  BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
14168  046372  052703  000040          5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
14169  046376  110337  046442                  MOVB    R3,8$           ;;SAVE FOR TYPING
14170  046402  104401  046442                  TYPE    ,8$             ;;GO TYPE THIS DIGIT
14171  046406  105337  046444  7$:     DECB    $OCNT           ;;COUNT BY 1
14172  046412  003347                          BGT     2$              ;;BR IF MORE TO DO
```

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14173  046414  002402                          BLT     6$              ;;BR IF DONE
14174  046416  005204                          INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
14175  046420  000744                          BR      2$              ;;GO DO THE LAST DIGIT
14176  046422  012605                  6$:     MOV     (SP)+,R5        ;;RESTORE R5
14177  046424  012604                          MOV     (SP)+,R4        ;;RESTORE R4
14178  046426  012603                          MOV     (SP)+,R3        ;;RESTORE R3
14179  046430  016666  000002  000004         MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
14180  046436  012616                          MOV     (SP)+,(SP)
14181  046440  000002                          RTI                     ;;RETURN
14182  046442     000                  8$:     .BYTE   0               ;;STORAGE FOR ASCII DIGIT
14183  046443     000                          .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
14184  046444     000                  $OCNT:  .BYTE   0               ;;OCTAL DIGIT COUNTER
14185  046445     000                  $OFILL: .BYTE   0               ;;ZERO FILL SWITCH
14186  046446  000000                  $OMODE: .WORD   0               ;;NUMBER OF DIGITS TO TYPE
```

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14187                                   .SBTTL  TRAP DECODER
14188
14189                                   ;;**********************************************************************
14190                                   ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
14191                                   ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
14192                                   ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
14193                                   ;*GO TO THAT ROUTINE.
14194
14195  046450  010046                   $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
14196  046452  016600  000002                   MOV     2(SP),R0        ;;GET TRAP ADDRESS
14197  046456  005740                           TST     -(R0)           ;;BACKUP BY 2
14198  046460  111000                           MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
14199  046462  006300                           ASL     R0              ;;POSITION FOR INDEXING
14200  046464  016000  046504                   MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
14201  046470  000200                           RTS     R0              ;;GO TO ROUTINE
14202
14203
14204                                   ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
14205
14206  046472  011646                   $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
14207  046474  016666  000004  000002           MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
14208  046502  000002                           RTI                     ;;RESTORE THE PSW
14209
14210                                   .SBTTL  TRAP TABLE
14211
14212                                   ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
14213                                   ;*BY THE "TRAP" INSTRUCTION.
14214
14215                                   ;       ROUTINE
14216                                   ;       -------
14217  046504  046472                   $TRPAD: .WORD   $TRAP2
14218  046506  043624                           $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
14219  046510  046246                           $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
14220  046512  046222                           $TYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
14221  046514  046262                           $TYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
14222  046516  043400                           $TYPDS  ;;CALL=TYPDS    TRAP+5(104405)  TYPE DECIMAL NUMBER (WITH SIGN)
14223
14224
14225  046520  044334                           $RDCHR  ;;CALL=RDCHR    TRAP+6(104406)  TTY TYPEIN CHARACTER ROUTINE
14226  046522  044424                           $RDLIN  ;;CALL=RDLIN    TRAP+7(104407)  TTY TYPEIN STRING ROUTINE
14227  046524  044604                           $RDOCT  ;;CALL=RDOCT    TRAP+10(104410) READ AN OCTAL NUMBER FROM TTY
14228  046526  040460                           WAIT.T  ;;CALL=WAT      TRAP+11(104411) DONT ADD ABOVE THIS TRAP
14229
14230
14231
```

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                                        .SBTTL  POWER DOWN AND UP ROUTINES

                                        ;;**********************************************************************
                                        ;POWER DOWN ROUTINE
046530  012737  046674  000024  $PWRDN: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST UP
046536  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;PRIO:7
046544  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
046546  010146                          MOV     R1,-(SP)        ;;PUSH R1 ON STACK
046550  010246                          MOV     R2,-(SP)        ;;PUSH R2 ON STACK
046552  010346                          MOV     R3,-(SP)        ;;PUSH R3 ON STACK
046554  010446                          MOV     R4,-(SP)        ;;PUSH R4 ON STACK
046556  010546                          MOV     R5,-(SP)        ;;PUSH R5 ON STACK
046560  017746  132354                  MOV     @SWR,-(SP)      ;;PUSH @SWR ON STACK
046564  010637  046700                  MOV     SP,$SAVR6       ;;SAVE SP
046570  012737  046602  000024          MOV     #$PWRUP,@#PWRVEC ;;SET UP VECTOR
046576  000000                          HALT
046600  000776                          BR      .-2             ;;HANG UP

                                        ;;**********************************************************************
                                        ;POWER UP ROUTINE
046602  012737  046674  000024  $PWRUP: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST DOWN
046610  013706  046700                  MOV     $SAVR6,SP       ;;GET SP
046614  005037  046700                  CLR     $SAVR6          ;;WAIT LOOP FOR THE TTY
046620  005237  046700          1$:     INC     $SAVR6          ;;WAIT FOR THE INC
046624  001375                          BNE     1$              ;;OF  WORD
046626  012677  132306                  MOV     (SP)+,@SWR      ;;POP STACK INTO @SWR
046632  012605                          MOV     (SP)+,R5        ;;POP STACK INTO R5
046634  012604                          MOV     (SP)+,R4        ;;POP STACK INTO R4
046636  012603                          MOV     (SP)+,R3        ;;POP STACK INTO R3
046640  012602                          MOV     (SP)+,R2        ;;POP STACK INTO R2
046642  012601                          MOV     (SP)+,R1        ;;POP STACK INTO R1
046644  012600                          MOV     (SP)+,R0        ;;POP STACK INTO R0
046646  012737  046530  000024          MOV     #$PWRDN,@#PWRVEC ;;SET UP THE POWER DOWN VECTOR
046654  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;PRIO:7
046662  104401                  --      TYPE                    ;REPORT THE POWER FAILURE
046664  046702          $PWRMG: .WORD   $POWER                  ;;POWER FAIL MESSAGE POINTER
046666  012716                          MOV     (PC)+,(SP)      ;;RESTART AT BEGIN
046670  005522          $PWRAD: .WORD   BEGIN                   ;;RESTART ADDRESS
046672  000002                  RTI
046674  000000          $ILLUP: HALT                            ;;THE POWER UP SEQUENCE WAS STARTED
046676  000776                  BR      .-2                     ;; BEFORE THE POWER DOWN WAS COMPLETE
046700  000000          $SAVR6: 0                               ;;PUT THE SP HERE
046702  005015  047520  042527  $POWER: .ASCIZ  <15><12>"POWER"
046710  000122
                                        .EVEN
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14277                                   ;******************************************************************************
14278                                   ;
14279                                   ;ERROR AND MESSAGE TABLE CONDIMENTS
14280                                   ;
14281                                   ;******************************************************************************
14282
14283  046712  044124  020105  044122  EM1:    .ASCII  /THE RH BASE ADDRESS WAS 172040 INDICATING AN RS BUT THE DRIVE TYPE/<15>
14284  046720  041040  051501  020105
14285  046726  042101  051104  051505
14286  046734  020123  040527  020123
14287  046742  033461  030062  030064
14288  046750  044440  042116  041511
14289  046756  052101  047111  020107
14290  046764  047101  051040  020123
14291  046772  052502  020124  044124
14292  047000  020105  051104  053111
14293  047006  020105  054524  042520
14294  047014  005015
14295  047016  044504  020104  047516          .ASCIZ  /DID NOT CONTAIN 0 OR 1 OR 2 OR 3 OR 4/
14296  047024  020124  047503  052116
14297  047032  044501  020116  020060
14298  047040  051117  030440  047440
14299  047046  020122  020062  051117
14300  047054  031440  047440  020122
14301  047062  000064
14302
14303  047064  044124  020105  044122  EM2:    .ASCII  /THE RH BASE ADDRESS WAS 176700 INDICATING AN RP04,5,6 BUT THE DRIVE TYP
14304  047072  041040  051501  020105
14305  047100  042101  051104  051505
14306  047106  020123  040527  020123
14307  047114  033461  033466  030060
14308  047122  044440  042116  041511
14309  047130  052101  047111  020107
14310  047136  047101  051040  030120
14311  047144  026064  026065  020066
14312  047152  052502  020124  044124
14313  047160  020105  051104  053111
14314  047166  020105  054524  042520
14315  047174  005015
14316  047176  044504  020104  047516          .ASCIZ  /DID NOT CONTAIN 20020,24020,20021,24021,20022, OR 24022/
14317  047204  020124  047503  052116
14318  047212  044501  020116  031062
14319  047220  031060  026060  032062
14320  047226  031060  026060  030062
14321  047234  031060  026061  032062
14322  047242  031060  026061  030062
14323  047250  031060  026062  047440
14324  047256  020122  032062  031060
14325  047264  000062
14326
14327  047266  044124  020105  044122  EM3:    .ASCII  /THE RH BASE ADDRESS WAS 172440 INDICATING A TM02 BUT THE DRIVE TYPE/<15
14328  047274  041040  051501  020105
14329  047302  042101  051104  051505
14330  047310  020123  040527  020123
14331  047316  033461  032062  030064
14332  047324  044440  042116  041511
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14333  047332  052101  047111  020107
14334  047340  020101  046524  031060
14335  047346  041040  052125  052040
14336  047354  042510  042040  044522
14337  047362  042526  052040  050131
14338  047370  006505     012
14339  047373     104  042111  047040          .ASCIZ  /DID NOT CONTAIN 142010/
14340  047400  052117  041440  047117
14341  047406  040524  047111  030440
14342  047414  031064  030460  000060
14343
14344  047422  044124  020105  044122  EM4:    .ASCII  /THE RH BASE ADDRESS WAS 176300 INDICATING MORE THAN ONE RH DEVICE BUT/<
14345  047430  041040  051501  020105
14346  047436  042101  051104  051505
14347  047444  020123  040527  020123
14348  047452  033461  031466  030060
14349  047460  044440  042116  041511
14350  047466  052101  047111  020107
14351  047474  047515  042522  052040
14352  047502  040510  020116  047117
14353  047510  020105  044122  042040
14354  047516  053105  041511  020105
14355  047524  052502  006524     012
14356  047531     124  042510  042040          .ASCII  /THE DRIVE TYPE DID NOT CONTAIN 0,1,2,3,4,20020,24020,/<15><12>
14357  047536  044522  042526  052040
14358  047544  050131  020105  044504
14359  047552  020104  047516  020124
14360  047560  047503  052116  044501
14361  047566  020116  026060  026061
14362  047574  026062  026063  026064
14363  047602  030062  031060  026060
14364  047610  032062  031060  026060
14365  047616  005015
14366  047620  030062  031060  026061          .ASCIZ  /20021,24021,20022,24022,142010/<15><12>
14367  047626  032062  031060  026061
14368  047634  030062  031060  026062
14369  047642  032062  031060  026062
14370  047650  032061  030062  030061
14371  047656  005015     000
14372  047661     111  042116  041511          .ASCIZ  /INDICATING NO RH DEVICE PRESENT/
14373  047666  052101  047111  020107
14374  047674  047516  051040  020110
14375  047702  042504  044526  042503
14376  047710  050040  042522  042523
14377  047716  052116     000
14378
14379  047721     124  042510  052440  EM5:    .ASCII  /THE UNIBUS TIMED OUT FOR EACH OF THE FOLLOWING ADDRESSES, INDICATING/<1
14380  047726  044516  052502  020123
14381  047734  044524  042515  020104
14382  047742  052517  020124  047506
14383  047750  020122  040505  044103
14384  047756  047440  020106  044124
14385  047764  020105  047506  046114
14386  047772  053517  047111  020107
14387  050000  042101  051104  051505
14388  050006  042523  026123  044440
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14389  050014  042116  041511  052101
14390  050022  047111  006507     012
14391  050027     116  020117  044122          .ASCIZ  /NO RH ON THE SYSTEM SO ABORT PROGRAM/
14392  050034  047440  020116  044124
14393  050042  020105  054523  052123
14394  050050  046505  051440  020117
14395  050056  041101  051117  020124
14396  050064  051120  043517  040522
14397  050072  000115
14398
14399  050074  043101  042524  020122  EM6:    .ASCII  /AFTER AN RH CLEAR (RHCS2-BIT #5) RHCS2 DOES NOT HAVE ONLY IR/<15><12>
14400  050102  047101  051040  020110
14401  050110  046103  040505  020122
14402  050116  051050  041510  031123
14403  050124  041055  052111  021440
14404  050132  024465  051040  041510
14405  050140  031123  042040  042517
14406  050146  020123  047516  020124
14407  050154  040510  042526  047440
14408  050162  046116  020131  051111
14409  050170  005015
14410  050172  047101  020104  047125          .ASCIZ  /AND UNIT NUMBER/
14411  050200  052111  047040  046525
14412  050206  042502  000122
14413
14414  050212  043101  042524  020122  EM7:    .ASCII  /AFTER CLEARING THE RH AND WRITING ONE WORD INTO RHDB AND/<15><12>
14415  050220  046103  040505  044522
14416  050226  043516  052040  042510
14417  050234  051040  020110  047101
14418  050242  020104  051127  052111
14419  050250  047111  020107  047117
14420  050256  020105  047527  042122
14421  050264  044440  052116  020117
14422  050272  044122  041104  040440
14423  050300  042116  005015
14424  050304  042522  042101  047111          .ASCIZ  /READING IT BACK, CAUSED RHDB TO HAVE WRONG VALUE GIVEN IN "BAD"/
14425  050312  020107  052111  041040
14426  050320  041501  026113  041440
14427  050326  052501  042523  020104
14428  050334  044122  041104  052040
14429  050342  020117  040510  042526
14430  050350  053440  047522  043516
14431  050356  053040  046101  042525
14432  050364  043440  053111  047105
14433  050372  044440  020116  041042
14434  050400  042101  000042
14435
14436  050404  043101  042524  020122  EM10:   .ASCII  /AFTER CLEARING THE RH AND WRITING ONE WORD INTO RHDB AND/<15><12>
14437  050412  046103  040505  044522
14438  050420  043516  052040  042510
14439  050426  051040  020110  047101
14440  050434  020104  051127  052111
14441  050442  047111  020107  047117
14442  050450  020105  047527  042122
14443  050456  044440  052116  020117
14444  050464  044122  041104  040440
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14445  050472  042116  005015
14446  050476  042522  042101  047111          .ASCIZ  /READING IT BACK, CAUSED RHCS2 TO HAVE WRONG VALUE GIVEN IN "BAD"/
14447  050504  020107  052111  041040
14448  050512  041501  026113  041440
14449  050520  052501  042523  020104
14450  050526  044122  051503  020062
14451  050534  047524  044040  053101
14452  050542  020105  051127  047117
14453  050550  020107  040526  052514
14454  050556  020105  044507  042526
14455  050564  020116  047111  021040
14456  050572  040502  021104     000
14457
14458  050577     101  052106  051105  EM11:   .ASCII  /AFTER CLEARING THE RH AND WRITING ONE WORD INTO RHDB AND/<15><12>
14459  050604  041440  042514  051101
14460  050612  047111  020107  044124
14461  050620  020105  044122  040440
14462  050626  042116  053440  044522
14463  050634  044524  043516  047440
14464  050642  042516  053440  051117
14465  050650  020104  047111  047524
14466  050656  051040  042110  020102
14467  050664  047101  006504     012
14468  050671     122  040505  044504          .ASCIZ  /READING IT BACK, CAUSED RHCS1 TO HAVE WRONG VALUE GIVEN IN "BAD"/
14469  050676  043516  044440  020124
14470  050704  040502  045503  020054
14471  050712  040503  051525  042105
14472  050720  051040  041510  030523
14473  050726  052040  020117  040510
14474  050734  042526  053440  047522
14475  050742  043516  053040  046101
14476  050750  042525  043440  053111
14477  050756  047105  044440  020116
14478  050764  041042  042101  000042
14479
14480  050772  043101  042524  020122  EM12:   .ASCII  /AFTER CLEARING THE RH AND WRITING ONE WORD INTO RHDB AND/<15><12>
14481  051000  046103  040505  044522
14482  051006  043516  052040  042510
14483  051014  051040  020110  047101
14484  051022  020104  051127  052111
14485  051030  047111  020107  047117
14486  051036  020105  047527  042122
14487  051044  044440  052116  020117
14488  051052  044122  041104  040440
14489  051060  042116  005015
14490  051064  042522  042101  047111          .ASCIZ  /READING IT BACK, CAUSED RHCS3 TO HAVE WRONG VALUE GIVEN IN "BAD"/
14491  051072  020107  052111  041040
14492  051100  041501  026113  041440
14493  051106  052501  042523  020104
14494  051114  044122  051503  020063
14495  051122  047524  044040  053101
14496  051130  020105  051127  047117
14497  051136  020107  040526  052514
14498  051144  020105  044507  042526
14499  051152  020116  047111  021040
14500  051160  040502  021104     000
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14501
14502  051165  101  052106  051105  EM13:   .ASCII  /AFTER CLEARING THE RH AND WRITING ONE WORD INTO RHDB AND/<15><12>
14503  051172  041440  042514  051101
14504  051200  047111  020107  044124
14505  051206  020105  044122  040440
14506  051214  042116  053440  044522
14507  051222  044524  043516  047440
14508  051230  042516  053440  051117
14509  051236  020104  047111  047524
14510  051244  051040  042110  020102
14511  051252  047101  006504  012
14512  051257  122  040505  044504  .ASCIZ  /READING IT BACK, CAUSED RHBA TO HAVE WRONG VALUE GIVEN IN "BAD"/
14513  051264  043516  044440  020124
14514  051272  040502  045503  020054
14515  051300  040503  051525  042105
14516  051306  051040  041110  020101
14517  051314  047524  044040  053101
14518  051322  020105  051127  047117
14519  051330  020107  040526  052514
14520  051336  020105  044507  042526
14521  051344  020116  047111  021040
14522  051352  040502  021104  000
14523
14524  051357  101  052106  051105  EM14:   .ASCII  /AFTER CLEARING THE RH AND WRITING ONE WORD INTO RHDB AND/<15><12>
14525  051364  041440  042514  051101
14526  051372  047111  020107  044124
14527  051400  020105  044122  040440
14528  051406  042116  053440  044522
14529  051414  044524  043516  047440
14530  051422  042516  053440  051117
14531  051430  020104  047111  047524
14532  051436  051040  042110  020102
14533  051444  047101  006504  012
14534  051451  122  040505  044504  .ASCIZ  /READING IT BACK, CAUSED RHBAE TO HAVE WRONG VALUE GIVEN IN "BAD"/
14535  051456  043516  044440  020124
14536  051464  040502  045503  020054
14537  051472  040503  051525  042105
14538  051500  051040  041110  042501
14539  051506  052040  020117  040510
14540  051514  042526  053440  047522
14541  051522  043516  053040  046101
14542  051530  042525  043440  053111
14543  051536  047105  044440  020116
14544  051544  041042  042101  000042
14545
14546  051552  043101  042524  020122  EM15:   .ASCII  /AFTER CLEARING THE RH AND WRITING ONE WORD INTO RHDB AND/<15><12>
14547  051560  046103  040505  044522
14548  051566  043516  052040  042510
14549  051574  051040  020110  047101
14550  051602  020104  051127  052111
14551  051610  047111  020107  047117
14552  051616  020105  047527  042122
14553  051624  044440  052116  020117
14554  051632  044122  041104  040440
14555  051640  042116  005015
14556  051644  042522  042101  047111  .ASCIZ  /READING IT BACK, CAUSED RHWC TO HAVE WRONG VALUE GIVEN IN "BAD"/
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14557  051652  020107  052111  041040
14558  051660  041501  026113  041440
14559  051666  052501  042523  020104
14560  051674  044122  041527  052040
14561  051702  020117  040510  042526
14562  051710  053440  047522  043516
14563  051716  053040  046101  042525
14564  051724  043440  053111  047105
14565  051732  044440  020116  041042
14566  051740  042101  000042
14567
14568  051744  043101  042524  020122  EM16:   .ASCII  /AFTER CLEARING THE RH AND WRITING ONE WORD INTO RHDB AND/<15><12>
14569  051752  046103  040505  044522
14570  051760  043516  052040  042510
14571  051766  051040  020110  047101
14572  051774  020104  051127  052111
14573  052002  047111  020107  047117
14574  052010  020105  047527  042122
14575  052016  044440  052116  020117
14576  052024  044122  041104  040440
14577  052032  042116  005015
14578  052036  042522  042101  047111          .ASCIZ  /READING IT BACK, CAUSED RHCS2 TO HAVE WRONG VALUE GIVEN IN "BAD"/
14579  052044  020107  052111  041040
14580  052052  041501  026113  041440
14581  052060  052501  042523  020104
14582  052066  044122  051503  020062
14583  052074  047524  044040  053101
14584  052102  020105  051127  047117
14585  052110  020107  040526  052514
14586  052116  020105  044507  042526
14587  052124  020116  047111  021040
14588  052132  040502  021104     000
14589
14590  052137     101  052106  051105  EM17:   .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
14591  052144  041440  042514  051101
14592  052152  047111  020107  044124
14593  052160  020105  044122  040440
14594  052166  042116  053440  044522
14595  052174  044524  043516  052040
14596  052202  047527  053440  051117
14597  052210  020104  047111  047524
14598  052216  051040  042110  020102
14599  052224  047101  006504     012
14600  052231     122  040505  044504          .ASCIZ  /READING IT BACK, CAUSED RHDB TO HAVE WRONG VALUE GIVEN IN "BAD"/
14601  052236  043516  044440  020124
14602  052244  040502  045503  020054
14603  052252  040503  051525  042105
14604  052260  051040  042110  020102
14605  052266  047524  044040  053101
14606  052274  020105  051127  047117
14607  052302  020107  040526  052514
14608  052310  020105  044507  042526
14609  052316  020116  047111  021040
14610  052324  040502  021104     000
14611
14612  052331     101  052106  051105  EM20:   .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
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14613  052336  041440  042514  051101
14614  052344  047111  020107  044124
14615  052352  020105  044122  040440
14616  052360  042116  053440  044522
14617  052366  044524  043516  052040
14618  052374  047527  053440  051117
14619  052402  020104  047111  047524
14620  052410  051040  042110  020102
14621  052416  047101  006504     012
14622  052423     122  040505  044504          .ASCIZ  /READING ONE BACK, CAUSED RHCS2 TO HAVE WRONG VALUE GIVEN IN "BAD"/
14623  052430  043516  047440  042516
14624  052436  041040  041501  026113
14625  052444  041440  052501  042523
14626  052452  020104  044122  051503
14627  052460  020062  047524  044040
14628  052466  053101  020105  051127
14629  052474  047117  020107  040526
14630  052502  052514  020105  044507
14631  052510  042526  020116  047111
14632  052516  021040  040502  021104
14633  052524     000
14634
14635  052525     101  052106  051105  EM21:   .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
14636  052532  041440  042514  051101
14637  052540  047111  020107  044124
14638  052546  020105  044122  040440
14639  052554  042116  053440  044522
14640  052562  044524  043516  052040
14641  052570  047527  053440  051117
14642  052576  020104  047111  047524
14643  052604  051040  042110  020102
14644  052612  047101  006504     012
14645  052617     122  040505  044504          .ASCIZ  /READING IT BACK TWICE, CAUSED RHDB TO HAVE WRONG VALUE GIVEN IN "BAD"/
14646  052624  043516  044440  020124
14647  052632  040502  045503  052040
14648  052640  044527  042503  020054
14649  052646  040503  051525  042105
14650  052654  051040  042110  020102
14651  052662  047524  044040  053101
14652  052670  020105  051127  047117
14653  052676  020107  040526  052514
14654  052704  020105  044507  042526
14655  052712  020116  047111  021040
14656  052720  040502  021104     000
14657
14658  052725     101  052106  051105  EM22:   .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
14659  052732  041440  042514  051101
14660  052740  047111  020107  044124
14661  052746  020105  044122  040440
14662  052754  042116  053440  044522
14663  052762  044524  043516  052040
14664  052770  047527  053440  051117
14665  052776  020104  047111  047524
14666  053004  051040  042110  020102
14667  053012  047101  006504     012
14668  053017     122  040505  044504          .ASCIZ  /READING IT BACK TWICE, CAUSED RHCS2 TO HAVE WRONG VALUE GIVEN IN "BAD"/
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 14669   053024   043516   044440   020124
 14670   053032   040502   045503   052040
 14671   053040   044527   042503   020054
 14672   053046   040503   051525   042105
 14673   053054   051040   041510   031123
 14674   053062   052040   020117   040510
 14675   053070   042526   053440   047522
 14676   053076   043516   053040   046101
 14677   053104   042525   043440   053111
 14678   053112   047105   044440   020116
 14679   053120   041042   042101   000042
 14680
 14681   053126   043101   042524   020122  EM23:   .ASCII  /AFTER CLEARING THE RH AND WRITING EIGHT WORD INTO RHDB AND/<15><12>
 14682   053134   046103   040505   044522
 14683   053142   043516   052040   042510
 14684   053150   051040   020110   047101
 14685   053156   020104   051127   052111
 14686   053164   047111   020107   044505
 14687   053172   044107   020124   047527
 14688   053200   042122   044440   052116
 14689   053206   020117   044122   041104
 14690   053214   040440   042116   005015
 14691   053222   042522   042101   047111          .ASCIZ  /READING IT BACK, CAUSED RHCS2 TO HAVE WRONG VALUE GIVEN IN "BAD"/
 14692   053230   020107   052111   041040
 14693   053236   041501   026113   041440
 14694   053244   052501   042523   020104
 14695   053252   044122   051503   020062
 14696   053260   047524   044040   053101
 14697   053266   020105   051127   047117
 14698   053274   020107   040526   052514
 14699   053302   020105   044507   042526
 14700   053310   020116   047111   021040
 14701   053316   040502   021104      000
 14702
 14703   053323      124   042510   051040  EM24:   .ASCII  /THE RH WAS CLEARED AND A PATTERN OF 8 WORDS WERE WRITTEN INTO RHDB/<15>
 14704   053330   020110   040527   020123
 14705   053336   046103   040505   042522
 14706   053344   020104   047101   020104
 14707   053352   020101   040520   052124
 14708   053360   051105   020116   043117
 14709   053366   034040   053440   051117
 14710   053374   051504   053440   051105
 14711   053402   020105   051127   052111
 14712   053410   042524   020116   047111
 14713   053416   047524   051040   042110
 14714   053424   006502      012
 14715   053427      122   040505   044504          .ASCII  /READING RHDB FOR THE "N" TH. TIME GAVE WRONG VALUE IN RHDB/<15><12>
 14716   053434   043516   051040   042110
 14717   053442   020102   047506   020122
 14718   053450   044124   020105   047042
 14719   053456   020042   044124   020056
 14720   053464   044524   042515   043440
 14721   053472   053101   020105   051127
 14722   053500   047117   020107   040526
 14723   053506   052514   020105   047111
 14724   053514   051040   042110   006502
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14725  053522  012
14726  053523  042  021116  044440          .ASCIZ  /"N" IS GIVEN IN WORD NO/
14727  053530  020123  044507  042526
14728  053536  020116  047111  053440
14729  053544  051117  020104  047516
14730  053552  000
14731
14732  053553  124  042510  051040  EM25:   .ASCII  /THE RH WAS CLEARED AND A PATTERN OF 8 WORDS WERE WRITTEN INTO RHDB/<15>
14733  053560  020110  040527  020123
14734  053566  046103  040505  042522
14735  053574  020104  047101  020104
14736  053602  020101  040520  052124
14737  053610  051105  020116  043117
14738  053616  034040  053440  051117
14739  053624  051504  053440  051105
14740  053632  020105  051127  052111
14741  053640  042524  020116  047111
14742  053646  047524  051040  042110
14743  053654  006502  012
14744  053657  101  052106  051105          .ASCIZ  /AFTER READING ALL 8 WORDS, FOLLOWING REGISTER CONTAINED WRONG VALUE GIV
14745  053664  051040  040505  044504
14746  053672  043516  040440  046114
14747  053700  034040  053440  051117
14748  053706  051504  020054  047506
14749  053714  046114  053517  047111
14750  053722  020107  042522  044507
14751  053730  052123  051105  041440
14752  053736  047117  040524  047111
14753  053744  042105  053440  047522
14754  053752  043516  053040  046101
14755  053760  042525  043440  053111
14756  053766  047105  044440  020116
14757  053774  041042  042101  000042
14758
14759  054002  042523  052124  047111  EM33:   .ASCIZ  /SETTING RH CLEAR (RHCS2-BIT #5) CAUSED ERROR REGISTER 1 TO HAVE WRONG V
14760  054010  020107  044122  041440
14761  054016  042514  051101  024040
14762  054024  044122  051503  026462
14763  054032  044502  020124  032443
14764  054040  020051  040503  051525
14765  054046  042105  042440  051122
14766  054054  051117  051040  043505
14767  054062  051511  042524  020122
14768  054070  020061  047524  044040
14769  054076  053101  020105  051127
14770  054104  047117  020107  040526
14771  054112  052514  000105
14772
14773  054116  047101  051040  020110  EM34:   .ASCII  /AN RH CLEAR WAS GIVEN RHER1 WAS CHECKED TO HAVE ZERO. PAT (RHCS2-BIT #4
14774  054124  046103  040505  020122
14775  054132  040527  020123  044507
14776  054140  042526  020116  044122
14777  054146  051105  020061  040527
14778  054154  020123  044103  041505
14779  054162  042513  020104  047524
14780  054170  044040  053101  020105
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14781  054176  042532  047522  020056
14782  054204  040520  020124  051050
14783  054212  041510  031123  041055
14784  054220  052111  021440  024464
14785  054226  053440  051501  051440
14786  054234  052105  005015
14787  054240  047524  044440  053116          .ASCIZ  /TO INVERT PARITY CHECKING. RHER1 WAS READ BUT DID NOT CONTAIN WHAT IS I
14788  054246  051105  020124  040520
14789  054254  044522  054524  041440
14790  054262  042510  045503  047111
14791  054270  027107  051040  042510
14792  054276  030522  053440  051501
14793  054304  051040  040505  020104
14794  054312  052502  020124  044504
14795  054320  020104  047516  020124
14796  054326  047503  052116  044501
14797  054334  020116  044127  052101
14798  054342  044440  020123  047111
14799  054350  021040  047507  042117
14800  054356  000042
14801
14802  054360  044122  041440  042514  EM35:   .ASCII  /RH CLEAR WAS GIVEN. RHER1 WAS CHECKED. PAT (RHCS2-BIT #4) WAS SET/<15><
14803  054366  051101  053440  051501
14804  054374  043440  053111  047105
14805  054402  020056  044122  051105
14806  054410  020061  040527  020123
14807  054416  044103  041505  042513
14808  054424  027104  050040  052101
14809  054432  024040  044122  051503
14810  054440  026462  044502  020124
14811  054446  032043  020051  040527
14812  054454  020123  042523  006524
14813  054462     012
14814  054463     101  042116  051040          .ASCIZ  /AND RHER1 WAS READ. RHCS1 SHOULD HAVE RDY, SC AND MCPE SET/
14815  054470  042510  030522  053440
14816  054476  051501  051040  040505
14817  054504  027104  051040  041510
14818  054512  030523  051440  047510
14819  054520  046125  020104  040510
14820  054526  042526  051040  054504
14821  054534  020054  041523  040440
14822  054542  042116  046440  050103
14823  054550  020105  042523  000124
14824
14825  054556  044122  041440  042514  EM36:   .ASCII  /RH CLEAR WAS GIVEN. RHER1 WAS CHECKED. PAT (RHCS2-BIT #4) WAS SET/<15><
14826  054564  051101  053440  051501
14827  054572  043440  053111  047105
14828  054600  020056  044122  051105
14829  054606  020061  040527  020123
14830  054614  044103  041505  042513
14831  054622  027104  050040  052101
14832  054630  024040  044122  051503
14833  054636  026462  044502  020124
14834  054644  032043  020051  040527
14835  054652  020123  042523  006524
14836  054660     012
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14837  054661     122  042510  030522          .ASCII  /RHER1 WAS READ. "1" WAS WRITTEN INTO "TRE" IN RHCS1/<15><12>
14838  054666  053440  051501  051040
14839  054674  040505  027104  021040
14840  054702  021061  053440  051501
14841  054710  053440  044522  052124
14842  054716  047105  044440  052116
14843  054724  020117  052042  042522
14844  054732  020042  047111  051040
14845  054740  041510  030523  005015
14846  054746  047117  041440  042510          .ASCIZ  /ON CHECKING RHCS1 IT DID NOT CONTAIN WHAT IS IN GOOD/
14847  054754  045503  047111  020107
14848  054762  044122  051503  020061
14849  054770  052111  042040  042111
14850  054776  047040  052117  041440
14851  055004  047117  040524  047111
14852  055012  053440  040510  020124
14853  055020  051511  044440  020116
14854  055026  047507  042117     000
14855
14856  055033     122  020110  040527  EM37:   .ASCII  /RH WAS CLEARED. RHER1 WAS CHECKED. PAT (RHCS2-BIT #4) WAS SET/<15><12>
14857  055040  020123  046103  040505
14858  055046  042522  027104  051040
14859  055054  042510  030522  053440
14860  055062  051501  041440  042510
14861  055070  045503  042105  020056
14862  055076  040520  020124  051050
14863  055104  041510  031123  041055
14864  055112  052111  021440  024464
14865  055120  053440  051501  051440
14866  055126  052105  005015
14867  055132  044122  051105  020061          .ASCII  /RHER1 WAS READ. "1" WAS WRITTEN IN "TRE" IN RHCS1/<15><12>
14868  055140  040527  020123  042522
14869  055146  042101  020056  030442
14870  055154  020042  040527  020123
14871  055162  051127  052111  042524
14872  055170  020116  047111  021040
14873  055176  051124  021105  044440
14874  055204  020116  044122  051503
14875  055212  006461     012
14876  055215     101  020116  044122          .ASCII  /AN RH CLEAR WAS GIVEN BUT FOLLOWING REGISTER DID NOT/<15><12>
14877  055222  041440  042514  051101
14878  055230  053440  051501  043440
14879  055236  053111  047105  041040
14880  055244  052125  043040  046117
14881  055252  047514  044527  043516
14882  055260  051040  043505  051511
14883  055266  042524  020122  044504
14884  055274  020104  047516  006524
14885  055302     012
14886  055303     103  047117  040524          .ASCIZ  /CONTAIN WHAT IS IN "GOOD"/
14887  055310  047111  053440  040510
14888  055316  020124  051511  044440
14889  055324  020116  043442  047517
14890  055332  021104     000
14891
14892  055335     101  052106  051105  EM45:   .ASCII  /AFTER AN RH CLEAR "1" WAS WRITTEN IN THE DISK (TAPE) ADDRESS/<15><12>
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14893   055342  040440  020116  044122
14894   055350  041440  042514  051101
14895   055356  021040  021061  053440
14896   055364  051501  053440  044522
14897   055372  052124  047105  044440
14898   055400  020116  044124  020105
14899   055406  044504  045523  024040
14900   055414  040524  042520  020051
14901   055422  042101  051104  051505
14902   055430  006523    012
14903   055433    122   043505  051511          .ASCII  /REGISTER. PAT IN RHCS1 WAS SET. ON READING DISK (TAPE) ADDRESS/<15><12>
14904   055440  042524  027122  050040
14905   055446  052101  044440  020116
14906   055454  044122  051503  020061
14907   055462  040527  020123  042523
14908   055470  027124  047440  020116
14909   055476  042522  042101  047111
14910   055504  020107  044504  045523
14911   055512  024040  040524  042520
14912   055520  020051  042101  051104
14913   055526  051505  006523    012
14914   055533    122   043505  051511          .ASCIZ  /REGISTER IT DID NOT CONTAIN "1"/
14915   055540  042524  020122  052111
14916   055546  042040  042111  047040
14917   055554  052117  041440  047117
14918   055562  040524  047111  021040
14919   055570  021061    000
14920
14921   055573    101   052106  051105  EM46:   .ASCII  /AFTER AN RH CLEAR "1" WAS WRITTEN IN THE DISK (TAPE) ADDRESS REGISTER/<
14922   055600  040440  020116  044122
14923   055606  041440  042514  051101
14924   055614  021040  021061  053440
14925   055622  051501  053440  044522
14926   055630  052124  047105  044440
14927   055636  020116  044124  020105
14928   055644  044504  045523  024040
14929   055652  040524  042520  020051
14930   055660  042101  051104  051505
14931   055666  020123  042522  044507
14932   055674  052123  051105  005015
14933   055702  040520  020124  047111          .ASCII  /PAT IN RHCS1 WAS SET AFTER READING DISK (TAPE) ADDRESS REGISTER THE FOL
14934   055710  051040  041510  030523
14935   055716  053440  051501  051440
14936   055724  052105  040440  052106
14937   055732  051105  051040  040505
14938   055740  044504  043516  042040
14939   055746  051511  020113  052050
14940   055754  050101  024505  040440
14941   055762  042104  042522  051523
14942   055770  051040  043505  051511
14943   055776  042524  020122  044124
14944   056004  020105  047506  046114
14945   056012  053517  047111  006507
14946   056020    012
14947   056021    122   043505  051511          .ASCIZ  /REGISTER DID NOT CONTAIN WHAT IS IN "GOOD"/
14948   056026  042524  020122  044504
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 14949  056034  020104  047516  020124
 14950  056042  047503  052116  044501
 14951  056050  020116  044127  052101
 14952  056056  044440  020123  047111
 14953  056064  021040  047507  042117
 14954  056072  000042
 14955
 14956  056074  047101  051040  020110  EM54:   .ASCII  /AN RH CLEAR (RHCS2 BIT #5) WAS GIVEN. A16 (RHCS1 BIT #8) WAS SET/<15><1
 14957  056102  046103  040505  020122
 14958  056110  051050  041510  031123
 14959  056116  041040  052111  021440
 14960  056124  024465  053440  051501
 14961  056132  043440  053111  047105
 14962  056140  020056  030501  020066
 14963  056146  051050  041510  030523
 14964  056154  041040  052111  021440
 14965  056162  024470  053440  051501
 14966  056170  051440  052105  005015
 14967  056176  047117  051040  040505        .ASCIZ  /ON READING THE FOLLOWING REGISTER IT DID NOT CONTAIN WHAT IS IN "GOOD"/
 14968  056204  044504  043516  052040
 14969  056212  042510  043040  046117
 14970  056220  047514  044527  043516
 14971  056226  051040  043505  051511
 14972  056234  042524  020122  052111
 14973  056242  042040  042111  047040
 14974  056250  052117  041440  047117
 14975  056256  040524  047111  053440
 14976  056264  040510  020124  051511
 14977  056272  044440  020116  043442
 14978  056300  047517  021104     GOO
 14979
 14980  056305     101  020116  044122  EM56:   .ASCII  /AN RH CLEAR (RHCS2 BIT #5) WAS GIVEN. A16 (RHCS1 BIT #8) WAS SET/<15><1
 14981  056312  041440  042514  051101
 14982  056320  024040  044122  051503
 14983  056326  020062  044502  020124
 14984  056334  032443  020051  040527
 14985  056342  020123  044507  042526
 14986  056350  027116  040440  033061
 14987  056356  024040  044122  051503
 14988  056364  020061  044502  020124
 14989  056372  034043  020051  040527
 14990  056400  020123  042523  006524
 14991  056406     012
 14992  056407     101  046114  055040        .ASCIZ  /ALL ZEROS WERE WRITTEN IN RHBAE. THEN THE FOLLOWING REGISTER DID NOT HA
 14993  056414  051105  051517  053440
 14994  056422  051105  020105  051127
 14995  056430  052111  042524  020116
 14996  056436  047111  051040  041110
 14997  056444  042501  020056  044124
 14998  056452  047105  052040  042510
 14999  056460  043040  046117  047514
 15000  056466  044527  043516  051040
 15001  056474  043505  051511  042524
 15002  056502  020122  044504  020104
 15003  056510  047516  020124  040510
 15004  056516  042526  053440  040510
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 15005  056524  020124  051511  044440
 15006  056532  020116  043442  047517
 15007  056540  021104     000
 15008
 15009  056543     101  020116  044122  EM60:   .ASCII  /AN RH CLEAR (RHCS2 BIT #5) WAS GIVEN. A17 (RHCS1 BIT #9) WAS SET/<15><1
 15010  056550  041440  042514  051101
 15011  056556  024040  044122  051503
 15012  056564  020062  044502  020124
 15013  056572  032443  020051  040527
 15014  056600  020123  044507  042526
 15015  056606  027116  040440  033461
 15016  056614  024040  044122  051503
 15017  056622  020061  044502  020124
 15018  056630  034443  020051  040527
 15019  056636  020123  042523  006524
 15020  056644     012
 15021  056645     117  020116  042522          .ASCIZ  /ON READING THE FOLLOWING REGISTER IT DID NOT CONTAIN WHAT IS IN "GOOD"/
 15022  056652  042101  047111  020107
 15023  056660  044124  020105  047506
 15024  056666  046114  053517  047111
 15025  056674  020107  042522  044507
 15026  056702  052123  051105  044440
 15027  056710  020124  044504  020104
 15028  056716  047516  020124  047503
 15029  056724  052116  044501  020116
 15030  056732  044127  052101  044440
 15031  056740  020123  047111  021040
 15032  056746  047507  042117  000042
 15033
 15034  056754  047101  051040  020110  EM62:   .ASCII  /AN RH CLEAR (RHCS2 BIT #8) WAS GIVEN. A17 (RHCS1 BIT #9) WAS SET/<15><1
 15035  056762  046103  040505  020122
 15036  056770  051050  041510  031123
 15037  056776  041040  052111  021440
 15038  057004  024470  053440  051501
 15039  057012  043440  053111  047105
 15040  057020  020056  030501  020067
 15041  057026  051050  041510  030523
 15042  057034  041040  052111  021440
 15043  057042  024471  053440  051501
 15044  057050  051440  052105  005015
 15045  057056  046101  020114  042532          .ASCIZ  /ALL ZEROS WERE WRITTEN IN RHBAE THEN THE FOLLOWING REGISTER DID NOT HAV
 15046  057064  047522  020123  042527
 15047  057072  042522  053440  044522
 15048  057100  052124  047105  044440
 15049  057106  020116  044122  040502
 15050  057114  020105  044124  047105
 15051  057122  052040  042510  043040
 15052  057130  046117  047514  044527
 15053  057136  043516  051040  043505
 15054  057144  051511  042524  020122
 15055  057152  044504  020104  047516
 15056  057160  020124  040510  042526
 15057  057166  053440  040510  020124
 15058  057174  051511  044440  020116
 15059  057202  047507  042117  005015
 15060  057210     000
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15061
15062  057211    101   020116  044122  EM64:   .ASCII  /AN RH CLEAR (RHCS2-BIT #5) WAS GIVEN. IE (RHCS1 BIT #6) WAS SET/<15><12
15063  057216  041440  042514  051101
15064  057224  024040  044122  051503
15065  057232  026462  044502  020124
15066  057240  032443  020051  040527
15067  057246  020123  044507  042526
15068  057254  027116  044440  020105
15069  057262  051050  041510  030523
15070  057270  041040  052111  021440
15071  057276  024466  053440  051501
15072  057304  051440  052105  005015
15073  057312  047117  051040  040505        .ASCIZ  /ON READING THE FOLLOWING REGISTER IT DID NOT CONTAIN WHAT IS IN "GOOD"/
15074  057320  044504  043516  052040
15075  057326  042510  043040  046117
15076  057334  047514  044527  043516
15077  057342  051040  043505  051511
15078  057350  042524  020122  052111
15079  057356  042040  042111  047040
15080  057364  052117  041440  047117
15081  057372  040524  047111  053440
15082  057400  040510  020124  051511
15083  057406  044440  020116  043442
15084  057414  047517  021104     000
15085
15086  057421    101   020116  044122  EM66:   .ASCII  /AN RH CLEAR (RHCS2-BIT #5) WAS GIVEN. IE (RHCS1 BIT #6) WAS SET/<15><12
15087  057426  041440  042514  051101
15088  057434  024040  044122  051503
15089  057442  026462  044502  020124
15090  057450  032443  020051  040527
15091  057456  020123  044507  042526
15092  057464  027116  044440  020105
15093  057472  051050  041510  030523
15094  057500  041040  052111  021440
15095  057506  024466  053440  051501
15096  057514  051440  052105  005015
15097  057522  046101  020114  042532        .ASCIZ  /ALL ZEROS WERE WRITTEN IN RHCS3 THEN THE FOLLOWING REGISTER DID NOT CON
15098  057530  047522  020123  042527
15099  057536  042522  053440  044522
15100  057544  052124  047105  044440
15101  057552  020116  044122  051503
15102  057560  020063  044124  047105
15103  057566  052040  042510  043040
15104  057574  046117  047514  044527
15105  057602  043516  051040  043505
15106  057610  051511  042524  020122
15107  057616  044504  020104  047516
15108  057624  020124  047503  052116
15109  057632  044501  020116  044127
15110  057640  052101  044440  020123
15111  057646  047111  021040  047507
15112  057654  042117  000042
15113
15114  057660  044122  041440  042514  EM70:   .ASCII  /RH CLEAR WAS GIVEN. TWO SUCCESSIVE "GO" (RHCS1-BIT #0) WAS GIVEN/<15><1
15115  057666  051101  053440  051501
15116  057674  043440  053111  047105
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15117  057702  020056  053524  020117
15118  057710  052523  041503  051505
15119  057716  044523  042526  021040
15120  057724  047507  020042  051050
15121  057732  041510  030523  041055
15122  057740  052111  021440  024460
15123  057746  053440  051501  043440
15124  057754  053111  047105  005015
15125  057762  044527  044124  052517          .ASCII  /WITHOUT WAITING FOR THE FIRST "GO" TO COMPLETE. THE FOLLOWING REGISTER/
15126  057770  020124  040527  052111
15127  057776  047111  020107  047506
15128  060004  020122  044124  020105
15129  060012  044506  051522  020124
15130  06002C  043442  021117  052040
15131  060026  020117  047503  050115
15132  060034  042514  042524  020056
15133  060042  044124  020105  047506
15134  060050  046114  053517  047111
15135  060056  020107  042522  044507
15136  060064  052123  051105  005015
15137  060072  044504  020104  047516          .ASCIZ  /DID NOT CONTAIN WHAT IS IN "GOOD"/
15138  060100  020124  047503  052116
15139  060106  044501  020116  044127
15140  060114  052101  044440  020123
15141  060122  047111  021040  047507
15142  060130  042117  000042
15143
15144  060134  044122  041440  042514  EM76:   .ASCII  /RH CLEAR WAS GIVEN A 2 WORD WRITE WAS DONE FROM A LOCATION/<15><12>
15145  060142  051101  053440  051501
15146  060150  043440  053111  047105
15147  060156  040440  031040  053440
15148  060164  051117  020104  051127
15149  060172  052111  020105  040527
15150  060200  020123  047504  042516
15151  060206  043040  047522  020115
15152  060214  020101  047514  040503
15153  060222  044524  047117  005015
15154  060230  040524  042507  020104          .ASCII  /TAGED WRFROM AND WITH BAI (RHCS2 BIT #3) SET AT THE END/<15><12>
15155  060236  051127  051106  046517
15156  060244  040440  042116  053440
15157  060252  052111  020110  040502
15158  060260  020111  051050  041510
15159  060266  031123  041040  052111
15160  060274  021440  024463  051440
15161  060302  052105  040440  020124
15162  060310  044124  020105  047105
15163  060316  006504     012
15164  060321     117  020106  044124          .ASCIZ  /OF THE WRITE THE FOLLOWING REGISTER DID NOT CONTAIN WHAT IS IN "GOOD"/
15165  060326  020105  051127  052111
15166  060334  020105  044124  020105
15167  060342  047506  046114  053517
15168  060350  047111  020107  042522
15169  060356  044507  052123  051105
15170  060364  042040  042111  047040
15171  060372  052117  041440  047117
15172  060400  040524  047111  053440
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 15173  060406  040510  020124  051511
 15174  060414  044440  020116  043442
 15175  060422  047517  021104     000
 15176
 15177  060427     122  020110  046103  EM104:  .ASCII  /RH CLEAR WAS GIVEN AN IPCK BIT SHOWN IN "IPCK" WAS SET/<15><12>
 15178  060434  040505  020122  040527
 15179  060442  020123  044507  042526
 15180  060450  020116  047101  044440
 15181  060456  041520  020113  044502
 15182  060464  020124  044123  053517
 15183  060472  020116  047111  021040
 15184  060500  050111  045503  020042
 15185  060506  040527  020123  042523
 15186  060514  006524     012
 15187  060517     132  051105  051517          .ASCII  /ZEROS WERE MOVED INTO RHDB. ON READING RHDB THE FOLLOWING/<15><12>
 15188  060524  053440  051105  020105
 15189  060532  047515  042526  020104
 15190  060540  047111  047524  051040
 15191  060546  042110  027102  047440
 15192  060554  020116  042522  042101
 15193  060562  047111  020107  044122
 15194  060570  041104  052040  042510
 15195  060576  043040  046117  047514
 15196  060604  044527  043516  005015
 15197  060612  042522  044507  052123          .ASCIZ  /REGISTER DID NOT CONTAIN WHAT IS IN "GOOD"/
 15198  060620  051105  042040  042111
 15199  060626  047040  052117  041440
 15200  060634  047117  040524  047111
 15201  060642  053440  040510  020124
 15202  060650  051511  044440  020116
 15203  060656  043442  047517  021104
 15204  060664     000
 15205
 15206  060665     122  020110  046103  EM106:  .ASCII  /RH CLEAR WAS GIVEN AN IPCK BIT SHOWN IN "IPCK" WAS SET/<15><12>
 15207  060672  040505  020122  040527
 15208  060700  020123  044507  042526
 15209  060706  020116  047101  044440
 15210  060714  041520  020113  044502
 15211  060722  020124  044123  053517
 15212  060730  020116  047111  021040
 15213  060736  050111  045503  020042
 15214  060744  040527  020123  042523
 15215  060752  006524     012
 15216  060755     132  051105  051517          .ASCII  /ZEROS WERE MOVED INTO RHDB. RHDB WAS READ. AN RH CLEAR WAS GIVEN/<15><1
 15217  060762  053440  051105  020105
 15218  060770  047515  042526  020104
 15219  060776  047111  047524  051040
 15220  061004  042110  027102  051040
 15221  061012  042110  020102  040527
 15222  061020  020123  042522  042101
 15223  061026  020056  047101  051040
 15224  061034  020110  046103  040505
 15225  061042  020122  040527  020123
 15226  061050  044507  042526  006516
 15227  061056     012
 15228  061057     124  042510  043040          .ASCIZ  /THE FOLLOWING REGISTER DID NOT CONTAIN WHAT IS GIVEN IN "GOOD"/
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 15229  061064  046117  047514  044527
 15230  061072  043516  051040  043505
 15231  061100  051511  042524  020122
 15232  061106  044504  020104  047516
 15233  061114  020124  047503  052116
 15234  061122  044501  020116  044127
 15235  061130  052101  044440  020123
 15236  061136  044507  042526  020116
 15237  061144  047111  021040  047507
 15238  061152  042117  000042
 15239
 15240  061156  044122  041440  042514  EM114:  .ASCII  /RH CLEAR WAS GIVEN.  A WRITE CHECK/<15><12>
 15241  061164  051101  053440  051501
 15242  061172  043440  053111  047105
 15243  061200  020056  040440  053440
 15244  061206  044522  042524  041440
 15245  061214  042510  045503  005015
 15246  061222  040527  020123  047504          .ASCIZ  /WAS DONE. THE FOLLOWING REGISTER DID NOT CONTAIN WHAT IS IN "GOOD"/
 15247  061230  042516  020056  044124
 15248  061236  020105  047506  046114
 15249  061244  053517  047111  020107
 15250  061252  042522  044507  052123
 15251  061260  051105  042040  042111
 15252  061266  047040  052117  041440
 15253  061274  047117  040524  047111
 15254  061302  053440  040510  020124
 15255  061310  051511  044440  020116
 15256  061316  043442  047517  021104
 15257  061324     000
 15258
 15259  061325     122  020110  046103  EM116:  .ASCII  /RH CLEAR WAS GIVEN.  A WRITE CHECK/<15><12>
 15260  061332  040505  020122  040527
 15261  061340  020123  044507  042526
 15262  061346  027116  020040  020101
 15263  061354  051127  052111  020105
 15264  061362  044103  041505  006513
 15265  061370     012
 15266  061371     127  051501  042040          .ASCII  /WAS DONE THEN ANOTHER RH CLEAR WAS GIVEN. THE FOLLOWING REGISTER/<15><1
 15267  061376  047117  020105  044124
 15268  061404  047105  040440  047516
 15269  061412  044124  051105  051040
 15270  061420  020110  046103  040505
 15271  061426  020122  040527  020123
 15272  061434  044507  042526  027116
 15273  061442  052040  042510  043040
 15274  061450  046117  047514  044527
 15275  061456  043516  051040  043505
 15276  061464  051511  042524  006522
 15277  061472     012
 15278  061473     104  042111  047040          .ASCIZ  /DID NOT CONTAIN WHAT IS IN "GOOD"/
 15279  061500  052117  041440  047117
 15280  061506  040524  047111  053440
 15281  061514  040510  020124  051511
 15282  061522  044440  020116  043442
 15283  061530  047517  021104     000
 15284
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15285  061535     117  020116  020101  EM124:  .ASCII  /ON A SILO TEST TO TEST DBL RHCS3 BIT #10 THE FOLLOWING/<15><12>
15286  061542  044523  047514  052040
15287  061550  051505  020124  047524
15288  061556  052040  051505  020124
15289  061564  041104  020114  044122
15290  061572  051503  020063  044502
15291  061600  020124  030443  020060
15292  061606  044124  020105  047506
15293  061614  046114  053517  047111
15294  061622  006507     012
15295  061625     122  043505  051511          .ASCIZ  /REGISTER DID NOT CONTAIN WHAT IS IN "GOOD"/
15296  061632  042524  020122  044504
15297  061640  020104  047516  020124
15298  061646  047503  052116  044501
15299  061654  020116  044127  052101
15300  061662  044440  020123  047111
15301  061670  021040  047507  042117
15302  061676  000042
15303  061700  042502  047506  042522  EM132:  .ASCII  /BEFORE DATA TRANSFER COMMAND WAS TO/<15><12>
15304  061706  042040  052101  020101
15305  061714  051124  047101  043123
15306  061722  051105  041440  046517
15307  061730  040515  042116  053440
15308  061736  051501  052040  006517
15309  061744     012
15310  061745     102  020105  044507          .ASCII  /BE GIVEN THE RP DRIVE STATUS REGISTER DID/<15><12>
15311  061752  042526  020116  044124
15312  061760  020105  050122  042040
15313  061766  044522  042526  051440
15314  061774  040524  052524  020123
15315  062002  042522  044507  052123
15316  062010  051105  042040  042111
15317  062016  005015
15318  062020  047516  020124  047503          .ASCIZ  /NOT CONTAIN WHAT IS IN "GOOD"/
15319  062026  052116  044501  020116
15320  062034  044127  052101  044440
15321  062042  020123  047111  021040
15322  062050  047507  042117  000042
15323  062056  042502  047506  042522  EM133:  .ASCII  /BEFORE DATA TRANSFER COMMAND WAS TO/<15><12>
15324  062064  042040  052101  020101
15325  062072  051124  047101  043123
15326  062100  051105  041440  046517
15327  062106  040515  042116  053440
15328  062114  051501  052040  006517
15329  062122     012
15330  062123     102  020105  044507          .ASCII  /BE GIVEN THE RS DRIVE STATUS REGISTER DID/<15><12>
15331  062130  042526  020116  044124
15332  062136  020105  051522  042040
15333  062144  044522  042526  051440
15334  062152  040524  052524  020123
15335  062160  042522  044507  052123
15336  062166  051105  042040  042111
15337  062174  005015
15338  062176  047516  020124  047503          .ASCIZ  /NOT CONTAIN WHAT IS IN "GOOD"/
15339  062204  052116  044501  020116
15340  062212  044127  052101  044440
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15341  062220  020123  047111  021040
15342  062226  047507  042117  000042
15343  062234  042502  047506  042522  EM134:  .ASCII  /BEFORE DATA TRANSFER COMMAND WAS TO BE GIVEN/<15><12>
15344  062242  042040  052101  020101
15345  062250  051124  047101  043123
15346  062256  051105  041440  046517
15347  062264  040515  042116  053440
15348  062272  051501  052040  020117
15349  062300  042502  043440  053111
15350  062306  047105  005015
15351  062312  044124  020105  040515          .ASCII  /THE MAG TAPE DRIVE STATUS REGISTER DID NOT/<15><12>
15352  062320  020107  040524  042520
15353  062326  042040  044522  042526
15354  062334  051440  040524  052524
15355  062342  020123  042522  044507
15356  062350  052123  051105  042040
15357  062356  042111  047040  052117
15358  062364  005015
15359  062366  047503  052116  044501          .ASCIZ  /CONTAIN WHAT IS IN RHDS1-GOOD/
15360  062374  020116  044127  052101
15361  062402  044440  020123  047111
15362  062410  051040  042110  030523
15363  062416  043455  047517  000104
15364  062424  040527  020123  040527  EM135:  .ASCII  /WAS WAITING FOR A BIT TO SET IN A REGISTER/<15><12>
15365  062432  052111  047111  020107
15366  062440  047506  020122  020101
15367  062446  044502  020124  047524
15368  062454  051440  052105  044440
15369  062462  020116  020101  042522
15370  062470  044507  052123  051105
15371  062476  005015
15372  062500  044502  020124  047111          .ASCIZ  /BIT IN QUESTION IS IN "BIT WAITED"/<15><12>
15373  062506  050440  042525  052123
15374  062514  047511  020116  051511
15375  062522  044440  020116  041042
15376  062530  052111  053440  044501
15377  062536  042524  021104  005015
15378  062544     000
15379  062545     122  043505  051511          .ASCIZ  /REGISTER ADDRESS IN QUESTION IS IN "REG. ADDR"/
15380  062552  042524  020122  042101
15381  062560  051104  051505  020123
15382  062566  047111  050440  042525
15383  062574  052123  047511  020116
15384  062602  051511  044440  020116
15385  062610  051042  043505  020056
15386  062616  042101  051104  000042
15387  062624  040527  020123  040527  EM136:  .ASCII  /WAS WAITING FOR A BIT TO RESET IN A REGISTER/<15><12>
15388  062632  052111  047111  020107
15389  062640  047506  020122  020101
15390  062646  044502  020124  047524
15391  062654  051040  051505  052105
15392  062662  044440  020116  020101
15393  062670  042522  044507  052123
15394  062676  051105  005015
15395  062702  044502  020124  047111          .ASCIZ  /BIT IN QUESTION IS IN "BIT WAITED"/<15><12>
15396  062710  050440  042525  052123
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15397  062716  047511  020116  051511
15398  062724  044440  020116  041042
15399  062732  052111  053440  044501
15400  062740  042524  021104  005015
15401  062746     000
15402  062747     122  043505  051511          .ASCIZ  /REGISTER ADDRESS IN QUESTION IS IN "REG. ADDR"/
15403  062754  042524  020122  042101
15404  062762  051104  051505  020123
15405  062770  047111  050440  042525
15406  062776  052123  047511  020116
15407  063004  051511  044440  020116
15408  063012  051042  043505  020056
15409  063020  042101  051104  000042
15410  063026  047117  053440  044522  EM137:  .ASCII  /ON WRITING AND READING THE REGISTER IN "REG. ADDR"/<15><12>
15411  063034  044524  043516  040440
15412  063042  042116  051040  040505
15413  063050  044504  043516  052040
15414  063056  042510  051040  043505
15415  063064  051511  042524  020122
15416  063072  047111  021040  042522
15417  063100  027107  040440  042104
15418  063106  021122  005015
15419  063112  052111  042040  042111          .ASCIZ  /IT DID NOT CONTAIN EXPECTED VALUE/
15420  063120  047040  052117  041440
15421  063126  047117  040524  047111
15422  063134  042440  050130  041505
15423  063142  042524  020104  040526
15424  063150  052514  000105
15425  063154  044122  041440  042514  EM140:  .ASCII  /RH CLEAR WAS GIVEN AN IPCK BIT SHOWN IN "IPCK" WAS SET/<15><12>
15426  063162  051101  053440  051501
15427  063170  043440  053111  047105
15428  063176  040440  020116  050111
15429  063204  045503  041040  052111
15430  063212  051440  047510  047127
15431  063220  044440  020116  044442
15432  063226  041520  021113  053440
15433  063234  051501  051440  052105
15434  063242  005015
15435  063244  042532  047522  020123          .ASCII  /ZEROS WERE MOVED INTO RHDB. ON READING  THE FOLLOWING/<15><12>
15436  063252  042527  042522  046440
15437  063260  053117  042105  044440
15438  063266  052116  020117  044122
15439  063274  041104  020056  047117
15440  063302  051040  040505  044504
15441  063310  043516  020040  044124
15442  063316  020105  047506  046114
15443  063324  053517  047111  006507
15444  063332     012
15445  063333     122  043505  051511          .ASCIZ  /REGISTER DID NOT CONTAIN WHAT IS IN "GOOD"/
15446  063340  042524  020122  044504
15447  063346  020104  047516  020124
15448  063354  047503  052116  044501
15449  063362  020116  044127  052101
15450  063370  044440  020123  047111
15451  063376  021040  047507  042117
15452  063404  000042
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15453  063406  043101  042524  020122  EM141:  .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
15454  063414  046103  040505  044522
15455  063422  043516  052040  042510
15456  063430  051040  020110  047101
15457  063436  020104  051127  052111
15458  063444  047111  020107  053524
15459  063452  020117  047527  042122
15460  063460  044440  052116  020117
15461  063466  044122  041104  040440
15462  063474  042116  005015
15463  063500  042522  042101  047111          .ASCIZ  /READING IT BACK TWICE, CAUSED RHCS1 TO HAVE WRONG VALUE GIVEN IN "BAD"/
15464  063506  020107  052111  041040
15465  063514  041501  020113  053524
15466  063522  041511  026105  041440
15467  063530  052501  042523  020104
15468  063536  044122  051503  020061
15469  063544  047524  044040  053101
15470  063552  020105  051127  047117
15471  063560  020107  040526  052514
15472  063566  020105  044507  042526
15473  063574  020116  047111  021040
15474  063602  040502  021104     000
15475  063607     101  052106  051105  EM142:  .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
15476  063614  041440  042514  051101
15477  063622  047111  020107  044124
15478  063630  020105  044122  040440
15479  063636  042116  053440  044522
15480  063644  044524  043516  052040
15481  063652  047527  053440  051117
15482  063660  020104  047111  047524
15483  063666  051040  042110  020102
15484  063674  047101  006504     012
15485  063701     122  040505  044504          .ASCIZ  /READING IT BACK TWICE, CAUSED RHCS3 TO HAVE WRONG VALUE GIVEN IN "BAD"/
15486  063706  043516  044440  020124
15487  063714  040502  045503  052040
15488  063722  044527  042503  020054
15489  063730  040503  051525  042105
15490  063736  051040  041510  031523
15491  063744  052040  020117  040510
15492  063752  042526  053440  047522
15493  063760  043516  053040  046101
15494  063766  042525  043440  053111
15495  063774  047105  044440  020116
15496  064002  041042  042101  000042
15497  064010  043101  042524  020122  EM143:  .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
15498  064016  046103  040505  044522
15499  064024  043516  052040  042510
15500  064032  051040  020110  047101
15501  064040  020104  051127  052111
15502  064046  047111  020107  053524
15503  064054  020117  047527  042122
15504  064062  044440  052116  020117
15505  064070  044122  041104  040440
15506  064076  042116  005015
15507  064102  042522  042101  047111          .ASCIZ  /READING IT BACK TWICE, CAUSED RHBA TO HAVE WRONG VALUE GIVEN IN "BAD"/
15508  064110  020107  052111  041040
```

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 15509  064116  041501  020113  053524
 15510  064124  041511  026105  041440
 15511  064132  052501  042523  020104
 15512  064140  044122  040502  052040
 15513  064146  020117  040510  042526
 15514  064154  053440  047522  043516
 15515  064162  053040  046101  042525
 15516  064170  043440  053111  047105
 15517  064176  044440  020116  041042
 15518  064204  042101  000042
 15519  064210  043101  042524  020122  EM144:  .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
 15520  064216  046103  040505  044522
 15521  064224  043516  052040  042510
 15522  064232  051040  020110  047101
 15523  064240  020104  051127  052111
 15524  064246  047111  020107  053524
 15525  064254  020117  047527  042122
 15526  064262  044440  052116  020117
 15527  064270  044122  041104  040440
 15528  064276  042116  005015
 15529  064302  042522  042101  047111         .ASCIZ  /READING IT BACK TWICE, CAUSED RHBAE TO HAVE WRONG VALUE GIVEN IN "BAD"/
 15530  064310  020107  052111  041040
 15531  064316  041501  020113  053524
 15532  064324  041511  026105  041440
 15533  064332  052501  042523  020104
 15534  064340  044122  040502  020105
 15535  064346  047524  044040  053101
 15536  064354  020105  051127  047117
 15537  064362  020107  040526  052514
 15538  064370  020105  044507  042526
 15539  064376  020116  047111  021040
 15540  064404  040502  021104     000
 15541  064411     101  052106  051105  EM145:  .ASCII  /AFTER CLEARING THE RH AND WRITING TWO WORD INTO RHDB AND/<15><12>
 15542  064416  041440  042514  051101
 15543  064424  047111  020107  044124
 15544  064432  020105  044122  040440
 15545  064440  042116  053440  044522
 15546  064446  044524  043516  052040
 15547  064454  047527  053440  051117
 15548  064462  020104  047111  047524
 15549  064470  051040  042110  020102
 15550  064476  047101  006504     012
 15551  064503     122  040505  044504         .ASCIZ  /READING IT BACK TWICE, CAUSED RHWC TO HAVE WRONG VALUE GIVEN IN "BAD"/
 15552  064510  043516  044440  020124
 15553  064516  040502  045503  052040
 15554  064524  044527  042503  020054
 15555  064532  040503  051525  042105
 15556  064540  051040  053510  020103
 15557  064546  047524  044040  053101
 15558  064554  020105  051127  047117
 15559  064562  020107  040526  052514
 15560  064570  020105  044507  042526
 15561  064576  020116  047111  021040
 15562  064604  040502  021104     000
 15563
 15564  064611     101  042040  053105  EM146:  .ASCII  /A DEVICE BASE ADDRESS DID NOT TIME OUT BUT/<15><12>
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15565  064616  041511  020105  040502
15566  064624  042523  040440  042104
15567  064632  042522  051523  042040
15568  064640  042111  047040  052117
15569  064646  052040  046511  020105
15570  064654  052517  020124  052502
15571  064662  006524     012
15572  064665     124  042510  041440          .ASCII  /THE CORRESPONDING VECTOR DID TIME OUT./<15><12>
15573  064672  051117  042522  050123
15574  064700  047117  044504  043516
15575  064706  053040  041505  047524
15576  064714  020122  044504  020104
15577  064722  044524  042515  047440
15578  064730  052125  006456     012
15579  064735     110  052111  041440          .ASCIZ  /HIT CONTINUE TO REPEAT VECTOR TIMEOUT/
15580  064742  047117  044524  052516
15581  064750  020105  047524  051040
15582  064756  050105  040505  020124
15583  064764  042526  052103  051117
15584  064772  052040  046511  047505
15585  065000  052125     000
15586  065003     101  042040  053105  EM147:  .ASCII  /A DEVICE BASE ADDRESS DID NOT TIME OUT/<15><12>
15587  065010  041511  020105  040502
15588  065016  042523  040440  042104
15589  065024  042522  051523  042040
15590  065032  042111  047040  052117
15591  065040  052040  046511  020105
15592  065046  052517  006524     012
15593  065053     102  052125  047040          .ASCIZ  /BUT NO UNIT NUMBERS HAD APPROPRIATE DRIVE TYPES/
15594  065060  020117  047125  052111
15595  065066  047040  046525  042502
15596  065074  051522  044040  042101
15597  065102  040440  050120  047522
15598  065110  051120  040511  042524
15599  065116  042040  044522  042526
15600  065124  052040  050131  051505
15601  065132     000
15602
15603
15604  065133     120  004503  044122  DH1:    .ASCII  /PC     RHDT/
15605  065140  052104
15606
15607  065142  041520  052411  044516  DH5:    .ASCII  /PC     UNIBUS ADDRESS ON WHICH TIME OUT OCCURRED/
15608  065150  052502  020123  042101
15609  065156  051104  051505  020123
15610  065164  047117  053440  044510
15611  065172  044103  052040  046511
15612  065200  020105  052517  020124
15613  065206  041517  052503  051122
15614  065214  042105
15615
15616  065216  041520  052011  051505  DH6:    .ASCII  /PC     TEST NO RHCS2   RHCS2/<15><12>
15617  065224  020124  047516  051040
15618  065232  041510  031123  051011
15619  065240  041510  031123  005015
15620  065246  004411  047507  042117          .ASCIZ  /               GOOD    BAD/
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 15621  065254  041011  042101     000
 15622
 15623  065261     120  004503  042524  DH7:    .ASCII  /PC     TEST    RHDB    RHDB/<15><12>
 15624  065266  052123  051011  042110
 15625  065274  004502  044122  041104
 15626  065302  005015
 15627  065304  047011  004517  047507          .ASCIZ  /       NO      GOOD    BAD/
 15628  065312  042117  041011  042101
 15629  065320     000
 15630
 15631  065321     120  004503  042524  DH11:   .ASCII  /PC     TEST    RHCS1   RHCS1/<15><12>
 15632  065326  052123  051011  041510
 15633  065334  030523  051011  041510
 15634  065342  030523  005015
 15635  065346  047011  004517  047507          .ASCIZ  /       NO      GOOD    BAD/
 15636  065354  042117  041011  042101
 15637  065362     000
 15638
 15639  065363     120  004503  042524  DH12:   .ASCII  /PC     TEST    RHCS3   RHCS3/<15><12>
 15640  065370  052123  051011  041510
 15641  065376  031523  051011  041510
 15642  065404  031523  005015
 15643  065410  047011  004517  047507          .ASCIZ  /       NO      GOOD    BAD/
 15644  065416  042117  041011  042101
 15645  065424     000
 15646
 15647  065425     120  004503  042524  DH13:   .ASCII  /PC     TEST    RHBA    RHBA/<15><12>
 15648  065432  052123  051011  041110
 15649  065440  004501  044122  040502
 15650  065446  005015
 15651  065450  047011  004517  047507          .ASCIZ  /       NO      GOOD    BAD/
 15652  065456  042117  041011  042101
 15653  065464     000
 15654
 15655  065465     120  004503  042524  DH14:   .ASCII  /PC     TEST    RHBAE   RHBAE/<15><12>
 15656  065472  052123  051011  041110
 15657  065500  042501  051011  041110
 15658  065506  042501  005015
 15659  065512  047011  004517  047507          .ASCIZ  /       NO      GOOD    BAD/
 15660  065520  042117  041011  042101
 15661  065526     000
 15662
 15663  065527     120  004503  042524  DH15:   .ASCII  /PC     TEST    RHWC    RHWC/<15><12>
 15664  065534  052123  051011  053510
 15665  065542  004503  044122  041527
 15666  065550  005015
 15667  065552  047011  004517  047507          .ASCIZ  /       NO      GOOD    BAD/
 15668  065560  042117  041011  042101
 15669  065566     000
 15670
 15671  065567     120  004503  042524  DH24:   .ASCII  /PC     TEST    WORD    RHDB    RHDB/<15><12>
 15672  065574  052123  053411  051117
 15673  065602  004504  044122  041104
 15674  065610  051011  042110  006502
 15675  065616     012
 15676  065617     011  047516  047011          .ASCIZ  /       NO      NO      GOOD    BAD/
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15677  065624  004517  047507  042117
15678  065632  041011  042101     000
15679
15680  065637     120  004503  042524  DH33:   .ASCII  /PC     TEST    RHER1   RHER1/<15><12>
15681  065644  052123  051011  042510
15682  065652  030522  051011  042510
15683  065660  030522  005015
15684  065664  047011  004517  047507          .ASCIZ  /      NO      GOOD    BAD/
15685  065672  042117  041011  042101
15686  065700     000
15687
15688  065701     120  004503  042524  DH45:   .ASCII  /PC     TEST    RHDA    RHDA/<15><12>
15689  065706  052123  051011  042110
15690  065714  004501  044122  040504
15691  065722  005015
15692  065724  047011  004517  047507          .ASCIZ  /      NO      GOOD    BAD/
15693  065732  042117  041011  042101
15694  065740     000
15695
15696  065741     120  004503  042524  DH104:  .ASCII  /PC     TEST    IPCK    RHCS3   RHCS3/<15><12>
15697  065746  052123  044411  041520
15698  065754  004513  044122  051503
15699  065762  004463  044122  051503
15700  065770  006463     012
15701  065773     011  047516  004411          .ASCIZ  /      NO              GOOD    BAD/
15702  066000  047507  042117  041011
15703  066006  042101     000
15704
15705  066011     120  004503  042524  DH105:  .ASCII  /PC     TEST    IPCK    RHCS2   RHCS2/<15><12>
15706  066016  052123  044411  041520
15707  066024  004513  044122  051503
15708  066032  004462  044122  051503
15709  066040  006462     012
15710  066043     011  047516  004411          .ASCIZ  /      NO              GOOD    BAD/
15711  066050  047507  042117  041011
15712  066056  042101     000
15713
15714  066061     120  004503  042524  DH106:  .ASCII  /PC     TEST    IPCK    RHCS1   RHCS1/<15><12>
15715  066066  052123  044411  041520
15716  066074  004513  044122  051503
15717  066102  004461  044122  051503
15718  066110  006461     012
15719  066113     011  047516  004411          .ASCIZ  /      NO              GOOD    BAD/
15720  066120  047507  042117  041011
15721  066126  042101     000
15722
15723  066131     120  004503  042524  DH111:  .ASCII  /PC     TEST    IPCK    RHBA    RHBA/<15><12>
15724  066136  052123  044411  041520
15725  066144  004513  044122  040502
15726  066152  051011  041110  006501
15727  066160     012
15728  066161     011  047516  004411          .ASCIZ  /      NO              GOOD    BAD/
15729  066166  047507  042117  041011
15730  066174  042101     000
15731
15732  066177     120  004503  042524  DH112:  .ASCII  /PC     TEST    IPCK    RHBAE   RHBAE/<15><12>
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15733  066204  052123  044411  041520
15734  066212  004513  044122  040502
15735  066220  004505  044122  040502
15736  066226  006505     012
15737  066231     011  047516  004411          .ASCIZ  /      NO            GOOD    BAD/
15738  066236  047507  042117  041011
15739  066244  042101     000
15740
15741  066247     120  004503  042524  DH113:  .ASCII  /PC    TEST    IPCK    RHWC    RHWC/<15><12>
15742  066254  052123  044411  041520
15743  066262  004513  044122  041527
15744  066270  051011  053510  006503
15745  066276     012
15746  066277     011  047516  004411          .ASCIZ  /      NO            GOOD    BAD/
15747  066304  047507  042117  041011
15748  066312  042101     000
15749  066315     120  004505  042524  DH132:  .ASCII  /PE    TEST    RHDS1   RHDS1/<15><12>
15750  066322  052123  051011  042110
15751  066330  030523  051011  042110
15752  066336  030523  005015
15753  066342  047011  004517  047507          .ASCIZ  /      NO      GOOD BAD/
15754  066350  042117  041040  042101
15755  066356     000
15756  066357     120  004503  042524  DH135:  .ASCII  /PC    TEST    PC OF   BIT WAIT  REG/<15><12>
15757  066364  052123  050011  020103
15758  066372  043117  041011  052111
15759  066400  053440  044501  020124
15760  066406  051040  043505  005015
15761  066414  047011  004517  040527          .ASCIZ  /      NO      WAT     FOR       ADDR/
15762  066422  004524  047506  004522
15763  066430  020040  042101  051104
15764  066436     000
15765  066437     120  004503  042524  DH137:  .ASCII  /PC    TEST    REG.    GOOD    BAD/<15><12>
15766  066444  052123  051011  043505
15767  066452  004456  047507  042117
15768  066460  041011  042101  005015
15769  066466  047011  004517  042101          .ASCIZ  /      NO      ADDR    DATA    DATA/
15770  066474  051104  042011  052101
15771  066502  004501  040504  040524
15772  066510     000
15773
15774  066511     120  020103  020040  DH146:  .ASCIZ  /PC      BASE    VECTOR/
15775  066516  020040  041040  051501
15776  066524  020105  020040  053040
15777  066532  041505  047524  000122
15778  066540  041520  020040  020040  DH147:  .ASCIZ  /PC      BASE ADDRESS/
15779  066546  020040  040502  042523
15780  066554  040440  042104  042522
15781  066562  051523     000
15782
15783
15784          066566                          .EVEN
15785
15786  066566  001116  001126  000000  DT1:    .WORD   $ERRPC,$BDDAT,0
15787  066574  001116  004046  004050  DT5:    .WORD   $ERRPC,RSCS1,RPCS1,TMCS1,MIXCS1,0
15788  066602  004052  004054  000000
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15789  066610  001116  004656  001124  DT6:    .WORD   $ERRPC,TSTNM,$GDDAT,$BDDAT,0
15790  066616  001126  000000
15791  066622  001116  004656  004664  DT24:   .WORD   $ERRPC,TSTNM,SILONM,$GDDAT,$BDDAT,0
15792  066630  001124  001126  000000
15793  066636  001116  004656  004662  DT104:  .WORD   $ERRPC,TSTNM,IP,$GDDAT,$BDDAT,0
15794  066644  001124  001126  000000
15795  066652  001116  004656  004662  DT105:  .WORD   $ERRPC,TSTNM,IP,$GDDAT,$BDDAT,0
15796  066660  001124  001126  000000
15797  066666  001116  004656  004662  DT106:  .WORD   $ERRPC,TSTNM,IP,$GDDAT,$BDDAT,0
15798  066674  001124  001126  000000
15799  066702  001116  004656  004672  DT135:  .WORD   $ERRPC,TSTNM,WAITBT,WAITPC,WAITRE,0
15800  066710  004666  004670  000000
15801  066716  001116  004656  001122  DT137:  .WORD   $ERRPC,TSTNM,$BDADR,$GDDAT,$BDDAT,0
15802  066724  001124  001126  000000
15803  066732  001116  005324  005326  DT146:  .WORD   $ERRPC,TESTDV,TESTVC,0
15804  066740  000000
15805  066742  001116  005324  000000  DT147:  .WORD   $ERRPC,TESTDV,0
15806
15807
15808
15809  066750      000      000          DF1:    .BYTE   0,0
15810  066752      000      000      000 DF5:    .BYTE   0,0,0,0,0
15811  066755      000      000
15812  066757      000      000      000 DF6:    .BYTE   0,0,0,0
15813  066762      000
15814  066763      000      000      000 DF24:   .BYTE   0,0,0,0,0
15815  066766      000      000
15816  066770      000      000      000 DF104:  .BYTE   0,0,0,0,0
15817  066773      000      000
15818  066775      000      000      000 DF105:  .BYTE   0,0,0,0,0
15819  067000      000      000
15820  067002      000      000      000 DF106:  .BYTE   0,0,0,0,0
15821  067005      000      000
15822  067007      000      000      000 DF135:  .BYTE   0,0,0,0,0
15823  067012      000      000
15824  067014      000      000      000 DF137:  .BYTE   0,0,0,0,0
15825  067017      000      000
15826  067021      000      000      000 DF146:  .BYTE   0,0,0
15827  067024      000      000          DF147:  .BYTE   0,0
15828                                           .EVEN
15829          000001                           .END
```

DERHAC.P11 SYMBOL TABLE

```
ACL    = 000040
ACU    = 100000
AOE    = 001000
APE    = 100000
AS     = 000016
ATA    = 100000
ATABLE  004674
ATTENT  005244
ATO    = 000001
AT1    = 000002
AT2    = 000004
AT3    = 000010
AT4    = 000020
AT5    = 000040
AT6    = 000100
AT7    = 000200
A16    = 000400
A17    = 001000
BA     = 000004
BAI    = 000010
BASEAD  004704
BASECH  042254
BASEMA  004712
BASEVC  004714
BASINX  004766
BASM    004722
BASP    004716
BASPAD  004706
BAST    004720
BASTAD  004710
BEGIN   005522
BEGIN2  005532
BFEVEN  003000
BFODD   003002
BIT0   = 000001
BIT00  = 000001
BIT01  = 000002
BIT02  = 000004
BIT03  = 000010
BIT04  = 000020
BIT05  = 000040
BIT06  = 000100
BIT07  = 000200
BIT08  = 000400
BIT09  = 001000
BIT1   = 000002
BIT10  = 002000
BIT11  = 004000
BIT12  = 010000
BIT13  = 020000
BIT14  = 040000
BIT15  = 100000
BIT2   = 000004
BIT3   = 000010
BIT4   = 000020
BIT5   = 000040
BIT6   = 000100
BIT7   = 000200
BIT8   = 000400
BIT9   = 001000
BOT    = 000002
BPI8   = 001400
BPTVEC= 000014
BSGIVA  004724
BSGIVV  004744
BUFEW   003000
BUFOW   003002
CC     = 000036
CHECK   040354
CHECKC  040412
CHECKT  040376
CH7    = 010000
CLDISK  040322
CLR    = 000040
CLRBIT  004654
CMNDRP  041572
CMNDRS  041502
CMNDTM  041710
COMAND  004642
COMND   004640
CR     = 000015
CRLF   = 000200
CSF    = 000002
CSU    = 000010
CS1    = 000000
CS2    = 000010
CA     = 000006
DB     = 000022
DBL    = 002000
DC     = 000034
DCK    = 100000
DCL    = 000100
DCLEAR  004142
DDISP  = 177570
DEN1   = 000400
DEN2   = 001000
DEN4   = 002000
DEVPNT  005300
DE1    = 000040
DFF20  = 000002
DFF5   = 000001
DF1     066750
DF104   066770
DF105   066775
DF106   067002
DF135   067007
DF137   067014
DF146   067021
DF147   067024
DF24    066763
DF5     066752
DF6     066757
DH1     065133
DH104   065741
DH105   066011
DH106   066061
DH11    065321
DH111   066131
DH112   066177
DH113   066247
DH12    065363
DH13    065425
DH132   066315
DH135   066357
DH137   066437
DH14    065465
DH146   066511
DH147   066540
DH15    065527
DH24    065567
DH33    065637
DH45    065701
DH5     065142
DH6     065216
DH7     065261
DIGB   = 000004
DISPLA  001142
DISPRE  000174
DLT    = 100000
DL64   = 000020
DMD    = 000001
DPEEW  = 020000
DPEOW  = 040000
DPR    = 000400
DRY    = 000200
DS     = 000012
CSWR   = 177570
DT     = 000026
DTE    = 010000
DTSY   = 001000
DT1     066566
DT104   066636
DT105   066652
DT106   066666
DT135   066702
DT137   066716
DT146   066732
DT147   066742
DT24    066622
DT5     066574
DT6     066610
DVA    = 004000
ECH    = 000100
ECI    = 004000
EC1    = 000044
EC2    = 000046
EMTVEC= 000030
EM1     046712
EM10    050404
EM104   060427
EM106   060665
EM11    050577
EM114   061156
EM116   061325
EM12    050772
EM124   061535
EM13    051165
EM132   061700
EM133   062056
EM134   062234
EM135   062424
EM136   062624
EM137   063026
EM14    051357
EM140   063154
EM141   063406
EM142   063607
EM143   064010
EM144   064210
EM145   064411
EM146   064611
EM147   065003
EM15    051552
EM16    051744
EM17    052137
EM2     047064
EM20    052331
EM21    052525
EM22    052725
EM23    053126
EM24    053323
EM25    053553
EM3     047266
EM33    054002
EM34    054116
EM35    054360
EM36    054556
EM37    055033
EM4     047422
EM45    055335
EM46    055573
EM5     047721
EM54    056074
EM56    056305
EM6     050074
EM60    056543
EM62    056754
EM64    057211
EM66    057421
EM7     050212
EM70    057660
EM76    060134
EPAR   = 000010
ERFLG$  005240
ERR    = 040000
ERRVEC= 000004
ER1    = 000014
ER2    = 000040
ER3    = 000042
EXT1   = 000001
EXT10  = 000010
EXT2   = 000002
EXT20  = 000020
EXT4   = 000004
EXT40  = 000040
FBAE    005466
FBASEA  005426
FC     = 000006
FCS3    005476
FDEVIC  005366
FDRIVR  005456
FEN    = 000200
FER    = 000020
FIRST   005242
FMT1   = 000020
FMT2   = 000040
FMT22  = 010000
FMT4   = 000100
FMT8   = 000200
FORBAE  004776
FRHNM   005436
FSLAVE  005446
FTYPE   005406
FUNITN  005376
FUTABL  004134
FVECTR  005416
GIVE    005006
GO     = 000001
GRV    = 000010
HCE    = 000200
HCI    = 002000
HCRC   = 000400
HERADD  005516
HT     = 000011
IAE    = 002000
```

```
IE    = 000100
ILF   = 000001
ILLEGL  004206
ILR   = 000002
IOTVEC= 000020
IP      004662
IPCK0 = 000001
IPCK1 = 000002
IPCK2 = 000004
IPCK3 = 000010
IR    = 000100
IXE   = 004000
KIPAR0= 172340
KIPAR1= 172342
KIPAR2= 172344
KIPAR3= 172346
KIPAR4= 172350
KIPAR5= 172352
KIPAR6= 172354
KIPAR7= 172356
KIPDR0= 172300
KIPDR1= 172302
KIPDR2= 172304
KIPDR3= 172306
KIPDR4= 172310
KIPDR5= 172312
KIPDR6= 172314
KIPDR7= 172316
LA    = 000020
LBT   = 002000
LERADD  005514
LF    = 000012
LOPCT   005000
LOPCT1  005002
LTRY    005320
MCLK  = 000002
MCPE  = 020000
MDPE  = 000400
MEMERR  005520
MHS   = 001000
MINX  = 000004
MIXCS1  004054
MMVEC = 000250
MOL   = 010000
MPE   = 000400
MR    = 000024
MRD   = 000020
MSE   = 000020
MSTCK = 000010
MWR   = 000040
MXF   = 001000
NED   = 010000
NEM   = 004000
NHS   = 002000
NML   = 000300
NMRHS   004764
NOGO    004644
NOPERA  004134
NTYPNT  005362
OCYL  = 100000
OF    = 000032
OFREV = 000200
OFSETC  004166
OF100 = 000004
OF200 = 000010
OF25  = 000001
OF400 = 000020
OF50  = 000002
OF800 = 000040
OPERSE  040654
OPI   = 020000
OR    = 000200
PAR   = 000010
PARE70= 000114
PARITY  037746
PAT   = 000020
PC    =%000007
PCJSR   040352
PE    = 020000
PERMX   005264
PERMXV  005274
PERNUM  005276
PERRP   005260
PERRPV  005270
PERRS   005256
PERRSV  005266
PERTU   005262
PERTUV  005272
PGE   = 002000
PIP   = 020000
PIRQ  = 177772
PIRQVE= 000240
PKACK   004172
PLU   = 020000
POINTT  005360
PRE   = C00020
PRESEN  004056
PRITEM  045100
PROG  = 001000
PR0   = 000000
PR1   = 000040
PR2   = 000100
PR3   = 000140
PR4   = 000200
PR5   = 000240
PR6   = 000300
PR7   = 000340
PS    = 177776
PSEL  = 002000
PSU   = 000001
PSW   = 177776
PUTREG  041442
PWRVEC= 000024
RDCHR = 104406
RDLIN = 104407
RDOCT = 104410
RDY   = 000200
READAT  004160
READIN  004174
RECALI  004140
REFOR   004162
REINTO  004424
RELEAS  004144
RESVEC= 000010
RETCL   004170
REVRED  004200
REVWRT  004204
REWIND  004176
RHAS    004076
RHBA    004064
RHBAE   004130
RHCA    004114
RHCC    004100
RHCCA   004116
RHCS1   004060
RHCS2   004070
RHCS3   004132
RHDA    004066
RHDB    004102
RHDST   004066
RHDS1   004072
RHDT    004106
RHEC1   004124
RHEC2   004126
RHER1   004074
RHER2   004120
RHER3   004122
RHFC    004066
RHLA    004100
RHMR    004104
RHOF    004112
RHSN    004110
RHTC    004112
RHWC    004062
RMR   = 000004
RPCS1   004050
RPVEC   002716
RPVECT  043056
RSCS1   004046
R0    =%000000
R1    =%000001
R2    =%000002
R3    =%000003
R4    =%000004
R5    =%000005
R6    =%000006
R7    =%000007
SC    = 100000
SC1   = 000100
SC10  = 001000
SC2   = 000200
SC20  = 002000
SC4   = 000400
SEECOM  004164
SERCH   004146
SETBIT  004652
SETSIZ  006522
SILONM  004664
SKI   = 040000
SLAVE   004660
SLVPR = 002000
SN    = 000030
SND1    006124
SP    =%000006
SPACFD  004202
SR0   = 177572
SR1   = 177574
SR2   = 177576
SR3   = 172516
SS1     007376
SS2     006536
SS3     010506
SS4     010530
SS5     010546
SS6     006612
SS7     006626
SS8     010554
STACK = 001000
START   005536
STKLMT= 177774
ST200   005012
SWR     001140
SWREG   000176
SW0   = 000001
SW00  = 000001
SW01  = 000002
SW02  = 000004
SW03  = 000010
SW04  = 000020
SW05  = 000040
SW06  = 000100
SW07  = 000200
SW08  = 000400
SW09  = 001000
SW1   = 000002
SW10  = 002000
SW11  = 004000
SW12  = 010000
SW13  = 020000
SW14  = 040000
SW15  = 100000
SW2   = 000004
SW3   = 000010
SW4   = 000020
SW5   = 000040
SW6   = 000100
SW7   = 000200
SW8   = 000400
SW9   = 001000
S1    = 000001
S2    = 000002
S4    = 000004
TBITVE= 000014
TC    = 000032
TDF   = 000040
TESTAD  040652
TESTDV  005324
TESTVC  005326
TFOUND  005322
TIEOUT  037610
TIMCNT  040456
TKVEC = 000060
TMCS1   004052
TMPSLV  005364
TMP0    005250
TMP1    005252
TMP4    005254
TN    = 000067
TOTALA  005246
TPVEC = 000064
TRAPVE= 000034
TRE   = 040000
TRK1  = 004000
TRK10 = 040000
TRK2  = 010000
TRK20 = 100000
TRK4  = 020000
TRTVEC= 000014
TSBAE   005140
TSBASE  005220
TSCOMD  005200
TSCS3   005160
TSDEVI  005034
TSINDX  005116
TSRHNO  005014
```

DERHAC.P11 SYMBOL TABLE

```
TSSLAV  005074
TSTNM   004656
TSTOTL  005114
TSTUNT  005506
TST1    006162
TST10   013276
TST11   013600
TST12   014126
TST13   014430
TST14   015112
TST15   016022
TST16   016734
TST17   017646
TST2    010632
TST20   020562
TST21   021476
TST22   022110
TST23   022404
TST24   022566
TST25   022750
TST26   023132
TST27   023326
TST3    011430
TST30   023610
TST31   024212
TST32   024614
TST33   025342
TST34   026070
TST35   026466
TST36   027064
TST37   027462
TST4    011732
TST40   030060
TST41   030306
TST42   030534
TST43   030762
TST44   031210
TST45   031444
TST46   031672
TST47   032120
TST5    012212
TST50   032346
TST51   032574
TST52   033022
TST53   033250
.     = 067026
TST54   033504
TST55   033732
TST56   034160
TST57   034406
TST6    012514
TST60   034634
TST61   035062
TST62   035316
TST63   035554
TST64   036012
TST65   036250
TST66   036506
TST67   036744
TST7    012774
TST70   037210
TSUNIT  005054
TSVEC   005120
TUF     = 000100
TYPDS   = 104405
TYPE    = 104401
TYPERR  046022
TYPNT   005330
TYPOC   = 104402
TYPON   = 104404
TYPOS   = 104403
UNIT    005010
UNLOAD  004136
UNS     = 040000
USEVEC  005004
US1     = 000001
US2     = 000002
US4     = 000004
UWR     = 000010
VECPNT  005310
VECTOR  005512
VUF     = 000002
VU30    = 010000
VV      = 000100
WAITBT  004672
WAITPC  004666
WAITRE  004670
WAIT.T  040460
WAT     = 104411
WATO    004646
WC      = 000002
WCE     = 040000
WCEEW   = 004000
WCEOW   = 010000
WCF     = 000040
WCU     = 000001
WLE     = 004000
WORKBS  004770
WORKNM  004772
WORKVC  004774
WORUNT  005510
WRCHDT  004152
WRCHEK  004150
WRFROM  004210
WRIDAT  004154
WRIFOR  004156
WRL     = 004000
WRTBIT  004650
WRU     = 000400
WSU     = 000004
$AUTOB  001134
$BDADR  001122
$BDDAT  001126
$BELL   001216
$CHARC  044040
$CMTAG  001100
$CM1    = 000006
$CM2    = 000014
$CM3    = 000006
$CM4    = 000006
$CNTLC  044543
$CNTLG  044555
$CNTLU  044550
$CRLF   001223
$DBLK   043614
$DOAGN  037564
$DTBL   043604
$ENDAD  037554
$ENDCT  037522
$ENDMG  037573
$ENULL  037570
$EOP    037466
$EOPCT  037514
$ERFLG  001103
$ERMAX  001115
$ERROR  044744
$ERRPC  001116
$ERRTB  001226
$ERRTY  045102
$ERTTL  001112
$ESCAP  001214
$FILLC  001156
$FILLS  001155
$GDADR  001120
$GDDAT  001124
$GET42  037544
$HD     = 000000
$HIOCT  044742
$ICNT   001104
$ILLUP  046674
$INTAG  001135
$ITEMB  001114
$LF     001224
$LPADR  001106
$LPERR  001110
$MNEW   044573
$MSWR   044562
$MXCNT  043376
$NULL   001154
$NWTST= 000001
$OCNT   046444
$OMODE  046446
$OVER   043362
$PASS   001100
$POWER  046702
$PWRAD  046670
$PWRDN  046530
$PWRMG  046664
$PWRUP  046602
$QUES   001222
$RDCHR  044334
$RDLIN  044424
$RDOCT  044604
$RDSZ   = 000011
$REGAD  001160
$REG0   001162
$REG1   001164
$REG2   001166
$REG3   001170
$REG4   001172
$REG5   001174
$RTNAD  037566
$SAVR6  046700
$SCOPE  043120
$SETUP= 000017
$SS1    = 000000
$STUP   = 177777
$SVLAD  043334
$SWR    = 167700
$SWRMK= 000000
$TIMES  001212
$TKB    001146
$TKCNT  044044
$TKINT  044064
$TKQEN= 044063
$TKQIN  044046
$TKQOU  044050
$TKQSR  044052
$TKS    001144
$TKSRV  044134
$TMP0   001176
$TMP1   001200
$TMP2   001202
$TMP3   001204
$TMP4   001206
$TMP5   001210
$TN     = 000071
$TPB    001152
$TPFLG  001157
$TPS    001150
$TRAP   046450
$TRAP2  046472
$TRP    = 000012
$TRPAD  046504
$TSTNM  001102
$TTYIN  044532
$TYPDS  043400
$TYPE   043624
$TYPEC  043774
$TYPEX  044042
$TYPOC  046246
$TYPON  046262
$TYPOS  046222
$XTSTR  043140
$$GET4= 000000
$OFILL  046445
```

```
ERRORS DETECTED:  0
DEFAULT GLOBALS GENERATED:  0

*DERHAC,DERHAC/SOL/PAGNUM=DERHAC.SML[400,4335],DERHAC.P11[400,4355]
RUN-TIME:  105 157 2 SECONDS
RUN-TIME RATIO:  327/265=1.2
CORE USED:  38K  (75 PAGES)
```