TC2-TC11

TEST 2

MD-11-DZTCB-D

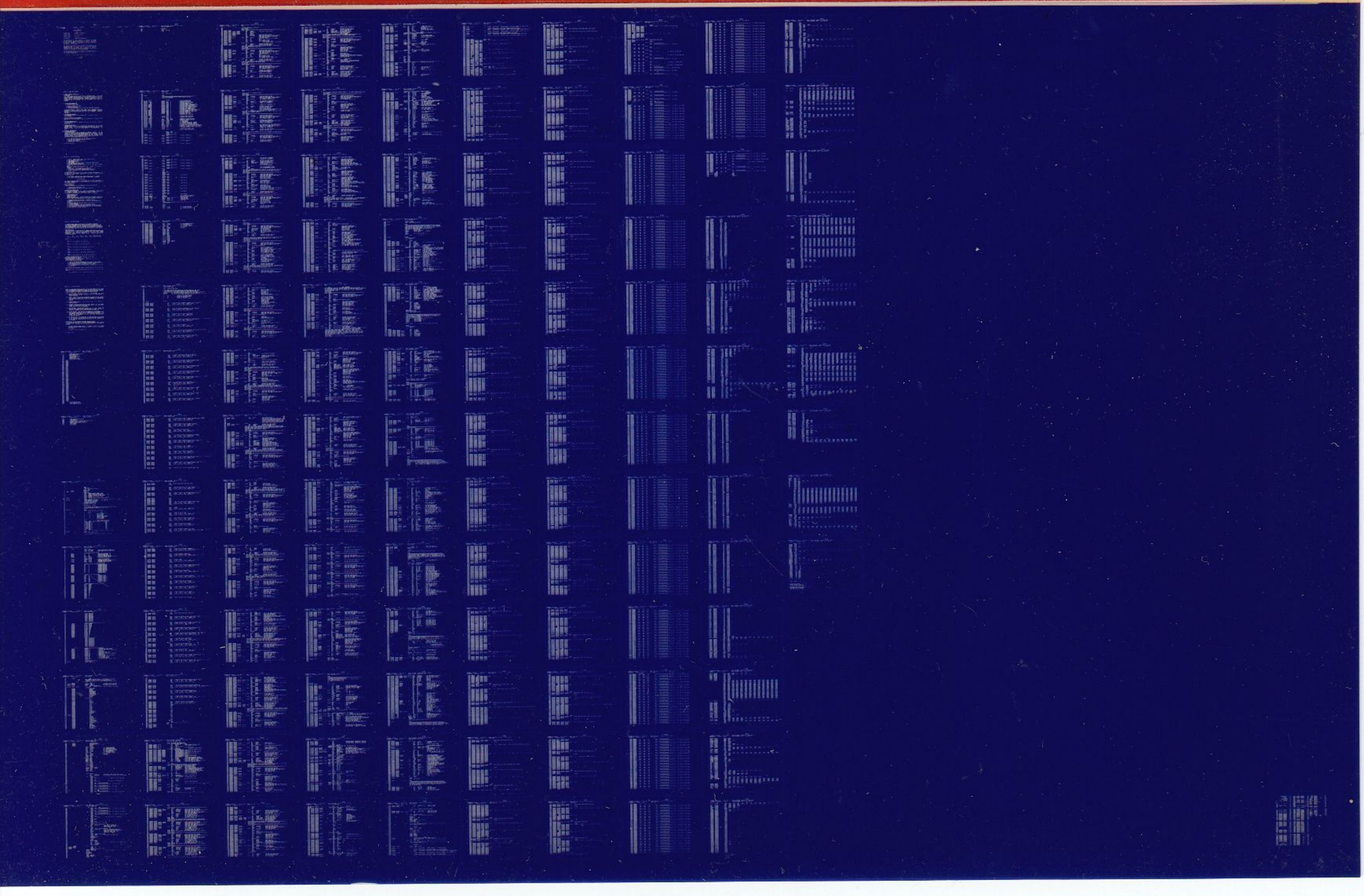
EP-DZTCB-D-DL-B

FICHE 1 OF 1

JUN 1977

digital

MADE IN USA



IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZTCB-D-D

PRODUCT NAME: TC2-TC11 TEST #2

PRODUCT DATE: JULY 1977

MAINTAINER: DIAGNOSTIC ENGINEERING

1.0 GENERAL PROGRAM INFORMATION
1.1 ABSTRACT
TC2 - TC11 TEST2 IS USED TO TEST THE TC11 DECTAPE CONTROL. TC2 USES THE MAINTENANCE BIT FEATURE OF THE TC11 CONTROL TO CHECK THE TC11 CONTROL WITHOUT DEPENDING ON DECTAPE TRANSPORT MOVEMENT. PRIOR TO ACTUAL USE OF THE MAINTENANCE BIT FEATURE, CORRECT OPERATION OF THE INTERRUPT CIRCUITS IS CHECKED, AND THE MAINTENANCE BIT ITSELF IS CHECKED.

2.1.2 SYSTEM REQUIREMENTS
1.21 HARDWARE REQUIREMENTS

A) PDP-11 SYSTEM (12k CORE).
B) ASR33/35 TELETYPE.
C) TC11 DECTAPE CONTROL AND AT LEAST ONE TU56 DUAL TRANSPORT.

THE TELETYPE AND TC11 CONTROL MUST HAVE THEIR STANDARD PERIPHERAL ADDRESSES, INTERRUPT LEVELS, AND INTERRUPT VECTOR ADDRESSES. REFER TO SECTION 7.2 IF YOUR SYSTEM DOES NOT HAVE STANDARD PERIPHERAL ADDRESSES.

1.11 SOFTWARE REQUIREMENTS
THIS PROGRAM IS ABLE TO RUN "STAND ALONE" OR UNDER CONTROL OF THE ACT11 MONITOR

1.3 RELATED DOCUMENTS AND STANDARDS
SEE THE ACT11/XXDP PROGRAMERS GUIDE FOR INFORMATION ON RUNNING UNDER ACT 11

1.4 SUGESTED PREREQUISITES
IT IS RECOMENDED THAT ALL MAINDECS THAT CHECK OUT THE BASIC CPU BE RUN BEFORE TC2.

1.5 FAILURE ASSUMPTIONS
THROUGHOUT THIS PROGRAM IT IS ASSUMED THAT THE BASIC CPU IS IN GOOD RUNNING ORDER. IF IT IS NOT THE INFORMATION GAINED BY RUNNING THIS PROGRAM IS LIKELY TO BE FALSE (OR NONEXISTANT IF THE PROGRAM WILL NOT RUN).

2.0 OPERATING INSTRUCTIONS
2.10 LOADING PROCEDURES
THIS PROGRAM'S OBJECT TAPE IS PUNCHED IN ABSOLUTE FORMAT. THE ABS LOADER IS USED TO LOAD THE PROGRAM UNDER STAND ALONE MODE. FOR FOR INFORMATION ON PROGRAM LOADING UNDER CONTROL OF THE VARIOUS MONITOR SYSTEMS, REFER TO THE DOCUMENTS NAMES IN SECTION 1.3 ABOVE. UNDER STAND ALONE MODE, AFTER ACERTAINING THAT THE ABS LOADER PROGRAM IS IN THE PDP-11, FOLLOW THESE STEPS TO LOAD TC2:

A) PUT THE TC2 BINARY TAPE INTO THE PAPER TAPE READER
B) SET THE PDP-11 CONSOLE SWITCHES TO 37750
C) DEPRESS LOAD ADDRESS
D) DEPRES START (TAPE SHOULD READ IN)

4.0 STARTING PROCEDURE

A) UNIT 0: REMOTE/WRITE LOCK/. ALL OTHER UNITS OFF.
B) WALL SWITCH ON, WRTM SWITCH OFF.
C) LOAD ADDRESS 000200.
D) PRESS START.
E) THE PROGRAM IDENTIFIES ITSELF, TYPES SETUP INSTRUCTIONS, SR OPTIONS MESSAGE, AND HALTS.
F) MAKE SURE THAT THE SETUP (STEPS A AND B) HAS BEEN PROPERLY DONE, AND SELECT DESIRED SR OPTIONS, IF ANY. NORMAL SR SETTING IS 000000.
G) PRESS CONT. THE PROGRAM BEGINS EXECUTION.
H) AT THE END OF EACH PASS THE PASS COUNT IS PRINTED
I) REFER TO SECTION 6.2 IF ERROR PRINTOUTS OCCUR.

2.4 EXECUTION TIME
EXECUTION TIME IS DEPENDENT ON WHICH MODEL OF PDP11 THE PROGRAM IS TO BE RUN ON. ANY TIMES GIVEN APPLY TO THE PDP-11 MODEL 40 UNLESS OTHERWISE STATED

A) ONE NORMAL ERROR FREE PASS TAKES APPROXIMATELY 10 SECONDS
B) ONE SINGLE ITERATION PASS (SR11=1) TAKES ABOUT 5 SECONDS.

******NOTE******

THE SINGLE ITERATION PASS IS A CONVENIENT WAY TO QUICKLY DETERMINE IF ANY SOLID PROBLEMS EXIST. FOR A THOROUGH TEST, THE NORMAL ITERATION PASS SHOULD BE RUN.

6.0 ERROR INFORMATION
ERRORS ARE REPORTED IN THIS PROGRAM BY THE FOLLOWING METHODS:

A) UNCONDITIONAL ERROR HALTS, OR
B) ERROR PRINTOUT FOLLOWED BY OPTIONAL ERROR HALT.

6.1 UNCONDITIONAL ERROR HALTS
AN UNCONDITIONAL ERROR HALT WILL OCCUR AT THE ADDRESSES LISTED BELOW IF THROUGH HARDWARE OR SOFTWARE FAILURE, PROGRAM CONTROL IS TRANSFERRED TO AN UNEXPECTED AREA BETWEEN 000000 AND 000176.

000002 RESERVED AREA
000016 DEBUG TRAP
000022 IOT TRAP
000040 THROUGH 000176 - SYSTEM SOFTWARE AND INTERRUPT VECTOR AREA

TO FIND OUT WHERE THE PROGRAM WAS AT THE TIME THE FAILURE OCCURRED,

A) EXAMINE CONTENTS OF REGISTER 6. (ADDRESS 177706).
B) TRANSFER THE CONTENTS OF REG 6 TO THE SR, LOAD ADDRESS AND EXAMINE.
C) THE DATA SHOWN IN THE DATA LIGHTS IS THE VALUE OF THE PC WHEN THE FAILURE OCCURRED.
D) LOCATE IN PROGRAM LISTING THE DISPLAYED PC VALUE.
E) THE INSTRUCTION THAT IMMEDIATELY PRECEDES THE ONE REFERENCED BY THE DISPLAYED PC VALUE IS THE INSTRUCTION THAT WAS/WAS BEING EXECUTED WHEN THE FAILURE OCCURRED.

AN UNCONDITIONAL ERROR HALT FAILURE IS AN ABNORMAL CONDITION INDICATING A HARDWARE FAILURE, OR MOST UNLIKELY, A PROGRAM FAILURE. THIS PROGRAM ASSUMES THAT THE PROCESSOR IS IN OPERATING CONDITION IN ORDER TO PERFORM ITS TESTS. ANY FURTHER STEPS REQUIRED TO DIAGNOSE AN AN UNCONDITIONAL ERROR HALT ARE NOT WITHIN THE SCOPE OF THIS PROGRAM.

6.2 ERROR PRINTOUTS

THERE ARE 2 TYPES OF ERROR PRINTOUTS, NORMAL ERROR PRINTOUTS AND FATAL ERROR PRINTOUTS. EACH TYPE IS GENERATED BY THE SYSMAC .SERROR SUBROUTINE. THE ".SERROR" SUBROUTINE IS CALLED BY AN "ERROR NN(TRAP+N)" STATEMENT IN THE PROGRAM LISTING. A NORMAL ERROR PRINTOUT LOOKS AS FOLLOWS:

PC	SP	PS	TEST	TCCM	TCST	ADDITIONAL INFO	
XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX

WHERE:

PC
XXXXXX IS THE ADDRESS OF THE ERROR CALL

SP
XXXXXX IS THE VALUE OF THE STACK POINTER

PS
XXXXXX IS THE VALUE OF THE PROCESSOR STATUS WORD

TEST
XXXXXX IS THE NUMBER OF THE FAILING ROUTINE

TCCM
XXXXXX IS THE VALUE OF THE DECTAPE COMMAND REGISTER

TCST
XXXXXX IS THE CONTENTS OF THE DECTAPE STATUS REGISTER

ADITIONAL INFORMATION CAN VARY FROM TEST TO TEST AND FURTHER DESCRIBES THE ERROR.
AFTER THE PRINTOUT IS COMPLETED, THE PROGRAM WILL HALT AT COMMON ERROR HALT IF SR15 IS SET.
WHEN AN ERROR PRINTOUT OCCURS:

A) LOOK UP THE ADDRESS REFERENCED BY PC OYYYYY IN THE LISTING.
B) OPPOSITE THE PC VALUE AN "ERROR" STATEMENT WILL BE FOUND, AND IN THE COMMENTS SECTION, A DESCRIPTION OF THE ERROR.
C) AT THE BEGINNING OF THE TEST ROUTINE A DESCRIPTION OF THE TEST WILL BE FOUND.

FATAL ERRORS ARE UNEXPECTED TRAPS TO EITHER LOCATION 4 OR TO LOCATION 10.
WHEN THESE OCCUR A FATAL ERROR MESSAGE IS PRINTED OUT IN THE FOLLOWING FORMAT.

FATAL ERROR TRAP TO LOC XX FROM LOCATION XXXXXX

WHERE X IS THE TRAP VECTOR LOCATION(4 OR 10) AND XXXXXX IS THE PLACE THAT THE PROGRAM WAS EXECUTING AT WHEN THE FATAL ERROR TRAP OCCURRED. AFTER THE MESSAGE IS PRINTED THE PROGRAM ATTEMPTS TO RESTART ITSELF AT LOCATION 000200 THE STANDARD SR OPTIONS ARE DESCRIBED HERE.

SR15 HALT ON ERROR. WITH SR15 SET TO A 1, THE PROGRAM WILL HALT AFTER AN ERROR OCCURS. PRESSING CONT WILL CAUSE PROGRAM TO RESUME OPERATION.

SR14 SCOPE. THIS OPTION CAUSES THE PROGRAM TO REMAIN IN THE CURRENT TEST ROUTINE. WHEN THE OPTION IS REMOVED, THE PROGRAM WILL COMPLETE THE CURRENT ROUTINE, AND WILL THEN GO ON TO THE NEXT ROUTINE.

SR13 INHIBIT ERROR PRINTOUT. THIS OPTION IF SET, WILL REMOVE ALL ERROR PRINTOUTS.

SR11 PROGRAM TO EXECUTE EACH TEST ONLY ONCE, INSTEAD OF THE NORMAL NUMBER OF ITERATIONS SELECTED FOR EACH TEST. THIS ALLOWS FOR A "QUICK CHECK" OF THE TC11 HARDWARE.

SR10 BELL ON ERROR. SETTING THIS SWITCH TO A 1 WILL CAUSE THE PROGRAM TO SOUND THE BELL WHEN AN ERROR IS FOUND. THIS SWITCH DOES NOT INTERFERE WITH THE FUNCTIONS OF SW15 AND SW13

SR08 SELECT ROUTINE. WITH SR8 SET,THE PROGRAM WILL RUN NORMALY UNTIL THE ROUTINE SPECIFIED IN SR7 THROUGH SR0 IS ENCOUNTERED. THE PROGRAM WILL REMAIN LOOPING IN THE SPECIFIED ROUTINE, UNTIL EITHER SR8 IS CHANGED, OR UNTIL THE VALUE OF SWITCHES SR7 THROUGH SR0 CHANGES

SR7-SR0 TEST SELLECT. THE NUMBER SET IN THESE SWITCHES IS THE NUMBER OF THE TEST THAT WILL BE LOCKED ONTO IF SR8 IS SET IF SR8 IS SET TO A 0 THEN SR7 THROUGH SR0 HAVE NO EFFECT ON THE OPERATION OF THE PROGRAM

7.2 TESTING TC11 AT NON-STANDARD ADDRESSES AND/OR VECTORS

THIS PROGRAM CAN TEST THE TC11 AT NON-STANDARD ADDRESSES AND VECTORS PROVIDED THOSE ADDRESSES AND VECTORS ARE PROVIDED TO THE PROGRAM AS FOLLOWS:

A) AFTER LOADING PROGRAM REFER TO PROGRAM LISTING AND CHANGE LOCATIONS 001004 THROUGH 001020 TO REFLECT THE NEW TC11 ADDRESSES AND VECTORS.

B) PROCEED TO USE THE PROGRAM, OR

7.0 PROGRAM LISTING

MAINDEC-11-DZTCB-D TC11 TEST #2 MACY11 27(1006) 18-FEB-77 11:33
DZTCB0.P11 18-FEB-77 10:59 TABLE OF CONTENTS

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MAINDEC-11-DZTCB-D      TC11 TEST #2    MACY11 27(1006)  18-FEB-77  11:33  PAGE 1
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                                        .ABS
                                        .ENABL AMA
                                        .LIST   MC,MD,BIN,LD,SEQ,ME
                                        .NLIST  CND
            167400                      $SWR=167400
            000000                      $TN=0
                                        .ENABL ABS
                                        .MCALL  .HEADER,.$CATCH,.SEOP,.EQUAT
                                        .MCALL  .SWRHI,.SWRLO,.$SCOPE,.SETUP
                                        .MCALL  .$TYPOCT,.$TYPDEC,.STRAP,.SPOWER
                                        .MCALL  .SERROR,.STYPE,STARS,.SERRTYP
                                        .MCALL  .$CMTAG
000000                                  .SETUP  <.$SCOPE,.SEOP,.SPOWER,.STRAP,.SERROR>
                                        .LIST
000000                                  .HEADER <MAINDEC-11-DZTCB-D     TC11 TEST #2>,<1972,1977>,<J. COMEAU>
                                        .TITLE  MAINDEC-11-DZTCB-D      TC11 TEST #2
                                        ;*COPYRIGHT (C) 1972,1977
                                        ;*DIGITAL EQUIPMENT CORP.
                                        ;*MAYNARD, MASS. 01754
                                        ;*
                                        ;*PROGRAM BY J. COMEAU
                                        ;*
                                        ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                                        ;*PACKAGE (MAINDEC-11-DZQAC-C3), JAN 19, 1977.
                                        ;*
000000                                  .SWRHI
                                        .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
                                        .LIST
                                        ;*         8            LOOP ON TEST IN SWR<7:0>
                                        .MACRO  .SWRLO  S07,S06,S05,S04,S03,S02,S01,S00
                                        .IIF NB <S07>,;*            7               S07
                                        .IIF NB <S06>,;*            6               S06
                                        .IIF NB <S05>,;*            5               S05
                                        .IIF NB <S04>,;*            4               S04
                                        .IIF NB <S03>,;*            3               S03
                                        .IIF NB <S02>,;*            2               S02
                                        .IIF NB <S01>,;*            1               S01
                                        .IIF NB <S00>,;*            0               S00
                                        .ENDM   .SWRLO
                                        ;*      7-0     # OF TEST TO LOOP ON IF SWR<8> IS SET
000000                                  .EQUAT
                                        .SBTTL  BASIC DEFINITIONS

                                        ;*INITIAL ADDRESS OF THE STACK POINTER *** 1100 ***
```

```
                        001100          STACK=  1100
                                        .EQUIV  EMT,ERROR       ;;BASIC DEFINITION OF ERROR CALL
                                        .EQUIV  TOT,SCOPE       ;;BASIC DEFINITION OF SCOPE CALL

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

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

                                        ;*PRIORITY LEVEL DEFINITIONS
                        000000          PR0=    0               ;;PRIORITY LEVEL 0
                        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
                                .LIST
                                ;MISCELANIOUS EQUATES
000000                          .$CATCH START
                                .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
                                                    .LIST
                    000174                          .=174
000174  000000                                      DISPREG: .WORD  0               ;;SOFTWARE DISPLAY REGISTER
000176  000000                                      SWREG:   .WORD  0               ;;SOFTWARE SWITCH REGISTER
                                                    .SBTTL  STARTING ADDRESS(ES)
000200  000137  002312                              JMP     @#START ;;JUMP TO STARTING ADDRESS OF PROGRAM
                                                    ;EQUATES
                    001000                          SPBOT=1000
                    000240                          NOP=240
                    000000                          OPEN=0
                    100000                          MANUAL=BIT15
                    005746                          PUSH=005746
                    024646                          PUSH2=024646
                    005726                          POPSP=005726
                    022626                          POPSP2=022626
                    000007                          BELL=007
                    177777                          TLAST=-1
                    000003                          TRC=3
                    000207                      RTSPC=207
                    000040                          I=40
                    177777                          X=-1
                    100000                          A=BIT15
                    040000                          B=BIT14
                    020000                          C=BIT13
                    000000                          V0=0
                    000004                          V1=4
                    000010                          V2=10
                    000014                          V3=14
                    000020                          V4=20
                    000024                          V5=24
                    000030                          V6=30
                    000034                          V7=34
                    020000                          MAINT=BIT13
                    010000                          DINH=BIT12
                    004000                          REV=BIT11
                    000000                          FWD=0
000204  000240                                      NOP
                    000000                          U0=0
                    000400                          U1=BIT8
                    001000                          U2=BIT9
                    001400                          U3=BIT9!BIT8
                    002000                          U4=BIT10
                    002400                          U5=BIT10!BIT8
                    003000                          U6=BIT10!BIT9
                    003400                          U7=BIT10!BIT9!BIT8
                    000100                          IE=BIT6
                    000000                          SAT=0
                    000002                          RNUM=BIT1
                    000004                          RDATA=BIT2
                    000006                          RALL=BIT2!BIT1
                    000010                          SST=BIT3
                    000012                          WRTM=BIT3!BIT1
```

```
                        WDATA=BIT3!BIT2
                        WALL=BIT3!BIT2!BIT1
                        DO=BIT0
                        EMTX=0
                .MACRO  ADITAG
TCST:           177340                  ;TC11 STATUS REGISTER.
TCCM:           177342                  ;TC11 COMMAND REGISTER.
TCWC:           177344                  ;TC11 WORD COUNT REGISTER,
TCBA:           177346                  ;TC11 BUS ADDRESS REGISTER.
TCDT:           177350                  ;TC11 DATA REGISTER.
TCVTR:          214                     ;TC11 INTERRUPT VECTOR
TCLVL:          300                     ;TC11 INTERRUPT PRIORITY LEVEL.
TPS:            177564                  ;LSP CSR
TPB:            177566                  ;LSP BUFFER
COOCAL:         OPEN
RTNNO:          OPEN
NXTST:          OPEN
CURTST:         OPEN
CRBUF:          OPEN
CRBUFA:         OPEN
CTRA:           OPEN
SBDAT1:         50505
                127272
SBDAT2:         72727
                105050
SBDAT3:         72727
                105056
POWPUS:         .WORD   000000
POWPOP:         .WORD   000000
TCCMT:          OPEN
TCSTT:          OPEN
                .ENDM   ADITAG

                ;
                .MACRO  SETRAP
                MOV     #TRAP0,@#4      ;SETUP FATAL TRAP VECTOR JUST IN CASE
                MOV     #340,@#6        ;NO INTERRUPTS WHILE SERVICING FATAL ERRORS
                .ENDM   SETRAP
                .MACR   C55
                .BYTE   I,0,I,I,0,I             ;MTK CODE 55. REV END ZONE MARK.
                .ENDM
                .MACR   C25
                .BYTE   0,I,0,I,0,I             ;MTK CODE 25. EXTENSION MARK.
                .ENDM
                .MACR   C26     B0,B1,B2,B3,B4,B5
                .BYTE   0!B0,I!B1,0!B2,I!B3,I!B4,0!B5   ;FWD BLOCK MARK.
                .ENDM
                .MACR   C32     B0,B1,B2,B3,B4,B5
                 BYTE   0!B0,I!B1,I!B2,0!B3,I!B4,0!B5   ;REV GUARD.
                .ENDM
                .MACR   C10     B0,B1,B2,B3,B4,B5
                .BYTE   0!B0,0!B1,I!B2,0!B3,0!B4,0!B5   ;MTK CODE 10.
                .ENDM
                .MACR   C70     B0,B1,B2,B3,B4,B5
                .BYTE   I!B0,I!B1,I!B2,0!B3,0!B4,0!B5   ;MTK CODE 70. DATA MARK.
                .ENDM
```

```
                                .MACR   C73     B0,B1,B2,B3,B4,B5
                                .BYTE   I!B0,I!B1,I!B2,0!B3,I!B4,I!B5   ;MTK CODE 73. DATA MARK.
                                .ENDM
                                .MACR   C51     B0,B1,B2,B3,B4,B5
                                .BYTE   I!B0,0!B1,I!B2,0!B3,0!B4,I!B5   ;MTK CODE 51. FWD GUARD.
                                .ENDM
                                .MACR   C45     B0,B1,B2,B3,B4,B5
                                .BYTE   I!B0,0!B1,0!B2,I!B3,0!B4,I!B5   ;MTK CODE 45. REV BLOCK MARK.
                                .ENDM
                                .MACR   C22
                                .BYTE   0,I,0,0,I,0             ;MTK CODE 22. FWD END ZONE.
                                .ENDM
                                .MACR   CEND
                                .BYTE   -1
                                .ENDM
                                .MACR   EMTE
                                .BYTE   I,I,I,0,0,I
                                .ENDM
                                .MACR   MTCOD   MTADR,CNT
                                JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
                                MTADR                   ;ADDRESS OF MARK TRACK CODES.
                                CNT                     ;MARK TRACK CODE COUNT.
                                .ENDM
                                .MACR   MTCOE   CALADR,MTADR,CNT
                                JSR     R5,LMTCOE       ;CALL LOAD MT CODES SUBROUTINE.
                                CALADR                  ;ADDR TO GO AFTER EACH CODE PASSED.
                                MTADR                   ;ADDRESS OF MARK TRACK CODES.
                                CNT                     ;MARK TRACK CODE COUNT.
                                .ENDM
                                .MACR   EMTDEF  NAMEA,NAMEB
                                .WORD   NAMEB           ;POINTER FOR EMT CALL NAMEA
                                .NLIST
                                NAMEA=EMT+EMTX
                                EMTX=EMTX+1
                                .LIST
                                .ENDM
                                .MACRO SCOMAC
                                CLR     @TCCM
                                CLR     2(SP)           ;PS TO =0 AFTER WE EXIT THE SCOPE ROUTINE
                                JSR     PC,SRSETT
                                JSR     PC,RSTMTK
                                .ENDM   SCOMAC
        000050                  .=50
000050  000000                  .WORD   0
000052  000000                  .WORD   0
000054                          .SCMTAG 10,10,ADITAG,1100
                        .MACRO  $SCMREG A,B
                $REG'A: .WORD   0               ;;CONTAINS (($REGAD)+'B)
                .NLIST
                $CM1=$CM1+1
                $CM2=$CM2+2
                .LIST
                .ENDM   $SCMREG
                .MACRO  $SCMTMP A
                $TMP'A: .WORD   0               ;;USER DEFINED
                .NLIST
```

```
337                                 $CM4=$CM4+1
338                                 .LIST
339                                 .ENDM   $$CMTMP
340                                 .PAGE
```

```
                                .SBTTL  COMMON TAGS

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

                                        .=1100
001100                          $CMTAG:                 ;;START OF COMMON TAGS
001100  000000                  $PASS:  .WORD   0        ;;CONTAINS PASS COUNT
001102  000                     $TSTNM: .BYTE   0        ;;CONTAINS THE TEST NUMBER
001103  000                     $ERFLG: .BYTE   0        ;;CONTAINS ERROR FLAG
001104  000000                  $ICNT:  .WORD   0        ;;CONTAINS SUBTEST ITERATION COUNT
001106  000000                  $LPADR: .WORD   0        ;;CONTAINS SCOPE LOOP ADDRESS
001110  000000                  $LPERR: .WORD   0        ;;CONTAINS SCOPE RETURN FOR ERRORS
001112  000000                  $ERTTL: .WORD   0        ;;CONTAINS TOTAL ERRORS DETECTED
001114  000                     $ITEMB: .BYTE   0        ;;CONTAINS ITEM CONTROL BYTE
001115  001                     $ERMAX: .BYTE   1        ;;CONTAINS MAX. ERRORS PER TEST
001116  000000                  $ERRPC: .WORD   0        ;;CONTAINS PC OF LAST ERROR INSTRUCTION
001120  000000                  $GDADR: .WORD   0        ;;CONTAINS ADDRESS OF 'GOOD' DATA
001122  000000                  $BDADR: .WORD   0        ;;CONTAINS ADDRESS OF 'BAD' DATA
001124  000000                  $GDDAT: .WORD   0        ;;CONTAINS 'GOOD' DATA
001126  000000                  $BDDAT: .WORD   0        ;;CONTAINS 'BAD' DATA
001130  000000                          .WORD   0        ;;RESERVED--NOT TO BE USED
001132  000000                          .WORD   0
001134  000                     $AUTOB: .BYTE   0        ;;AUTOMATIC MODE INDICATOR
001135  000                     $INTAG: .BYTE   0        ;;INTERRUPT MODE INDICATOR
001136  000000                          .WORD   0
001140  177570                  SWR:    .WORD   DSWR     ;;ADDRESS OF SWITCH REGISTER
001142  177570                  DISPLAY: .WORD  DDISP    ;;ADDRESS OF DISPLAY REGISTER
001144  177560                  $TKS:   177560           ;;TTY KBD STATUS
001146  177562                  $TKB:   177562           ;;TTY KBD BUFFER
001150  177564                  $TPS:   177564           ;;TTY PRINTER STATUS REG. ADDRESS
001152  177566                  $TPB:   177566           ;;TTY PRINTER BUFFER REG. ADDRESS
001154  000                     $NULL:  .BYTE   0        ;;CONTAINS NULL CHARACTER FOR FILLS
001155  002                     $FILLS: .BYTE   2        ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
001156  012                     $FILLC: .BYTE   12       ;;INSERT FILL CHARS. AFTER A "LINE FEED"
001157  000                     $TPFLG: .BYTE   0        ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
                                .LIST
001160  000000                  $REGAD: .WORD   0        ;;CONTAINS THE ADDRESS FROM
                                                         ;;WHICH  ($REG0) WAS OBTAINED
                                .LIST
000010                                  .REPT   $CM3
                                        $SCMREG \$CM1,\$CM2
                                        .ENDR
001162                                  $SCMREG \$CM1,\$CM2
001162  000000                  $REG0:  .WORD   0        ;;CONTAINS (($REGAD)+0)
                                .LIST
001164                                  $SCMREG \$CM1,\$CM2
001164  000000                  $REG1:  .WORD   0        ;;CONTAINS (($REGAD)+2)
                                .LIST
001166                                  $SCMREG \$CM1,\$CM2
001166  000000                  $REG2:  .WORD   0        ;;CONTAINS (($REGAD)+4)
                                .LIST
001170                                  $SCMREG \$CM1,\$CM2
001170  000000                  $REG3:  .WORD   0        ;;CONTAINS (($REGAD)+6)
```

```
                                .LIST
001172                          $$CMREG \$CM1,\$CM2
001172  000000          $REG4:  .WORD   0               ;;CONTAINS (($REGAD)+10)
                                .LIST
001174                          $$CMREG \$CM1,\$CM2
001174  000000          $REG5:  .WORD   0               ;;CONTAINS (($REGAD)+12)
                                .LIST
001176                          $$CMREG \$CM1,\$CM2
001176  000000          $REG6:  .WORD   0               ;;CONTAINS (($REGAD)+14)
                                .LIST
001200                          $$CMREG \$CM1,\$CM2
001200  000000          $REG7:  .WORD   0               ;;CONTAINS (($REGAD)+16)
                                .LIST
                                .LIST
        000010                  .REPT   10
                                $$CMTMP \$CM4
                                .ENDR
001202                          $$CMTMP \$CM4
001202  000000          $TMP0:  .WORD   0               ;;USER DEFINED
                                .LIST
001204                          $$CMTMP \$CM4
001204  000000          $TMP1:  .WORD   0               ;;USER DEFINED
                                .LIST
001206                          $$CMTMP \$CM4
001206  000000          $TMP2:  .WORD   0               ;;USER DEFINED
                                .LIST
001210                          $$CMTMP \$CM4
001210  000000          $TMP3:  .WORD   0               ;;USER DEFINED
                                .LIST
001212                          $$CMTMP \$CM4
001212  000000          $TMP4:  .WORD   0               ;;USER DEFINED
                                .LIST
001214                          $$CMTMP \$CM4
001214  000000          $TMP5:  .WORD   0               ;;USER DEFINED
                                .LIST
001216                          $$CMTMP \$CM4
001216  000000          $TMP6:  .WORD   0               ;;USER DEFINED
                                .LIST
001220                          $$CMTMP \$CM4
001220  000000          $TMP7:  .WORD   0               ;;USER DEFINED
                                .LIST
001222  000000          $TIMES: 0                       ;;MAX. NUMBER OF ITERATIONS
001224  000000          $ESCAPE:0                       ;;ESCAPE ON ERROR ADDRESS
001226  177607  000377  $BELL:  .ASCIZ  <207><377><377> ;;CODE FOR BELL
001232     077          $QUES:  .ASCII  /?/             ;;QUESTION MARK
001233     015          $CRLF:  .ASCII  <15>            ;;CARRIAGE RETURN
001234  000012          $LF:    .ASCIZ  <12>            ;;LINE FEED
001236                          STARS
                                ;;*****************************************************************
                                .IRP A,<ADITAG>
                                A
                                .ENDM
001236                          ADITAG
001236  177340          TCST:   177340                  ;TC11 STATUS REGISTER.
001240  177342          TCCM:   177342                  ;TC11 COMMAND REGISTER.
001242  177344          TCWC:   177344                  ;TC11 WORD COUNT REGISTER,
```

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001244  177346          TCBA:   177346          ;TC11 BUS ADDRESS REGISTER.
001246  177350          TCDT:   177350          ;TC11 DATA REGISTER.
001250  000214          TCVTR:  214             ;TC11 INTERRUPT VECTOR
001252  000300          TCLVL:  300             ;TC11 INTERRUPT PRIORITY LEVEL.
001254  177564          TPS:    177564          ;LSP CSR
001256  177566          TPB:    177566          ;LSP BUFFER
001260  000000          CODCAL: OPEN
001262  000000          RTNNO:  OPEN
001264  000000          NXTST:  OPEN
001266  000000          CURTST: OPEN
001270  000000          CRBUF:  OPEN
001272  000000          CRBUFA: OPEN
001274  000000          CTRA:   OPEN
001276  050505          SBDAT1: 50505
001300  127272                  127272
001302  072727          SBDAT2: 72727
001304  105050                  105050
001306  072727          SBDAT3: 72727
001310  105056                  105056
001312  000000          POWPUS: .WORD   000000
001314  000000          POWPOP: .WORD   000000
001316  000000          TCCMT:  OPEN
001320  000000          TCSTT:  OPEN
                        .PAGE
```

```
                                .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 SITEMB, THIS NUMBER INDICATES WHICH ITEM IN THE TABLE IS PERTINENT.
                                ;*NOTE1:        IF SITEMB IS 0 THE ONLY PERTINENT DATA IS (SERRPC).
                                ;*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


001322                          $ERRTB:

001322  016115                          EM1     ;"SAT (STOP ALL TRANSPORTS) COMMAND DID NOT CLEAR READY"
001324  016203                          EH1     ;"  PC      SP      PS     TEST#   TCCM    TCST"
001326  016262                          ET1     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001330  000000                          000000

001332  016300                          EM2     ;"SST (STOP SELECTED TRANSPORT) DID NOT CLEAR READY"
001334  016362                          EH2     ;"  PC      SP      PS     TEST#   TCCM    TCST"
001336  016440                          ET2     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001340  000000                          000000

001342  016456                          EM3     ;"READY BIT DID NOT CAUSE AN INTERRUPT"
001344  016523                          EH3     ;"  PC      SP      PS     TEST#   TCCM    TCST"
001346  016602                          ET3     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001350  000000                          000000

001352  016620                          EM4     ;"READY BIT CAUSED AN INTERRUPT WITH PROCESSOR AND TC11 AT SAME PRIORITY
001354  016727                          EH4     ;"  PC      SP      PS     TEST#   TCCM    TCST"
001356  017006                          ET4     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001360  000000                          000000

001362  017024                          EM5     ;"TC11 FAILED TO INTERRUPT"
001364  017055                          EH5     ;"  PC      SP      PS     TEST#   TCCM    TCST"
001366  017134                          ET5     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001370  000000                          000000

001372  017152                          EM6     ;"TC11 DID NOT DROP INTERRUPT REQUEST AFTER IT WAS ACKNOLEDGED"
001374  017247                          EH6     ;"  PC      SP      PS     TEST#   TCCM    TCST"
001376  017326                          ET6     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001400  000000                          000000

001402  017344                          EM7     ;"DOING A RESET INSTRUCTION DID NOT CLEAR UPS"
001404  017420                          EH7     ;"  PC      SP      PS     TEST#   TCCM    TCST"
001406  017476                          ET7     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001410  000000                          000000
```

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533
534
535  001412  017514                    EM10    ;"ENTERING MAINTANENCE MODE DID NOT SET UPS"
536  001414  017566                    EH10    ;"  PC      SP      PS     TEST#   TCCM    TCST"
537  001416  017644                    ET10    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
538  001420  000000                    000000
539
540
541  001422  017662                    EM11    ;"UPS DID NOT CLEAR WHEN LEAVING MAINTANENCE MODE"
542  001424  017742                    EH11    ;"  PC      SP      PS     TEST#   TCCM    TCST"
543  001426  020020                    ET11    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
544  001430  000000                    000000
545
546
547  001432  020036                    EM12    ;"TCST BIT 0 CAN BE SET WHILE IN MAINTANENCE MODE"
548  001434  020116                    EH12    ;"  PC      SP      PS     TEST#   TCCM    TCST"
549  001436  020174                    ET12    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
550  001440  000000                    000000
551
552
553  001442  020212                    EM13    ;"TCST BIT 1 CAN BE SET WHILE IN MAINTANENCE MODE"
554  001444  020272                    EH13    ;"  PC      SP      PS     TEST#   TCCM    TCST"
555  001446  020350                    ET13    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
556  001450  000000                    000000
557
558
559  001452  020366                    EM14    ;"WRTM COMMAND WITH WRTM SWITCH DISABLED FAILED TO SET ILO ERROR"
560  001454  020465                    EH14    ;"  PC      SP      PS     TEST#   TCCM    TCST"
561  001456  020544                    ET14    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
562  001460  000000                    000000
563
564
565  001462  020562                    EM15    ;"ILO ERROR FAILED TO SET THE 'ERROR' BIT"
566  001464  020632                    EH15    ;"  PC      SP      PS     TEST#   TCCM    TCST"
567  001466  020710                    ET15    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
568  001470  000000                    000000
569
570
571  001472  020726                    EM16    ;"CLEARING ILLEGAL OP FAILED TO CLEAR ILO ERROR"
572  001474  021004                    EH16    ;"  PC      SP      PS     TEST#   TCCM    TCST"
573  001476  021062                    ET16    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
574  001500  000000                    000000
575
576
577  001502  021100                    EM17    ;"CLEARING ILLEGAL OP FAILED TO CLEAR THE 'ERROR' BIT"
578  001504  021164                    EH17    ;"  PC      SP      PS     TEST#   TCCM    TCST"
579  001506  021242                    ET17    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
580  001510  000000                    000000
581
582
583  001512  021260                    EM20    ;"WRTM WITH WRTM SWITCH OFF DID NOT SET ILO ERROR BIT"
584  001514  021344                    EH20    ;"  PC      SP      PS     TEST#   TCCM    TCST"
585  001516  021422                    ET20    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
586  001520  000000                    000000
587
588
```

```
001522  021440                  EM21    ;"ILO ERROR SETTING DID NOT CAUSE THE 'ERROR' BIT TO SET"
001524  021527                  EH21    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001526  021606                  ET21    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001530  000000                          000000

001532  021624                  EM22    ;"CLEARING ERROR BIT ALSO CLEARED ILO ERROR"
001534  021676                  EH22    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001536  021754                  ET22    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001540  000000                          000000

001542  021772                  EM23    ;"THE 'ERROR' BIT DID NOT SET"
001544  022026                  EH23    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001546  022104                  ET23    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001550  000000                          000000

001552  022122                  EM24    ;"THE 'ERROR' BIT SET DID NOT CAUSE AN INTERRUPT"
001554  022201                  EH24    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001556  022260                  ET24    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001560  000000                          000000

001562  022276                  EM25    ;"DOING A RESET INSTRUCTION DID NOT SET THE READY BIT"
001564  022362                  EH25    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001566  022440                  ET25    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001570  000000                          000000

001572  022456                  EM26    ;"TEST EXECUTION IS OUT OF ORDER"
001574  022515                  EH26    ;"  PC      SP      PS     TEST#  TEST# S/B"
001576  022570                  ET26    ;$ERRPC,$REG6,$REG7,$REG5,TEST# S/B
001600  000000                          000000

001602  022604                  EM27    ;"ERROR TRYING TO READ A BLOCK MARK"
001604  022646                  EH27    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001606  022724                  ET27    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001610  000000                          000000

001612  022742                  EM30    ;"READY WAS NOT SET AFTER BLOCK MARK WAS SHIFTED INTO THE WINDOW REGISTE
001614  023052                  EH30    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001616  023130                  ET30    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001620  000000                          000000

001622  023146                  EM31    ;"INCORRECT BLOCK # IN DATA REG AFTER BLOCK MARK WAS DETECTED"
001624  023242                  EH31    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001626  023342                  ET31    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001630  000000                          000000

001632  023364                  EM32    ;"MTE WAS NOT SET BY AN ILLEGAL MARK TRACK CODE"
001634  023442                  EH32    ;"  PC      SP      PS     TEST#   TCCM    TCST"
```

```
001636  023520                  ET32    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001640  000000                  000000
001642  023536                  EM33    ;"MTE SETTING FAILED TO SET THE 'ERROR' BIT"
001644  023610                  EH33    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001646  023666                  ET33    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001650  000000                  000000
001652  023704                  EM34    ;"ENDZ BIT DID NOT SET WHEN ENDZ MARK DETECTED"
001654  023761                  EH34    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001656  024040                  ET34    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001660  000000                  000000
001662  023704                  EM34
001664  023761                  EH34
001666  024040                  ET34
001670  000000                  0000
001672  024234                  EM36    ;"MARK TRACK CODE 55 WAS MISTAKEN FOR END ZONE"
001674  024311                  EH36    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001676  024370                  ET36    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001700  000000                  000000
001702  024406                  EM37    ;"ERROR"
001704  024414                  EH37    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001706  024472                  ET37    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001710  000000                  000000
001712  024510                  EM40    ;"READY BIT DID NOT SET"
001714  024536                  EH40    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001716  024614                  ET40    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001720  000000                  000000
001722  024632                  EM41    ;"THE 'ERROR' BIT SHOULD NOT HAVE SET"
001724  024676                  EH41    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001726  024754                  ET41    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001730  000000                  000000
001732  024772                  EM42    ;"READY BIT SHOULD NOT HAVE SET"
001734  025030                  EH42    ;"  PC      SP      PS     TEST#   TCCM    TCST"
001736  025106                  ET42    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001740  000000                  000000
001742  025124                  EM43    ;"WORD TRANSFERED INCORRECTLY TO CORE"
001744  025170                  EH43    ;"  PC      SP      PS     TEST#   TCCM    TCST    RBUF    RBUF S/B"
001746  025272                  ET43    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF    RBUF S/B
001750  000000                  000000
```

```
001752  025314                  EM44    ;"WORD COUNT INCREMENTED IMPROPERLY"
001754  025356                  EH44    ;"  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
001756  025460                  ET44    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
001760  000000                  000000
001762  025502                  EM45    ;"TCBA INCREMENTED IMPROPERLY"
001764  025536                  EH45    ;"  PC      SP      PS      TEST#   TCCM    TCST    TCBA"
001766  025640                  ET45    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCBA
001770  000000                  000000
001772  025662                  EM46    ;"PARITY ERROR"
001774  025677                  EH46    ;"  PC      SP      PS      TEST#   TCCM    TCST"
001776  025756                  ET46    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002000  000000                  000000
002002  025774                  EM47    ;"READY DID NOT SET AFTER READING WAS COMPLETED"
002004  026052                  EH47    ;"  PC      SP      PS      TEST#   TCCM    TCST"
002006  026130                  ET47    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002010  000000                  000000
002012  026146                  EM50    ;"TRANSFERED TOO MANY WORDS"
002014  026200                  EH50    ;"  PC      SP      PS      TEST#   TCCM    TCST    RBUF+2"
002016  026270                  ET50    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+2
002020  000000                  000000
002022  026310                  EM51    ;"TCBA CONTAINS AN INCORRECT ADDRESS"
002024  026353                  EH51    ;"  PC      SP      PS      TEST#   TCCM    TCST    TCBA    TCBA S/B"
002026  026454                  ET51    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCBA    TCBA S/B
002030  000000                  000000
002032  026476                  EM52    ;"PARRITY ERROR WAS NOT DETECTED"
002034  026535                  EH52    ;"  PC      SP      PS      TEST#   TCCM    TCST"
002036  026624                  ET52    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002040  000000                  000000
002042  026644                  EM53    ;"PARITY ERROR DID NOT SET THE 'ERROR' BIT"
002044  026715                  EH53    ;"  PC      SP      PS      TEST#   TCCM    TCST"
002046  027004                  ET53    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002050  000000                  000000
002052  027024                  EM54    ;"PARITY ERROR BIT WILL NOT CLEAR"
002054  027064                  EH54    ;"  PC      SP      PS      TEST#   TCCM    TCST"
002056  027152                  ET54    ;SERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002060  000000                  000000
002062  027172                  EM55    ;"BLOCK MISS SHOULD NOT HAVE SET"
002064  027231                  EH55    ;"  PC      SP      PS      TEST#   TCCM    TCST"
```

```
                                ET55    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002066  027320                  000000
002070  000000
                                EM56    ;"RDATA WAS ISSUED BUT BLOCK MISS FAILED TO SET"
                                EH56    ;"  PC      SP      PS     TEST#   TCCM    TCST"
002072  027340                  ET56    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002074  027416                  000000
002076  027504
002100  000000

                                EM57    ;"BLOCK MISS SETTING DID NOT SET THE 'ERROR' BIT"
                                EH57    ;"  PC      SP      PS     TEST#   TCCM    TCST"
002102  027524                  ET57    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002104  027603                  000000
002106  027672
002110  000000

                                EM60    ;"CLEARING ERROR BIT FAILED TO CLEAR BLOCK MISS"
                                EH60    ;"  PC      SP      PS     TEST#   TCCM    TCST"
002112  027712                  ET60    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002114  027770                  000000
002116  030056
002120  000000

                                EM61    ;"FORWARD CHECKSUM WAS WRITTEN INCORRECTLY INTO CORE"
                                EH61    ;"  PC      SP      PS     TEST#   TCCM    TCST   RBUF+514"
002122  030076                  ET61    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+514
002124  030161                  000000
002126  030260
002130  000000

                                EM62    ;"TCWC WAS MODIFIED DURRING RAL"
                                EH62    ;"  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
002132  030302                  ET62    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
002134  030340                  000000
002136  030426
002140  000000

                                EM63    ;"TCBA WAS MODIFIED DURRING RAL"
                                EH63    ;"  PC      SP      PS     TEST#   TCCM    TCST    TCBA"
002142  030446                  ET63    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCBA
002144  030504                  000000
002146  030606
002150  000000

                                EM64    ;"DATA MISS DID NOT SET"
                                EH64    ;"  PC      SP      PS     TEST#   TCCM    TCST"
002152  030626                  ET64    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002154  030654                  000000
002156  030742
002160  000000

                                EM65    ;"DATA MISS SETTING DID NOT CAUSE THE 'ERROR' BIT TO SET"
                                EH65    ;"  PC      SP      PS     TEST#   TCCM    TCST"
002162  030762                  ET65    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002164  031051                  000000
002166  031130
002170  000000

                                EM66    ;"CLEARING THE 'ERROR' BIT DID NOT CAUSE DATA MISS TO BE CLEARED"
                                EH66    ;"  PC      SP      PS     TEST#   TCCM    TCST"
002172  031146                  ET66    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002174  031245                  000000
002176  031324
002200  000000
```

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                                                EM67    ;"READY BIT WAS NOT SET AFTER THE DATA WAS WRITTEN"
                                                EH67    ;"  PC      SP      PS     TEST#   TCCM    TCST"
                                                ET67    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
                                                000000
                                                EM70    ;"THE REVERSE CHECKSUM WAS WRITTEN INCORRECTLY"
                                                EH70    ;"  PC      SP      PS     TEST#   TCCM    TCST   RBUF+512 RBUF+512 S/B
                                                ET70    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+512 RBUF+512 S/B
                                                000000
                                                EM71    ;"WORD COUNT MODIFIED DURRING WRITE ALL"
                                                EH71    ;"  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
                                                ET71    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
                                                000000
                                                EM72    ;"TCBA MODIFIED DURRING WRITE ALL"
                                                EH72    ;"  PC      SP      PS     TEST#   TCCM    TCST    TCBA"
                                                ET72    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCBA
                                                000000

                                                EM73    ;"SSI DID NOI CAUSE A SELECI ERROR"
                                                EH73    ;"  PC      SP      PS     TEST#   TCCM    TCST"
                                                ET73    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
                                                000000
                                                EM74
                                                EH74
                                                ET74
                                                0000

                                                EM75
                                                EH75
                                                ET75
                                                0000

                                                EM76
                                                EH76
                                                ET76
                                                0000

                                                EM77
                                                EH77
                                                ET77
                                                0000
                                .SETUP  <.$EOP,.$SCOPE,.$TRAP,.$ERROR,.$POWER>
                                .LIST
                                START:  NOP
                                        NOP
                                        NOP
                                        NOP
                                        SETUP   1000
```

```
                                        .SBTTL  INITIALIZE THE COMMON TAGS
                                        ;;CLEAR THE COMMON TAGS ($CMTAG) AREA
002322  012706  001100                          MOV     #$CMTAG,R6      ;;FIRST LOCATION TO BE CLEARED
002326  005026                                  CLR     (R6)+           ;;CLEAR MEMORY LOCATION
002330  022706  001140                          CMP     #SWR,R6 ;;DONE?
002334  001374                                  BNE     .-6             ;;LOOP BACK IF NO
002336  012706  001000                          MOV     #1000,SP                ;;SETUP THE STACK POINTER
                                        ;;INITIALIZE A FEW VECTORS
002342  012737  013324  000020                  MOV     #$SCOPE,@#IOTVEC ;;IOT VECTOR FOR SCOPE ROUTINE
002350  012737  000340  000022                  MOV     #340,@#IOTVEC+2 ;;LEVEL 7
002356  012737  013614  000030                  MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
002364  012737  000340  000032                  MOV     #340,@#EMTVEC+2 ;;LEVEL 7
002372  012737  015256  000034                  MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
002400  012737  000340  000036                  MOV     #340,@#TRAPVEC+2;LEVEL 7
002406  012737  014036  000024                  MOV     #$PWRON,@#PWRVEC ;;POWER FAILURE VECTOR
002414  012737  000340  000026                  MOV     #340,@#PWRVEC+2 ;;LEVEL 7
002422  013737  011546  011540                  MOV     $ENDCT,$EOPCT   ;;SETUP END-OF-PROGRAM COUNTER
002430  005037  001222                          CLR     $TIMES          ;;INITIALIZE NUMBER OF ITERATIONS
002434  005037  001224                          CLR     $ESCAPE         ;;CLEAR THE ESCAPE ON ERROR ADDRESS
002440  112737  000001  001115                  MOVB    #1,$ERMAX       ;;ALLOW ONE ERROR PER TEST
002446  012737  002446  001106                  MOV     #.,$LPADR       ;;INITIALIZE THE LOOP ADDRESS FOR SCOPE
002454  012737  002454  001110                  MOV     #.,$LPERR       ;;SETUP THE ERROR LOOP ADDRESS
                                        .LIST
002462                                          SWRSU
                                        ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
                                        ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
002462  013746  000004                          MOV     @#ERRVEC,-(SP)  ;;SAVE ERR. VECTOR
002466  012737  002522  000004                  MOV     #64$,@#ERRVEC   ;;SET UP ERROR VECTOR
002474  012737  177570  001140                  MOV     #DSWR,SWR       ;;SETUP FOR A HARDWARE SWICH REGISTER
002502  012737  177570  001142                  MOV     #DDISP,DISPLAY  ;;AND A HARDWARE DISPLAY REGISTER
002510  022777  177777  176422                  CMP     #-1,@SWR        ;;TRY TO REFERENCE HARDWARE SWR
002516  001012                                  BNE     66$             ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
                                                                        ;;AND  THE HARDWARE SWR IS NOT = -1
002520  000403                                  BR      65$             ;;BRANCH IF NO TIMEOUT
002522  012716  002530          64$:    MOV     #65$,(SP)       ;;SET UP FOR TRAP RETURN
002526  000002                          RTI
002530  012737  000176  001140  65$:    MOV     #SWREG,SWR      ;;POINT TO SOFTWARE SWR
002536  012737  000174  001142          MOV     #DISPREG,DISPLAY
002544  012637  000004          66$:    MOV     (SP)+,@#ERRVEC  ;;RESTORE ERROR VECTOR

002550  012706  001000                  MOV     #1000,SP        ;SET BOTTOM OF SP STACK.
002554  005037  001262                  CLR     RTNNO
002560  104401  001233                  TYPE    ,$CRLF
002564  104401  015330                  TYPE    ,$TMES          ;PRINTOUT STARTUP MESSAGE
002570  000240                          NOP
002572  000000                          HALT                    ;HERE IS YOUR CHANCE TO SET THE SWITCH REGISTER
002574  005737  000042          STARTX: TST     42
002600  001401                          BEQ     GETRDY
002602  000005                          RESET
002604  005037  177776          GETRDY: CLR     PSW
002610  012706  001000                  MOV     #1000,SP        ;SET BOTTOM OF STACK.
002614  004737  012162                  JSR     PC,$RSETT       ;ISSUE RESET.
002620  004737  012204                  JSR     PC,RSTMTK       ;RESTORE MARK TRACK.
002624  000137  002630                  JMP     T0001
                                        .SBTTL T0001
                                        ;CHECK THAT THE TCCM REGISTER CAN BE ACCESSED WITHOUT A TRAP OCCURING
```

```
                                        ;*****************************************************************************
T0001:  SCOPE
                MOV     #A0001,@#4      ;SETUP THE FATAL TRAP VECTOR
                MOV     #340,@#6        ;MAKE SURE WE GET NO INTERRUPTS IF WE TRAP
                MOV     #1000,SP        ;SETUP THE STACK POINTER
                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
                00001                   ;HERE LIES THE NUMBER OF THIS TEST
R0001:  MOV     #1000,SP        ;INIT THE STACK POINTER
                TST     @TCCM           ;TRY TO READ THE TCCM
                CLR     @TCCM           ;TRY TO MODIFY THE TCCM
                BR      T0002           ;NO ERRORS. GO ON TO THE NEXT TEXT
A0001:  ERROR   74              ;COULD NOT ACCESS TCCM
.SBTTL T0002
;CHECK THAT THE TCST REGISTER CAN BE ACCESSED WITHOUT A TRAP OCCURING
;*****************************************************************************
T0002:  SCOPE
                MOV     #A0002,@#4      ;SETUP THE FATAL TRAP VECTOR
                MOV     #340,@#6        ;MAKE SURE WE GET NO INTERRUPTS IF WE TRAP
                MOV     #1000,SP        ;SETUP THE STACK POINTER
                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
                00002                   ;HERE LIES THE NUMBER OF THIS TEST
R0002:  MOV     #1000,SP        ;INIT THE STACK POINTER
                TST     @TCST           ;TRY TO READ THE TCST
                CLR     @TCST           ;TRY TO MODIFY THE TCST
                BR      T0003           ;NO ERRORS. GO ON TO THE NEXT TEXT
A0002:  ERROR   75              ;COULD NOT ACCESS TCST
;CHECK THAT THE TCWC REGISTER CAN BE ACCESSED WITHOUT A TRAP OCCURING
.SBTTL T0003
;*****************************************************************************
T0003:  SCOPE
                MOV     #A0003,@#4      ;SETUP THE FATAL TRAP VECTOR
                MOV     #340,@#6        ;MAKE SURE WE GET NO INTERRUPTS IF WE TRAP
                MOV     #1000,SP        ;SETUP THE STACK POINTER
                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
                00003                   ;HERE LIES THE NUMBER OF THIS TEST
R0003:  MOV     #1000,SP        ;INIT THE STACK POINTER
                TST     @TCWC           ;TRY TO READ THE TCWC
                CLR     @TCWC           ;TRY TO MODIFY THE TCWC
                BR      T0004           ;NO ERRORS. GO ON TO THE NEXT TEXT
A0003:  ERROR   76              ;COULD NOT ACCESS TCWC
;CHECK THAT THE TCBA REGISTER CAN BE ACCESSED WITHOUT A TRAP OCCURING
.SBTTL T0004
;*****************************************************************************
T0004:  SCOPE
                MOV     #A0004,@#4      ;SETUP THE FATAL TRAP VECTOR
                MOV     #340,@#6        ;MAKE SURE WE GET NO INTERRUPTS IF WE TRAP
                MOV     #1000,SP        ;SETUP THE STACK POINTER
                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
                00004                   ;HERE LIES THE NUMBER OF THIS TEST
R0004:  MOV     #1000,SP        ;INIT THE STACK POINTER
                TST     @TCBA           ;TRY TO READ THE TCBA
                CLR     @TCBA           ;TRY TO MODIFY THE TCBA
                BR      T0005           ;NO ERRORS. GO ON TO THE NEXT TEXT
A0004:  ERROR   77              ;COULD NOT ACCESS TCBA

;CHECK THAT ISSUING A SAT COMMAND (STOP ALL TRANSPORTS) CAUSES READY BIT
```

```
                                                ;TO CLEAR IMMEDIATELY (TCCM BIT 7).
                                                .SBTTL T0005
                                                ;*************************************************************************
003070  000004                                  T0005:  SCOPE
003072  012737  011644  000004                          MOV     #TRAP4,4        ;SETUP FATAL TRAP VECTORS
003100  012737  011634  000010                          MOV     #TRAP10,10
003106  012737  000340  000006                          MOV     #340,6
003114  012737  000340  000012                          MOV     #340,12
003122  012706  001000                                  MOV     #1000,SP        ;SETUP THE STACK POINTER
003126  004737  011730                                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003132  000005                                          00005                   ;HERE LIES THE NUMBER OF THIS TEST
003134  013700  001240                        R0005:  MOV     TCCM,R0         ;TCCM ADDR TO R0.
003140  005010                                          CLR     (0)             ;SELECT U0, FUNCTION 0.(SAT COMMAND).
003142  005210                                          INC     (0)             ;DO.
003144  105710                                          TSTB    (0)             ;SEE IF READY IS SET.
003146  100001                                          BPL     A0005           ;BR IF READY NOT SET. (OK).
003150  104001                                          ERROR 1                         ;SAT COMMAND FAILED TO CLEAR READY.
003152                                          A0005:
003152  012706  001000                                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
003156  000400                                          BR      T0006           ;GO ON TO THE NEXT TEST
                                                ;CHECK THAT ISSUING SST COMMAND (STOP SELECTED TRANSPORT) CAUSES READY
                                                ;BIT TO CLEAR IMMEDIATELY (TCCM BIT 7)
                                                .SBTTL T0006
                                                ;*************************************************************************
003160  000004                                  T0006:  SCOPE
003162  012706  001000                                  MOV     #1000,SP        ;SETUP THE STACK POINTER
003166  004737  011730                                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003172  000006                                          00006                   ;HERE LIES THE NUMBER OF THIS TEST
003174  013700  001240                        R0006:  MOV     TCCM,R0         ;TCCM ADDR TO R0.
003200  012710  000010                                  MOV     #10,(0)         ;SELECT U0,FUNCTION 100. (SST COMMAND).
003204  005210                                          INC     (0)             ;DO.
003206  105710                                          TSTB    (0)             ;SEE IF READY IS SET.
003210  100001                                          BPL     A0006           ;BR IF READY NOT SET. (OK).
003212  104002                                          ERROR 2                 ;SST COMMAND FAILED TO CLEAR READY.
003214                                          A0006:
003214  012706  001000                                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
003220  000400                                          BR      T0007           ;GO ON TO THE NEXT TEST
                                                ;TEST THAT READY BIT CAN CAUSE AN INTERRUPT. IF THE INTERRUPT IS SERVICED,
                                                ;IT WILL HAVE OCCURRED AT THE CORRECT VECTOR.
                                                .SBTTL T0007
                                                ;*************************************************************************
003222  000004                                  T0007:  SCOPE
003224  012706  001000                                  MOV     #1000,SP        ;SETUP THE STACK POINTER
003230  004737  011730                                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003234  000007                                          00007                   ;HERE LIES THE NUMBER OF THIS TEST
003236  004737  012136                        R0007:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO CB.
003242  003266                                          A0007
003244  005077  175770                                  CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
003250  005037  177776                                  CLR     PSW             ;SET PROCESSOR PRIORITY 0.
003254  052777  000100  175756                        BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
003262  000240                                          NOP
003264  104003                                          ERROR 3                 ;READY DID NOT INTERRUPT.
003266                                          A0007:
003266  012706  001000                                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
003272  000400                                          BR      T0010           ;GO ON TO THE NEXT TEST
                                                ;TEST THAT READY DOES NOT CAUSE INTERRUPT WITH PROCESSOR AT SAME PRIORITY
```

```
1037                                        ;LEVEL AS THE TC11 INTERRUPT PRIORITY.
1038                                        .SBTTL T0010
1039                                        ;*****************************************************************
1040  003274  000004                       T0010:  SCOPE
1041  003276  012706  001000                       MOV     #1000,SP        ;SETUP THE STACK POINTER
1042  003302  004737  011730                       JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1043  003306  000010                               00010                   ;HERE LIES THE NUMBER OF THIS TEST
1044  003310  004737  012136              R0010:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO DC.
1045  003314  003352                               B0010
1046  003316  013737  001252  177776               MOV     TCLVL,PSW       ;SET PROCESSOR TO SAME PRTY AS TC11.
1047  003324  005077  175710                       CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
1048  003330  052777  000100  175702               BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
1049  003336  000240                               NOP
1050  003340  005077  175674              A0010:  CLR     @TCCM           ;DISABLE TC11 INTERRUPTS. (OK).
1051
1052  003344  012706  001000                       MOV     #1000,SP        ;RESTORE THE STACK POINTER
1053  003350  000402                               BR      T0011           ;GO ON TO THE NEXT TEST
1054  003352  104000              B0010:  ERROR                           ;HERE IF INT. OCCURS.
1055                                                                        ;TC11 INTERRUPTED, WITH PROCESSOR AT SAME
1056  003354  000771                               BR      A0010           ;PRTY AS TC11 INTERRUPT PRTY.
1057                                        ;TEST THAT TC11 INTERRUPTS WHEN PROCESSOR IS AT PRIORITY ONE LEVEL LOWER
1058                                        ;THAN THE TC11 INTERRUPT PRIORITY.
1059                                        .SBTTL T0011
1060                                        ;*****************************************************************
1061  003356  000004                       T0011:  SCOPE
1062  003360  012706  001000                       MOV     #1000,SP        ;SETUP THE STACK POINTER
1063  003364  004737  011730                       JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1064  003370  000011                               00011                   ;HERE LIES THE NUMBER OF THIS TEST
1065  003372  004737  012136              R0011:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO EB.
1066  003376  003434                               A0011
1067  003400  005077  175634                       CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
1068  003404  013737  001252  177776               MOV     TCLVL,PSW       ;SET PROCESSOR TO PRTY ONE LEVEL LOWER
1069  003412  162737  000040  177776               SUB     #40,PSW         ;THAN TC11 INTERRUPT PRTY.
1070  003420  052777  000100  175612               BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
1071  003426  000240                               NOP
1072  003430  104003                               ERROR 3                 ;TC11 FAILED TO INT. WITH PROCESSOR AT
1073  003432  000401                               BR      B0011           ;PRTY ONE LEVEL LOWER THAN TC11 INT. PRTY.
1074  003434  022626              A0011:  POPSP2                          ;HERE IF INT. OCCURS. POP STACK TWICE.
1075  003436  005077  175576              B0011:  CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
1076
1077  003442  012706  001000                       MOV     #1000,SP        ;RESTORE THE STACK POINTER
1078  003446  000400                               BR      T0012           ;GO ON TO THE NEXT TEST
1079
1080                                        ;TEST TC11 DOES NOT REINTERRUPT AFTER INITIAL INTERRUPT HAS BEEN SERVICED.
1081                                        .SBTTL T0012
1082                                        ;*****************************************************************
1083  003450  000004                       T0012:  SCOPE
1084  003452  012706  001000                       MOV     #1000,SP        ;SETUP THE STACK POINTER
1085  003456  004737  011730                       JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1086  003462  000012                               00012                   ;HERE LIES THE NUMBER OF THIS TEST
1087  003464  004737  012136              R0012:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO FC.
1088  003470  003526                               B0012
1089  003472  005077  175542                       CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
1090  003476  005037  177776                       CLR     PSW             ;SET PROCESSOR PRTY 0.
1091  003502  052777  000100  175530               BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
1092  003510  000240                               NOP
```

```
1093  003512  104005                        ERROR  5                ;TC11 FAILED TO INTERRUPT.
1094  003514  005077  175520        A0012:  CLR    @TCCM            ;DISABLE TC11 INTERRUPTS.
1095
1096  003520  012706  001000                MOV    #1000,SP         ;RESTORE THE STACK POINTER
1097  003524  000413                        BR     T0013            ;GO ON TO THE NEXT TEST
1098  003526  012777  003546  175514  B0012:  MOV    #D0012,@TCVTR    ;CHANGE INT POINTER TO FE.
1099  003534  012716  003542                MOV    #C0012,@SP       ;CHANGE INT EXIT POINTER TO FD.
1100  003540  000002                        RTI                     ;EXIT INTERRUPT.
1101  003542  000240          C0012:  NOP                            ;OK IF NO INT. REOCCURS.
1102  003544  000763                        BR     A0012
1103  003546  022626          D0012:  POPSP2                         ;HERE IF REINTERRUPT OCCURS.
1104  003550  104006                        ERROR  6                ;TC11 REINTERRUPTED AFTER RTI.
1105  003552  000760                        BR     A0012
1106                          ;TEST THAT SETTING MAINTENANCE BIT (TCCM BIT 13) SETS UPS BIT (TCST BIT 7)
1107                          ;THAT CLEARING MAINTENANCE BIT CLEARS UPS, AND THAT RESET CLEARS UPS.
1108                          .SBTTL T0013
1109                          ;*************************************************************************
1110  003554  000004          T0013:  SCOPE
1111  003556  012706  001000                MOV    #1000,SP         ;SETUP THE STACK POINTER
1112  003562  004737  011730                JSR    PC,TORDER        ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1113  003566  000013                        0013                    ;HERE LIES THE NUMBER OF THIS TEST
1114  003570  032777  000200  175440  R0013:  BIT    #BIT7,@TCST      ;SEE IF UPS IS CLEAR.
1115  003576  001402                        BEQ    A0013            ;BR IF UPS IS CLEAR.
1116  003600  104007                        ERROR  7                ;RESET FAILED TO CLEAR UPS.
1117  003602  000421                        BR     C0013
1118  003604  052777  020000  175426  A0013:  BIS    #BIT13,@TCCM     ;SET MAINTENALCE BIT.
1119  003612  032777  000200  175416        BIT    #BIT7,@TCST      ;SEE IF UPS IS SET.
1120  003620  001002                        BNE    B0013            ;BR IF UPS IS SET.
1121  003622  104010                        ERROR  10               ;MAINT BIT FAILED TO SET UPS.
1122  003624  000410                        BR     C0013
1123  003626  042777  020000  175404  B0013:  BIC    #BIT13,@TCCM     ;CLEAR MAINT BIT.
1124  003634  032777  000200  175374        BIT    #BIT7,@TCST      ;SEE IF UPS IS CLEAR.
1125  003642  001401                        BEQ    C0013            ;BR IF UPS IS CLEAR.
1126  003644  104011                        ERROR  11               ;CLEARING MAINT. BIT FAILED TO CLEAR UPS.
1127  003646  052777  020000  175364  C0013:  BIS    #BIT13,@TCCM     ;SET MAINT BIT TO SET UPS.
1128  003654  004737  012162                JSR    PC,SRSETT        ;ISSUE RESET TO CLEAR MAINT AND UPS BITS.
1129
1130  003660  012706  001000                MOV    #1000,SP         ;RESTORE THE STACK POINTER
1131  003664  000400                        BR     T0014            ;GO ON TO THE NEXT TEST
1132                          ;TEST THAT SETTING MAINT. BIT DISABLES LOADING XD16 (TCST BIT 0).
1133                          .SBTTL T0014
1134                          ;*************************************************************************
1135  003666  000004          T0014:  SCOPE
1136  003670  012706  001000                MOV    #1000,SP         ;SETUP THE STACK POINTER
1137  003674  004737  011730                JSR    PC,TORDER        ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1138  003700  000014                        0014                    ;HERE LIES THE NUMBER OF THIS TEST
1139  003702  052777  020000  175330  R0014:  BIS    #BIT13,@TCCM     ;SET MAINTENANCE BIT.
1140  003710  052777  000001  175320        BIS    #BIT0,@TCST      ;TRY SETTILG XD16.
1141  003716  032777  000001  175312        BIT    #BIT0,@TCST      ;SEE IF XD16 IS SET.
1142  003724  001401                        BEQ    A0014            ;BR IF XD16 IS CLEAR.
1143  003726  104012                        ERROR  12               ;MAINT BIT SET FAILS TO PREVENT LOADING
1144  003730  004737  012162        A0014:  JSR    PC,SRSETT        ;OF XD16.
1145
1146  003734  012706  001000                MOV    #1000,SP         ;RESTORE THE STACK POINTER
1147  003740  000400                        BR     T0015            ;GO ON TO THE NEXT TEST
1148                          ;TEST THAT SETTING MAINT. BIT DISABLES LOADING XD17 (TCST BIT 1).
```

```
                                    .SBTTL T0015
                                    ;******************************************************************************
                                    T0015:  SCOPE
                                            MOV     #1000,SP        ;SETUP THE STACK POINTER
                                            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
                                            D0015                   ;HERE LIES THE NUMBER OF THIS TEST
                                    R0015:  BIS     #BIT13,@TCCM    ;SET MAINTENANCE BIT.
                                            BIS     #BIT1,@TCST     ;TRY SETTING XD17.
                                            BIT     #BIT1,@TCST     ;SEE IF XD17 IS SET.
                                            BEQ     A0015           ;BR IF XD17 IS CLEAR.
                                            ERROR 13                ;MAINT BIT FAILED TO PREVENT SETTING
                                    A0015:  JSR     PC,SRSETT       ;OF XD17.

                                            MOV     #1000,SP        ;RESTORE THE STACK POINTER
                                            BR      T0016           ;GO ON TO THE NEXT TEST

                                    ;CHECK THAT ISSUING WRTM COMMAND WITH WRTM SWITCH OFF CAUSES AN ILO ERROR.
                                    ;(ILLEGAL OP- TCST BIT 12), AND THAT ERROR BIT SETS.;(TCCM BIT 15).
                                    ;TEST DONE WITH MAINTENANCE BIT SET.
                                    .SBTTL T0016
                                    ;******************************************************************************
                                    T0016:  SCOPE
                                            MOV     #1000,SP        ;SETUP THE STACK POINTER
                                            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
                                            D0016                   ;HERE LIES THE NUMBER OF THIS TEST
                                    R0016:  MOV     #MAINT!FWD!UO!WRTM,@TCCM
                                            NOP
                                            BIT     #BIT12,@TCST    ;SEE IF ILO ERROR IS SET.
                                            BNE     A0016           ;BR IF ILO ERR IS SET.
                                            ERROR 14                ;WRTM COMMAND WITH WRTM SWITCH DISABLED
                                            BR      D0016           ;FAILED TO SET ILO ERROR.
                                    A0016:  TST     @TCCM           ;SEE IF ERROR BIT IS SET.
                                            BMI     B0016           ;BR IF ERROR BIT IS SET.
                                            ERROR 15                ;ILO ERR FAILED TO SET ERROP BIT.
                                            BR      D0016
                                    B0016:  CLR     @TCCM           ;CLEAR ILLEGAL COMMAND.
                                            BIT     #BIT12,@TCST    ;SEE IF ILO ERROR IS SET.
                                            BEQ     C0016           ;BR IF ILO ERROR IS CLEAR.
                                            ERROR 16                ;CLEARING ILLEGAL OP FAILED TO CLEAR
                                            BR      D0016           ;ILO ERROR.
                                    C0016:  TST     @TCCM           ;SEE IF ERROR BIT IS CLEAR.
                                            BPL     D0016           ;BR IF ERROR IS CLEAR.
                                            ERROR 17                ;CLEARING ILLEGAL OP FAILED TO
                                    D0016:  JSR     PC,SRSETT       ;CLEAR ERROR BIT.

                                            MOV     #1000,SP        ;RESTORE THE STACK POINTER
                                            BR      T0017           ;GO ON TO THE NEXT TEST
                                    ;CHECK THAT ISSUING WRTM COMMAND (WRITE TIMING AND MARK) WITH WRTM SWITCH
                                    ;OFF CAUSES AN ILO ERROR(ILLEGAL OP- TCST BIT 12),ALD THAT ERROR BIT SETS.
                                    ;(TCCM BIT 15). TEST DONE WITH MAINTENANCE BIT SET.
                                    .SBTTL T0017
                                    ;******************************************************************************
                                    T0017:  SCOPE
                                            MOV     #1000,SP        ;SETUP THE STACK POINTER
                                            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
                                            D0017                   ;HERE LIES THE NUMBER OF THIS TEST
```

```
1205  004146  012777  020012  175064  R0017:  MOV     #MAINT!FWD!UO!WRTM,@TCCM
1206  004154  000240                          NOP
1207  004156  032777  010000  175052          BIT     #BIT12,@TCST    ;SEE IF ILO ERR IS SET.
1208  004164  001002                          BNE     A0017           ;BR IF ILO SET.
1209  004166  104020                          ERROR 20                ;WRTM WITH WRTM SW OFF FAILED TO SET
1210  004170  000421                          BR      D0017           ;ILO ERROR.
1211  004172  005777  175042          A0017:  TST     @TCCM           ;ERROR BIT SET?
1212  004176  100402                          BMI     B0017           ;BR IF ERROR BIT SET.
1213  004200  104021                          ERROR 21                ;ERROR BIT NOT SET WITH ILO ERR SET.
1214  004202  000414                          BR      D0017
1215  004204  005077  175030          B0017:  CLR     @TCCM           ;CLEAR ILLEGAL COMMAND.
1216  004210  032777  010000  175020          BIT     #BIT12,@TCST    ;SEE IF ILO ER IS CLEAR.
1217  004216  001402                          BEQ     C0017           ;BR IO ILO ERR IS CLEAR.
1218  004220  104016                          ERROR 16                ;CLEARING ILLEGAL OP FAILED TO
1219  004222  000404                          BR      D0017           ;CLEAR ILO ERR.
1220  004224  005777  175010          C0017:  TST     @TCCM           ;ERROR BIT SET?
1221  004230  100001                          BPL     D0017           ;BR IF ERROR BIT IS CLEAR.
1222  004232  104017                          ERROR 17                ;CLEARING ILLEGAL OP FAILED TO
1223  004234  004737  012162          D0017:  JSR     PC,SRSET"       ;CLEAR ERROR BIT.
1224
1225  004240  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1226  004244  000400                          BR      T0020           ;GO ON TO THE NEXT TEST
1227
1228                                  ;TEST THAT CLEARING ERROR BIT DOES NOT CLEAR ILO ERROR.
1229                                  .SBTTL T0020
1230                                  ;******************************************************************************
1231  004246  000004                  T0020:  SCOPE
1232  004250  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1233  004254  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1234  004260  000020                          00020                   ;HERE LIES THE NUMBER OF THIS TEST
1235  004262  012777  020012  174750  R0020:  MOV     #MAINT!FWD!UO!WRTM,@TCCM
1236  004270  000240                          NOP
1237  004272  005777  174742                  TST     @TCCM           ;ERROR SET?
1238  004276  100402                          BMI     A0020           ;BR IF ERROR BIT IS SET.
1239  004300  104023                          ERROR 23                ;ERROR BIT FAILED TO SET.
1240  004302  000410                          BR      B0020
1241  004304  042777  100000  174726  A0020:  BIC     #BIT15,@TCCM    ;TRY CLEARING ERROR BIT.
1242  004312  032777  010000  174716          BIT     #BIT12,@TCST    ;ILO SET?
1243  004320  001001                          BNE     B0020           ;BR IF ILO IS SET.
1244  004322  104022                          ERROR 22                ;O TO ERROR BIT CLEARED ILO ERROR.
1245  004324  004737  012162          B0020:  JSR     PC,SRSETT       ;RESET.
1246
1247  004330  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1248  004334  000400                          BR      T0021           ;GO ON TO THE NEXT TEST
1249                                  ;TEST THAT ERROR BIT (TCCM BIT15) IS ABLE TO CAUSE AN INTERRUPT.
1250                                  .SBTTL T0021
1251                                  ;******************************************************************************
1252  004336  000004                  T0021:  SCOPE
1253  004340  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1254  004344  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1255  004350  000021                          00021                   ;HERE LIES THE NUMBER OF THIS TEST
1256  004352  004737  012136          R0021:  JSR     PC,STTCV        ;SET TC11 INT. VECTOR TO MB.
1257  004356  004404                          A0021
1258  004360  005077  174654                  CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
1259  004364  005037  177776                  CLR     PSW             ;SET PRTY 0.
1260  004370  052777  000100  174642          BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
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1261  004376  000240                          NOP
1262  004400  104005                          ERROR 5                 ;TC11 FAILED TO INTERRUPT.
1263  004402  000415                          BR      D0021
1264  004404  012777  004434  174636  A0021:  MOV     #C0021,@TCVTR   ;CHANGE INT VECTOR TO MD.
1265  004412  012716  004420                  MOV     #B0021,@SP      ;CHANGE INT EXIT POINTER TO MC.
1266  004416  000002                          RTI                     ;EXIT INTERRUPT.
1267  004420  052777  020012  174612  B0021:  BIS     #MAINT!FWD!UO!WRTM,@TCCM
1268  004426  000240                          NOP
1269  004430  104024                          ERROR 24                ;ERROR BIT FAILED TO INTERRUPT.
1270  004432  000401                          BR      D0021
1271  004434  022626                  C0021:  POPSP2                  ;HERE IF ERROR INTERRUPTS.
1272  004436  005077  174576          D0021:  CLR     @TCCM           ;DISABLE INT. CLEAR ILLEGAL OP.
1273
1274  004442  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1275  004446  000400                          BR      T0022           ;GO ON TO THE NEXT TEST
1276
1277                                  ;TEST THAT ISSUING RNUM COMMAND (READ BLOCK #) CLEARS READY BIT.
1278                                  ;RESET INSTRUCTION SHOULD SET READY. TEST DONE WITH MAINT. BIT SET.
1279                                  .SBTTL T0022
1280                                  ;*****************************************************************************
1281  004450  000004                  T0022:  SCOPE
1282  004452  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1283  004456  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1284  004462  000022                          00022                   ;HERE LIES THE NUMBER OF THIS TEST
1285  004464  105777  174550          R0022:  TSTB    @TCCM           ;READY SET?
1286  004470  100402                          BMI     A0022           ;BR IF READY IS SET.
1287  004472  104025                          ERROR 25                ;RESET DID NOT FORCE READY TO SET.
1288  004474  000407                          BR      B0022
1289  004476  012777  020003  174534  A0022:  MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1290  004504  105777  174530                  TSTB    @TCCM           ;READY CLEAR?
1291  004510  100001                          BPL     B0022           ;BR IF READY IS CLEAR.
1292  004512  104076                          ERROR 76                ;RNUM,DO, FAILED TO CLEAR READY.
1293  004514  004737  012162          B0022:  JSR     PC,SRSETT       ;ISSUE RESET TO FORCE READY TO SET.
1294
1295  004520  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1296  004524  000400                          BR      T0023           ;GO ON TO THE NEXT TEST
1297                                  ;TEST THAT TC11 CONTROL CAN RECOGNIZE A BLOCK MARK. WITH MAINT BIT SET,
1298                                  ;RNUM COMMAND IS ISSUED. A SUBROUTINE PROVIDES TIMING AND MARK DATA.
1299                                  ;WHEN THE BLOCK MARK HAS BEEN SHIFTED INTO THE WINDOW, THE READY BIT SHOULD SET.
1300                                  .SBTTL T0023
1301                                  ;*****************************************************************************
1302  004526  000004                  T0023:  SCOPE
1303  004530  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1304  004534  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1305  004540  000023                          00023                   ;HERE LIES THE NUMBER OF THIS TEST
1306  004542  005077  174472          R0023:  CLR     @TCCM
1307  004546  012777  020003  174464          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1308  004554                                  MTCOD   MTK7,6
1309  004554  004537  012636                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1310  004560  033164                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1311  004562  000006                          6                       ;MARK TRACK CODE COUNT.
1312  004564  005777  174450                  TST     @TCCM           ;ERROR BIT SET?
1313  004570  100002                          BPL     A0023           ;BR IF NO ERROR.
1314  004572  104027                          ERROR 27                ;ERROR BIT SET. EXAMINE TCST OR LIGHT PANEL.
1315  004574  000404                          BR      B0023
1316  004576  105777  174436          A0023:  TSTB    @TCCM           ;READY BIT SET?
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1317  004602  100401                          BMI     B0023           ;BR IF READY IS SET.
1318  004604  104030                          ERROR 30                ;READY NOT SET AFTER BLOCK MARK WAS
1319                                                                  ;SHIFTED INTO WINDOW REG WITH RNUM COMMAND
1320                                                                  ;IN EFFECT.EVERYTHING IS SUSPECT AT THIS
1321                                                                  ;POINT. ABILITY TO SHIFT TIMING AND MARK
1322                                                                  ;DATA WHILE IN MAINT MODE HAS NOT BEEN
1323  004606                          B0023:
1324  004606  012706  001000                        MOV     #1000,SP        ;RESTORE THE STACK POINTER
1325  004612  000400                          BR      T0024           ;GO ON TO THE NEXT TEST
1326                                  ;TEST THAT TC11 CONTROL TRANSFERS THE BLOCK NUMBER TO THE DATA REGISTER
1327                                  ;WHEN BLOCK MARK IS DETECTED AND CONTROL IS DOING RNUM COMMAND. A SUBROUTINE
1328                                  ;PROVIDES TIMING, MARK, AND DATA. WHEN THE READY BIT SETS, THE BLOCK #
1329                                  ;EXPECTED IN THE DATA REGISTER IS 000525.
1330                                  .SBTTL T0024
1331                                  ;******************************************************************************
1332  004614  000004                  T0024:  SCOPE
1333  004616  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1334  004622  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1335  004626  000024                          00024                   ;HERE LIES THE NUMBER OF THIS TEST
1336  004630  005077  174404          R0024:  CLR     @TCCM
1337  004634  012777  020003  174376          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1338  004642                                  MTCOD   MTK7,6
1339  004642  004537  012636                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1340  004646  033164                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1341  004650  000006                          6                       ;MARK TRACK CODE COUNT.
1342  004652  022777  052525  174366          CMP     #52525,@TCDT    ;TCDT=52525?
1343  004660  001415                          BEQ     A0024           ;BR IF TCDT CORRECT.
1344  004662  017737  174360  001172          MOV     @TCDT,$REG4     ;SETUP BLOBK # FOR PRINTOUT
1345  004670  012737  052525  001162          MOV     #52525,$REG0    ;SETUP GOOD BLOBK # TO PRINTOUT
1346  004676  017737  174344  001172          MOV     @TCDT,$REG4     ;SETUP BLOBK # FOR PRINTOUT
1347  004704  012737  052525  001162          MOV     #52525,$REG0    ;SETUP GOOD BLOBK # TO PRINTOUT
1348  004712  104031                          ERROR 31                ;ERROR.BLOCK # IN TCDT NOT 52525. EXAMINE TCDT.
1349  004714                          A0024:
1350  004714  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1351  004720  000400                          BR      T0025           ;GO ON TO THE NEXT TEST
1352                                  ;TEST THAT TC11 CONTROL IS ABLE TO DETECT AN INCORRECT MARK TRACK CODE.
1353                                  ;A SUBROUTINE PROVIDES TIMING AND MARK DATA WHILE CONTROL IS IN RNUM
1354                                  ;COMMAND. WHEN THE INCORRECT MARK IS SHIFTED, THE MTE AND ERR BITS SHOULD SET.
1355                                  .SBTTL T0025
1356                                  ;******************************************************************************
1357  004722  000004                  T0025:  SCOPE
1358  004724  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1359  004730  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1360  004734  000025                          00025                   ;HERE LIES THE NUMBER OF THIS TEST
1361  004736  004537  012610          R0025:  JSR     R5,BMOVE        ;SET INVALID CODE IN MARK TRACK.
1362  004742  033134                          MTKER
1363  004744  033236                          MTKVAR
1364  004746  000006                          6
1365  004750  012777  020003  174262          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1366  004756                                  MTCOD   MTK7,9.
1367  004756  004537  012636                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1368  004762  033164                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1369  004764  000011                          9.                      ;MARK TRACK CODE COUNT.
1370  004766  032777  020000  174242          BIT     #BIT13,@TCST    ;MTE BIT SET? (MARK TRACK ERROR).
1371  004774  001002                          BNE     A0025           ;BR IF MTE BIT IS SET.
1372  004776  104032                          ERROR 32                ;INVALID MARK TRACK CODE FAILED TO SET MTE.
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1373  005000  000404                        BR      B0025
1374  005002  005777  174232          A0025: TST     @TCCM           ;ERROR BIT SET?
1375  005006  100401                        BMI     B0025           ;BR IF ERROR BIT IS SET.
1376  005010  104033                        ERROR 33                ;MTE BIT FAILED TO SET ERROR BIT.
1377  005012                          B0025:
1378  005012  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1379  005016  000400                        BR      T0026           ;GO ON TO THE NEXT TEST
1380                                  ;TEST THAT TC11 CONTROL DETECTS END ZONE MARK CODES, A SUBROUTINE PROVIDES
1381                                  ;TIMING AND MARK DATA WHILE CONTROL IS IN RNUM COMMAND. WHEN THE ENDZ
1382                                  ;MARK CODE IS SHIFTED INTO THE WINDOW, THE ENDZ AND ERROR BITS SHOULD SET.
1383                                  .SBTTL T0026
1384                                  ;*****************************************************************************
1385  005020  000004                  T0026: SCOPE
1386  005022  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
1387  005026  004737  011730                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
1388  005032  000026                        00026                   ;HERE LIES THE NUMBER OF THIS TEST
1389  005034  004537  012610          R0026: JSR     R5,BMOVE        ;SET END CODE IN MARK TRACK.
1390  005040  033142                        MTKEND
1391  005042  033214                        MTK5
1392  005044  000006                        6
1393  005046  012777  020003  174164        MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1394  005054                                MTCOD   MTK7,5
1395  005054  004537  012636                JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1396  005060  033164                        MTK7                    ;ADDRESS OF MARK TRACK CODES.
1397  005062  000005                        5                       ;MARK TRACK CODE COUNT.
1398  005064  005777  174146                TST     @TCST           ;ENDZ BIT SET?
1399  005070  100402                        BMI     A0026           ;BR IF ENDZ BIT IS SET.
1400  005072  104034                        ERROR 34                ;ENDZ MARK FAILED TO SET ENDZ BIT.
1401  005074  000404                        BR      B0026
1402  005076  005777  174136          A0026: TST     @TCCM           ;ERROR BIT SET?
1403  005102  100401                        BMI     B0026           ;BR IF ERROR BIT IS SET.
1404  005104  104035                        ERROR 35                ;ENDZ BIT FAILED TO SET ERROR BIT.
1405  005106                          B0026:
1406  005106  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1407  005112  000400                        BR      T0027           ;GO ON TO THE NEXT TEST
1408                                  ;TEST THAT TC11 CONTROL DOES NOT RECOGNIZE MARK TRACK CODE 55 AS END ZONE
1409                                  ;BLOCK MARK. SUBROUTINE PROVIDES TIMING AND MARK DATA.
1410                                  .SBTTL T0027
1411                                  ;*****************************************************************************
1412  005114  000004                  T0027: SCOPE
1413  005116  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
1414  005122  004737  011730                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
1415  005126  000027                        00027                   ;HERE LIES THE NUMBER OF THIS TEST
1416  005130  004537  012610          R0027: JSR     R5,BMOVE        ;SET CODE 55 IN MARK TRACK.
1417  005134  033150                        MTK55
1418  005136  033214                        MTK5
1419  005140  000006                        6
1420  005142  005077  174072                CLR     @TCCM
1421  005146  012777  020003  174064        MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1422  005154                                MTCOD   MTK7,5
1423  005154  004537  012636                JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1424  005160  033164                        MTK7                    ;ADDRESS OF MARK TRACK CODES.
1425  005162  000005                        5                       ;MARK TRACK CODE COUNT.
1426  005164  005777  174046                TST     @TCST           ;ENDZ BIT SET?
1427  005170  100002                        BPL     A0027           ;BR IF NOT SET.
1428  005172  104036                        ERROR 36                ;MARK CODE 55 INTERPRETED AS END ZONE.
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1429  005174  000404                        BR      B0027
1430  005176  005777  174036        A0027:  TST     @TCCM           ;ERROR BIT SET?
1431  005202  100001                        BPL     B0027           ;BR IF NO ERROR.
1432  005204  104037                        ERROR 37                ;ERROR BIT SET. EXAMINE TCST.
1433  005206                        B0027:
1434  005206  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1435  005212  000400                        BR      T0030           ;GO ON TO THE NEXT TEST
1436                                ;TEST THAT TC11 INTERRUPTS. RNUM COMMAND IS ISSUED. SUBROUTINE PROVIDES
1437                                ;TIMING AND MARK. WHEN BLOCK IS FOUND INTERRUPT SHOULD OCCUR.
1438                                .SBTTL T0030
1439                                ;******************************************************************************
1440  005214  000004                T0030:  SCOPE
1441  005216  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
1442  005222  004737  011730                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1443  005226  000030                        D0030                   ;HERE LIES THE NUMBER OF THIS TEST
1444  005230  004737  012136        R0030:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO UE.
1445  005234  005274                        D0030
1446  005236  005077  173776                CLR     @TCCM
1447  005242  012777  020103  173770        MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1448  005250                                MTCOD   MTK7,4
1449  005250  004537  012636                JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1450  005254  033164                        MTK7                    ;ADDRESS OF MARK TRACK CODES.
1451  005256  000004                        4                       ;MARK TRACK CODE COUNT.
1452  005260  105777  173754                TSTB    @TCCM           ;READY SET?
1453  005264  100402                        BMI     A0030           ;BR IF READY SET.
1454  005266  104040                        ERROR 40                ;READY DID NOT SET.
1455  005270  000401                        BR      D0030
1456  005272  104003        A0030:  ERROR 3                         ;READY FAILED TO INTERRUPT.
1457  005274                        D0030:
1458  005274  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1459  005300  000400                        BR      T0031           ;GO ON TO THE NEXT TEST
1460                                ;TEST THAT TC11 IS ABLE TO TRANSFER ONE WORD TO CORE STORAGE. SUBROUTINE
1461                                ;PROVIDES TIMING AND MARK. AFTER BLOCK IS "FOUND" TEST SWITCHES TO
1462                                ;RDATA COMMAND WITH WORD COUNT OF -1.
1463                                .SBTTL T0031
1464                                ;******************************************************************************
1465  005302  000004                T0031:  SCOPE
1466  005304  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
1467  005310  004737  011730                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1468  005314  000031                        D0031                   ;HERE LIES THE NUMBER OF THIS TEST
1469  005316  004737  012432        R0031:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1470  005322  004737  012136                JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO VG.
1471  005326  005472                        G0031
1472  005330  005077  173704                CLR     @TCCM
1473  005334  012777  020103  173676        MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1474  005342                                MTCOD   MTK7,7
1475  005342  004537  012636                JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1476  005346  033164                        MTK7                    ;ADDRESS OF MARK TRACK CODES.
1477  005350  000007                        7                       ;MARK TRACK CODE COUNT.
1478  005352  005777  173662                TST     @TCCM           ;ERROR BIT SET?
1479  005356  100002                        BPL     A0031           ;BR IF NO ERROR.
1480  005360  104041                        ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1481  005362  000440                        BR      F0031
1482  005364  105777  173650        A0031:  TSTB    @TCCM           ;READY BIT SET?
1483  005370  100002                        BPL     B0031           ;BR IF READY NOT SET.
1484  005372  104042                        ERROR 42                ;READY SHOULD NOT BE SET.
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1485  005374  000433                          BR      F0031
1486  005376  022737  050505  036306  B0031:  CMP     #50505,RBUF     ;SEE IF 1ST WORD IN RBUF IS 50505.
1487  005404  001405                          BEQ     C0031           ;BR IF WORD IS 50505.
1488  005406  012737  050505  001162          MOV     #50505,$REG0    ;GOOD DATA FOR PRINTOUT
1489  005414  104043                          ERROR 43                ;WORD IN RBUF IS NOT 50505. EXAMINE RBUF.
1490  005416  000422                          BR      F0031           ;TRANSFER MAY NOT HAVE OCCURRED.
1491  005420  005777  173616          C0031:  TST     @TCWC           ;WORD COUNT 0?
1492  005424  001407                          BEQ     D0031           ;BR IF WORD COUNT IS 0.
1493  005426  017737  173610  001172          MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1494  005434  005077  173522                  CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1495  005440  104044                          ERROR 44                ;WORD COUNT NOT 0.
1496  005442  000410                          BR      F0031
1497  005444  022777  036310  173572  D0031:  CMP     #RBUF+2,@TCBA   ;DID BUS ADDRESS INCREMENT CORRECTLY?
1498  005452  001404                          BEQ     F0031           ;BR IF TCBA IS CORRECT.
1499  005454  017737  173564  001172          MOV     @TCBA,$REG4
1500  005462  104045                          ERROR 45                ;TCBA DID NOT INCREMENT OR DID IT INCORRECTLY.
1501  005464                          F0031:
1502  005464  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1503  005470  000421                          BR      T0032           ;GO ON TO THE NEXT TEST
1504  005472  005777  173542          G0031:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR BIT SET?
1505  005476  100004                          BPL     I0031           ;BR IF NO ERROR.
1506  005500  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1507
1508  005502  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1509  005506  000412                          BR      T0032           ;GO ON TO THE NEXT TEST
1510  005510  012777  177777  173524  I0031:  MOV     #-1,@TCWC       ;SET WORD COUNT TO -1.
1511  005516  012777  036306  173520          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1512  005524  112777  000005  173506          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1513  005532  000002                          RTI                     ;EXIT INTERRUPT.
1514                          ;TEST THAT RDATA COMMAND WITH WORD COUNT SET TO -1 TRANSFERS ONLY ONE WORD.
1515                          ;THAT READY IS SET WHEN THE ENTIRE 256 WORD BLOCK HAS BEEN PROCESSED, AND
1516                          ;THAT NO PARITY ERROR OCCURS. TEST DONE UNDER MAINTENANCE MODE.
1517                          .SBTTL T0032
1518                          ;******************************************************************************
1519  005534  000004          T0032:  SCOPE
1520  005536  012706  001000          MOV     #1000,SP        ;SETUP THE STACK POINTER
1521  005542  004737  011730          JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1522  005546  000032                  00032                   ;HERE LIES THE NUMBER OF THIS TEST
1523  005550  004737  012432  R0032:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1524  005554  004737  012136          JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO WI.
1525  005560  005744                  I0032
1526  005562  005077  173452          CLR     @TCCM
1527  005566  012777  020103  173444  MOV     #MAINT!UD!FWD!IE!RNUM!DO,@TCCM
1528  005574                          MTCOD   MTK7,267.
1529  005574  004537  012636          JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1530  005600  033164                  MTK7                    ;ADDRESS OF MARK TRACK CODES.
1531  005602  000413                  267.                    ;MARK TRACK CODE COUNT.
1532  005604  005777  173430          TST     @TCCM           ;ERROR BIT SET?
1533  005610  100010                  BPL     B0032           ;BR IF NO ERROR.
1534  005612  032777  040000  173416  BIT     #BIT14,@TCST    ;WAS IT PARITY ERROR?
1535  005620  001402                  BEQ     A0032           ;BR IF NOT PARITY ERROR.
1536  005622  104046                  ERROR 46                ;PARITY ERROR.
1537  005624  000444                  BR      H0032
1538  005626  104041          A0032:  ERROR 41                ;ERROR BIT SET. NOT DUE TO PARITY ERROR.
1539  005630  000442                  BR      H0032
1540  005632  105777  173402          B0032:  TSTB    @TCCM           ;READY BIT SET?
```

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1541  005636  100402                          BMI     C0032           ;BR IF READY IS SET.
1542  005640  104047                          ERROR 47                ;READY FAILED TO SET AFTER COMPLETION
1543  005642  000435                          BR      H0032           ;OF RDATA COMMAND.
1544  005644  022737  050505  036306  C0032:  CMP     #50505,RBUF     ;1ST WORD EQUAL 50505?
1545  005652  001405                          BEQ     D0032           ;BR IF WORD IS 50505.
1546  005654  012737  050505  001162          MOV     #50505,$REG0    ;GOOD DATA FOR PRINTOUT
1547  005662  104043                          ERROR 43                ;1ST WORD DID NOT TRANSFER TO RBUF CORRECTLY.
1548  005664  000424                          BR      H0032
1549  005666  005737  036310          D0032:  TST     RBUF+2          ;RBUF+2 EQUAL 0?
1550  005672  001402                          BEQ     F0032           ;BR IF RBUF+2 EQUAL 0.
1551  005674  104050                          ERROR 50                ;RBUF+2 NOT 0. NO DATA SHOULD HAVE
1552  005676  000417                          BR      H0032           ;TRANSFERRED TO IT.
1553  005700  005777  173336          F0032:  TST     @TCWC           ;WORD COUNT 0?
1554  005704  001407                          BEQ     G0032           ;BR IF WORD COUNT IS 0.
1555  005706  017737  173330  001172          MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1556  005714  005077  173242                  CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1557  005720  104044                          ERROR 44                ;WORD COUNT NOT 0.
1558  005722  000405                          BR      H0032
1559  005724  022777  036310  173312  G0032:  CMP     #RBUF+2,@TCBA   ;IS BUS ADDR CORRECT?
1560  005732  001401                          BEQ     H0032           ;BR IF TCBA OK.
1561  005734  104045                          ERROR 45                ;TCBA ADDR INCORRECT. SHOULD CONTAIN RBUF+2.
1562  005736                          H0032:
1563  005736  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1564  005742  000421                          BR      T0033           ;GO ON TO THE NEXT TEST
1565  005744  005777  173270          I0032:  TST     @TC             ;HERE WHEN RNUM INTERRUPTS. ERROR?
1566  005750  100004                          BPL     K0032           ;BR IF NO ERROR.
1567  005752  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1568
1569  005754  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1570  005760  000412                          BR      T0033           ;GO ON TO THE NEXT TEST
1571  005762  012777  177777  173252  K0032:  MOV     #-1,@TCWC       ;SET WORD COUNT TO -1.
1572  005770  012777  036306  173246          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1573  005776  112777  000005  173234          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1574  006004  000002                          RTI                     ;EXIT INTERRUPT.
1575                                  ;TEST THAT TC11 IS ABLE TO DETECT INCORRECT PARITY, RDATA COMMAND IS ISSUED.
1576                                  ;TCWC=-1. BLOCK TO BE READ CONTAINS BAD CHECKSUM. TEST DONE IN MAINT. MODE.
1577                                  .SBTTL T0033
1578                                  ;*****************************************************************************
1579  006006  000004                  T0033:  SCOPE
1580  006010  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1581  006014  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1582  006020  000033                          00033                   ;HERE LIES THE NUMBER OF THIS TEST
1583  006022  004737  013114          R0033:  JSR     PC,MBCKSM       ;BAD CHECKSUM TO FCKSM.
1584  006026  004737  012432                  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1585  006032  004737  012136                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO XE.
1586  006036  006154                          DO0033
1587  006040  005077  173174                  CLR     @TCCM
1588  006044  012777  020103  173166          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1589  006052                                  MTC0D   MTK7,267,
1590  006052  004537  012636                  JSR     R5,LMTC0D       ;CALL LOAD MT CODES SUB.
1591  006056  033164                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1592  006060  000413                          267.                    ;MARK TRACK CODE COUNT.
1593  006062  032777  040000  173146          BIT     #BIT14,@TCST    ;PARITY ERROR SET?
1594  006070  001005                          BNE     A0033           ;BR IF PARITY ERROR SET.
1595  006072  017737  173144  001162          MOV     @TCWC,$RE;0
1596  006100  104052                          ERROR 52                ;PARITY ERROR NOT DETECTED.(BIT NOT SET).
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1597  006102  000421                        BR      C0033
1598  006104  005777  173130        A0033:  TST     @TCCM           ;ERROR BIT SET?
1599  006110  100405                        BMI     B0033           ;BR IF ERROR BIT SET.
1600  006112  017737  173124  001162        MOV     @TCWC,$REG0
1601  006120  104053                        ERROR 53                ;PARITY ERROR DID NOT SET ERROR BIT.
1602  006122  000411                        BR      C0033
1603  006124  005077  173110        B0033:  CLR     @TCCM           ;CLEAR COMMAND REGISTER.
1604  006130  005777  173104                TST     @TCCM           ;ERROR BIT CLEAR?
1605  006134  100004                        BPL     C0033           ;BR IF ERROR BIT IS CLEAR.
1606  006136  017737  173100  001162        MOV     @TCWC,$REG0
1607  006144  104054                        ERROR 54                ;CLEARING TCCM FAILED TO CLEAR PARITY ERROR.
1608  006146                        C0033:
1609  006146  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1610  006152  000421                        BR      T0034           ;GO ON TO THE NEXT TEST
1611  006154  005777  173060        D0033:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1612  006160  100004                        BPL     G0033           ;BR IF NO ERROR.
1613  006162  104041                        ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1614
1615  006164  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1616  006170  000412                        BR      T0034           ;GO ON TO THE NEXT TEST
1617  006172  012777  177777  173042  G0033:  MOV     #-1,@TCWC       ;-1 TO WORD COUNT.
1618  006200  012777  036306  173036        MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1619  006206  112777  000005  173024        MOVB    #RDATA!DO,@TCCM ;RDATA COMMAND.
1620  006214  000002                        RTI                     ;EXIT INTERRUPT.
1621                          ;READ 256 WORDS WITH RDATA COMMAND UNDER MAINTENANCE MODE. ALL DATA SHOULD
1622                          ;TRANSFER CORRECTLY. NO CONTROL ERRORS SHOULD OCCUR.
1623                          .SBTTL T0034
1624                          ;******************************************************************************
1625  006216  000004          T0034:  SCOPE
1626  006220  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
1627  006224  004737  011730                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1628  006230  000034                        0034                    ;HERE LIES THE NUMBER OF THIS TEST
1629  006232  004737  012432        R0034:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1630  006236  004737  012136                JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO YF.
1631  006242  006360                        F0034
1632  006244  005077  172770                CLR     @TCCM
1633  006250  012777  020103  172762        MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1634  006256                                MTCOD   MTK7,267.
1635  006256  004537  012636                JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1636  006262  033164                        MTK7                    ;ADDRESS OF MARK TRACK CODES.
1637  006264  000413                        267.                    ;MARK TRACK CODE COUNT.
1638  006266  005777  172746                TST     @TCCM           ;ERROR BIT SET?
1639  006272  100002                        BPL     A0034           ;BR IF NO ERROR.
1640  006274  104041                        ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1641  006276  000425                        BR      D0034
1642  006300  005777  172736        A0034:  TST     @TCWC           ;WORD COUNT 0?
1643  006304  001407                        BEQ     B0034           ;BR IF WORD COUNT IS 0.
1644  006306  017737  172730  001172        MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1645  006314  005077  172642                CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1646  006320  104044                        ERROR 44                ;WORD COUNT NOT 0.
1647  006322  000413                        BR      D0034
1648  006324  022777  037306  172712  B0034:  CMP     #RBUF+512.,@TCBA;BUS ADDR CORRECT?
1649  006332  001402                        BEQ     C0034           ;BR IF TCBA OK.
1650  006334  104051                        ERROR 51                ;TCBA INCORRECT. SHOULD BE EQUAL TO
1651  006336  000405                        BR      D0034           ;RBUF+512.
1652  006340  004537  013130        C0034:  JSR     R5,CKDAT        ;COMPARE 256 WORDS STARTING AT RBUF.
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1653  006344  001276                        SBDAT1                  ;REPORT ANY ERRORS.
1654  006346  036306                        RBUF
1655  006350  000400                        256.
1656  006352                        D0034:
1657  006352  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1658  006356  000421                        BR      T0035           ;GO ON TO THE NEXT TEST
1659  006360  005777  172654        F0034:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1660  006364  100004                        BPL     H0034           ;BR IF NO ERROR.
1661  006366  104041                        ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1662
1663  006370  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1664  006374  000412                        BR      T0035           ;GO ON TO THE NEXT TEST
1665  006376  012777  177400  172636  H0034:  MOV     #-256.,@TCWC    ;-256 TO WORD COUNT.
1666  006404  012777  036306  172632        MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1667  006412  112777  000005  172620        MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1668  006420  000002                        RTI                     ;EXIT INTERRUPT.
1669                                ;READ 2 DATA BLOCKS (512 WORDS) WITH RDATA COMMAND UNDER MAINTENANCE MODE.
1670                                ;ALL DATA SHOULD TRANSFER CORRECTLY. NO ERRORS SHOULD OCCUR.
1671                                .SBTTL T0035
1672                                ;******************************************************************************
1673  006422  000004                T0035:  SCOPE
1674  006424  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
1675  006430  004737  011730                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
1676  006434  000035                        0035                    ;HERE LIES THE NUMBER OF THIS TEST
1677  006436  004737  012432        R0035:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1678  006442  004737  012136                JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO2F.
1679  006446  006564                        F0035
1680  006450  005077  172564                CLR     @TCCM
1681  006454  012777  020103  172556        MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1682  006462                                MTCOD   MTK7,534.
1683  006462  004537  012636                JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1684  006466  033164                        MTK7                    ;ADDRESS OF MARK TRACK CODES.
1685  006470  001026                        534.                    ;MARK TRACK CODE COUNT.
1686  006472  005777  172542                TST     @TCCM           ;ERROR BIT SET?
1687  006476  100002                        BPL     A0035           ;BR IF NO ERROR.
1688  006500  104041                        ERROR 41                ;ERROR BIT SET EXAMINE TCST.
1689  006502  000425                        BR      D0035
1690  006504  005777  172532        A0035:  TST     @TCWC           ;WORD COUNT 0?
1691  006510  001407                        BEQ     B0035           ;BR IF WORD COUNT IS 0.
1692  006512  017737  172524  001172        MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1693  006520  005077  172436                CLR     @$REG0  ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1694  006524  104044                        ERROR 44                ;WORD COUNT NOT 0.
1695  006526  000413                        BR      D0035
1696  006530  022777  040306  172506  B0035:  CMP     #RBUF+1024.,@TCBA;TCBA CORRECT?
1697  006536  001402                        BEQ     C0035           ;BR IF TCBA IS OK.
1698  006540  104045                        ERROR 45                ;TCBA INCORRECT. SHOULD BE RBUF+1024.
1699  006542  000405                        BR      D0035
1700  006544  004537  013130        C0035:  JSR     R5,CKDAT        ;COMPARE 512 WORDS STARTING AT RBUF.
1701  006550  001276                        SBDAT1                  ;REPORT ANY ERRORS.
1702  006552  036306                        RBUF
1703  006554  001000                        512.
1704  006556                        D0035:
1705  006556  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1706  006562  000421                        BR      T0036           ;GO ON TO THE NEXT TEST
1707  006564  005777  172450        F0035:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1708  006570  100004                        BPL     H0035           ;BR IF NO ERROR.
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1709  006572  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1710
1711  006574  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1712  006600  000412                          BR      T0036           ;GO ON TO THE NEXT TEST
1713  006602  012777  177600  172432  H0035:  MOV     #-512.,@TCWC    ;-512 TO WORD COUNT.
1714  006610  012777  036306  172426          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1715  006616  112777  000005  172414          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1716  006624  000002                          RTI                     ;EXIT INTERRUPT.
1717                                  ;READ 1.5 BLOCKS (384 WORDS) WITH RDATA COMMAND UNDER MAINTENANCE MODE.
1718                                  ;ALL DATA SHOULD TRANSFER CORRECTLY. NO ERRORS SHOULD OCCUR.
1719                                  .SBTTL T0036
1720                                  ;*************************************************************************
1721  006626  000004                  T0036:  SCOPE
1722  006630  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1723  006634  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1724  006640  000036                          00036                   ;HERE LIES THE NUMBER OF THIS TEST
1725  006642  004737  012432          R0036:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1726  006646  004737  012136                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO A1F.
1727  006652  006766                          F0036
1728  006654  005077  172360                  CLR     @TCCM
1729  006660  012777  020103  172352          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1730  006666                                  MTCOD   MTK7,534.
1731  006666  004537  012636                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1732  006672  033164                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1733  006674  001026                          534.                    ;MARK TRACK CODE COUNT.
1734  006676  005777  172336                  TST     @TCCM           ;ERROR BIT SET?
1735  006702  100002                          BPL     A0036           ;BR IF NO ERROR.
1736  006704  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1737  006706  000424                          BR      D0036
1738  006710  005777  172326          A0036:  TST     @TCWC           ;WORD COUNT 0?
1739  006714  001407                          BEQ     B0036           ;BR IF WORD COUNT 0.
1740  006716  017737  172320  001172          MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1741  006724  005077  172232                  CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1742  006730  104044                          ERROR 44                ;WORD COUNT NOT 0.
1743  006732  000412                          BR      D0036
1744  006734  022777  037706  172302  B0036:  CMP     #RBUF+768.,@TCBA        ;TCBA CORRECT?
1745  006742  001401                          BEQ     C0036           ;BR IF TCBA OK.
1746  006744  104045                          ERROR 45                ;TCBA INCORRECT. SHOULD BE RBUF+768.
1747  006746  004537  013130          C0036:  JSR     R5,CKDAT        ;COMPARE 384 WORDS STARTING AT RBUF.
1748  006752  001276                          $BDAT1                  ;REPORT ANY ERRORS.
1749  006754  036306                          RBUF
1750  006756  000600                          384.
1751  006760                          D0036:
1752  006760  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1753  006764  000421                          BR      T0037           ;GO ON TO THE NEXT TEST
1754  006766  005777  172246          F0036:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1755  006772  100004                          BPL     H0036           ;BR IF NO ERROR.
1756  006774  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1757
1758  006776  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1759  007002  000412                          BR      T0037           ;GO ON TO THE NEXT TEST
1760  007004  012777  177200  172230  H0036:  MOV     #-384.,@TCWC    ;-384 TO WORD COUNT.
1761  007012  012777  036306  172224          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1762  007020  112777  000005  172212          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1763  007026  000002                          RTI                     ;EXIT INTERRUPT.
1764                                  ;COMPLEMENT OBVERSE READ TEST.  READ ONE BLOCK (256 WORDS) WITH RDATA IN REVERSE.
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1765                                        ;ALL DATA SHOULD COMPLEMENT OBVERSE CORRECTLY.  NO CONTROL ERRORS SHOULD OCCUR.
1766                                        .SBTTL T0037
1767                                        ;**********************************************************************
1768  007030  000004                       T0037:  SCOPE
1769  007032  012706  001000                       MOV     #1000,SP        ;SETUP THE STACK POINTER
1770  007036  004737  011730                       JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1771  007042  000037                               00037                   ;HERE LIES THE NUMBER OF THIS TEST
1772  007044  004737  012432              R0037:   JSR     PC,CLRBUF       ;CLEAR READ BUFFER
1773  007050  004737  012136                       JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO BID
1774  007054  007132                               C0037
1775  007056  005077  172156                       CLR     @TCCM
1776  007062  012777  024103  172150               MOV     #MAINT!UO!REV!IE!RNUM!DO,@TCCM
1777  007070                                       MTC0D   MTK7,267.
1778  007070  004537  012636                       JSR     R5,LMTC0D       ;CALL LOAD MT CODES SUB.
1779  007074  033164                               MTK7                    ;ADDRESS OF MARK TRACK CODES.
1780  007076  000413                               267.                    ;MARK TRACK CODE COUNT.
1781  007100  005777  172134                       TST     @TCCM           ;ERROR BIT SET?
1782  007104  100002                               BPL     A0037           ;BR IF NO ERROR.
1783  007106  104041                               ERROR 41                ;ERROR BIT SET.  EXAMINE TCST.
1784  007110  000405                               BR      B0037
1785  007112  004537  013130              A0037:   JSR     R5,CKDAT        ;COMPARE 256 WORDS STARTING AT RBUF.
1786  007116  001302                               SBDAT2                  ;REPORT ANY ERRORS.
1787  007120  036306                               RBUF
1788  007122  000400                               256.
1789  007124                               B0037:
1790  007124  012706  001000                       MOV     #1000,SP        ;RESTORE THE STACK POINTER
1791  007130  000421                               BR      T0040           ;GO ON TO THE NEXT TEST
1792  007132  005777  172102              C0037:   TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS.  ERROR.
1793  007136  100004                               BPL     F0037           ;BR IF NO ERROR.
1794  007140  104041                               ERROR 41                ;ERROR BIT SET.  EXAMINE TCST.
1795
1796  007142  012706  001000                       MOV     #1000,SP        ;RESTORE THE STACK POINTER
1797  007146  000412                               BR      T0040           ;GO ON TO THE NEXT TEST
1798  007150  012777  177400  172064  F0037:   MOV     #-256.,@TCWC    ;-256 TO AND COUNT.
1799  007156  012777  036306  172060           MOV     #RBUF,@TCBA     ;ADDR OF RBUF TO BUS ADDRESS.
1800  007164  112777  000005  172046           MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1801  007172  000002                           RTI                     ;EXIT INTERRUPT
1802                                        ;CHECK FOR CORRECT OPERATION OF BLOCK MISS ERROR.
1803                                        .SBTTL T0040
1804                                        ;**********************************************************************
1805  007174  000004                       T0040:  SCOPE
1806  007176  012706  001000                       MOV     #1000,SP        ;SETUP THE STACK POINTER
1807  007202  004737  011730                       JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1808  007206  000040                               00040                   ;HERE LIES THE NUMBER OF THIS TEST
1809  007210  005077  172024              R0040:   CLR     @TCCM
1810  007214  012777  177776  172020           MOV     #-2,@TCWC       ;-2 TO WORD COUNT.
1811  007222  012777  036306  172014           MOV     #RBUF,@TCBA     ;RBUF ADDR TO TCBA.
1812  007230  012777  020003  172002           MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1813  007236                                       MTC0D   MTK7,5
1814  007236  004537  012636                       JSR     R5,LMTC0D       ;CALL LOAD MT CODES SUB.
1815  007242  033164                               MTK7                    ;ADDRESS OF MARK TRACK CODES.
1816  007244  000005                               5                       ;MARK TRACK CODE COUNT.
1817  007246  005777  171766                       TST     @TCCM           ;ERROR BIT SET?
1818  007252  100002                               BPL     A0040           ;BR IF NO ERROR.
1819  007254  104041                      R0040A:  ERROR 41                ;ERROR BIT SET EXAMINE TCST.
1820  007256  000506                               BR      F0040
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1821  007260  112777  000005  171752  A0040:  MOVB    #RDATA!DO,@TCCM ;ISSUE RDATA COMMAND.
1822  007266                          MTC00   MTK7A,2
1823  007266  004537  012636                  JSR     R5,LMTC00       ;CALL LOAD MT CODES SUB.
1824  007272  033222                          MTK7A                   ;ADDRESS OF MARK TRACK CODES.
1825  007274  000002                          2                       ;MARK TRACK CODE COUNT.
1826  007276  032777  002000  171732          BIT     #BIT10,@TCST    ;BLOCK MISS ERROR SET?
1827  007304  001405                          BEQ     B0040           ;BR IF NO BLOCK MISS,  OK.
1828  007306  017737  171730  001162          MOV     @TCWC,$REG0     ;MAKE WORD COUNT INFO PRINTABLE
1829  007314  104055                          ERROR 55                ;BLOCK MISS SET WHEN RDATA ISSUED JUST
1830  007316  000466                          BR      F0040           ;BEFORE REV CHECK MARK.  SHOULDN'T HAVE.
1831  007320  005077  171714          B0040:  CLR     @TCCM
1832  007324  012777  177776  171710          MOV     #-2,@TCWC       ;-2 TO WORD COUNT.
1833  007332  012777  036306  171704          MOV     #RBUF,@TCBA     ;RBUF ADDR TO TCBA.
1834  007340  012777  020003  171672          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1835  007346                          MTC00   MTK7,6
1836  007346  004537  012636                  JSR     R5,LMTC00       ;CALL LOAD MT CODES SUB.
1837  007352  033164                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1838  007354  000006                          6                       ;MARK TRACK CODE COUNT.
1839  007356  005777  171656                  TST     @TCCM           ;ERROR BIT SET?
1840  007362  100734                          BMI     R0040A          ;BR IF ERROR BIT SET?
1841  007364  112777  000005  171646          MOVB    #RDATA!DO,@TCCM ;ISSUE RDATA COMMAND.
1842  007372                          MTC00   MTK7B,2
1843  007372  004537  012636                  JSR     R5,LMTC00       ;CALL LOAD MT CODES SUB.
1844  007376  033230                          MTK7B                   ;ADDRESS OF MARK TRACK CODES.
1845  007400  000002                          2                       ;MARK TRACK CODE COUNT.
1846  007402  032777  002000  171626          BIT     #BIT10,@TCST    ;BLOCK MISS ERROR SET?
1847  007410  001005                          BNE     C0040           ;BR IF BLOCK MISS.
1848  007412  017737  171624  001162          MOV     @TCWC,$REG0     ;MAKE WORD COUNT INFO PRINTABLE
1849  007420  104056                          ERROR 56                ;BLOCK MISS FAILED TO SET WHEN RDATA ISSUED
1850  007422  000424                          BR      F0040           ;RIGHT AFTER REV CHECK MARK.  IT SHOULD HAVE.
1851  007424  005777  171610          C0040:  TST     @TCCM           ;ERROR BIT SET?
1852  007430  100405                          BMI     D0040           ;BR IF ERROR BIT SET.
1853  007432  017737  171604  001162          MOV     @TCWC,$REG0     ;MAKE WORD COUNT INFO PRINTABLE
1854  007440  104057                          ERROR 57                ;BLOCK MISS FAILED TO SET ERROR BIT.
1855  007442  000414                          BR      F0040
1856  007444  005077  171570          D0040:  CLR     @TCCM           ;0 TO ERROR BIT.
1857  007450  032777  002000  171562          BIT     #BIT10,@TCCM    ;BLOCK MISS CLEARED?
1858  007456  001406                          BEQ     F0040           ;BR IF BLOCK MISS CLEARED.
1859  007460  017737  171556  001162          MOV     @TCWC,$REG0     ;MAKE WORD COUNT INFO PRINTABLE
1860  007466  104060                          ERROR 60                ;0 TO ERROR FAILED TO CLEAR BLOCK MISS.
1861  007470  004737  012162                  JSR     PC,SRSETT
1862  007474                          F0040:
1863  007474  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1864  007500  000400                          BR      T0041           ;GO ON TO THE NEXT TEST
1865                                  ;READ ALL TEST (RALL)
1866                                  ;AFTER BLOCK IS FOUND, SWITCH TO RALL.  READ 258 WORDS.  1ST WORD READ SHOULD BE
1867                                  ;THE REVERSE CHECKSUM (SHOULD BE 0).  LAST WORD READ SHOULD BE THE FORWARD
1868                                  ;CHECKSUM (SHOULD BE 770000).  ALL OTHER WORDS SHOULD BE DATA.
1869                                  .SBTTL T0041
1870                                  ;******************************************************************************
1871  007502  000004          T0041:  SCOPE
1872  007504  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1873  007510  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
1874  007514  000041                          0041                    ;HERE LIES THE NUMBER OF THIS TEST
1875  007516  004737  012432          R0041:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1876  007522  004737  012136                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO E1F.
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1877  007526  007716                        F0041
1878  007530  005077  171504                CLR     @TCCM
1879  007534  012777  020103  171476        MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1880  007542                                MTC00   MTK7,267.
1881  007542  004537  012636                JSR     R5,LMTC00       ;CALL LOAD MT CODES SUB.
1882  007546  033164                        MTK7                    ;ADDRESS OF MARK TRACK CODES.
1883  007550  000413                        267.                    ;MARK TRACK CODE COUNT.
1884  007552  005777  171462        R0041A: TST     @TCCM           ;ERROR BIT SET?
1885  007556  100002                        BPL     R0041B          ;BR IF NO ERROR.
1886  007560  104041                        ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1887  007562  000461                        BR      G0041
1888  007564  017724  171456        R0041B: MOV     @TCDT,(4)+      ;SAVE DATA IN READ BUFFER.
1889  007570  005337  001274                DEC     CTRA            ;256 WORDS READ?
1890  007574  001401                        BEQ     A0041           ;BR IF 256 WORDS READ.
1891  007576  000002                        RTI                     ;NOT DONE YET.  EXIT INTERRUPT.
1892  007600  005737  036306        A0041:  TST     RBUF            ;1ST WORD IN RBUF EQUAL 0?
1893  007604  001416                        BEQ     D0041           ;BR IF 1ST WORD IS 0.
1894  007606  022737  055555  036306        CMP     #55555,RBUF     ;1ST WORD EQUAL 55555?
1895  007614  001002                        BNE     B0041           ;BR IF NOT 55555.
1896  007616  104043                        ERROR 43                ;55555.  1ST WORD READ WITH RALL WAS
1897  007620  000442                        BR      G0041           ;REV GUARD INSTEAD OF REV CHECKSUM.
1898  007622  022737  066666  036306  B0041: CMP     #66666,RBUF     ;1ST WORD EQUAL 66666?
1899  007630  001002                        BNE     C0041           ;BR IF NOT 66666.
1900  007632  104043                        ERROR 43                ;66666.  1ST WORD READ WITH RALL WAS
1901  007634  000434                        BR      G0041           ;REV LOCK INSTEAD OF REV CHECKSUM.
1902  007636  104043                C0041:  ERROR 43                ;1ST WORD READ WITH RALL WAS NOT
1903  007640  000432                        BR      G0041           ;REV CHECKSUM.  EXAMINE RBUF (1ST WORD).
1904  007642  004537  013130        D0041:  JSR     R5,CKDAT
1905  007646  001276                        SBDAT1
1906  007650  036310                        RBUF+2
1907  007652  000400                        256.
1908  007654  022737  170000  037310        CMP     #170000,RBUF+514.;FWD CHKSUM EQUAL 170000? 1ST WORD READ.
1909  007662  001402                        BEQ     D0041A
1910  007664  104061                        ERROR 61                ;LAST WORD READ SHOULD HAVE BEEN THE FWD CHECKSUM.
1911  007666  000417                        BR      G0041           ;IN CORE IT SHOULD BE 170000.
1912  007670  005777  171346        D0041A: TST     @TCWC           ;WORD COUNT STILL 0?
1913  007674  001402                        BEQ     D0041B
1914  007676  104062                        ERROR 62                ;TCWC (WORD COUNT) WAS MODIFIED DURING
1915  007700  000412                        BR      G0041           ;RALL.  SHOULDN'T HAVE.
1916  007702  022777  036306  171334  D0041B: CMP     #RBUF,@TCBA     ;BUS ADDRESS STILL EQUAL #RBUF?
1917  007710  001406                        BEQ     G0041
1918  007712  104063                        ERROR 63                ;TCBA (BUS ADDRESS) MODIFIED DURING
1919  007714  000404                        BR      G0041           ;RALL.  SHOULDN'T HAVE.
1920  007716  005777  171316        F0041:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS.  ERROR!
1921  007722  100004                        BPL     I0041           ;BR IF NO ERROR.
1922  007724  104041                        ERROR 41                ;ERROR BIT SET.  EXAMINE TCST.
1923  007726                        G0041:
1924  007726  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
1925  007732  000421                        BR      T0042           ;GO ON TO THE NEXT TEST
1926  007734  012737  000402  001274  I0041: MOV     #258.,CTRA      ;NUMBER OF WORDS TO READ TO CTRA.
1927  007742  012704  036306                MOV     #RBUF,R4        ;ADDR TO STORE DATA TO R4.
1928  007746  005077  171270                CLR     @TCWC           ;ZERO WORD COUNT.
1929  007752  012777  036306  171264        MOV     #RBUF,@TCBA     ;SET BUS ADDRESS TO RBUF.
1930  007760  004737  012136                JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO E1AA.
1931  007764  007552                        R0041A
1932  007766  112777  000107  171244        MOVB    #RALL!IE!DO,@TCCM       ;RALL COMMAND.
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1933  007774  000002                        RTI                     ;EXIT INTERRUPT.
1934                                ;DATA MISS TEST. TEST THAT DATA MISS ERROR SETS WHEN DATA REGISTER (TCDT) IS
1935                                ;NOT REFERENCED UNDER RALL COMMAND, BEFORE THE NEXT DATA WORD IS LOADED INTO
1936                                ;THE DATA REGISTER. (READY BIT IS CLEARED WHEN IN RALL BY REFERENCING
1937                                ;THE DATA REGISTER (TCDT).
1938                                .SBTTL T0042
1939                                ;*****************************************************************************
1940  007776  000004                T0042:  SCOPE
1941  010000  012706  001000               MOV     #1000,SP        ;SETUP THE STACK POINTER
1942  010004  004737  011730               JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1943  010010  000042                       00042                   ;HERE LIES THE NUMBER OF THIS TEST
1944  010012  004737  012136       R0042:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO FIE.
1945  010016  010120                       D0042
1946  010020  005077  171214               CLR     @TCCM
1947  010024  012777  020103  171206       MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1948  010032                               MTCOD   MTK7,7
1949  010032  004537  012636               JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1950  010036  033164                       MTK7                    ;ADDRESS OF MARK TRACK CODES.
1951  010040  000007                       7                       ;MARK TRACK CODE COUNT.
1952  010042  032777  001000  171166       BIT     #BIT9,@TCST     ;DATA MISS ERROR SET?
1953  010050  001002                       BNE     A0042           ;BR IF DATA MISS IS SET.
1954  010052  104064                       ERROR 64                ;DATA MISS FAILED TO SET.
1955  010054  000416                       BR      C0042
1956  010056  005777  171156       A0042:  TST     @TCCM           ;ERROR BIT SET?
1957  010062  100402                       BMI     B0042           ;BR IF ERROR BIT SET.
1958  010064  104065                       ERROR 65                ;DATA MISS FAILED TO SET ERROR BIT.
1959  010066  000411                       BR      C0042
1960  010070  005077  171144       B0042:  CLR     @TCCM           ;0 TO ERROR BIT.
1961  010074  032777  001000  171134       BIT     #BIT9,@TCST     ;DATA MISS CLEARED?
1962  010102  001403                       BEQ     C0042           ;BR IF DATA MISS IS CLEAR.
1963  010104  104066                       ERROR 66                ;0 TO ERROR FAILED TO CLEAR DATA MISS.
1964  010106  004737  012162               JSR     PC,SRSETT
1965  010112                       C0042:
1966  010112  012706  001000               MOV     #1000,SP        ;RESTORE THE STACK POINTER
1967  010116  000422                       BR      T0043           ;GO ON TO THE NEXT TEST
1968  010120  005777  171114       D0042:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1969  010124  100004                       BPL     G0042           ;BR IF NO ERROR.
1970  010126  104041                       ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1971
1972  010130  012706  001000               MOV     #1000,SP        ;RESTORE THE STACK POINTER
1973  010134  000413                       BR      T0043           ;GO ON TO THE NEXT TEST
1974  010136  004737  012136       G0042:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO F1H.
1975  010142  010154                       H0042
1976  010144  112777  000107  171066       MOVB    #RALL!IE!DO,@TCCM;ISSUE RALL. IE SET.
1977  010152  000002                       RTI                     ;EXIT INTERRUPT.
1978  010154  112777  000007  171056  H0042:  MOVB    #RALL!DO,@TCCM  ;HERE WHEN RALL INTERRUPTS. DISABLE INTERRUPTS,
1979  010162  000002                       RTI                     ;DO NOT READ TCDT, EXIT INTERRUPT.
1980                                ;WRITE DATA TEST. AFTER BLOCK NUMBER IS "FOUND", ISSUE WDATA COMMAND
1981                                ;UNDER MAINTENANCE MODE, WORD COUNT = -256, TCBA = RBUF. AFTER
1982                                ;EACH MARK TRACK CODE IS PASSED, THE DATA IN THE DATA REGISTER IS SAVED.
1983                                ;WHEN THE OPERATION IS COMPLETED, A COMPARE OF WRITE DATA AND THE DATA
1984                                ;REGISTER DATA SAVED IS MADE TO SEE IF THEY MATCH. WORD COUNT AND TCBA
1985                                ;ARE ALSO CHECKED FOR CORRECT CONTENTS.
1986                                .SBTTL T0043
1987                                ;*****************************************************************************
1988  010164  000004                T0043:  SCOPE
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1989  010166  012706  001000                        MOV     #1000,SP        ;SETUP THE STACK POINTER
1990  010172  004737  011730                        JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1991  010176  000043                                00043                   ;HERE LIES THE NUMBER OF THIS TEST
1992  010200  004737  013014            R0043:     JSR     PC,LBOAT1       ;SET UP WRITE DATA (256 WORDS).
1993  010204  005077  171030                        CLR     @TCCM
1994  010210  012777  020003  171022                MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1995  010216                                        MTCOD   MTK7,5
1996  010216  004537  012636                        JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1997  010222  033164                                MTK7                    ;ADDRESS OF MARK TPACK CODES.
1998  010224  000005                                5                       ;MARK TRACK CODE COUNT.
1999  010226  005777  171006                        TST     @TCCM           ;ERROR BIT SET?
2000  010232  100002                                BPL     A0043           ;BR IF NO ERROR.
2001  010234  104041                                ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
2002  010236  000457                                BR      G0043
2003  010240  012777  177400  170774    A0043:     MOV     #-256.,@TCWC    ;-256 TO WORD COUNT.
2004  010246  012777  036306  170770                MOV     #RBUF,@TCBA     ;ADDR OF RBUF TO TCBA.
2005  010254  012704  037306                        MOV     #RBUF+512.,R4   ;ADDR TO SAVE TCDT DATA TO R4.
2006  010260  112777  000015  170752                MOVB    #WDATA!DO,@TCCM ;ISSUE WDATA COMMAND.
2007  010266                                        MTCOE   H0043,MTK7A,262.
2008  010266  004537  013006                        JSR     R5,LMTCOE       ;CALL LOAD MT CODES SUBROUTINE.
2009  010272  010404                                H0043                   ;ADDR TO GO AFTER EACH CODE PASSED.
2010  010274  033222                                MTK7A                   ;ADDRESS OF MARK TRACK CODES.
2011  010276  000406                                262.                    ;MARK TRACK CODE COUNT.
2012  010300  005777  170734                        TST     @TCCM           ;ERROR BIT SET?
2013  010304  100002                                BPL     B0043           ;BR IF NO ERROR.
2014  010306  104041                                ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
2015  010310  000432                                BR      G0043
2016  010312  105777  170722            B0043:     TSTB    @TCCM           ;READY BIT SET?
2017  010316  100402                                BMI     C0043           ;BR IF READY IS SET.
2018  010320  104067                                ERROR 67                ;READY BIT FAILED TO SET.
2019  010322  000425                                BR      G0043
2020  010324  005777  170712            C0043:     TST     @TCWC           ;WORD COUNT 0?
2021  010330  001407                                BEQ     D0043           ;BR IF WORD COUNT IS 0.
2022  010332  017737  170704  001172                MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
2023  010340  005077  170616                        CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
2024  010344  104044                                ERROR 44                ;WORD COUNT NOT 0.
2025  010346  000413                                BR      G0043
2026  010350  022777  037306  170666    D0043:     CMP     #RBUF+512.,@TCBA        ;TCBA CORRECT?
2027  010356  001402                                BEQ     F0043           ;BR IF TCBA CORRECT.
2028  010360  104045                                ERROR 45                ;TCBA INCORRECT. SHOULD BE RBUF+512.
2029  010362  000405                                BR      G0043
2030  010364  004537  013130            F0043:     JSR     R5,CKDAT        ;COMPARE WRITE DATA AGAINST TCDT SAVED
2031  010370  001276                                SBOAT1                  ;DATA. REPORT ERRORS.
2032  010372  037306                                RBUF+512.
2033  010374  000400                                256.
2034  010376                            G0043:
2035  010376  012706  001000                        MOV     #1000,SP        ;RESTORE THE STACK POINTER
2036  010402  000403                                BR      T0044           ;GO ON TO THE NEXT TEST
2037  010404  017724  170636            H0043:     MOV     @TCDT,(4)+      ;HERE AFTER EACH MARK CODE IS PASSED.
2038  010410  000002                                RTI                     ;SAVE TCDT DATA AND EXIT IOT TRAP.
2039                                    ;WRITE DATA COMPLEMENT OBVERSE TEST.
2040                                    .SBTTL T0044
2041                                    ;******************************************************************************
2042  010412  000004                    T0044:     SCOPE
2043  010414  012706  001000                        MOV     #1000,SP        ;SETUP THE STACK POINTER
2044  010420  004737  011730                        JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
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                                                000044                          ;HERE LIES THE NUMBER OF THIS TEST
010424  000044
010426  004737  013014                  R0044:  JSR     PC,LBDAT1               ;SET UP WRITE DATA (256 WORDS).
010432  005077  170602                          CLR     @TCCM
010436  012777  024003  170574                  MOV     #MAINT!UO!REV!RNUM!DO,@TCCM
010444                                          MTCOD   MTK7,5
010444  004537  012636                          JSR     R5,LMTCOD               ;CALL LOAD MT CODES SUB.
010450  033164                                  MTK7                            ;ADDRESS OF MARK TRACK CODES.
010452  000005                                  5                               ;MARK TRACK CODE COUNT.
010454  005777  170560                          TST     @TCCM                   ;ERROR BIT SET?
010460  100002                                  BPL     A0044                   ;BR IF NO ERROR.
010462  104041                                  ERROR 41                        ;ERROR BIT SET EXAMINE TCST.
010464  000432                                  BR      C0044
010466  012777  177400  170546          A0044:  MOV     #-256.,@TCWC            ;-256 TO WORD COUNT.
010474  012777  036306  170542                  MOV     #RBUF,@TCBA             ;ADDR OF RBUF TO TCBA.
010502  012704  037306                          MOV     #RBUF+512.,R4           ;ADDR TO SAVE TCDT DATA TO R4.
010506  112777  000015  170524                  MOVB    #WDATA!DO,@TCCM         ;ISSUE WDATA COMMAND.
010514                                          MTCOE   D0044,MTK7A,262.
010514  004537  013006                          JSR     R5,LMTCOE               ;CALL LOAD MT CODES SUBROUTINE.
010520  010560                                  D0044                           ;ADDR TO GO AFTER EACH CODE PASSED.
010522  033222                                  MTK7A                           ;ADDRESS OF MARK TRACK CODES.
010524  000406                                  262.                            ;MARK TRACK CODE COUNT.
010526  005777  170506                          TST     @TCCM                   ;ERROR BIT SET?
010532  100002                                  BPL     B0044                   ;BR IF NO ERROR.
010534  104041                                  ERROR 41                        ;ERROR BIT SET. EXAMINE TCST.
010536  000405                                  BR      C0044
010540  004537  013130          B0044:  JSR     R5,CKDAT                ;CHECK THAT SAVED TCDT DATA WAS COMPLEMENT
010544  001306                                  SBDAT3                  ;OBVERSED CORRECTLY.
010546  037306                                  RBUF+512.
010550  000400                                  256.
010552                          C0044:
010552  012706  001000                          MOV     #1000,SP                ;RESTORE THE STACK POINTER
010556  000403                                  BR      T0045                   ;GO ON TO THE NEXT TEST
010560  017724  170462          D0044:  MOV     @TCDT,(4)+              ;HERE AFTER EACH MARK CODE IS PASSED.
010564  000002                                  RTI                             ;SAVE TCDT DATA AND EXIT IOT TRAP.
                                ;WRITE ALL TEST.
                                .SBTTL T0045
                                ;*****************************************************************************
010566  000004                  T0045:  SCOPE
010570  012706  001000                          MOV     #1000,SP                ;SETUP THE STACK POINTER
010574  004737  011730                          JSR     PC,TORDER               ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
010600  000045                                  D0045                           ;HERE LIES THE NUMBER OF THIS TEST
010602  004737  013014          R0045:  JSR     PC,LBDAT1               ;SET UP WRITE DATA.
010606  005077  170426                          CLR     @TCCM
010612  012777  020003  170420                  MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
010620                                          MTCOD   MTK7,4
010620  004537  012636                          JSR     R5,LMTCOD               ;CALL LOAD MT CODES SUB.
010624  033164                                  MTK7                            ;ADDRESS OF MARK TRACK CODES.
010626  000004                                  4                               ;MARK TRACK CODE COUNT.
010630  005777  170404                          TST     @TCCM                   ;ERROR BIT SET?
010634  100002                                  BPL     A0045                   ;BR IF NO ERROR.
010636  104041                                  ERROR 41                        ;ERROR BIT SET. EXAMINE TCST.
010640  000470                                  BR      G0045
010642  005077  170374          A0045:  CLR     @TCWC                   ;0 TO WORD COUNT.
010646  012777  036306  170370                  MOV     #RBUF,@TCBA             ;ADDR OF RBUF TO TCBA.
010654  012703  036304                          MOV     #RBUF-2,R3
010660  012704  037306                          MOV     #RBUF+512.,R4
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2101  010664  012737  000402  001274          MOV     #258.,CTRA      ;# OF WORDS TO WRITE TO CTRA.
2102  010672  004737  012136                  JSR     PC,STICV        ;SET INTERRUPT VECTOR TO IIC.
2103  010676  010720                          B0045
2104  010700  112777  000117  170332          MOVB    #WALL!IE!DO,@TCCM;ISSUE WRITE ALL COMMAND. INTERRUPT ENABLED.
2105  010706                                  MTCOE   I0045,MTK5,260.
2106  010706  004537  013006                  JSR     R5,LMTCOE       ;CALL LOAD MT CODES SUBROUTINE.
2107  010712  011030                          I0045                   ;ADDR TO GO AFTER EACH CODE PASSED.
2108  010714  033214                          MTK5                    ;ADDRESS OF MARK TRACK CODES.
2109  010716  000404                          260.                    ;MARK TRACK CODE COUNT.
2110  010720  005777  170314          B0045:  TST     @TCCM           ;ERROR BIT SET?
2111  010724  100002                          BPL     B0045A          ;BR IF NO ERROR.
2112  010726  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
2113  010730  000434                          BR      G0045
2114  010732  012377  170310          B0045A: MOV     (3)+,@TCDT      ;WRITE DATA TO TCDT.
2115  010736  005337  001274                  DEC     CTRA            ;WROTE 257 WORDS?
2116  010742  001401                          BEQ     C0045           ;BR IF 257 WORDS WRITTEN.
2117  010744  000002                          RTI                     ;NOT DONE. EXIT INTERRUPT.
2118  010746  005737  037306          C0045:  TST     @#RBUF+512.     ;1ST WORD WRITTEN EQUAL 0?
2119  010752  001404                          BEQ     D0045           ;BR IF FIRST WORD 0.
2120  010754  005037  001162                  CLR     $REG0
2121  010760  104070                          ERROR 70                ;1ST WORD WRITTEN NOT 0. (REV CHECKSUM).
2122  010762  000417                          BR      G0045
2123  010764  004537  013130          D0045:  JSR     R5,CKDAT        ;CHECK THAT SAVED TCDT DATA MATCHES
2124  010770  001276                          SBDAT1                  ;WRITE DATA.
2125  010772  037310                          RBUF+514.
2126  010774  000400                          256.
2127  010776  005777  170240                  TST     @TCWC           ;WORD COUNT STILL 0?
2128  011002  001402                          BEQ     F0045           ;BR IF WORD COUNT IS 0.
2129  011004  104071                          ERROR 71                ;WORD COUNT MODIFIED DURING WRITE ALL.
2130  011006  000405                          BR      G0045
2131  011010  022777  036306  170226  F0045:  CMP     #RBUF,@TCBA     ;TCBA STILL EQUAL RBUF?
2132  011016  001401                          BEQ     G0045           ;BR IF TCBA STILL SAME.
2133  011020  104072                          ERROR 72                ;TCBA MODIFIED DURING WRITE ALL.
2134  011022                          G0045:
2135  011022  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
2136  011026  000403                          BR      T0046           ;GO ON TO THE NEXT TEST
2137  011030  017724  170212          I0045:  MOV     @TCDT,(4)+      ;HERE AFTER EACH MARK CODE IS PASSED.
2138  011034  000002                          RTI                     ;SAVE TCDT DATA AND EXIT IOT TRAP.
2139
2140                                  .SBTTL T0046
2141                                  ;******************************************************************************
2142  011036  000004                  T0046:  SCOPE
2143  011040  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
2144  011044  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
2145  011050  000046                          00046                   ;HERE LIES THE NUMBER OF THIS TEST
2146  011052  004537  013256          R0046:  JSR     R5,CKSELE       ;SST TO U1.
2147  011056  000400                          U1
2148  011060  104073                          ERROR 73                ;SST TO U1 DID NOT CAUSE SELECT ERROR.
2149
2150  011062  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
2151  011066  000400                          BR      T0047           ;GO ON TO THE NEXT TEST
2152                                  .SBTTL T0047
2153                                  ;******************************************************************************
2154  011070  000004                  T0047:  SCOPE
2155  011072  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
2156  011076  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
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2157  011102  000047                    00047                   ;HERE LIES THE NUMBER OF THIS TEST
2158  011104  004537  013256  R0047:    JSR     R5,CKSELE       ;SST TO U2.
2159  011110  001000                    U2
2160  011112  104073                    ERROR 73                ;SST TO U2 DID NOT CAUSE SELECT ERROR.
2161
2162  011114  012706  001000            MOV     #1000,SP        ;RESTORE THE STACK POINTER
2163                              .SBTTL T0050
2164                              ;*****************************************************************************
2165  011120  000004              T0050:  SCOPE
2166  011122  012706  001000            MOV     #1000,SP        ;SETUP THE STACK POINTER
2167  011126  004737  011730            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPOER SEQUENCE
2168  011132  000050                    00050                   ;HERE LIES THE NUMBER OF THIS TEST
2169  011134  004537  013256  R0050:    JSR     R5,CKSELE       ;SST TO U1.
2170  011140  001400                    U3
2171  011142  104073                    ERROR 73                ;SST TO U3 DID NOT CAUSE SELECT ERROR.
2172
2173  011144  012706  001000            MOV     #1000,SP        ;RESTORE THE STACK POINTER
2174                              .SBTTL T0051
2175                              ;*****************************************************************************
2176  011150  000004              T0051:  SCOPE
2177  011152  012706  001000            MOV     #1000,SP        ;SETUP THE STACK POINTER
2178  011156  004737  011730            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPOER SEQUENCE
2179  011162  000051                    00051                   ;HERE LIES THE NUMBER OF THIS TEST
2180  011164  004537  013256  R0051:    JSR     R5,CKSELE       ;ISSUE A SST COMMAND
2181  011170  002000                    U4
2182  011172  104073                    ERROR 73                ;SST TO U4 DID NOT CAUSE SELECT ERROR.
2183
2184  011174  012706  001000            MOV     #1000,SP        ;RESTORE THE STACK POINTER
2185                              .SBTTL T0052
2186                              ;*****************************************************************************
2187  011200  000004              T0052:  SCOPE
2188  011202  012706  001000            MOV     #1000,SP        ;SETUP THE STACK POINTER
2189  011206  004737  011730            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPOER SEQUENCE
2190  011212  000052                    00052                   ;HERE LIES THE NUMBER OF THIS TEST
2191  011214  004537  013256  R0052:    JSR     R5,CKSELE       ;ISSUE A SST COMMAND
2192  011220  002400                    U5
2193  011222  104073                    ERROR 73                ;SST TO U5 DID NOT CAUSE SELECT ERROR.
2194
2195  011224  012706  001000            MOV     #1000,SP        ;RESTORE THE STACK POINTER
2196                              .SBTTL T0053
2197                              ;*****************************************************************************
2198  011230  000004              T0053:  SCOPE
2199  011232  012706  001000            MOV     #1000,SP        ;SETUP THE STACK POINTER
2200  011236  004737  011730            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPOER SEQUENCE
2201  011242  000053                    00053                   ;HERE LIES THE NUMBER OF THIS TEST
2202  011244  004537  013256  R0053:    JSR     R5,CKSELE       ;ISSUE A SST COMMAND
2203  011250  003000                    U6
2204  011252  104073                    ERROR 73                ;SST TO U6 DID NOT CAUSE SELECT ERROR.
2205  011254  000240                    NOP
2206  011256  000240                    NOP
2207  011260  000240                    NOP
2208
2209  011262  012706  001000            MOV     #1000,SP        ;RESTORE THE STACK POINTER
2210                              .SBTTL T0054
2211                              ;*****************************************************************************
2212  011266  000004              T0054:  SCOPE
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2213  011270  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
2214  011274  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
2215  011300  000054                          D0054                   ;HERE LIES THE NUMBER OF THIS TEST
2216  011302  004537  013256          R0054:  JSR     R5,CKSELE       ;ISSUE A SST COMMAND
2217  011306  003400                          U7
2218  011310  104073                          ERROR 73                ;SST TO U7 DID NOT CAUSE SELECT ERROR.
2219
2220  011312  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
2221                                  .SBTTL T0055
2222                                  ;******************************************************************************
2223  011316  000004                  T0055:  SCOPE
2224  011320  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
2225  011324  004737  011730                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
2226  011330  000055                          D0055                   ;HERE LIES THE NUMBER OF THIS TEST
2227  011332  004737  013046                  JSR     PC,LBBIND       ;LOAD BUFFER WITH BINARY DATA.
2228  011336  005077  167676                  CLR     @TCCM
2229  011342  012777  020003  167670          MOV     #MAINT!UD!FWD!RNUM!D0,@TCCM
2230  011350                                  MTCOD   MTK7,5
2231  011350  004537  012636                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
2232  011354  033164                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
2233  011356  000005                          5                       ;MARK TRACK CODE COUNT.
2234  011360  005777  167654                  TST     @TCCM           ;ERROR BIT SET?
2235  011364  100002                          BPL     A0055           ;BR IF NO ERROR.
2236  011366  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
2237  011370  000441                          BR      D0055
2238  011372  012777  177400  167642  A0055:  MOV     #-256.,@TCWC    ;-256 TO WORD COUNT.
2239  011400  012777  036306  167636          MOV     #RBUF,@TCBA     ;RBUF ADDR TO TCBA.
2240  011406  012704  037306                  MOV     #RBUF+512.,R4   ;ADDR TO SAVE TCDT DATA TO R4.
2241  011412  112777  000015  167620          MOVB    #WDATA!D0,@TCCM ;ISSUE WRITE DATA COMMAND.
2242  011420                                  MTCOE   F0055,MTK7A,262.
2243  011420  004537  013006                  JSR     R5,LMTCOE       ;CALL LOAD MT CODES SUBROUTINE.
2244  011424  011502                          F0055                   ;ADDR TO GO AFTER EACH CODE PASSED.
2245  011426  033222                          MTK7A                   ;ADDRESS OF MARK TRACK CODES.
2246  011430  000406                          262.                    ;MARK TRACK CODE COUNT.
2247  011432  005777  167602                  TST     @TCCM           ;ERROR BIT SET?
2248  011436  100002                          BPL     B0055           ;BR IF NO ERROR.
2249  011440  104044                          ERROR 44                ;ERROR BIT SET. EXAMINE TCST.
2250  011442  000414                          BR      D0055
2251  011444  012701  037306          B0055:  MOV     #RBUF+512.,R1   ;ADDR OF DATA TO CHECK TO R1.
2252  011450  012703  036306                  MOV     #RBUF,R3        ;ADDR OF EXPECTED DATA TO R3.
2253  011454  012702  000400                  MOV     #256.,R2        ;# OF WORDS TO CHECK TO R2.
2254  011460  005037  013254                  CLR     WDCNT
2255  011464  004737  013202          C0055:  JSR     PC,CDTCK        ;CHECK DATA WORD.
2256  011470  005302                          DEC     R2              ;ALL WORDS CHECKED?
2257  011472  001374                          BNE     C0055           ;BR IF NOT DONE YET.
2258  011474                          D0055:
2259  011474  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
2260  011500  000403                          BR      T0056           ;GO ON TO THE NEXT TEST
2261  011502  017724  167540          F0055:  MOV     @TCDT,(4)+      ;HERE AFTER EACH MARK CODE IS PASSED.
2262  011506  000002                          RTI                     ;SAVE TCDT DATA AND EXIT.
2263
2264                                  .SBTTL T0056
2265  011510  000004                  T0056:  SCOPE
2266  011512                          .SEOP STARTX,,PASCNT
2267                                  .SBTTL  END OF PASS ROUTINE
2268
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  2269  011512                                STARS
  2270                                        ;;*****************************************************************
  2271                                        ;*INCREMENT THE PASS NUMBER ($PASS)
  2272                                        ;*TYPE "END PASS #XXXXX" (WHERE XXXXX IS A DECIMAL NUMBER)
  2273                                        ;*IF THERES A MONITOR GO TO IT
  2274                                        ;*IF THERE ISN'T JUMP TO STARTX
  2275
  2276  011512                                SEOP:
  2277  011512  000004                               SCOPE
  2278                                        .LIST
  2279  011514  005037  001102                       CLR     $TSTNM          ;;ZERO THE TEST NUMBER
  2280  011520  005037  001222                       CLR     $TIMES          ;;ZERO THE NUMBER OF ITERATIONS
  2281  011524  005237  001100                       INC     $PASS           ;;INCREMENT THE PASS NUMBER
  2282  011530  042737  100000  001100              BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
  2283  011536  005327                               DEC     (PC)+           ;;LOOP?
  2284  011540  000001                       SEOPCT: .WORD   1
  2285  011542  003022                               BGT     $DOAGN          ;;YES
  2286  011544  012737                               MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
  2287  011546  000001                       SENDCT: .WORD   1
  2288  011550  011540                               $EOPCT
  2289  011552  104401  011617                       TYPE    ,$ENDMG         ;;TYPE "END PASS #"
  2290  011556                                        TYPDEC  $PASS
  2291  011556  013746  001100                       MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
  2292  011562  104405                               TYPOS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
  2293  011564  104401  011614                       TYPE    ,$ENULL         ;;TYPE A NULL CHARACTER
  2294  011570  013700  000042              $GET42: MOV     @#42,R0         ;;GET MONITOR ADDRESS
  2295  011574  001405                               BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
  2296                                        .LIST
  2297  011576  000005                               RESET                   ;;CLEAR THE WORLD
  2298  011600  004710                       $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
  2299  011602  000240                               NOP                     ;;SAVE ROOM
  2300  011604  000240                               NOP                     ;;FOR
  2301  011606  000240                               NOP                     ;;ACT11
  2302  011610                                $DOAGN:
  2303  011610  000137                               JMP     @(PC)+          ;;RETURN
  2304  011612  002574                       $RTNAD: .WORD   STARTX
  2305  011614     377     377     000       $ENULL: .BYTE   -1,-1,0         ;;NULL CHARACTER STRING
  2306  011617     015  042412  042116       $ENDMG: .ASCIZ  <15><12>/END PASS #/
  2307  011624  050040  051501  020123
  2308  011632  000043
  2309                                        ;*      THIS ROUTINE HANDLES FATAL TRAP ERRORS
  2310  011634  012737  015717  011672  TRAP10: MOV     #TRPM10,TMESAD          ;ADDRESS OF TRAP TO 10 MESSAGE TO THE MESSAGE PO
  2311  011642  000403                       BR      TRAPX           ;ENTER THE FATAL TRAP ERROR REPORT ROUTINE
  2312  011644  012737  015575  011672  TRAP4:  MOV     #TRPM4S,TMESAD
  2313  011652  011600                TRAPX:  MOV     (SP),R0         ;SAVE PC OF WHERE TRAP OCCURRED
  2314  011654  162700  000002               SUB     #2,R0           ;MAKE IT POINT EXACTLY AT THE OFFENDING WORD
  2315  011660  012706  001000               MOV     #1000,SP        ;MAKE SURE THAT THE STACK GIVES NO PROBLEMS
  2316  011664  005046                       CLR     -(SP)           ;FAKEOUT THE PRINTOUT ROUTINE
  2317  011666  004737  014230               JSR     PC,$TYPE        ;PRINT THE TRAP MESSAGE
  2318  011672  000000                TMESAD: 000000                  ;ADDRESS OF THE TRAP MESSAGE GOES HERE
  2319  011674  010016                       MOV     R0,(SP)         ;PUT ERROR PC BACK ONTO THE STACK
  2320  011676  104402                       TYPOC
  2321  011700  104401  001233        TRYAGN: TYPE    ,$CRLF
  2322  011704  104401  015645               TYPE    ,TRPMES         ;THEN PRINTOUT THE TRAP MESSAGE
  2323  011710  000240                       NOP                     ;PATCHING SPACE, THOUGHTFULLY PROVIDED
  2324  011712  000240                       NOP                     ;PATCHING SPACE, THOUGHTFULLY PROVIDED
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 2325  011714  000240                          NOP                     ;PATCHING SPACE, THOUGHTFULLY PROVIDED
 2326  011716  000240                          NOP                     ;PATCHING SPACE, THOUGHTFULLY PROVIDED
 2327  011720  000240                          NOP                     ;PATCHING SPACE, THOUGHTFULLY PROVIDED
 2328  011722  000005                          RESET
 2329  011724  000137  002312                  JMP     @#START
 2330                                  ;SUBROUTINE TO CHECK TO MAKE SURE THAT EACH TEST IN
 2331                                  ;RUNNING WHEN IT SHOULD
 2332  011730  011637  001162          TORDER: MOV     (SP),$REG0      ;GET ADDRESS OF TEST #
 2333  011734  062716  000002                  ADD     #2,(SP)         ;BUMP PRETURN ADDRESS TO HOP OVER THE IN LINE TEST #
 2334  011740  123777  001102  167214          CMPB    $TSTNM,@$REG0   ;FIND OUT IF THE TEST #'S MATCH
 2335  011746  001410                          BEQ     TORDER          ;IF THEY DO HOP OVER THE ERROR SIGNAL STUFF
 2336  011750  013737  001162  001164          MOV     $REG0,$REG1     ;SAVE ADDRESS OF TEST
 2337  011756  017737  167200  001162          MOV     @$REG0,$REG0    ;GET TEST# WAS DATA READY FOR PRINTOUT
 2338  011764  104026                          ERROR   26              ;PRINTOUT  "OUT OF ORDER" MESSAGE
 2339  011766  000744                          BR      TRYAGN          ;GO TRY TO START OVER
 2340  011770  000207          TORDER: RTS     PC      ;RETURN
 2341                                  ;SAVE REGS 0 TO 4 SUBROUTINE.
 2342  011772  012666  177764          SV04:   MOV     (6)+,-12.(6)    ;MOVE PC UPSTACK.
 2343  011776  012737  000207  012050          MOV     #RTSPC,SV05C
 2344  012004  000412                          BR      SV05B
 2345                                  ;SUB TO SAVE REGS 0 TO 5 AND PLACE JSR PC IN R5.
 2346  012006  012737  000240  012050  SV05S:  MOV     #NOP,SV05C
 2347  012014  000403                          BR      SV05A
 2348                                  ;SUB TO SAVE REGS 0 TO 5.
 2349  012016  012737  000207  012050  SV05:   MOV     #RTSPC,SV05C
 2350  012024  012666  177762          SV05A:  MOV     (6)+,-14.(6)    ;MOVE PC UPSTACK.
 2351  012030  010546                          MOV     R5,-(6)
 2352  012032  010446                  SV05B:  MOV     R4,-(6)
 2353  012034  010346                          MOV     R3,-(6)
 2354  012036  010246                          MOV     R2,-(6)
 2355  012040  010146                          MOV     R1,-(6)
 2356  012042  010046                          MOV     R0,-(6)
 2357  012044  162706  000002                  SUB     #2,SP
 2358  012050  000207          SV05C:  RTS PC                          ;RTS PC OR NOP.
 2359  012052  016605  000016                  MOV     14.(6),R5       ;JSR PC TO R5.
 2360  012056  000207                          RTS PC                  ;EXIT.
 2361                                  ;RESTORE REGS 0 TO 4 SUBROUTINE.
 2362  012060  062706  000002          RS04:   ADD     #2,SP
 2363  012064  012600                          MOV     (6)+,R0         ;RESTORE REGS 0 TO 4.
 2364  012066  012601                          MOV     (6)+,R1
 2365  012070  012602                          MOV     (6)+,R2
 2366  012072  012603                          MOV     (6)+,R3
 2367  012074  012604                          MOV     (6)+,R4
 2368  012076  016646  177764                  MOV     -12.(6),-(6)    ;MOVE PC  DOWN STACK.
 2369  012102  000207                          RTS     PC              ;EXIT
 2370                                  ;SUB TO SET R5 IN EMT PC AND RESTORE REGS 0 TO5.
 2371  012104  010566  000016          RS05S:  MOV     R5,14.(6)       ;SET EMT PC TO R5 CONTENTS.
 2372                                  ;SUB TO RESTORE REGS 0 TO 5.
 2373  012110  062706  000002          RS05:   ADD     #2,SP
 2374  012114  012600                          MOV     (6)+,R0
 2375  012116  012601                          MOV     (6)+,R1
 2376  012120  012602                          MOV     (6)+,R2
 2377  012122  012603                          MOV     (6)+,R3
 2378  012124  012604                          MOV     (6)+,R4
 2379  012126  012605                          MOV     (6)+,R5
 2380  012130  016646  177762                  MOV     -14.(6),-(6)    ;MOVE PC DOWNSTACK.
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                                END OF PASS ROUTINE

2381  012134  000207                      RTS     PC              ;EXIT
2382                          ;ROUTINE TO SET TC11 INTERRUPT VECTOR AND PRIORITY
2383  012136  004737  012006  STTCV:  JSR     PC,SVOSS
2384  012142  013701  001250          MOV     TCVTR,R1        ;VECTOR TO R1.
2385  012146  012521                  MOV     (5)+,(1)+       ;SET DESIRED VECTOR.
2386  012150  013721  001252          MOV     TCLVL,(1)+      ;SET TC11 PRIORITY.
2387  012154  004737  012104          JSR     PC,RSOSS
2388  012160  000207                  RTS     PC
2389                          ;ROUTINE TO ISSUE RESET.
2390  012162  010046  SRSETT: MOV     R0,-(6)         ;PUSH R0.
2391  012164  012700  052525          MOV     #52525,R0       ;DATA TO R0.
2392  012170  005100                  COM     R0              ;COMPLEMENT (R0).
2393  012172  010037  012166          MOV     R0,SRSETT+4     ;(R0) TO SRSETT+4.
2394  012176  000005                  RESET                   ;ISSUE RESET. (R0) IS
2395  012200  012600                  MOV     (6)+,R0         ;RESTORE R0.
2396  012202  000207                  RTS     PC              ;EXIT
2397  012204  004537  012610  RSTMTK: JSR     R5,BMOVE        ;RESTORE MTKVAR MARK CODE.
2398  012210  033126                  MTKC10                  ;AND GOOD CHECKSUM.
2399  012212  033236                  MTKVAR
2400  012214  000006                  6
2401  012216  004537  012610          JSR     R5,BMOVE
2402  012222  033156                  MTKSP
2403  012224  033214                  MTKS
2404  012226  000006                  6
2405  012230  004537  012610          JSR     R5,BMOVE
2406  012234  036267                  GCKSM
2407  012236  036230                  FCKSM
2408  012240  000006                  6
2409  012242  000207                  RTS     PC              ;EXIT.
2410                          ;COMMON HALT ROUTINE
2411  012244  004737  012006  CHLT:   JSR     PC,SVOSS
2412  012250  010500                  MOV     R5,R0           ;DEVELOP ADDR OF CALLER.
2413  012252  005740                  TST     -(0)
2414  012254  000000                  HALT                    ;HALT CALL ADDR IN DATA LIGTHS.
2415  012256  004737  012104          JSR     PC,RSOSS
2416  012262  000207                  RTS     PC              ;EXIT.
2417                          ;RANDOM NUMBER GENERATOR. ROUTINE EXITS WITH NUMBER IN REGISTER 0.
2418  012264  013700  012332  RNGEN:  MOV     RP1,R0
2419  012270  006100                  ROL     R0
2420  012272  006100                  ROL     R0
2421  012274  063700  012334          ADD     RP2,R0
2422  012300  010037  012332          MOV     R0,RP1
2423  012304  006100                  ROL     R0
2424  012306  006100                  ROL     R0
2425  012310  063700  012334          ADD     RP2,R0
2426  012314  006100                  ROL     R0
2427  012316  006100                  ROL     R0
2428  012320  010037  012334          MOV     R0,RP2
2429  012324  013700  012332          MOV     RP1,R0
2430  012330  000207                  RTS     PC              ;EXIT. NUMBER IN R0
2431  012332  001233          RP1:    1233
2432  012334  007622          RP2:    7622
2433                          ;SUBROUTINE TO DELAY A SPECIFIED NUMBER OF MILLISECONDS
2434  012336  004737  012006  DLY:    JSR     PC,SVOSS
2435  012342  012500                  MOV     (5)+,R0         ;DELAY COUNT TO R0.
2436  012344  005037  177776          CLR     PSW             ;SET PRIORITY 0.
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2437  012350  012701  000226          DLYA:   MOV     #226,R1         ;1 MSEC COUNT TO R1.
2438  012354  005301                  DLYB:   DEC     R1              ;DECREMENT 1 MSEC COUNT.
2439  012356  001376                          BNE     DLYB            ;BR IF NOT 0.
2440  012360  005300                          DEC     R0              ;DECREMENT DELAY COUNT.
2441  012362  001372                          BNE     DLYA            ;BR IF NOT DONE DELAYING.
2442  012364  004737  012104                  JSR     PC,RSOSS
2443  012370  000207                          RTS PC                  ;EXIT.
2444                                  ;SUBROUTINE TO STALL A RANDOM NUMBER OF MILLISECONDS. MAXIMUM STALL
2445                                  ;DETERMINED BY CONTENTS OF LOC STLMSK.
2446  012372  004737  012006          STAL:   JSR     PC,SVOSS
2447  012376  004737  012264                  JSR     PC,RNGEN        ;GO GET RANDOM NUMBER.
2448  012402  043700  012430                  BIC     STLMSK,R0       ;# IN R0. APPLY STALL MASK.
2449  012406  001407                          BEQ     STALB           ;BRANCH IF RESULT IS 0.
2450  012410  010037  012420                  MOV     R0,STALA
2451  012414  004737  012336                  JSR     PC,DLY                  ;DELAY
2452  012420  000000          STALA:  OPEN                    ;DELAY COUNT
2453  012422  004737  012104                  JSR     PC,RSOSS
2454  012426  000207          STALB:  RTS PC                  ;DONE. EXIT.
2455  012430  000000          STLMSK: OPEN                    ;STALL MASK.
2456                                  ;SUBROUTINE TO CLEAR DECTAPE READ BUFFER.
2457  012432  005037  036306  CLRBUF: CLR     RBUF            ;CLEAR 512 WORD READ BUFFER.
2458  012436  004537  012610          JSR     R5,BMOVE        ;TO ALL 0'S.
2459  012442  036306                  RBUF
2460  012444  036307                  RBUF+1
2461  012446  001777                  1023.
2462  012450  000207                  RTS     PC              ;EXIT.
2463                                  ;SUBROUTINE TO INITIALIZE BINARY COUNT PATTERNS
2464  012452  012737  177777  012474  INBIN:  MOV     #-1,RIND        ;SET ALL VARIABLES
2465  012460  004537  012610          JSR     R5,BMOVE        ;TO MINUS 1.
2466  012464  012474                  RIND
2467  012466  012475                  RIND+1
2468  012470  000013                  11.
2469  012472  000207                  RTS     PC              ;EXIT
2470  012474  000000          RIND:   OPEN
2471  012476  000000          PTO:    OPEN
2472  012500  000000          PT1:    OPEN
2473  012502  000000          PIND:   OPEN
2474  012504  000000          PTOP:   OPEN
2475  012506  000000          PT1P:   OPEN
2476                                  ;SPECIAL BINARY COUNT PATTERN SUBROUTINE. EXITS WITH BIN CHAR IN R0
2477  012510  013737  012476  012500  GTBIN:  MOV     PTO,PT1         ;PREVIOUS BIN CHAR TO PT1
2478  012516  005137  012500          COM     PT1
2479  012522  005137  012474          COM     RIND
2480  012526  001002                  BNE     .+6
2481  012530  005237  012500          INC     PT1
2482  012534  013737  012500  012476          MOV     PT1,PTO         ;SAVE BIN CHAR IN PTO
2483  012542  013700  012500          MOV     PT1,R0          ;BIN CHAR TO R0.
2484  012546  000207                  RTS     PC              ;EXIT.
2485  012550  013737  012504  012506  GTBINP: MOV     PTOP,PT1P       ;PREVIOUS BIN CHAR TO PT1P
2486  012556  005137  012506          COM     PT1P
2487  012562  005137  012502          COM     PIND
2488  012566  001002                  BNE     .+6
2489  012570  005237  012506          INC     PT1P
2490  012574  013737  012506  012504          MOV     PT1P,PTOP       ;SAVE BIN CHAR IN PTOP.
2491  012602  013701  012506          MOV     PT1P,R1         ;BIN CHAR TO R1.
2492  012606  000207                  RTS     PC              ;EXIT.
```

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                                        ;SUBROUTINE TO MOVE A VARIABLE NUMBER OF BYTES.
012610  004737  011772          BMOVE:  JSR     PC,SVD4                 ;SAVE REGS.
012614  012501                          MOV     (5)+,R1         ;GET "FROM" ADDRESS
012616  012502                          MOV     (5)+,R2         ;GET "TO" ADDRESS
012620  012503                          MOV     (5)+,R3         ;GET COUNT
012622  112122                  BMOVA:  MOVB    (1)+,(2)+       ;MOVE BYTE
012624  005303                          DEC     R3              ;DECREMENT COUNT
012626  001375                          BNE     BMOVA           ;BRANCH IF NOT DONE.
012630  004737  012060                  JSR     PC,RSD4                 ;RESTORE REGS.
012634  000205                          RTS     R5              ;DONE EXIT
                                        ;SUB TO PASS TIMING, MARK, AND DATA TO TC11 CONTROL UNDER MAINTENANCE MODE.
012636  005037  001260          LMTCOD: CLR     CODCAL          ;DO NOT CALL CODE AFTER EACH MARK
012642  012537  012776          LMTCAA: MOV     (5)+,MTKADR     ;GET MARK TRACK ADDRESS.
012646  012537  013002                  MOV     (5)+,CDCNT      ;GET NTH CODE COUNT.
012652  052777  020000  166360          BIS     #BIT13,@TCCM    ;SET MAINTENANCE BIT.
012660  013737  013002  013004          MOV     CDCNT,CDCTR     ;CODE COUNT TO CODE COUNTER.
012666  013701  001236                  MOV     TCST,R1         ;ADDR CONTAINING TCST ADDR TO R1.
012672  012702  000100                  MOV     #100,R2
012676  013700  012776          LMTCA:  MOV     MTKADR,R0       ;MARK TRACK ADDR TO R0.
012702  012737  000006  013000  LMTCB:  MOV     #6,BTCTR        ;6 TO BIT COUNTER.
012710  111011                  LMTCC:  MOVB    (0),(1)         ;SET MARK TRACK BIT AND DATA .
012712  150210                          BISB    R2,(0)
012714  111011                          MOVB    (0),(1)         ;TP1. LOADS MARK TRACK.
012716  111011                          MOVB    (0),(1)         ;RELOAD DATA.
012720  140210                          BICB    R2,(0)
012722  112011                          MOVB    (0)+,(1)        ;TP0. SHIFTS DATA IN RMB.
012724  005337  013000                  DEC     BTCTR           ;6TH BIT SET?
012730  001413                          BEQ     LMTCE           ;BR IF 6TH BIT SET.
012732  022737  000002  013000          CMP     #2,BTCTR        ;NOT 6TH. 4TH BIT SET?
012740  001363                          BNE     LMTCC           ;BRANCH IF NOT.
012742  005737  001260                  TST     CODCAL          ;DO WE WANT TO CALL CODE
012746  001760                          BEQ     LMTCC           ;DO NOT IF CODE CALL SWITCH = 0
012750  005046                          CLR     -(6)            ;IF ITS NOT =0 FAKE A INTERRUPT
012752  004777  166302                  JSR     PC,@CODCAL      ;TO LOCATION SPECIFIED IN CODE CALL SWITCH
012756  000754                          BR      LMTCC
012760  005337  013004          LMTCE:  DEC     CDCTR           ;NTH CODE SET?
012764  001001                          BNE     LMTCD           ;BRANCH IF NOT.
012766  000205                          RTS     R5              ;EXIT.
012770  105710                  LMTCD:  TSTB    @R0             ;LAST CODE?
012772  100343                          BPL     LMTCB           ;BRANCH IF NOT LAST CODE.
012774  000740                          BR      LMTCA           ;LAST CODE.
012776  000000                  MTKADR: OPEN
013000  000000                  BTCTR:  OPEN
013002  000000                  CDCNT:  OPEN
013004  000000                  CDCTR:  OPEN
013006  012537  001260          LMTCOE: MOV     (5)+,CODCAL     ;SAVE ADDRESS TO GO TO AFTER EACH MARK
013012  000713                          BR      LMTCAA
013014  004737  012432          LBOAT1: JSR     PC,CLRBUF       ;CLEAR BUFFER AREA.
013020  004537  012610                  JSR     R5,BMOVE        ;LOAD 256 WORD BUFFER WITH SBOAT1 DATA.
013024  001276                          SBOAT1
013026  036306                          RBUF
013030  000004                          4
013032  004537  012610                  JSR     R5,BMOVE
013036  036306                          RBUF
013040  036312                          RBUF+4
013042  000774                          508.
```

```
                                        RTS     PC              ;EXIT.
013044  000207
013046  004737  011772          LBBIND: JSR     PC,SVD4
013052  004737  012432                  JSR     PC,CLRBUF       ;CLEAR BUFFER AREA AND FILL
013056  012704  036306                  MOV     #RBUF,R4        ;256 WORD BUFFER WITH BINARY DATA.
013062  012737  000400  013112          MOV     #256.,CTRLB
013070  004737  012510          LBINDA: JSR     PC,GTBIN        ;GET BINARY WORD.
013074  010024                          MOV     R0,(4)+         ;STORE PER R4.
013076  005337  013112                  DEC     CTRLB           ;256 WORDS STORED?
013102  001372                          BNE     LBINDA          ;BR IF NOT DONE YET.
013104  004737  012060                  JSR     PC,RSD4
013110  000207                          RTS     PC              ;DONE. EXIT.
013112  000000          CTRLB:  OPEN
013114  004537  012610          MBCKSM: JSR     R5,BMOVE        ;BAD CHECKSUM TO FCKSM.
013120  036275                          BCKSM
013122  036230                          FCKSM
013124  000006                          6
013126  000207                          RTS     PC              ;EXIT.
013130  004737  011772          CKDAT:  JSR     PC,SVD4                 ;SAVE REGS.
013134  012537  013250                  MOV     (5)+,SBDAT      ;ADDR OF S/B DATA TO SBDAT.
013140  012501                          MOV     (5)+,R1         ;ADDR OF DATA TO R1.
013142  012502                          MOV     (5)+,R2         ;WORD COUNT TO R2.
013144  005037  013254                  CLR     WDCNT           ;CLEAR # OF WORD BEING CHECKED.
013150  013703  013250          CKDTA:  MOV     SBDAT,R3        ;ADDR OF S/B DATA TO R3.
013154  004737  013202                  JSR     PC,CDTCK        ;GO CHECK DATA.
013160  005302                          DEC     R2              ;LAST WORD CHECKED?
013162  001404                          BEQ     CKDTB           ;BR IF LAST WORD CHECKED.
013164  004737  013202                  JSR     PC,CDTCK        ;CHECK ANOTHER WORD.
013170  005302                          DEC     R2              ;LAST WORD CHECKED?
013172  001366                          BNE     CKDTA           ;BR IF NOT LAST WORD.
013174  004737  012060          CKDTB:  JSR     PC,RSD4                 ;RESTORE REGS.
013200  000205                          RTS     R5              ;EXIT.
013202  010137  013252          CDTCK:  MOV     R1,DATADR       ;ADDR OF DATA TO DATADR.
013206  012337  001270                  MOV     (3)+,CRBUF      ;S/B WORD TO CRBUF.
013212  012137  001272                  MOV     (1)+,CRBUFA     ;WAS WORD TO CRBUFA.
013216  005237  013254                  INC     WDCNT           ;INCREMENT WORD NUMBER.
013222  023737  001270  001272          CMP     CRBUF,CRBUFA    ;COMPARE S/B AND WAS DATA.
013230  001001                          BNE     CDTCKA          ;BR IF DATA NOT SAME.
013232  000207                          RTS     PC              ;EXIT.
013234  016737  000004  013246  CDTCKA: MOV     4(PC),MLPC      ;MAKE MAIN LINE PC ACCESSIBLE

013242  104035                          ERROR   35              ;PRINTOUT ERROR MESSAGE
013244  000207                          RTS     PC              ;EXIT
013246  000000          MLPC:   000000
013250  000000          SBDAT:  OPEN
013252  000000          DATADR: OPEN
013254  000000          WDCNT:  OPEN
013256  012537  015326  CKSELE: MOV     (5)+,CKSELT     ;UNIT # TO CKSELT.
013262  052737  000011  015326          BIS     #SST!DO,CKSELT
013270  013777  015326  165742          MOV     CKSELT,@TCCM    ;ISSUE SST TO DESIRED UNIT.
013276  105777  165736                  TSTB    @TCCM           ;WAIT FOR READY.
013302  100375                          BPL     .-4
013304  032777  004000  165724          BIT     #BIT11,@TCST    ;SELECT ERROR SET?
013312  001001                          BNE     .+4             ;BR IF SELECT ERROR SET.
013314  000205                          RTS     R5              ;ERROR EXIT. SELECT ERROR SHOULD BE SET.
013316  062705  000006                  ADD     #6,R5
013322  000205                          RTS     R5              ;OK EXIT.
```

```
                                .$SCOPE 4,SCOMAC
                                .SBTTL  SCOPE HANDLER ROUTINE

                                STARS
                                ;;*****************************************************************
                                ;*THIS ROUTINE CONTROLS THE LOOPING OF SUBTESTS. IT WILL INCREMENT
                                ;*AND LOAD THE TEST NUMBER(STSTNM) INTO THE DISPLAY REG.(DISPLAY<7:0>)
                                ;*AND LOAD THE ERROR FLAG (SERFLG) 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
                                .LIST
                                ;*SW08=1         LOOP ON TEST IN SWR<7:0>
                                ;*CALL
                                ;*      SCOPE           ;;SCOPE=IOT

                                $SCOPE:
                                .IRP NEWINS,<SCOMAC>
                                        NEWINS
                                .ENDM
                                        SCOMAC
013324                                  CLR     @TCCM
013330  005066  000002                  CLR     2(SP)           ;PS TO =0 AFTER WE EXIT THE SCOPE ROUTINE
013334  004737  012162                  JSR     PC,SRSETT
013340  004737  012204                  JSR     PC,RSTMTK
013344  032777  040000  165566  1$:     BIT     #BIT14,@SWR     ;;LOOP ON PRESENT TEST?
013352  001111                          BNE     $OVER           ;;YES IF SW14=1
                                ;*****START OF CODE FOR THE XOR TESTER*****
013354  000416                $XTSTR: BR      6$              ;;IF RUNNING ON THE "XOR" TESTER CHANGE
                                                                ;;THIS INSTRUCTION TO A "NOP" (NOP=240)
013356  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE THE CONTENTS OF THE ERROR VECTOR
013362  012737  013402  000004          MOV     #5$,@#ERRVEC    ;;SET FOR TIMEOUT
013370  005737  177060                  TST     @#177060        ;;TIME OUT ON XOR?
013374  012637  000004                  MOV     (SP)+,@#ERRVEC  ;;RESTORE THE ERROR VECTOR
013400  000463                          BR      $SVLAD          ;;GO TO THE NEXT TEST
013402  022626                  5$:     CMP     (SP)+,(SP)+     ;;CLEAR THE STACK AFTER A TIME OUT
013404  012637  000004                  MOV     (SP)+,@#ERRVEC  ;;RESTORE THE ERROR VECTOR
013410  000423                          BR      7$              ;;LOOP ON THE PRESENT TEST
013412                          6$:;*****END OF CODE FOR THE XOR TESTER*****
013412  032777  000400  165520          BIT     #BIT08,@SWR     ;;LOOP ON SPEC. TEST?
013420  001404                          BEQ     2$              ;;BR IF NO
013422  127737  165512  001102          CMPB    @SWR,$TSTNM     ;;ON THE RIGHT TEST?    SWR<7:0>
013430  001462                          BEQ     $OVER           ;;BR IF YES
013432  105737  001103          2$:     TSTB    $ERFLG          ;;HAS AN ERROR OCCURRED?
013436  001421                          BEQ     3$              ;;BR IF NO
013440  123737  001115  001103          CMPB    $ERMAX,$ERFLG   ;;MAX. ERRORS FOR THIS TEST OCCURRED?
013446  101015                          BHI     3$              ;;BR IF NO
013450  032777  001000  165462          BIT     #BIT09,@SWR     ;;LOOP ON ERROR?
013456  001404                          BEQ     4$              ;;BR IF NO
013460  013737  001110  001106  7$:     MOV     $LPERR,$LPADR   ;;SET LOOP ADDRESS TO LAST SCOPE
013466  000443                          BR      $OVER
013470  105037  001103          4$:     CLRB    $ERFLG          ;;ZERO THE ERROR FLAG
013474  005037  001222                  CLR     $TIMES          ;;CLEAR THE NUMBER OF ITERATIONS TO MAKE
013500  000415                          BR      1$              ;;ESCAPE TO THE NEXT TEST
013502  032777  004000  165430  3$:     BIT     #BIT11,@SWR     ;;INHIBIT ITERATIONS?
```

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 2661  013510  001011                          BNE     1$              ;;BR IF YES
 2662  013512  005737  001100                  TST     @PASS           ;;IF FIRST PASS OF PROGRAM
 2663  013516  001406                          BEQ     1$              ;;      INHIBIT ITERATIONS
 2664  013520  005237  001104                  INC     $ICNT           ;;INCREMENT ITERATION COUNT
 2665  013524  023737  001222  001104          CMP     $TIMES,$ICNT    ;;CHECK THE NUMBER OF ITERATIONS MADE
 2666  013532  002021                          BGE     $OVER           ;;BR IF MORE ITERATION REQUIRED
 2667  013534  012737  000001  001104  1$:     MOV     #1,$ICNT        ;;REINITIALIZE THE ITERATION COUNTER
 2668  013542  013737  013612  001222          MOV     $MXCNT,$TIMES   ;;SET NUMBER OF ITERATIONS TO DO
 2669  013550  105237  001102          $SVLAD: INCB    $TSTNM          ;;COUNT TEST NUMBERS
 2670  013554  011637  001106                  MOV     (SP),$LPADR     ;;SAVE SCOPE LOOP ADDRESS
 2671  013560  011637  001110                  MOV     (SP),$LPERR     ;;SAVE ERROR LOOP ADDRESS
 2672  013564  005037  001224                  CLR     $ESCAPE         ;;CLEAR THE ESCAPE FROM ERROR ADDRESS
 2673  013570  112737  000001  001115          MOVB    #1,$ERMAX       ;;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
 2674  013576  013777  001102  165336  $OVER:  MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER
 2675  013604  013716  001106                  MOV     $LPADR,(SP)     ;;FUDGE RETURN ADDRESS
 2676  013610  000002                          RTI                     ;;FIXES PS
 2677  013612  000004                  $MXCNT: 4                       ;;MAX. NUMBER OF ITERATIONS
 2678                                  .MACRO  SAVE
 2679                                          MOV     SP,$REG6
 2680                                          SUB     #4,$REG6
 2681                                          MOV     2(SP),$REG7
 2682                                          CLR     $REG5
 2683                                          MOVB    $TSTNM,$REG5
 2684                                          MOV     @TCCM,$REG2
 2685                                          MOV     @TCST,$REG1
 2686                                          MOV     @TCBA,$REG3
 2687                                  .ENDM SAVE
 2688  013614                          .$ERROR $ERRTYP,SAVE
 2689                                  .SBTTL  ERROR HANDLER ROUTINE
 2690
 2691  013614                          STARS
 2692                                  ;;**************************************************************
 2693                                  ;*THIS ROUTINE WILL INCREMENT THE ERROR FLAG AND THE ERROR COUNT,
 2694                                  ;*SAVE THE ERROR ITEM NUMBER AND THE ADDRESS OF THE ERROR CALL
 2695                                  ;*AND GO TO $ERRTYP ON ERROR
 2696                                  ;*THE SWITCH OPTIONS PROVIDED BY THIS ROUTINE ARE:
 2697                                  ;*SW15=1         HALT ON ERROR
 2698                                  ;*SW13=1         INHIBIT ERROR TYPEOUTS
 2699                                  ;*SW10=1         BELL ON ERROR
 2700                                  ;*SW09=1         LOOP ON ERROR
 2701                                  ;*CALL
 2702                                  ;*      ERROR   N       ;;ERROR=EMT AND N=ERROR ITEM NUMBER
 2703
 2704  013614                          $ERROR:
 2705                                  .IRP NEWINS,<SAVE>
 2706                                          NEWINS
 2707                                  .ENDM
 2708  013614                                  SAVE
 2709  013614  010637  001176                  MOV     SP,$REG6
 2710  013620  162737  000004  001176          SUB     #4,$REG6
 2711  013626  016637  000002  001200          MOV     2(SP),$REG7
 2712  013634  005037  001174                  CLR     $REG5
 2713  013640  113737  001102  001174          MOVB    $TSTNM,$REG5
 2714  013646  017737  165366  001166          MOV     @TCCM,$REG2
 2715  013654  017737  165356  001164          MOV     @TCST,$REG1
 2716  013662  017737  165356  001170          MOV     @TCBA,$REG3
```

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2717  013670  105237  001103          7$:     INCB    $ERFLG          ;;SET THE ERROR FLAG
2718  013674  001775                          BEQ     7$              ;;DON'T LET THE FLAG GO TO ZERO
2719  013676  013777  001102  165236          MOV     $TSTNM,@DISPLAY ;;DISPLAY TEST NUMBER AND ERROR FLAG
2720  013704  032777  002000  165226          BIT     #BIT10,@SWR     ;;BELL ON ERROR?
2721  013712  001402                          BEQ     1$              ;;NO - SKIP
2722  013714  104401  001226                  TYPE    ,$BELL          ;;RING BELL
2723  013720  005237  001112          1$:     INC     $ERTTL          ;;COUNT THE NUMBER OF ERRORS
2724  013724  011637  001116                  MOV     (SP),$ERRPC     ;;GET ADDRESS OF ERROR INSTRUCTION
2725  013730  162737  000002  001116          SUB     #2,$ERRPC
2726  013736  117737  165154  001114          MOVB    @$ERRPC,$ITEMB  ;;STRIP AND SAVE THE ERROR ITEM CODE
2727  013744  032777  020000  165166          BIT     #BIT13,@SWR     ;;SKIP TYPEOUT IF SET
2728  013752  001004                          BNE     20$             ;;SKIP TYPEOUTS
2729  013754  004737  015122                  JSR     PC,$ERRTYP      ;;GO TO USER ERROR ROUTINE
2730  013760  104401  001233                  TYPE    ,$CRLF
2731  013764                          20$:
2732  013764  005777  165150          2$:     TST     @SWR            ;;HALT ON ERROR
2733  013770  100001                          BPL     3$              ;;SKIP IF CONTINUE
2734  013772  000000                          HALT                    ;;HALT ON ERROR!
2735  013774  032777  001000  165136  3$:     BIT     #BIT09,@SWR     ;;LOOP ON ERROR SWITCH SET?
2736  014002  001402                          BEQ     4$              ;;BR IF NO
2737  014004  013716  001110                  MOV     $LPERR,(SP)     ;;FUDGE RETURN FOR LOOPING
2738  014010  005737  001224          4$:     TST     $ESCAPE         ;;CHECK FOR AN ESCAPE ADDRESS
2739  014014  001402                          BEQ     5$              ;;BR IF NONE
2740  014016  013716  001224                  MOV     $ESCAPE,(SP)    ;;FUDGE RETURN ADDRESS FOR ESCAPE
2741  014022                          5$:
2742                                  .LIST
2743  014022  022737  011600  000042          CMP     #$ENDAD,@#42    ;;ACT-11 AUTO-ACCEPT?
2744  014030  001001                          BNE     6$              ;;BRANCH IF NO
2745  014032  000000                          HALT                    ;;YES
2746  014034                          6$:
2747  014034  000002                          RTI                     ;;RETURN
2748  014036                          .SPOWER <<POWPUS>,<POWPOP>,<POWMES>>
2749                                  .SBTTL  POWER DOWN AND UP ROUTINES
2750
2751  014036                          STARS
2752                                  ;;**********************************************************************
2753                                  ;POWER DOWN ROUTINE
2754  014036  012737  014212  000024  $PWRDN: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST UP
2755  014044  012737  000340  000026          MOV     #340,@#PWRVEC+2 ;;PRIO:7
2756  014052                                  PUSH    <R0,R1,R2,R3,R4,R5>
2757                                  .IRP    B,<R0,R1,R2,R3,R4,R5>
2758                                          MOV     B,-(SP)         ;;PUSH B ON STACK
2759                                  .ENDM
2760  014052  010046                          MOV     R0,-(SP)        ;;PUSH R0 ON STACK
2761  014054  010146                          MOV     R1,-(SP)        ;;PUSH R1 ON STACK
2762  014056  010246                          MOV     R2,-(SP)        ;;PUSH R2 ON STACK
2763  014060  010346                          MOV     R3,-(SP)        ;;PUSH R3 ON STACK
2764  014062  010446                          MOV     R4,-(SP)        ;;PUSH R4 ON STACK
2765  014064  010546                          MOV     R5,-(SP)        ;;PUSH R5 ON STACK
2766  014066                                  PUSH    <<POWPUS>,<POWPOP>,<POWMES>>
2767                                  .IRP    B,<<POWPUS>,<POWPOP>,<POWMES>>
2768                                          MOV     B,-(SP)         ;;PUSH B ON STACK
2769                                  .ENDM
2770  014066  013746  001312                  MOV     POWPUS,-(SP)    ;;PUSH POWPUS ON STACK
2771  014072  013746  001314                  MOV     POWPOP,-(SP)    ;;PUSH POWPOP ON STACK
2772  014076  013746  016050                  MOV     POWMES,-(SP)    ;;PUSH POWMES ON STACK
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2773  014102                                  PUSH    @SWR
2774                                  .IRP    B,<@SWR>
2775                                  MOV     B,-(SP)         ;;PUSH B ON STACK
2776                                  .ENDM
2777  014102  017746  165032                 MOV     @SWR,-(SP)      ;;PUSH @SWR ON STACK
2778  014106  010637  014216                 MOV     SP,$SAVR6       ;;SAVE SP
2779  014112  012737  014124  000024         MOV     #$PWRUP,@#PWRVEC ;;SET UP VECTOR
2780  014120  000000                         HALT
2781  014122  000776                         BR      .-2             ;;HANG UP
2782
2783  014124                                  STARS
2784                                  ;;*****************************************************************
2785                                  ;POWER UP ROUTINE
2786  014124  012737  014212  000024 $PWRUP: MOV     #$ILLUP,@#PWRVEC ;;SET FOR FAST DOWN
2787  014132  013706  014216                 MOV     $SAVR6,SP       ;;GET SP
2788  014136  005037  014216                 CLR     $SAVR6          ;;WAIT LOOP FOR THE TTY
2789  014142  005237  014216         1$:     INC     $SAVR6          ;;WAIT FOR THE INC
2790  014146  001375                         BNE     1$              ;;OF <POWPUS>,<POWPOP>,<POWMES> WORD
2791  014150                                  POP     @SWR
2792                                  .IRP    B,<@SWR>
2793                                  MOV     (SP)+,B         ;;POP STACK INTO B
2794                                  .ENDM
2795  014150  012677  164764                 MOV     (SP)+,@SWR      ;;POP STACK INTO @SWR
2796  014154                                  POP     <R5,R4,R3,R2,R1,R0>
2797                                  .IRP    B,<R5,R4,R3,R2,R1,R0>
2798                                  MOV     (SP)+,B         ;;POP STACK INTO B
2799                                  .ENDM
2800  014154  012605                         MOV     (SP)+,R5        ;;POP STACK INTO R5
2801  014156  012604                         MOV     (SP)+,R4        ;;POP STACK INTO R4
2802  014160  012603                         MOV     (SP)+,R3        ;;POP STACK INTO R3
2803  014162  012602                         MOV     (SP)+,R2        ;;POP STACK INTO R2
2804  014164  012601                         MOV     (SP)+,R1        ;;POP STACK INTO R1
2805  014166  012600                         MOV     (SP)+,R0        ;;POP STACK INTO R0
2806  014170  012737  014036  000024         MOV     #$PWRDN,@#PWRVEC ;;SET UP THE POWER DOWN VECTOR
2807  014176  012737  000340  000026         MOV     #340,@#PWRVEC+2 ;;PRIO:7
2808  014204  104401                         TYPE                    ;REPORT THE POWER FAILURE
2809  014206  014220                 $PWRMG: .WORD   $POWER           ;;POWER FAIL MESSAGE POINTER
2810  014210  000002                         RTI
2811  014212  000000                 $ILLUP: HALT                    ;;THE POWER UP SEQUENCE WAS STARTED
2812  014214  000776                         BR      .-2             ;; BEFORE THE POWER DOWN WAS COMPLETE
2813  014216  000000                 $SAVR6: 0                       ;;PUT THE SP HERE
2814  014220  005015  047520  042527 $POWER: .ASCIZ  <15><12>"POWER"
2815  014226  000122
2816                                  .EVEN
2817  014230                                  .STYPE
2818                                  .SBTTL  TYPE ROUTINE
2819
2820  014230                                  STARS
2821                                  ;;*****************************************************************
2822                                  ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
2823                                  ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
2824                                  ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
2825                                  ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
2826                                  ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
2827                                  ;*
2828                                  ;*CALL:
```

```
                                        ;*1) USING A TRAP INSTRUCTION
                                        ;*      TYPE    ,MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
                                        ;*OR
                                        ;*      TYPE
                                        ;*      MESADR
                                        ;*
014230  105737  001157          $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
014234  100002                          BPL     1$              ;;BR IF YES
014236  000000                          HALT                    ;;HALT HERE IF NO TERMINAL
014240  000407                          BR      3$              ;;LEAVE
014242  010046                  1$:     MOV     R0,-(SP)        ;;SAVE R0
014244  017600  000002                  MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
014250  112046                  2$:     MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
014252  001005                          BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
014254  005726                          TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
014256  012600                  60$:    MOV     (SP)+,R0        ;;RESTORE R0
014260  062716  000002          3$:     ADD     #2,(SP)         ;;ADJUST RETURN PC
014264  000002                          RTI                     ;;RETURN
014266  122716  000011          4$:     CMPB    #HT,(SP)        ;;BRANCH IF <HT>
014272  001430                          BEQ     8$
014274  122716  000200                  CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
014300  001006                          BNE     5$
014302  005726                          TST     (SP)+           ;;POP  <CR><LF> EQUIV
014304  104401                          TYPE                    ;;TYPE A CR AND LF
014306  001233                          $CRLF
014310  105037  014444                  CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
014314  000755                          BR      2$              ;;GET NEXT CHARACTER
014316  004737  014400          5$:     JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
014322  123726  001156          6$:     CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
014326  001350                          BNE     2$              ;;IF NO GO GET NEXT CHAR.
014330  013746  001154                  MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
                                        ;;AND THE NULL CHAR.
014334  105366  000001          7$:     DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
014340  002770                          BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
014342  004737  014400                  JSR     PC,$TYPEC       ;;GO TYPE A NULL
014346  105337  014444                  DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
014352  000770                          BR      7$              ;;LOOP

                                ;HORIZONTAL TAB PROCESSOR

014354  112716  000040          8$:     MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
014360  004737  014400          9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
014364  132737  000007  014444          BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
014372  001372                          BNE     9$              ;;TAB STOP
014374  005726                          TST     (SP)+           ;;POP SPACE OFF STACK
014376  000724                          BR      2$              ;;GET NEXT CHARACTER
014400  105777  164544          $TYPEC: TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
014404  100375                          BPL     $TYPEC
014406  116677  000002  164536          MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
014414  122766  000015  000002          CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
014422  001003                          BNE     1$              ;;BRANCH IF NO
014424  105037  014444                  CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
014430  000406                          BR      $TYPEX          ;;EXIT
014432  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
014440  001402                          BEQ     $TYPEX          ;;BRANCH IF YES
```

```
2885  014442  105227                          INCB    (PC)+           ;;COUNT THE CHARACTER
2886  014444  000000          $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
2887  014446  000207          $TYPEX: RTS     PC
2888
2889  014450                  .$TYPDEC
2890                          .SBTTL  CONVERT BINARY TO DECIMAL AND TYPE ROUTINE
2891
2892  014450                  STARS
2893                          ;;**********************************************************************
2894                          ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
2895                          ;*SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
2896                          ;*NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
2897                          ;*BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
2898                          ;*REPLACED WITH SPACES.
2899                          ;*CALL:
2900                          ;*      MOV     NUM,-(SP)       ;;PUT THE BINARY NUMBER ON THE STACK
2901                          ;*      TYPDS                   ;;GO TO THE ROUTINE
2902
2903  014450                  $TYPDS: PUSH    <R0,R1,R2,R3,R5>
2904                          .IRP    B,<R0,R1,R2,R3,R5>
2905                                  MOV     B,-(SP)         ;;PUSH B ON STACK
2906                          .ENDM
2907  014450  010046                  MOV     R0,-(SP)        ;;PUSH R0 ON STACK
2908  014452  010146                  MOV     R1,-(SP)        ;;PUSH R1 ON STACK
2909  014454  010246                  MOV     R2,-(SP)        ;;PUSH R2 ON STACK
2910  014456  010346                  MOV     R3,-(SP)        ;;PUSH R3 ON STACK
2911  014460  010546                  MOV     R5,-(SP)        ;;PUSH R5 ON STACK
2912  014462  012746  020200          MOV     #20200,-(SP)    ;;SET BLANK SWITCH AND SIGN
2913  014466  016605  000020          MOV     20(SP),R5       ;;GET THE INPUT NUMBER
2914  014472  100004                  BPL     1$              ;;BR IF INPUT IS POS.
2915  014474  005405                  NEG     R5              ;;MAKE THE BINARY NUMBER POS.
2916  014476  112766  000055  000001  MOVB    #'-,1(SP)       ;;MAKE THE ASCII NUMBER NEG.
2917  014504  005000          1$:     CLR     R0              ;;ZERO THE CONSTANTS INDEX
2918  014506  012703  014664          MOV     #$DBLK,R3       ;;SETUP THE OUTPUT POINTER
2919  014512  112723  000040          MOVB    #' ,(R3)+       ;;SET THE FIRST CHARACTER TO A BLANK
2920  014516  005002          2$:     CLR     R2              ;;CLEAR THE BCD NUMBER
2921  014520  016001  014654          MOV     $DTBL(R0),R1    ;;GET THE CONSTANT
2922  014524  160105          3$:     SUB     R1,R5           ;;FORM THIS BCD DIGIT
2923  014526  002402                  BLT     4$              ;;BR IF DONE
2924  014530  005202                  INC     R2              ;;INCREASE THE BCD DIGIT BY 1
2925  014532  000774                  BR      3$
2926  014534  060105          4$:     ADD     R1,R5           ;;ADD BACK THE CONSTANT
2927  014536  005702                  TST     R2              ;;CHECK IF BCD DIGIT=0
2928  014540  001002                  BNE     5$              ;;FALL THROUGH IF 0
2929  014542  105716                  TSTB    (SP)            ;;STILL DOING LEADING 0'S?
2930  014544  100407                  BMI     7$              ;;BR IF YES
2931  014546  106316          5$:     ASLB    (SP)            ;;MSD?
2932  014550  103003                  BCC     6$              ;;BR IF NO
2933  014552  116663  000001  177777  MOVB    1(SP),-1(R3)    ;;YES--SET THE SIGN
2934  014560  052702  000060          BIS     #'0,R2          ;;MAKE THE BCD DIGIT ASCII
2935  014564  052702  000040          BIS     #' ,R2          ;;MAKE IT A SPACE IF NOT ALREADY A DIGIT
2936  014570  110223                  MOVB    R2,(R3)+        ;;PUT THIS CHARACTER IN THE OUTPUT BUFFER
2937  014572  005720                  TST     (R0)+           ;;JUST INCREMENTING
2938  014574  020027  000010          CMP     R0,#10          ;;CHECK THE TABLE INDEX
2939  014600  002746                  BLT     2$              ;;GO DO THE NEXT DIGIT
2940  014602  003002                  BGT     8$              ;;GO TO EXIT
```

```
                        MOV     R5,R2           ;;GET THE LSD
                        BR      6$              ;;GO CHANGE TO ASCII
8$:                     TSTB    (SP)+           ;;WAS THE LSD THE FIRST NON-ZERO?
                        BPL     9$              ;;BR IF NO
                        MOVB    -1(SP),-2(R3)   ;;YES--SET THE SIGN FOR TYPING
9$:                     CLRB    (R3)            ;;SET THE TERMINATOR
                        POP     <R5,R3,R2,R1,R0>
                .IRP    B,<R5,R3,R2,R1,R0>
                        MOV     (SP)+,B         ;;POP STACK INTO B
                .ENDM
                        MOV     (SP)+,R5        ;;POP STACK INTO R5
                        MOV     (SP)+,R3        ;;POP STACK INTO R3
                        MOV     (SP)+,R2        ;;POP STACK INTO R2
                        MOV     (SP)+,R1        ;;POP STACK INTO R1
                        MOV     (SP)+,R0        ;;POP STACK INTO R0
                        TYPE    ,$DBLK          ;;NOW TYPE THE NUMBER
                        MOV     2(SP),4(SP)     ;;ADJUST THE STACK
                        MOV     (SP)+,(SP)
                        RTI                     ;;RETURN TO USER
$DTBL:          10000.
                1000.
                100.
                10.
$DBLK:          .BLKW   4
                .$TYPOCT
                .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE

                STARS
                ;;**************************************************************
                ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
                ;*OCTAL (ASCII) NUMBER AND TYPE IT.
                ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
                ;*CALL:
                ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
                ;*      TYPOS                   ;;CALL FOR TYPEOUT
                ;*      .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
                ;*      .BYTE   M               ;;M=1 OR 0
                ;*                                      ;;1=TYPE LEADING ZEROS
                ;*                                      ;;0=SUPPRESS LEADING ZEROS
                ;*
                ;*$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
                ;*$TYPOS OR $TYPOC
                ;*CALL:
                ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
                ;*      TYPON                   ;;CALL FOR TYPEOUT
                ;*
                ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
                ;*CALL:
                ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
                ;*      TYPOC                   ;;CALL FOR TYPEOUT

$TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
        MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
        MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
        ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
        BR      $TYPON
```

```
2997  014720  112737  000001  015117  $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
2998  014726  112737  000006  015121          MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
2999  014734  112737  000005  015116  $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
3000  014742  010346                          MOV     R3,-(SP)        ;;SAVE R3
3001  014744  010446                          MOV     R4,-(SP)        ;;SAVE R4
3002  014746  010546                          MOV     R5,-(SP)        ;;SAVE R5
3003  014750  113704  015121                  MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
3004  014754  005404                          NEG     R4
3005  014756  062704  000006                  ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
3006  014762  110437  015120                  MOVB    R4,$OMODE       ;;SAVE IT FOR USE
3007  014766  113704  015117                  MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
3008  014772  016605  000012                  MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
3009  014776  005003                          CLR     R3              ;;CLEAR THE OUTPUT WORD
3010  015000  006105                  1$:     ROL     R5              ;;ROTATE MSB INTO "C"
3011  015002  000404                          BR      3$              ;;GO DO MSB
3012  015004  006105                  2$:     ROL     R5              ;;FORM THIS DIGIT
3013  015006  006105                          ROL     R5
3014  015010  006105                          ROL     R5
3015  015012  010503                          MOV     R5,R3
3016  015014  006103                  3$:     ROL     R3              ;;GET LSB OF THIS DIGIT
3017  015016  105337  015120                  DECB    $OMODE          ;;TYPE THIS DIGIT?
3018  015022  100016                          BPL     7$              ;;BR IF NO
3019  015024  042703  177770                  BIC     #177770,R3      ;;GET RID OF JUNK
3020  015030  001002                          BNE     4$              ;;TEST FOR 0
3021  015032  005704                          TST     R4              ;;SUPPRESS THIS 0?
3022  015034  001403                          BEQ     5$              ;;BR IF YES
3023  015036  005204                  4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
3024  015040  052703  000060                  BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
3025  015044  052703  000040          5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
3026  015050  110337  015114                  MOVB    R3,8$           ;;SAVE FOR TYPING
3027  015054  104401  015114                  TYPE    ,8$             ;;GO TYPE THIS DIGIT
3028  015060  105337  015116          7$:     DECB    $OCNT           ;;COUNT BY 1
3029  015064  003347                          BGT     2$              ;;BR IF MORE TO DO
3030  015066  002402                          BLT     6$              ;;BR IF DONE
3031  015070  005204                          INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
3032  015072  000744                          BR      2$              ;;GO DO THE LAST DIGIT
3033  015074  012605                  6$:     MOV     (SP)+,R5        ;;RESTORE R5
3034  015076  012604                          MOV     (SP)+,R4        ;;RESTORE R4
3035  015100  012603                          MOV     (SP)+,R3        ;;RESTORE R3
3036  015102  016666  000002  000004          MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
3037  015110  012616                          MOV     (SP)+,(SP)
3038  015112  000002                          RTI                     ;;RETURN
3039  015114     000          8$:     .BYTE   0               ;;STORAGE FOR ASCII DIGIT
3040  015115     000                  .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
3041  015116     000          $OCNT:  .BYTE   0               ;;OCTAL DIGIT COUNTER
3042  015117     000          $OFILL: .BYTE   0               ;;ZERO FILL SWITCH
3043  015120  000000          $OMODE: .WORD   0               ;;NUMBER OF DIGITS TO TYPE
3044  015122                  .$ERRTYP
3045                          .SBTTL  ERROR MESSAGE TYPEOUT ROUTINE
3046
3047  015122                  STARS
3048                          ;;**********************************************************************
3049                          ;*THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE WHICH
3050                          ;*ERROR IS TO BE REPORTED. IT THEN OBTAINS, FROM THE "ERROR TABLE" ($ERRTB),
3051                          ;*AND REPORTS THE APPROPRIATE INFORMATION CONCERNING THE ERROR.
3052
```

```
                                ;ERRTYP:
                                        TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
                                        MOV     R0,-(SP)        ;;SAVE R0
                                        CLR     R0              ;;PICKUP THE ITEM INDEX
                                        BISB    @#$ITEMB,R0
                                        BNE     1$              ;;IF ITEM NUMBER IS ZERO, JUST
                                                                ;;TYPE THE PC OF THE ERROR
                                        TYPOCT  $ERRPC,<ERROR ADDRESS>
                                        MOV     $ERRPC,-(SP)    ;;SAVE $ERRPC FOR TYPEOUT
                                                                ;;ERROR ADDRESS
                                        TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
                                        BR      6$              ;;GET OUT
                                1$:     DEC     R0              ;;ADJUST THE INDEX SO THAT IT WILL
                                        ASL     R0              ;;      WORK FOR THE ERROR TABLE
                                        ASL     R0
                                        ASL     R0
                                        ADD     #$ERRTB,R0      ;;FORM TABLE POINTER
                                        MOV     (R0)+,2$        ;;PICKUP "ERROR MESSAGE" POINTER
                                        BEQ     3$              ;;SKIP TYPEOUT IF NO POINTER
                                        TYPE                    ;;TYPE THE "ERROR MESSAGE"
                                2$:     .WORD   0               ;;"ERROR MESSAGE" POINTER GOES HERE
                                        TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
                                3$:     MOV     (R0)+,4$        ;;PICKUP "DATA HEADER" POINTER
                                        BEQ     5$              ;;SKIP TYPEOUT IF 0
                                        TYPE                    ;;TYPE THE "DATA HEADER"
                                4$:     .WORD   0               ;;"DATA HEADER" POINTER GOES HERE
                                        TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
                                5$:     MOV     (R0),R0         ;;PICKUP "DATA TABLE" POINTER
                                        BNE     7$              ;;GO TYPE THE DATA
                                6$:     MOV     (SP)+,R0        ;;RESTORE R0
                                        TYPE    ,$CRLF          ;;"CARRIAGE RETURN" & "LINE FEED"
                                        RTS     PC              ;;RETURN
                                7$:     TYPOCT  @(R0)+          ;;TYPE AN OCTAL NUMBER
                                        MOV     @(R0)+,-(SP)    ;;SAVE @(R0)+ FOR TYPEOUT
                                        TYPOC                   ;;GO TYPE--OCTAL ASCII(ALL DIGITS)
                                        TST     (R0)            ;;IS THERE ANOTHER NUMBER?
                                        BEQ     6$              ;;BR IF NO
                                        TYPE    ,8$             ;;TYPE TWO(2) SPACES
                                        BR      7$              ;;LOOP
                                8$:     .ASCIZ  /  /            ;;TWO(2) SPACES
                                        .EVEN
                                .STRAP
                                .SBTTL  TRAP DECODER

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

                                $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
                                        MOV     2(SP),R0        ;;GET TRAP ADDRESS
                                        TST     -(R0)           ;;BACKUP BY 2
                                        MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
                                        ASL     R0              ;;POSITION FOR INDEXING
```

```
3109  015272  016000  015312                    MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
3110  015276  000200                            RTS     R0              ;;GO TO ROUTINE
3111
3112
3113                                            ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
3114
3115  015300  011646                    $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
3116  015302  016666  000004  000002            MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
3117  015310  000002                            RTI                     ;;RESTORE THE PSW
3118
3119                                            .MACRO  SETTRAP A,B,MSG
3120                                                    $$SET   A,B,\<TRAP+$TRP>,\$TRP,<MSG>
3121                                            .NLIST
3122                                            $TRP=$TRP+1
3123                                            .LIST
3124                                            .ENDM   SETTRAP
3125                                            .MACRO  $$SET   A,B,C,D,COMNT
3126                                            .IF EQ $TRP-1
3127                                            .SBTTL  TRAP TABLE
3128
3129                                            ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
3130                                            ;*BY THE "TRAP" INSTRUCTION.
3131
3132                                            ;       ROUTINE
3133                                            ;       -------
3134                                            $TRPAD: .WORD   $TRAP2
3135                                            .ENDC
3136                                            .IIF NDF GNS,.NLIST
3137                                                    A=      C
3138                                            .IIF NDF GNS,.LIST
3139                                                    B       ;;CALL=A        TRAP+D(C)       COMNT
3140                                            .ENDM   $$SET
3141                                            .MACRO  TRMTRP
3142                                            $TERM=.-$TRPAD
3143                                            .ENDM   TRMTRP
3144                                            .LIST
3145  015312                                            SETTRAP TYPE,$TYPE,^/TTY TYPEOUT ROUTINE/
3146  015312                                            $$SET   TYPE,$TYPE,\<TRAP+$TRP>,\$TRP,<TTY TYPEOUT ROUTINE>
3147                                            .SBTTL  TRAP TABLE
3148
3149                                            ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
3150                                            ;*BY THE "TRAP" INSTRUCTION.
3151
3152                                            ;       ROUTINE
3153                                            ;       -------
3154  015312  015300                    $TRPAD: .WORD   $TRAP2
3155                                            .LIST
3156  015314  014230                            $TYPE   ;;CALL=TYPE     TRAP+1(104401)  TTY TYPEOUT ROUTINE
3157                                            .LIST
3158  015316                                    SETTRAP TYPOC,$TYPOC,^/TYPE OCTAL NUMBER (WITH LEADING ZEROS)/
3159  015316                                    $$SET   TYPOC,$TYPOC,\<TRAP+$TRP>,\$TRP,<TYPE OCTAL NUMBER (WITH LEADING ZEROS)>
3160                                            .LIST
3161  015316  014720                            $TYPOC  ;;CALL=TYPOC    TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
3162                                            .LIST
3163  015320                                    SETTRAP TYPOS,$TYPOS,^/TYPE OCTAL NUMBER (NO LEADING ZEROS)/
3164  015320                                    $$SET   TYPOS,$TYPOS,\<TRAP+$TRP>,\$TRP,<TYPE OCTAL NUMBER (NO LEADING ZEROS)>
```

```
                                        .LIST
                                                STYPOS  ;;CALL=TYPOS    TRAP+3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
                                        .LIST
                                                SETTRAP TYPON,STYPON,↑/TYPE OCTAL NUMBER (AS PER LAST CALL)/
                                                $SSET   TYPON,STYPON,\<TRAP+STRP>,\STRP,<TYPE OCTAL NUMBER (AS PER LAST CALL)>
                                        .LIST
                                                STYPON  ;;CALL=TYPON    TRAP+4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
                                        .LIST
                                                SETTRAP TYPDS,STYPDS,↑/TYPE DECIMAL NUMBER (WITH SIGN)/
                                                $SSET   TYPDS,STYPDS,\<TRAP+STRP>,\STRP,<TYPE DECIMAL NUMBER (WITH SIGN)>
                                        .LIST
                                                STYPDS  ;;CALL=TYPDS    TRAP+5(104405)  TYPE DECIMAL NUMBER (WITH SIGN)
                                        .LIST

015326  000000                  CXSELT: OPEN
015330  055104  041524  026502  STMES:  .ASCII  'DZTCB-D - TC11 TEST'<15><12>
015336  020104  020055  041524
015344  030461  052040  051505
015352  006524      012
015355      123  052105  052440          .ASCII  'SET UNITO TO REMOTE AND WRITE LOCK.'
015362  044516  030124  052040
015370  020117  042522  047515
015376  042524  040440  042116
015404  053440  044522  042524
015412  046040  041517  027113
015420  046101  020114  052117          .ASCII  'ALL OTHER UNITS OFF.'<15><12>
015426  042510  020122  047125
015434  052111  020123  043117
015442  027106  005015
015446  051127  046524  051440                  .ASCIZ  'WRTM SWITCH OFF, WALL SWITCH ON.'<15><12>
015454  044527  041524  020110
015462  043117  026106  053440
015470  046101  020114  053523
015476  052111  044103  047440
015504  027116  005015      000
015511      015  051412  052105  ASETSR: .ASCIZ  <15><12>'SET SR OPTIONS. NORMAL SR = 0'
015516  051440  020122  050117
015524  044524  047117  027123
015532  047040  051117  040515
015540  020114  051123  036440
015546  030040      000
015551      015  044412  053116  AINCRT: .ASCIZ  <15><12>'INVALID TEST.'
015556  046101  042111  052040
015564  051505  027124      000
015571      007                  APGEND: .BYTE   007
015572  025045      000                  .ASCIZ  '%*'
015575      106  052101  046101  TRPM4S: .ASCIZ  "FATAL ERROR TRAP TO LOCATION 4 FROM LOC"
015602  042440  051122  051117
015610  052040  040522  020120
015616  047524  046040  041517
015624  052101  047511  020116
015632  020064  051106  046517
015640  046040  041517      000
015645      050  041077  042101  TRPMES: .ASCIZ  "(?BAD CPU?) ATTEMPTING TO RESTART PROGRAM"
015652  041440  052520  024477
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3221  015660  040440  052124  046505
3222  015666  052120  047111  020107
3223  015674  047524  051040  051505
3224  015702  040524  052122  050040
3225  015710  047522  051107  046501
3226  015716     000
3227  015717     106  052101  046101  TRPM10: .ASCIZ  "FATAL ERROR TRAP TO LOCATION 10 FROM LOC "
3228  015724  042440  051122  051117
3229  015732  052040  040522  020120
3230  015740  047524  046040  041517
3231  015746  052101  047511  020116
3232  015754  030061  043040  047522
3233  015762  020115  047514  020103
3234  015770     000
3235  015771     124  051505  051524  RESTART:        .ASCIZ  "TESTS ARE OUT OF SEQUENCE - - - RESTARTING...."
3236  015776  040440  042522  047440
3237  016004  052125  047440  020106
3238  016012  042523  052521  047105
3239  016020  042503  026440  026440
3240  016026  026440  051040  051505
3241  016034  040524  052122  047111
3242  016042  027107  027056  000056
3243  016050  005015  042522  052123  POWMES: .ASCIZ <15> <12> "RESTARTING AFTER A POWER FAILURE"<15> <12>
3244  016056  051101  044524  043516
3245  016064  040440  052106  051105
3246  016072  040440  050040  053517
3247  016100  051105  043040  044501
3248  016106  052514  042522  005015
3249  016114     000
3250  016115     123  052101  024040  EM1:    .ASCIZ "SAT (STOP ALL TRANSPORTS) COMMAND DID NOT CLEAR READY"
3251  016122  052123  050117  040440
3252  016130  046114  052040  040522
3253  016136  051516  047520  052122
3254  016144  024523  041440  046517
3255  016152  040515  042116  042040
3256  016160  042111  047040  052117
3257  016166  041440  042514  051101
3258  016174  051040  040505  054504
3259  016202     000
3260  016203     040  050040  020103  EM1:    .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST"
3261  016210  020040  020040  051440
3262  016216  020120  020040  020040
3263  016224  050040  020123  020040
3264  016232  020040  042524  052123
3265  016240  020043  020040  041524
3266  016246  046503  020040  020040
3267  016254  041524  052123     000
3268          016262                  .EVEN
3269  016262  001116  001176  001200  ET1:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3270  016270  001174  001166  001164
3271  016276  000000                          000000
3272
3273
3274  016300  051523  020124  051450  EM2:    .ASCIZ "SST (STOP SELECTED TRANSPORT) DID NOT CLEAR READY"
3275  016306  047524  020120  042523
3276  016314  042514  052103  042105
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3277  016322  052040  040522  051516
3278  016330  047520  052122  020051
3279  016336  044504  020104  047516
3280  016344  020124  046103  040505
3281  016352  020122  042522  042101
3282  016360  000131
3283  016362  020040  041520  020040  EH2:    .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST"
3284  016370  020040  020040  050123
3285  016376  020040  020040  020040
3286  016404  051520  020040  020040
3287  016412  052040  051505  021524
3288  016420  020040  052040  041503
3289  016426  020115  020040  052040
3290  016434  051503  000124
3291                          .EVEN
3292  016440  001116  001176  001200  ET2:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3293  016446  001174  001166  001164
3294  016454  000000                        000000
3295
3296
3297  016456  042522  042101  020131  EM3:    .ASCIZ "READY BIT DID NOT CAUSE AN INTERRUPT"
3298  016464  044502  020124  044504
3299  016472  020104  047516  020124
3300  016500  040503  051525  020105
3301  016506  047101  044440  052116
3302  016514  051105  052522  052120
3303  016522     000
3304  016523     040  050040  020103  EH3:    .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST"
3305  016530  020040  020040  051440
3306  016536  020120  020040  020040
3307  016544  050040  020123  020040
3308  016552  020040  042524  052123
3309  016560  020043  020040  041524
3310  016566  046503  020040  020040
3311  016574  041524  052123     000
3312          016602                  .EVEN
3313  016602  001116  001176  001200  ET3:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3314  016610  001174  001166  001164
3315  016616  000000                        000000
3316
3317
3318  016620  042522  042101  020131  EM4:    .ASCIZ "READY BIT CAUSED AN INTERRUPT WITH PROCESSOR AND TC11 AT SAME PRIORITY"
3319  016626  044502  020124  040503
3320  016634  051525  042105  040440
3321  016642  020116  047111  042524
3322  016650  051122  050125  020124
3323  016656  044527  044124  050040
3324  016664  047522  042503  051523
3325  016672  051117  040440  042116
3326  016700  052040  030503  020061
3327  016706  052101  051440  046501
3328  016714  020105  051120  047511
3329  016722  044522  054524     000
3330  016727     040  050040  020103  EM4:    .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST"
3331  016734  020040  020040  051440
3332  016742  020120  020040  020040
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3333  016750  050040  020123  020040
3334  016756  020040  042524  052123
3335  016764  020043  020040  041524
3336  016772  046503  020040  020040
3337  017000  041524  052123     000
3338          017006                  .EVEN
3339  017006  001116  001176  001200  ET4:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3340  017014  001174  001166  001164
3341  017022  000000                          000000
3342
3343
3344  017024  041524  030461  043040  EM5:    .ASCIZ "TC11 FAILED TO INTERRUPT"
3345  017032  044501  042514  020104
3346  017040  047524  044440  052116
3347  017046  051105  052522  052120
3348  017054     000
3349  017055     040  050040  020103  EH5:    .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3350  017062  020040  020040  051440
3351  017070  020120  020040  020040
3352  017076  050040  020123  020040
3353  017104  020040  042524  052123
3354  017112  020043  020040  041524
3355  017120  046503  020040  020040
3356  017126  041524  052123     000
3357          017134                  .EVEN
3358  017134  001116  001176  001200  ET5:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3359  017142  001174  001166  001164
3360  017150  000000                          000000
3361
3362
3363  017152  041524  030461  042040  EM6:    .ASCIZ "TC11 DID NOT DROP INTERRUPT REQUEST AFTER IT WAS ACKNOLEDGED"
3364  017160  042111  047040  052117
3365  017166  042040  047522  020120
3366  017174  047111  042524  051122
3367  017202  050125  020124  042522
3368  017210  052521  051505  020124
3369  017216  043101  042524  020122
3370  017224  052111  053440  051501
3371  017232  040440  045503  047516
3372  017240  042514  043504  042105
3373  017246     000
3374  017247     040  050040  020103  EH6:    .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3375  017254  020040  020040  051440
3376  017262  020120  020040  020040
3377  017270  050040  020123  020040
3378  017276  020040  042524  052123
3379  017304  020043  020040  041524
3380  017312  046503  020040  020040
3381  017320  041524  052123     000
3382          017326                  .EVEN
3383  017326  001116  001176  001200  ET6:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3384  017334  001174  001166  001164
3385  017342  000000                          000000
3386
3387
3388  017344  047504  047111  020107  EM7:    .ASCIZ "DOING A RESET INSTRUCTION DID NOT CLEAR UPS"
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  3389  017352  020101  042522  042523
  3390  017360  020124  047111  052123
  3391  017366  020522  052103  047511
  3392  017374  020116  044504  020104
  3393  017402  047516  020124  046103
  3394  017410  040505  020122  050125
  3395  017416  000123
  3396  017420  020040  041520  020040  EH7:    .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
  3397  017426  020040  020040  050123
  3398  017434  020040  020040  020040
  3399  017442  051520  020040  020040
  3400  017450  052040  051505  021524
  3401  017456  020040  052040  041503
  3402  017464  020115  020040  052040
  3403  017472  051503  000124
  3404                          .EVEN
  3405  017476  001116  001176  001200  ET7:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
  3406  017504  001174  001166  001164
  3407  017512  000000                        000000
  3408
  3409
  3410  017514  047105  042524  044522  EM10:   .ASCIZ "ENTERING MAINTANENCE MODE DID NOT SET UPS"
  3411  017522  043516  046440  044501
  3412  017530  052116  047101  047105
  3413  017536  042503  046440  042117
  3414  017544  020105  044504  020104
  3415  017552  047516  020124  042523
  3416  017560  020124  050125  000123
  3417  017566  020040  041520  020040  EH10:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
  3418  017574  020040  020040  050123
  3419  017602  020040  020040  020040
  3420  017610  051520  020040  020040
  3421  017616  052040  051505  021524
  3422  017624  020040  052040  041503
  3423  017632  020115  020040  052040
  3424  017640  051503  000124
  3425                          .EVEN
  3426  017644  001116  001176  001200  ET10:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
  3427  017652  001174  001166  001164
  3428  017660  000000                        000000
  3429
  3430
  3431  017662  050125  020123  044504  EM11:   .ASCIZ "UPS DID NOT CLEAR WHEN LEAVING MAINTANENCE MODE"
  3432  017670  020104  047516  020124
  3433  017676  046103  040505  020122
  3434  017704  044127  047105  046040
  3435  017712  040505  044526  043516
  3436  017720  046440  044501  052116
  3437  017726  047101  047105  042503
  3438  017734  046440  042117  000105
  3439  017742  020040  041520  020040  EH11:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
  3440  017750  020040  020040  050123
  3441  017756  020040  020040  020040
  3442  017764  051520  020040  020040
  3443  017772  052040  051505  021524
  3444  020000  020040  052040  041503
```

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3445  020006  020115  020040  052040
3446  020014  051503  000124
3447                                  .EVEN
3448  020020  001116  001176  001200  ET11:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3449  020026  001174  001166  001164
3450  020034  000000                        000000
3451
3452
3453  020036  041524  052123  041040  EM12:   .ASCIZ "TCST BIT 0 CAN BE SET WHILE IN MAINTENANCE MODE"
3454  020044  052111  030040  041440
3455  020052  047101  041040  020105
3456  020060  042523  020124  044127
3457  020066  046111  020105  047111
3458  020074  046440  044501  052116
3459  020102  047101  047105  042503
3460  020110  046440  042117  000105
3461  020116  020040  041520  020040  EH12:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3462  020124  020040  020040  050123
3463  020132  020040  020040  020040
3464  020140  051520  020040  020040
3465  020146  052040  051505  021524
3466  020154  020040  052040  041503
3467  020162  020115  020040  052040
3468  020170  051503  000124
3469                                  .EVEN
3470  020174  001116  001176  001200  ET12:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3471  020202  001174  001166  001164
3472  020210  000000                        000000
3473
3474
3475  020212  041524  052123  041040  EM13:   .ASCIZ "TCST BIT 1 CAN BE SET WHILE IN MAINTANENCE MODE"
3476  020220  052111  030440  041440
3477  020226  047101  041040  020105
3478  020234  042523  020124  044127
3479  020242  046111  020105  047111
3480  020250  046440  044501  052116
3481  020256  047101  047105  042503
3482  020264  046440  042117  000105
3483  020272  020040  041520  020040  EH13:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3484  020300  020040  020040  050123
3485  020306  020040  020040  020040
3486  020314  051520  020040  020040
3487  020322  052040  051505  021524
3488  020330  020040  052040  041503
3489  020336  020115  020040  052040
3490  020344  051503  000124
3491                                  .EVEN
3492  020350  001116  001176  001200  ET13:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3493  020356  001174  001166  001164
3494  020364  000000                        000000
3495
3496
3497  020366  051127  046524  041440  EM14:   .ASCIZ "WRTM COMMAND WITH WRTM SWITCH DISABLED FAILED TO SET ILO ERROR"
3498  020374  046517  040515  042116
3499  020402  053440  052111  020110
3500  020410  051127  046524  051440
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3501  020416  044527  041524  020110
3502  020424  044504  040523  046102
3503  020432  042105  043040  044501
3504  020440  042514  020104  047524
3505  020446  051440  052105  044440
3506  020454  047514  042440  051122
3507  020462  051117     000
3508  020465     040  050040  020103  EH14:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3509  020472  020040  020040  051440
3510  020500  020120  020040  020040
3511  020506  020040  020123  020040
3512  020514  020040  042524  052123
3513  020522  020043  020040  041524
3514  020530  046503  020040  020040
3515  020536  041524  052123     000
3516          020544                  .EVEN
3517  020544  001116  001176  001200  ET14:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3518  020552  001174  001166  001164
3519  020560  000000                          000000
3520
3521
3522  020562  046111  020117  051105  EM15:   .ASCIZ "ILO ERROR FAILED TO SET THE 'ERROR' BIT"
3523  020570  047522  020122  040506
3524  020576  046111  042105  052040
3525  020604  020117  042523  020124
3526  020612  044124  020105  042447
3527  020620  051122  051117  020047
3528  020626  044502  000124
3529  020632  020040  041520  020040  EH15:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3530  020640  020040  020040  050123
3531  020646  020040  020040  020040
3532  020654  051520  020040  020040
3533  020662  052040  051505  021524
3534  020670  020040  052040  041503
3535  020676  020115  020040  052040
3536  020704  051503  000124
3537                          .EVEN
3538  020710  001116  001176  001200  ET15:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3539  020716  001174  001166  001164
3540  020724  000000                          000000
3541
3542
3543  020726  046103  040505  044522  EM16:   .ASCIZ "CLEARING ILLEGAL OP FAILED TO CLEAR ILO ERROR"
3544  020734  043516  044440  046114
3545  020742  043505  046101  047440
3546  020750  020120  040506  046111
3547  020756  042105  052040  020117
3548  020764  046103  040505  020122
3549  020772  046111  020117  051105
3550  021000  047522  000122
3551  021004  020040  041520  020040  EH16:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3552  021012  020040  020040  050123
3553  021020  020040  020040  020040
3554  021026  051520  020040  020040
3555  021034  052040  051505  021524
3556  021042  020040  052040  041503
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3557  021050  020115  020040  052040
3558  021056  051503  000124
3559                                          .EVEN
3560  021062  001116  001176  001200  ET16:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3561  021070  001174  001166  001164
3562  021076  000000                        000000
3563
3564
3565  021100  046103  040505  044522  EM17:   .ASCIZ "CLEARING ILLEGAL OP FAILED TO CLEAR THE 'ERROR' BIT"
3566  021106  043516  044440  046114
3567  021114  043505  046101  047440
3568  021122  020120  040506  046111
3569  021130  042105  052040  020117
3570  021136  046103  040505  020122
3571  021144  044124  020105  042447
3572  021152  051122  051117  020047
3573  021160  044502  000124
3574  021164  020040  041520  020040  EH17:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3575  021172  020040  020040  050123
3576  021200  020040  020040  020040
3577  021206  051520  020040  020040
3578  021214  052040  051505  021524
3579  021222  020040  052040  041503
3580  021230  020115  020040  052040
3581  021236  051503  000124
3582                                          .EVEN
3583  021242  001116  001176  001200  ET17:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3584  021250  001174  001166  001164
3585  021256  000000                        000000
3586
3587
3588  021260  051127  046524  053440  EM20:   .ASCIZ "WRTM WITH WRTM SWITCH OFF DID NOT SET ILO ERROR BIT"
3589  021266  052111  020110  051127
3590  021274  046524  051440  044527
3591  021302  041524  020110  043117
3592  021310  020106  044504  020104
3593  021316  047516  020124  042523
3594  021324  020124  046111  020117
3595  021332  051105  047522  020122
3596  021340  044502  000124
3597  021344  020040  041520  020040  EH20:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3598  021352  020040  020040  050123
3599  021360  020040  020040  020040
3600  021366  051520  020040  020040
3601  021374  052040  051505  021524
3602  021402  020040  052040  041503
3603  021410  020115  020040  052040
3604  021416  051503  000124
3605                                          .EVEN
3606  021422  001116  001176  001200  ET20:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3607  021430  001174  001166  001164
3608  021436  000000                        000000
3609
3610
3611  021440  046111  020117  051105  EM21:   .ASCIZ "ILO ERROR SETTING DID NOT CAUSE THE 'ERROR' BIT TO SET"
3612  021446  047522  020122  042523
```

```
3613  021454  052124  047111  020107
3614  021462  044504  020104  047516
3615  021470  020124  040503  051525
3616  021476  020105  044124  020105
3617  021504  042447  051122  051117
3618  021512  020047  044502  020124
3619  021520  047524  051440  052105
3620  021526     000
3621  021527     040  050040  020103  EH21:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3622  021534  020040  020040  051440
3623  021542  020120  020040  020040
3624  021550  050040  020123  020040
3625  021556  020040  042524  052123
3626  021564  020043  020040  041524
3627  021572  046503  020040  020040
3628  021600  041524  052123     000
3629          021606          .EVEN
3630  021606  001116  001176  001200  ET21:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3631  021614  001174  001166  001164
3632  021622  000000                          000000
3633
3634
3635  021624  046103  040505  044522  EM22:   .ASCIZ "CLEARING ERROR BIT ALSO CLEARED ILO ERROR"
3636  021632  043516  042440  051122
3637  021640  051117  041040  052111
3638  021646  040440  051514  020117
3639  021654  046103  040505  042522
3640  021662  020104  046111  020117
3641  021670  051105  047522  000122
3642  021676  020040  041520  020040  EH22:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3643  021704  020040  020040  050123
3644  021712  020040  020040  020040
3645  021720  051520  020040  020040
3646  021726  052040  051505  021524
3647  021734  020040  052040  041503
3648  021742  020115  020040  052040
3649  021750  051503  000124
3650                          .EVEN
3651  021754  001116  001176  001200  ET22:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3652  021762  001174  001166  001164
3653  021770  000000                          000000
3654
3655
3656  021772  044124  020105  042447  EM23:   .ASCIZ "THE 'ERROR' BIT DID NOT SET"
3657  022000  051122  051117  020047
3658  022006  044502  020124  044504
3659  022014  020104  047516  020124
3660  022022  042523  000124
3661  022026  020040  041520  020040  EH23:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3662  022034  020040  020040  050123
3663  022042  020040  020040  020040
3664  022050  051520  020040  020040
3665  022056  052040  051505  021524
3666  022064  020040  052040  041503
3667  022072  020115  020040  052040
3668  022100  051503  000124
```

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3669                                            .EVEN
3670  022104  001116  001176  001200  ET23:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3671  022112  001174  001166  001164
3672  022120  000000                          000000
3673
3674
3675  022122  044124  020105  042447  EM24:   .ASCIZ "THE 'ERROR' BIT SET DID NOT CAUSE AN INTERRUPT"
3676  022130  051122  051117  020047
3677  022136  044502  020124  042523
3678  022144  020124  044504  020104
3679  022152  047516  020124  040503
3680  022160  051525  020105  047101
3681  022166  044440  052116  051105
3682  022174  052522  052120     000
3683  022201     040  050040  020103  EM24:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3684  022206  020040  020040  051440
3685  022214  020120  020040  020040
3686  022222  050040  020123  020040
3687  022230  020040  042524  052123
3688  022236  020043  020040  041524
3689  022244  046503  020040  020040
3690  022252  041524  052123     000
3691  022260                          .EVEN
3692  022260  001116  001176  001200  ET24:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3693  022266  001174  001166  001164
3694  022274  000000                          000000
3695
3696
3697  022276  047504  047111  020107  EM25:   .ASCIZ "DOING A RESET INSTRUCTION DID NOT SET THE READY BIT"
3698  022304  020101  042522  042523
3699  022312  020124  047111  052123
3700  022320  052522  052103  047511
3701  022326  020116  044504  020104
3702  022334  047516  020124  042523
3703  022342  020121  044124  020105
3704  022350  042522  042101  020131
3705  022356  044502  000124
3706  022362  020040  041520  020040  EM25:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3707  022370  020040  020040  050123
3708  022376  020040  020040  020040
3709  022404  051520  020040  020040
3710  022412  052040  051505  021524
3711  022420  020040  052040  041503
3712  022426  020115  020040  052040
3713  022434  051503  000124
3714                                            .EVEN
3715  022440  001116  001176  001200  ET25:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3716  022446  001174  001166  001164
3717  022454  000000                          000000
3718
3719
3720  022456  042524  052123  042440  EM26:   .ASCIZ "TEST EXECUTION IS OUT OF ORDER"
3721  022464  042530  052503  044524
3722  022472  047117  044440  020123
3723  022500  052517  020124  043117
3724  022506  047440  042122  051105
```

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3725  022514  000
3726  022515  040  050040  020103  EH26:  .ASCIZ "  PC      SP      PS      TEST#  TEST# S/B"
3727  022522  020040  020040  051440
3728  022530  020120  020040  020040
3729  022536  050040  020123  020040
3730  022544  020040  042524  052123
3731  022552  020043  052040  051505
3732  022560  021524  051440  041057
3733  022566  000
3734          022570                  .EVEN
3735  022570  001116  001176  001200  ET26:  $ERRPC,$REG6,$REG7,$REG0,$REG5
3736  022576  001162  001174
3737  022602  000000                  000000
3738
3739
3740  022604  051105  047522  020122  EM27:  .ASCIZ "ERROR TRYING TO READ A BLOCK MARK"
3741  022612  051124  044531  043516
3742  022620  052040  020117  042522
3743  022626  042101  040440  041040
3744  022634  047514  045503  046440
3745  022642  051101  000113
3746  022646  020040  041520  020040  EH27:  .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3747  022654  020040  020040  050123
3748  022662  020040  020040  020040
3749  022670  051520  020040  020040
3750  022676  052040  051505  021524
3751  022704  020040  052040  041503
3752  022712  020115  020040  052040
3753  022720  051503  000124
3754                          .EVEN
3755  022724  001116  001176  001200  ET27:  $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3756  022732  001174  001166  001164
3757  022740  000000                  000000
3758
3759
3760  022742  042522  042101  020131  EM30:  .ASCIZ "READY WAS NOT SET AFTER BLOCK MARK WAS SHIFTED INTO THE WINDOW REGISTER"
3761  022750  040527  020123  047516
3762  022756  020124  042523  020124
3763  022764  043101  042524  020122
3764  022772  046102  041517  020113
3765  023000  040515  045522  053440
3766  023006  051501  051440  044510
3767  023014  052106  042105  044440
3768  023022  052116  020117  044124
3769  023030  020105  044527  042116
3770  023036  053517  051040  043505
3771  023044  051511  042524  000122
3772  023052  020040  041520  020040  EH30:  .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3773  023060  020040  020040  050123
3774  023066  020040  020040  020040
3775  023074  051520  020040  020040
3776  023102  052040  051505  021524
3777  023110  020040  052040  041503
3778  023116  020115  020040  052040
3779  023124  051503  000124
3780                          .EVEN
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3781  023130  001116  001176  001200  ET30:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3782  023136  001174  001166  001164
3783  023144  000000                          000000
3784
3785
3786  023146  047111  047503  051122  EM31:   .ASCIZ "INCORRECT BLOCK # IN DATA REG AFTER BLOCK MARK WAS DETECTED"
3787  023154  041505  020124  046102
3788  023162  041517  020113  020043
3789  023170  047111  042040  052101
3790  023176  020101  042522  020107
3791  023204  043101  042524  020122
3792  023212  046102  041517  020113
3793  023220  040515  045522  053440
3794  023226  051501  042040  052105
3795  023234  041505  042524  000104
3796  023242  020040  041520  020040  EH31:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCDT  TCDT S/B"
3797  023250  020040  020040  050123
3798  023256  020040  020040  020040
3799  023264  051520  020040  020040
3800  023272  052040  051505  021524
3801  023300  020040  052040  041503
3802  023306  020115  020040  052040
3803  023314  051503  020124  020040
3804  023322  052040  042103  020124
3805  023330  052040  042103  020124
3806  023336  027523  000102
3807                                  .EVEN
3808  023342  001116  001176  001200  ET31:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG4,$REG0
3809  023350  001174  001166  001164
3810  023356  001172  001162
3811  023362  000000                          000000
3812
3813
3814  023364  052115  020105  040527  EM32:   .ASCIZ "MTE WAS NOT SET BY AN ILLEGAL MARK TRACK CODE"
3815  023372  020123  047516  020124
3816  023400  042523  020124  054502
3817  023406  040440  020116  046111
3818  023414  042514  040507  020114
3819  023422  040515  045522  052040
3820  023430  040522  045503  041440
3821  023436  042117  000105
3822  023442  020040  041520  020040  EH32:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3823  023450  020040  020040  050123
3824  023456  020040  020040  020040
3825  023464  051520  020040  020040
3826  023472  052040  051505  021524
3827  023500  020040  052040  041503
3828  023506  020115  020040  052040
3829  023514  051503  000124
3830                                  .EVEN
3831  023520  001116  001176  001200  ET32:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3832  023526  001174  001166  001164
3833  023534  000000                          000000
3834
3835
3836  023536  052115  020105  042523  EM33:   .ASCIZ "MTE SETTING FAILED TO SET THE 'ERROR' BIT"
```

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3837  023544  052124  047111  020107
3838  023552  040506  046111  042105
3839  023560  053040  020117  042523
3840  023566  020124  044124  020105
3841  023574  042447  051122  051117
3842  023602  020047  044502  000124
3843  023610  020040  041520  020040  EH33:   .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST"
3844  023616  020040  020040  050123
3845  023624  020040  020040  020040
3846  023632  051520  020040  020040
3847  023640  052040  051505  021524
3848  023646  020040  052040  041503
3849  023654  020115  020040  052040
3850  023662  051503  000124
3851                                  .EVEN
3852  023666  001116  001176  001200  ET33:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3853  023674  001174  001166  001164
3854  023702  000000                  000000
3855
3856
3857  023704  047105  055104  041040  EM34:   .ASCIZ "ENDZ BIT DID NOT SET WHEN END MARK DETECTED"
3858  023712  052111  042040  042111
3859  023720  047040  052117  051440
3860  023726  052105  053440  042510
3861  023734  020116  047105  055104
3862  023742  046440  051101  020113
3863  023750  042504  042524  052103
3864  023756  042105     000
3865  023761     040  050040  020103  EH34:   .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST"
3866  023766  020040  020040  051440
3867  023774  020120  020040  020040
3868  024002  050040  020123  020040
3869  024010  020040  042524  052123
3870  024016  020043  020040  041524
3871  024024  046503  020040  020040
3872  024032  041524  052123     000
3873          024040                  .EVEN
3874  024040  001116  001176  001200  ET34:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3875  024046  001174  001166  001164
3876  024054  000000                  000000
3877
3878
3879  024056  040504  040524  052040  EM35:   .ASCIZ  "DATA TRANSFERED INCORECTLY"
3880  024064  040522  051516  042506
3881  024072  042522  020104  047111
3882  024100  047503  042522  052103
3883  024106  054514     000
3884  024111     040  050040  020103  EH35:   .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST  DATA S/B DATA WAS"
3885  024116  020040  020040  020040
3886  024124  050123  020040  020040
3887  024132  020040  051520  020040
3888  024140  020040  042524  052123
3889  024146  020043  020040  052040
3890  024154  041503  020115  020040
3891  024162  052040  051503  020124
3892  024170  042040  052101  020101
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  3893  024176  027523  020102  040504
  3894  024204  040524  053440  051501
  3895  024212      000
  3896          024214                    .EVEN
  3897  024214  001116  001176  001200  ET35:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,CRBUF,CRBUFA
  3898  024222  001174  001166  001164
  3899  024230  001270  001272
  3900  024234  040515  045522  052040  EM36:   .ASCIZ "MARK TRACK CODE 55 WAS MISTAKEN FOR END ZONE"
  3901  024242  040522  045503  041440
  3902  024250  042117  020105  032465
  3903  024256  053440  051501  046440
  3904  024264  051511  040524  042513
  3905  024272  020116  047506  020122
  3906  024300  047105  020104  047532
  3907  024306  042516      000
  3908  024311      040  050040  020103  EH36:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
  3909  024316  020040  020040  051440
  3910  024324  020120  020040  020040
  3911  024332  020040  020123  020040
  3912  024340  020040  042524  052123
  3913  024346  020043  020040  041524
  3914  024354  046503  020040  020040
  3915  024362  041524  052123      000
  3916          024370                    .EVEN
  3917  024370  001116  001176  001200  ET36:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
  3918  024376  001174  001166  001164
  3919  024404  000000                    000000
  3920
  3921
  3922  024406  051105  047522  000122  EM37:   .ASCIZ "ERROR"
  3923  024414  020040  041520  020040  EH37:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
  3924  024422  020040  020040  050123
  3925  024430  020040  020040  020040
  3926  024436  051520  020040  020040
  3927  024444  052040  051505  021524
  3928  024452  020040  052040  041503
  3929  024460  020115  020040  052040
  3930  024466  051503  000124
  3931                            .EVEN
  3932  024472  001116  001176  001200  ET37:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
  3933  024500  001174  001166  001164
  3934  024506  000000                    000000
  3935
  3936
  3937  024510  042522  042101  020131  EMH0:   .ASCIZ "READY BIT DID NOT SET"
  3938  024516  044502  020124  044504
  3939  024524  020104  047516  020124
  3940  024532  042523  000124
  3941  024536  020040  041520  020040  EMH0:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
  3942  024544  020040  020040  050123
  3943  024552  020040  020040  020040
  3944  024560  051520  020040  020040
  3945  024566  052040  051505  021524
  3946  024574  020040  052040  041503
  3947  024602  020115  020040  052040
  3948  024610  051503  000124
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3949                                                    .EVEN
3950  024614  001116  001176  001200  ET40:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3951  024622  001174  001166  001164
3952  024630  000000                  000000
3953
3954
3955  024632  044124  020105  042447  EM41:   .ASCIZ "THE 'ERROR' BIT SHOULD NOT HAVE SET"
3956  024640  051122  051117  020047
3957  024646  044502  020124  044123
3958  024654  052517  042114  047040
3959  024662  052117  044040  053101
3960  024670  020105  042523  000124
3961  024676  020040  041520  020040  EM41:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3962  024704  020040  020040  050123
3963  024712  020040  020040  020040
3964  024720  051520  020040  020040
3965  024726  052040  051505  021524
3966  024734  020040  052040  041503
3967  024742  020115  020040  052040
3968  024750  051503  000124
3969                                                    .EVEN
3970  024754  001116  001176  001200  ET41:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3971  024762  001174  001166  001164
3972  024770  000000                  000000
3973
3974
3975  024772  042522  042101  020131  EM42:   .ASCIZ "READY BIT SHOULD NOT HAVE SET"
3976  025000  044502  020124  044123
3977  025006  052517  042114  047040
3978  025014  052117  044040  053101
3979  025022  020105  042523  000124
3980  025030  020040  041520  020040  EM42:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3981  025036  020040  020040  050123
3982  025044  020040  020040  020040
3983  025052  051520  020040  020040
3984  025060  052040  051505  021524
3985  025066  020040  052040  041503
3986  025074  020115  020040  052040
3987  025102  051503  000124
3988                                                    .EVEN
3989  025106  001116  001176  001200  ET42:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3990  025114  001174  001166  001164
3991  025122  000000                  000000
3992
3993
3994  025124  047527  042122  052040  EM43:   .ASCIZ "WORD TRANSFERED INCORRECTLY TO CORE"
3995  025132  040522  051516  042506
3996  025140  042522  020104  047111
3997  025146  047503  051122  041505
3998  025154  046124  020131  047524
3999  025162  041440  051117  000105
4000  025170  020040  041520  020040  EM43:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    RBUF    RBUF S/B"
4001  025176  020040  020040  050123
4002  025204  020040  020040  020040
4003  025212  051520  020040  020040
4004  025220  052040  051505  021524
```

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4005  025226  020040  052040  041503
4006  025234  020115  020040  052040
4007  025242  051503  020124  020040
4008  025250  051040  052502  020106
4009  025256  020040  051040  052502
4010  025264  020106  027523  000102
4011                          .EVEN
4012  025272  001116  001176  001200  ET43:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF,$REG0
4013  025300  001174  001166  001164
4014  025306  036306  001162
4015  025312  000000                        000000
4016
4017
4018  025314  047527  042122  041440  EM44:   .ASCIZ "WORD COUNT INCREMENTED IMPROPERLY"
4019  025322  052517  052116  044440
4020  025330  041516  042522  042515
4021  025336  052116  042105  044440
4022  025344  050115  047522  042520
4023  025352  046122  000131
4024  025356  020040  041520  020040  EM44:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC    TCWC S/B"
4025  025364  020040  020040  050123
4026  025372  020040  020040  020040
4027  025400  051520  020040  020040
4028  025406  052040  051505  021524
4029  025414  020040  052040  041503
4030  025422  020115  020040  052040
4031  025430  051503  020124  020040
4032  025436  052040  053503  020103
4033  025444  020040  041524  041527
4034  025452  051440  041057     000
4035          025460                    .EVEN
4036  025460  001116  001176  001200  ET44:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG4,$REG0
4037  025466  001174  001166  001164
4038  025474  001172  001162
4039  025500  000000                        000000
4040
4041
4042  025502  041524  040502  044440  EM45:   .ASCIZ "TCBA INCREMENTED IMPROPERLY"
4043  025510  041516  042522  042515
4044  025516  052116  042105  044440
4045  025524  050115  047522  042520
4046  025532  046122  000131
4047  025536  020040  041520  020040  EM45:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCBA    TCBA S/B"
4048  025544  020040  020040  050123
4049  025552  020040  020040  020040
4050  025560  051520  020040  020040
4051  025566  052040  051505  021524
4052  025574  020040  052040  041503
4053  025602  020115  020040  052040
4054  025610  051503  020124  020040
4055  025616  052040  041103  020101
4056  025624  020040  041524  040502
4057  025632  051440  041057     000
4058          025640                    .EVEN
4059  025640  001116  001176  001200  ET45:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG4,RBUF+2
4060  025646  001174  001166  001164
```

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4061  025654  001172  036310
4062  025660  000000                          000000
4063
4064
4065  025662  040520  044522  054524  EM46:   .ASCIZ "PARITY ERROR"
4066  025670  042440  051122  051117
4067  025676     000
4068  025677     040  050040  020103  EM46:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
4069  025704  020040  020040  051440
4070  025712  020120  020040  020040
4071  025720  050040  020123  020040
4072  025726  020040  042524  052123
4073  025734  020043  020040  041524
4074  025742  046503  020040  020040
4075  025750  041524  052123     000
4076          025756                  .EVEN
4077  025756  001116  001176  001200  ET46:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
4078  025764  001174  001166  001164
4079  025772  000000                          000000
4080
4081
4082  025774  042522  042101  020131  EM47:   .ASCIZ "READY DID NOT SET AFTER READING WAS COMPLETED"
4083  026002  044504  020104  047516
4084  026010  020124  042523  020124
4085  026016  043101  042524  020122
4086  026024  042522  042101  047111
4087  026032  020107  040527  020123
4088  026040  047503  050115  042514
4089  026046  042524  000104
4090  026052  020040  041520  020040  EM47:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
4091  026060  020040  020040  050123
4092  026066  020040  020040  020040
4093  026074  051520  020040  020040
4094  026102  052040  051505  021524
4095  026110  020040  052040  041503
4096  026116  020115  020040  052040
4097  026124  051503  000124
4098                          .EVEN
4099  026130  001116  001176  001200  ET47:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
4100  026136  001174  001166  001164
4101  026144  000000                          000000
4102
4103
4104  026146  051124  047101  043123  EM50:   .ASCIZ "TRANSFERED TOO MANY WORDS"
4105  026154  051105  042105  052040
4106  026162  047517  046440  047101
4107  026170  020131  047527  042122
4108  026176  000123
4109  026200  020040  041520  020040  EM50:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    RBUF+2"
4110  026206  020040  020040  050123
4111  026214  020040  020040  020040
4112  026222  051520  020040  020040
4113  026230  052040  051505  021524
4114  026236  020040  052040  041503
4115  026244  020115  020040  052040
4116  026252  051503  020124  020040
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4117  026260  051040  052502  025506
4118  026266  000062
4119                                  .EVEN
4120  026270  001116  001176  001200  ET50:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+2
4121  026276  001174  001166  001164
4122  026304  036310
4123  026306  000000                        000000
4124
4125
4126  026310  041524  040502  041440  EM51:   .ASCIZ "TCBA CONTAINS AN INCORRECT ADDRESS"
4127  026316  047117  040524  047111
4128  026324  020123  047101  044440
4129  026332  041516  051117  042522
4130  026340  052103  040440  042104
4131  026346  042522  051523     000
4132  026353     040  050040  020103  EM51:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCBA    TCBA S/B"
4133  026360  020040  020040  051440
4134  026366  020120  020040  020040
4135  026374  050040  020123  020040
4136  026402  020040  042524  052123
4137  026410  020043  020040  041524
4138  026416  046503  020040  020040
4139  026424  041524  052123  020040
4140  026432  020040  041524  040502
4141  026440  020040  052040  041103
4142  026446  020101  027523  000102
4143                                  .EVEN
4144  026454  001116  001176  001200  ET51:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG3,RBUF+512
4145  026462  001174  001166  001164
4146  026470  001170  037020
4147  026474  000000                        000000
4148
4149
4150  026476  040520  051122  052111  EM52:   .ASCIZ "PARRITY ERROR WAS NOT DETECTED"
4151  026504  020131  051105  047522
4152  026512  020122  040527  020123
4153  026520  047516  020124  042504
4154  026526  042524  052103  042105
4155  026534     000
4156  026535     040  050040  020103  EM52:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4157  026542  020040  020040  051440
4158  026550  020120  020040  020040
4159  026556  050040  020123  020040
4160  026564  020040  042524  052123
4161  026572  020043  020040  041524
4162  026600  046503  020040  020040
4163  026606  041524  052123  020040
4164  026614  020040  041524  041527
4165  026622     000
4166           026624                 .EVEN
4167  026624  001116  001176  001200  ET52:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4168  026632  001174  001166  001164
4169  026640  001162
4170  026642  000000                        000000
4171
4172
```

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4173  026644  040520  044522  054524  EM53:   .ASCIZ "PARITY ERROR DID NOT SET THE 'ERROR' BIT"
4174  026652  042440  051122  051117
4175  026660  042040  042111  047040
4176  026666  052117  051440  052105
4177  026674  052040  042510  023440
4178  026702  051105  047522  023522
4179  026710  041040  052111     000
4180  026715     040  050040  020103  EM53:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4181  026722  020040  020040  051440
4182  026730  020120  020040  020040
4183  026736  050040  020123  020040
4184  026744  020040  042524  052123
4185  026752  020043  020040  041524
4186  026760  046503  020040  020040
4187  026766  041524  052123  020040
4188  026774  020040  041524  041527
4189  027002     000
4190        027004                  .EVEN
4191  027004  001116  001176  001200  ET53:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4192  027012  001174  001166  001164
4193  027020  001162
4194  027022  000000                  000000
4195
4196
4197  027024  040520  044522  054524  EM54:   .ASCIZ "PARITY ERROR BIT WILL NOT CLEAR"
4198  027032  042440  051122  051117
4199  027040  041040  052111  053440
4200  027046  046111  020114  047516
4201  027054  020124  046103  040505
4202  027062  000122
4203  027064  020040  041520  020040  EM54:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4204  027072  020040  020040  050123
4205  027100  020040  020040  020040
4206  027106  051520  020040  020040
4207  027114  052040  051505  021524
4208  027122  020040  052040  041503
4209  027130  020115  020040  052040
4210  027136  051503  020124  020040
4211  027144  052040  053503  000103
4212                    .EVEN
4213  027152  001116  001176  001200  ET54:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4214  027160  001174  001166  001164
4215  027166  001162
4216  027170  000000                  000000
4217
4218
4219  027172  046102  041517  020113  EM55:   .ASCIZ "BLOCK MISS SHOULD NOT HAVE SET"
4220  027200  044515  051523  051440
4221  027206  047510  046125  020104
4222  027214  047516  020124  040510
4223  027222  042526  051440  052105
4224  027230     000
4225  027231     040  050040  020103  EM55:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4226  027236  020040  020040  051440
4227  027244  020120  020040  020040
4228  027252  050040  020123  020040
```

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4229  027260  020040  042524  052123
4230  027266  020043  020040  041524
4231  027274  046503  020040  020040
4232  027302  041524  052123  020040
4233  027310  020040  041524  041527
4234  027316  000
4235          027320                  .EVEN
4236  027320  001116  001176  001200  ET55:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4237  027326  001174  001166  001164
4238  027334  001162
4239  027336  000000                  000000
4240
4241
4242  027340  042122  052101  020101  EM56:   .ASCIZ "RDATA WAS ISSUED BUT BLOCK MISS FAILED TO SET"
4243  027346  040527  020123  051511
4244  027354  052523  042105  041040
4245  027362  052125  041040  047514
4246  027370  045503  046440  051511
4247  027376  020123  040506  046111
4248  027404  042105  052040  020117
4249  027412  042523  000124
4250  027416  020040  041520  020040  EM56:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4251  027424  020040  020040  050123
4252  027432  020040  020040  020040
4253  027440  051520  020040  020040
4254  027446  052040  051505  021524
4255  027454  020040  052040  041503
4256  027462  020115  020040  052040
4257  027470  051503  020124  020040
4258  027476  052040  053503  000103
4259                          .EVEN
4260  027504  001116  001176  001200  ET56:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4261  027512  001174  001166  001164
4262  027520  001162
4263  027522  000000                  000000
4264
4265
4266  027524  046102  041517  020113  EM57:   .ASCIZ "BLOCK MISS SETTING DID NOT SET THE 'ERROR' BIT"
4267  027532  044515  051523  051440
4268  027540  052105  044524  043516
4269  027546  042040  042111  047040
4270  027554  052117  051440  052105
4271  027562  052040  042510  023440
4272  027570  051105  047522  023522
4273  027576  041040  052111  000
4274  027603  040     050040  020103  EM57:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4275  027610  020040  020040  051440
4276  027616  020120  020040  020040
4277  027624  050040  020123  020040
4278  027632  020040  042524  052123
4279  027640  020043  020040  041524
4280  027646  046503  020040  020040
4281  027654  041524  052123  020040
4282  027662  020040  041524  041527
4283  027670  000
4284          027672                  .EVEN
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4285  027672  001116  001176  001200  ET57:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4286  027700  001174  001166  001164
4287  027706  001162
4288  027710  000000                          000000
4289
4290
4291  027712  046103  040505  044522  EM60:   .ASCIZ "CLEARING ERROR BIT FAILED TO CLEAR BLOCK MISS"
4292  027720  043516  042440  051122
4293  027726  051117  041040  052111
4294  027734  043040  044501  042514
4295  027742  020104  047524  041440
4296  027750  042514  051101  041040
4297  027756  047514  045503  046440
4298  027764  051511  000123
4299  027770  020040  041520  020040  EH60:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4300  027776  020040  020040  050123
4301  030004  020040  020040  020040
4302  030012  051520  020040  020040
4303  030020  052040  051505  021524
4304  030026  020040  052040  041503
4305  030034  020115  020040  052040
4306  030042  051503  020124  020040
4307  030050  052040  053503  000103
4308                          .EVEN
4309  030056  001116  001176  001200  ET60:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4310  030064  001174  001166  001164
4311  030072  001162
4312  030074  000000                          000000
4313
4314
4315  030076  047506  053522  051101  EM61:   .ASCIZ "FORWARD CHECKSUM WAS WRITTEN INCORRECTLY INTO CORE"
4316  030104  020104  044103  041505
4317  030112  051513  046525  053440
4318  030120  051501  053440  044522
4319  030126  052124  047105  044440
4320  030134  041516  051117  042522
4321  030142  052103  054514  044440
4322  030150  052116  020117  047503
4323  030156  042522     000
4324  030161     040  050040  020103  EH61:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    RBUF+514 TCWC"
4325  030166  020040  020040  051440
4326  030174  020120  020040  020040
4327  030202  050040  020123  020040
4328  030210  020040  042524  052123
4329  030216  020043  020040  041524
4330  030224  046503  020040  020040
4331  030232  041524  052123  020040
4332  030240  051040  052502  025506
4333  030246  030465  020064  041524
4334  030254  041527     000
4335          030260                    .EVEN
4336  030260  001116  001176  001200  ET61:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+514,$REG0
4337  030266  001174  001166  001164
4338  030274  037022  001162
4339  030300  000000                          000000
4340
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4341
4342  030302  041524  041527  053440  EM62:   .ASCIZ "TCWC WAS MODIFIED DURRING RAL"
4343  030310  051501  046440  042117
4344  030316  043111  042511  020104
4345  030324  052504  051122  047111
4346  030332  020107  040522  000114
4347  030340  020040  041520  020040  EM62:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4348  030346  020040  020040  050123
4349  030354  020040  020040  020040
4350  030362  051520  020040  020040
4351  030370  052040  051505  021524
4352  030376  020040  052040  041503
4353  030404  020115  020040  052040
4354  030412  051503  020124  020040
4355  030420  052040  053503  000103
4356                          .EVEN
4357  030426  001116  001176  001200  ET62:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
4358  030434  001174  001166  001164
4359  030442  001242
4360  030444  000000                  000000
4361
4362
4363  030446  041524  040502  053440  EM63:   .ASCIZ "TCBA WAS MODIFIED DURRING RAL"
4364  030454  051501  046440  042117
4365  030462  043111  042511  020104
4366  030470  052504  051122  047111
4367  030476  020107  040522  000114
4368  030504  020040  041520  020040  EM63:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCBA    TCBA S/B"
4369  030512  020040  020040  050123
4370  030520  020040  020040  020040
4371  030526  051520  020040  020040
4372  030534  052040  051505  021524
4373  030542  020040  052040  041503
4374  030550  020115  020040  052040
4375  030556  051503  020124  020040
4376  030564  052040  041103  020101
4377  030572  020040  052040  041103
4378  030600  020101  027523  000102
4379                          .EVEN
4380  030606  001116  001176  001200  ET63:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG3
4381  030614  001174  001166  001164
4382  030622  001170
4383  030624  000000                  000000
4384
4385
4386  030626  040504  040524  046440  EM64:   .ASCIZ "DATA MISS DID NOT SET"
4387  030634  051511  020123  044504
4388  030642  020104  047516  020124
4389  030650  042523  000124
4390  030654  020040  041520  020040  EM64:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4391  030662  020040  020040  050123
4392  030670  020040  020040  020040
4393  030676  051520  020040  020040
4394  030704  052040  051505  021524
4395  030712  020040  052040  041503
4396  030720  020115  020040  052040
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 4397  030726  051503  020124  020040
 4398  030734  052040  053503  000103
 4399                          .EVEN
 4400  030742  001116  001176  001200  ET64:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
 4401  030750  001174  001166  001164
 4402  030756  001162
 4403  030760  000000                          000000
 4404
 4405
 4406  030762  040504  040524  046440  EM65:   .ASCIZ "DATA MISS SETTING DID NOT CAUSE THE 'ERROR' BIT TO SET"
 4407  030770  051511  020123  042523
 4408  030776  052124  047111  020107
 4409  031004  044504  020104  047516
 4410  031012  020124  040503  051525
 4411  031020  020105  044124  020105
 4412  031026  042447  051122  051117
 4413  031034  020047  044503  020124
 4414  031042  040524  051440  052105
 4415  031050      000
 4416  031051      040  050040  020103  EH65:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 4417  031056  020040  020040  051440
 4418  031064  020120  020040  020040
 4419  031072  050040  020123  020040
 4420  031100  020040  042524  052123
 4421  031106  020043  020040  041524
 4422  031114  046503  020040  020040
 4423  031122  041524  052123      000
 4424          031130                  .EVEN
 4425  031130  001116  001176  001200  ET65:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 4426  031136  001174  001166  001164
 4427  031144  000000                          000000
 4428
 4429
 4430  031146  046103  040505  044522  EM66:   .ASCIZ "CLEARING THE 'ERROR' BIT DID NOT CAUSE DATA MISS TO BE CLEARED"
 4431  031154  043516  052040  042510
 4432  031162  023440  051105  047522
 4433  031170  023522  041040  052111
 4434  031176  042040  042111  047040
 4435  031204  052117  041440  052501
 4436  031212  042523  042040  052101
 4437  031220  020101  044515  051523
 4438  031226  052040  020117  042502
 4439  031234  041440  042514  051101
 4440  031242  042105      000
 4441  031245      040  050040  020103  EH66:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 4442  031252  020040  020040  051440
 4443  031260  020120  020040  020040
 4444  031266  050040  020123  020040
 4445  031274  020040  042524  052123
 4446  031302  020043  020040  041524
 4447  031310  046503  020040  020040
 4448  031316  041524  052123      000
 4449          031324                  .EVEN
 4450  031324  001116  001176  001200  ET66:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 4451  031332  001174  001166  001164
 4452  031340  000000                          000000
```

```
                                                
                                                
031342  042522  042101  020131  EM67:   .ASCIZ "READY BIT WAS NOT SET AFTER THE DATA WAS WRITTEN"
031350  044502  020124  040527
031356  020123  047516  020124
031364  042523  020124  043101
031372  042524  020122  044124
031400  020105  040504  040524
031406  053440  051501  053440
031414  044522  052124  047105
031422     000
031423     040  050040  020103  EH67:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
031430  020040  020040  051440
031436  020120  020040  020040
031444  050040  020123  020040
031452  020040  042524  052123
031460  020043  020040  041524
031466  046503  020040  020040
031474  041524  052123     000
                031502          .EVEN
031502  001116  001176  001200  ET67:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
031510  001174  001166  001164
031516  000000                          000000
                                                
                                                
031520  044124  020105  042522  EM70:   .ASCIZ "THE REVERSE CHECKSUM WAS WRITTEN INCORRECTLY"
031526  042526  051522  020105
031534  044103  041505  051513
031542  046525  053440  051501
031550  053440  044522  052124
031556  047105  044440  041516
031564  051117  042522  052103
031572  054514     000
031575     040  050040  020103  EH70:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    RBUF+512 RBUF+512 S/B"
031602  020040  020040  051440
031610  020120  020040  020040
031616  050040  020123  020040
031624  020040  042524  052123
031632  020043  020040  041524
031640  046503  020040  020040
031646  041524  052123  020040
031654  051040  052502  025506
031662  030465  020062  041122
031670  043125  032453  031061
031676  051440  041057     000
                031704          .EVEN
031704  001116  001176  001200  ET70:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+512,$REG0
031712  001174  001166  001164
031720  037020  001162
031724  000000                          000000
                                                
                                                
031726  047527  042122  041440  EM71:   .ASCIZ "WORD COUNT MODIFIED DURRING WRITE ALL"
031734  052517  052116  046440
031742  042117  043111  042511
031750  020104  052504  051122
```

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 4509  031756  047111  020107  051127
 4510  031764  052111  020105  046101
 4511  031772  000114
 4512  031774  020040  041520  020040  EH71:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
 4513  032002  020040  020040  050123
 4514  032010  020040  020040  020040
 4515  032016  051520  020040  020040
 4516  032024  052040  051505  021524
 4517  032032  020040  052040  041503
 4518  032040  020115  020040  052040
 4519  032046  051503  020124  020040
 4520  032054  052040  053503  000103
 4521                          .EVEN
 4522  032062  001116  001176  001200  ET71:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
 4523  032070  001174  001166  001164
 4524  032076  001242
 4525  032100  000000                  000000
 4526
 4527
 4528  032102  041524  040502  046440  EM72:   .ASCIZ "TCBA MODIFIED DURRING WRITE ALL"
 4529  032110  042117  043111  042511
 4530  032116  020104  052504  051122
 4531  032124  047111  020107  051127
 4532  032132  052111  020105  046101
 4533  032140  000114
 4534  032142  020040  041520  020040  EH72:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCBA"
 4535  032150  020040  020040  050123
 4536  032156  020040  020040  020040
 4537  032164  051520  020040  020040
 4538  032172  052040  051505  021524
 4539  032200  020040  052040  041503
 4540  032206  020115  020040  052040
 4541  032214  051503  020124  020040
 4542  032222  052040  041103  000101
 4543                          .EVEN
 4544  032230  001116  001176  001200  ET72:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG3
 4545  032236  001174  001166  001164
 4546  032244  001170
 4547  032246  000000                  000000
 4548
 4549
 4550  032250  051523  020124  044504  EM73:   .ASCIZ "SST DID NOT CAUSE A SELECT ERROR"
 4551  032256  020104  047516  020124
 4552  032264  040503  051525  020105
 4553  032272  020101  042523  042514
 4554  032300  052103  042440  051122
 4555  032306  051117     000
 4556  032311     040  050040  020103  EH73:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
 4557  032316  020040  020040  051440
 4558  032324  020120  020040  020040
 4559  032332  050040  020123  020040
 4560  032340  020040  042524  052123
 4561  032346  020043  020040  041524
 4562  032354  046503  020040  020040
 4563  032362  041524  052123     000
 4564          032370                  .EVEN
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4565  032370  001116  001176  001200  ET73:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
4566  032376  001174  001166  001164
4567  032404  000000                          000000
4568
4569  032406  051124  050101  042520  EM74:   .ASCIZ  "TRAPPED TO LOC 4 ATTEMPTING TO ACCESS TCCM"
4570  032414  020104  047524  046040
4571  032422  041517  032040  040440
4572  032430  052124  046505  052120
4573  032436  047111  020107  047524
4574  032444  040440  041503  051505
4575  032452  020123  041524  046503
4576  032460     000
4577  032461     040  050040  020103  EH74:   .ASCIZ "  PC      SP      PS      TEST#"
4578  032466  020040  020040  051440
4579  032474  020120  020040  020040
4580  032502  050040  020123  020040
4581  032510  020040  042524  052123
4582  032516  000043
4583                                  .EVEN
4584  032520  001116  001176  001200  ET74:   $ERRPC,$REG6,$REG7,$REG5
4585  032526  001174
4586  032530  000000                          000000
4587  032532  051124  050101  042520  EM75:   .ASCIZ  "TRAPPED TO LOC 4 ATTEMPTING TO ACCESS TCST"
4588  032540  020104  047524  046040
4589  032546  041517  032040  040440
4590  032554  052124  046505  052120
4591  032562  047111  020107  047524
4592  032570  040440  041503  051505
4593  032576  020123  041524  052123
4594  032604     000
4595  032605     040  050040  020103  EH75:   .ASCIZ "  PC      SP      PS      TEST#"
4596  032612  020040  020040  051440
4597  032620  020120  020040  020040
4598  032626  050040  020123  020040
4599  032634  020040  042524  052123
4600  032642  000043
4601                                  .EVEN
4602  032644  001116  001176  001200  ET75:   $ERRPC,$REG6,$REG7,$REG5
4603  032652  001174
4604  032654  000000                          000000
4605  032656  051124  050101  042520  EM76:   .ASCIZ  "TRAPPED TO LOC 4 ATTEMPTING TO ACCESS TCWC"
4606  032664  020104  047524  046040
4607  032672  041517  032040  040440
4608  032700  052124  046505  052120
4609  032706  047111  020107  047524
4610  032714  040440  041503  051505
4611  032722  020123  041524  041527
4612  032730     000
4613  032731     040  050040  020103  EH76:   .ASCIZ "  PC      SP      PS      TEST#"
4614  032736  020040  020040  051440
4615  032744  020120  020040  020040
4616  032752  050040  020123  020040
4617  032760  020040  042524  052123
4618  032766  000043
4619                                  .EVEN
4620  032770  001116  001176  001200  ET76:   $ERRPC,$REG6,$REG7,$REG5
```

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                                                        000000
                                EM77:   .ASCIZ  "TRAPPED TO LOC 4 ATTEMPTING TO ACCESS TCBA"
                                EH77:   .ASCIZ "  PC      SP      PS      TEST#"
                                        .EVEN
                                ET77:   $ERRPC,$REG6,$REG7,$REG5
                                                        000000
                                MTKC10:
                                        C10     V7,V2,V7,V2,V7,V2
                                        .BYTE   0!V7,0!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 10.
                                MTKER:
                                        EMTE
                                        .BYTE   I,I,I,0,0,I
                                MTKEND:
                                        C22
                                        .BYTE   0,I,0,0,I,0             ;MTK CODE 22. FWD END ZONE.
                                MTK55:
                                        C55
                                        .BYTE   I,0,I,I,0,I             ;MTK CODE 55. REV END ZONE MARK.
                                MTK5P:
                                        C10     V0,V6,V6,V6,V6,V6
                                        .BYTE   0!V0,0!V6,I!V6,0!V6,0!V6,0!V6   ;MTK CODE 10.
                                MTK7:
                                        C25
                                        .BYTE   0,I,0,I,0,I             ;MTK CODE 25. EXTENSION MARK.
                                        C25
                                        .BYTE   0,I,0,I,0,I             ;MTK CODE 25. EXTENSION MARK.
                                        C26     V0,V5,V2,V5,V2,V5
                                        .BYTE   0!V0,I!V5,0!V2,I!V5,I!V2,0!V5   ;FWD BLOCK MARK.
                                        C32     V0,V5,V5,V5,V5,V5
                                        .BYTE   0!V0,I!V5,I!V5,0!V5,I!V5,0!V5   ;REV GUARD.
                                MTK5:
                                        C10     V0,V6,V6,V6,V6,V6
                                        .BYTE   0!V0,0!V6,I!V6,0!V6,0!V6,0!V6   ;MTK CODE 10.
```

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 4677  033217      030      030      030
 4678  033222                                MTK7A:
 4679  033222                                        C10     V0,V0,V0,V0,V0,V0
 4680  033222      000      000      040             .BYTE   0!V0,0!V0,I!V0,0!V0,0!V0,0!V0   ;MTK CODE 10.
 4681  033225      000      000      000
 4682  033230                                MTK7B:
 4683  033230                                        C10     V0,V5,V0,V5,V0,V5
 4684  033230      000      024      040             .BYTE   0!V0,0!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 10.
 4685  033233      024      000      024
 4686  033236                                MTKVAR:
 4687  033236                                        C10     V7,V2,V7,V2,V7,V2
 4688  033236      034      010      074             .BYTE   0!V7,0!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 10.
 4689  033241      010      034      010
 4690          000176                                .REPT   126.
 4691                                                C70     V0,V5,V0,V5,V0,V5
 4692                                                C70     V7,V2,V7,V2,V7,V2
 4693                                                .ENDR
 4694  033244                                        C70     V0,V5,V0,V5,V0,V5
 4695  033244      040      064      040             .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4696  033247      024      000      024
 4697  033252                                        C70     V7,V2,V7,V2,V7,V2
 4698  033252      074      050      074             .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4699  033255      010      034      010
 4700  033260                                        C70     V0,V5,V0,V5,V0,V5
 4701  033260      040      064      040             .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4702  033263      024      000      024
 4703  033266                                        C70     V7,V2,V7,V2,V7,V2
 4704  033266      074      050      074             .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4705  033271      010      034      010
 4706  033274                                        C70     V0,V5,V0,V5,V0,V5
 4707  033274      040      064      040             .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4708  033277      024      000      024
 4709  033302                                        C70     V7,V2,V7,V2,V7,V2
 4710  033302      074      050      074             .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4711  033305      010      034      010
 4712  033310                                        C70     V0,V5,V0,V5,V0,V5
 4713  033310      040      064      040             .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4714  033313      024      000      024
 4715  033316                                        C70     V7,V2,V7,V2,V7,V2
 4716  033316      074      050      074             .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4717  033321      010      034      010
 4718  033324                                        C70     V0,V5,V0,V5,V0,V5
 4719  033324      040      064      040             .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4720  033327      024      000      024
 4721  033332                                        C70     V7,V2,V7,V2,V7,V2
 4722  033332      074      050      074             .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4723  033335      010      034      010
 4724  033340                                        C70     V0,V5,V0,V5,V0,V5
 4725  033340      040      064      040             .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4726  033343      024      000      024
 4727  033346                                        C70     V7,V2,V7,V2,V7,V2
 4728  033346      074      050      074             .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4729  033351      010      034      010
 4730  033354                                        C70     V0,V5,V0,V5,V0,V5
 4731  033354      040      064      040             .BYTE   I!V0,I!V5,I!V0,0!V5,0'V0,0!V5   ;MTK CODE 70. DATA MARK.
 4732  033357      024      000      024
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4733  033362                    C70     V7,V2,V7,V2,V7,V2
4734  033363  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4735  033365  010     034  010
4736  033370                    C70     V0,V5,V0,V5,V0,V5
4737  033370  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4738  033373  024     000  024
4739  033376                    C70     V7,V2,V7,V2,V7,V2
4740  033376  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4741  033401  010     034  010
4742  033404                    C70     V0,V5,V0,V5,V0,V5
4743  033404  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4744  033407  024     000  024
4745  033412                    C70     V7,V2,V7,V2,V7,V2
4746  033412  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4747  033415  010     034  010
4748  033420                    C70     V0,V5,V0,V5,V0,V5
4749  033420  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4750  033423  024     000  024
4751  033426                    C70     V7,V2,V7,V2,V7,V2
4752  033426  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4753  033431  010     034  010
4754  033434                    C70     V0,V5,V0,V5,V0,V5
4755  033434  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4756  033437  024     000  024
4757  033442                    C70     V7,V2,V7,V2,V7,V2
4758  033442  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4759  033445  010     034  010
4760  033450                    C70     V0,V5,V0,V5,V0,V5
4761  033450  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4762  033453  024     000  024
4763  033456                    C70     V7,V2,V7,V2,V7,V2
4764  033456  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4765  033461  010     034  010
4766  033464                    C70     V0,V5,V0,V5,V0,V5
4767  033464  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4768  033467  024     000  024
4769  033472                    C70     V7,V2,V7,V2,V7,V2
4770  033472  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4771  033475  010     034  010
4772  033500                    C70     V0,V5,V0,V5,V0,V5
4773  033500  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4774  033503  024     000  024
4775  033506                    C70     V7,V2,V7,V2,V7,V2
4776  033506  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4777  033511  010     034  010
4778  033514                    C70     V0,V5,V0,V5,V0,V5
4779  033514  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4780  033517  024     000  024
4781  033522                    C70     V7,V2,V7,V2,V7,V2
4782  033522  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4783  033525  010     034  010
4784  033530                    C70     V0,V5,V0,V5,V0,V5
4785  033530  040     064  040  .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4786  033533  024     000  024
4787  033536                    C70     V7,V2,V7,V2,V7,V2
4788  033536  074     050  074  .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
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 4789  033541  010  034  010
 4790  033544
 4791  033544  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4792  033547  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4793  033552
 4794  033552  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4795  033555  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4796  033560
 4797  033560  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4798  033563  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4799  033566
 4800  033566  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4801  033571  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4802  033574
 4803  033574  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4804  033577  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4805  033602
 4806  033602  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4807  033605  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4808  033610
 4809  033610  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4810  033613  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4811  033616
 4812  033616  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4813  033621  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4814  033624
 4815  033624  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4816  033627  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4817  033632
 4818  033632  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4819  033635  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4820  033640
 4821  033640  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4822  033643  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4823  033646
 4824  033646  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4825  033651  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4826  033654
 4827  033654  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4828  033657  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4829  033662
 4830  033662  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4831  033665  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4832  033670
 4833  033670  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4834  033673  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4835  033676
 4836  033676  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4837  033701  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4838  033704
 4839  033704  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4840  033707  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4841  033712
 4842  033712  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4843  033715  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4844  033720                         C70     V0,V5,V0,V5,V0,V5
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4845  033720  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4846  033723  024  000  024
4847  033726                       C70     V7,V2,V7,V2,V7,V2
4848  033726  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4849  033731  010  034  010
4850  033734                       C70     V0,V5,V0,V5,V0,V5
4851  033734  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4852  033737  024  000  024
4853  033742                       C70     V7,V2,V7,V2,V7,V2
4854  033742  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4855  033745  010  034  010
4856  033750                       C70     V0,V5,V0,V5,V0,V5
4857  033750  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4858  033753  024  000  024
4859  033756                       C70     V7,V2,V7,V2,V7,V2
4860  033756  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4861  033761  010  034  010
4862  033764                       C70     V0,V5,V0,V5,V0,V5
4863  033764  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4864  033767  024  000  024
4865  033772                       C70     V7,V2,V7,V2,V7,V2
4866  033772  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4867  033775  010  034  010
4868  034000                       C70     V0,V5,V0,V5,V0,V5
4869  034000  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4870  034003  024  000  024
4871  034006                       C70     V7,V2,V7,V2,V7,V2
4872  034006  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4873  034011  010  034  010
4874  034014                       C70     V0,V5,V0,V5,V0,V5
4875  034014  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4876  034017  024  000  024
4877  034022                       C70     V7,V2,V7,V2,V7,V2
4878  034022  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4879  034025  010  034  010
4880  034030                       C70     V0,V5,V0,V5,V0,V5
4881  034030  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4882  034033  024  000  024
4883  034036                       C70     V7,V2,V7,V2,V7,V2
4884  034036  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4885  034041  010  034  010
4886  034044                       C70     V0,V5,V0,V5,V0,V5
4887  034044  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4888  034047  024  000  024
4889  034052                       C70     V7,V2,V7,V2,V7,V2
4890  034052  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4891  034055  010  034  010
4892  034060                       C70     V0,V5,V0,V5,V0,V5
4893  034060  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4894  034063  024  000  024
4895  034066                       C70     V7,V2,V7,V2,V7,V2
4896  034066  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4897  034071  010  034  010
4898  034074                       C70     V0,V5,V0,V5,V0,V5
4899  034074  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4900  034077  024  000  024
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4901  034102
4902  034102  074  050  074        C70     V7,V2,V7,V2,V7,V2
4903  034105  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4904  034110
4905  034110  040  064  040        C70     V0,V5,V0,V5,V0,V5
4906  034113  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4907  034116
4908  034116  074  050  074        C70     V7,V2,V7,V2,V7,V2
4909  034121  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4910  034124
4911  034124  040  064  040        C70     V0,V5,V0,V5,V0,V5
4912  034127  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4913  034130
4914  034132  074  050  074        C70     V7,V2,V7,V2,V7,V2
4915  034135  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4916  034140
4917  034140  040  064  040        C70     V0,V5,V0,V5,V0,V5
4918  034143  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4919  034146
4920  034146  074  050  074        C70     V7,V2,V7,V2,V7,V2
4921  034151  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4922  034154
4923  034154  040  064  040        C70     V0,V5,V0,V5,V0,V5
4924  034157  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4925  034162
4926  034162  074  050  074        C70     V7,V2,V7,V2,V7,V2
4927  034165  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4928  034170
4929  034170  040  064  040        C70     V0,V5,V0,V5,V0,V5
4930  034173  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4931  034176
4932  034176  074  050  074        C70     V7,V2,V7,V2,V7,V2
4933  034201  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4934  034204
4935  034204  040  064  040        C70     V0,V5,V0,V5,V0,V5
4936  034207  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4937  034212
4938  034212  074  050  074        C70     V7,V2,V7,V2,V7,V2
4939  034215  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4940  034220
4941  034220  040  064  040        C70     V0,V5,V0,V5,V0,V5
4942  034223  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4943  034226
4944  034226  074  050  074        C70     V7,V2,V7,V2,V7,V2
4945  034231  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4946  034234
4947  034234  040  064  040        C70     V0,V5,V0,V5,V0,V5
4948  034237  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4949  034242
4950  034242  074  050  074        C70     V7,V2,V7,V2,V7,V2
4951  034245  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
4952  034250
4953  034250  040  064  040        C70     V0,V5,V0,V5,V0,V5
4954  034253  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
4955  034256
4956  034256  074  050  074        C70     V7,V2,V7,V2,V7,V2
                                    .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
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 4957  034261  010  034  010
 4958  034264
 4959  034264  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4960  034267  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4961  034272
 4962  034272  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4963  034275  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4964  034300
 4965  034300  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4966  034303  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4967  034306
 4968  034306  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4969  034311  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4970  034314
 4971  034314  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4972  034317  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4973  034322
 4974  034322  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4975  034325  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4976  034330
 4977  034330  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4978  034333  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4979  034336
 4980  034336  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4981  034341  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4982  034344
 4983  034344  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4984  034347  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4985  034352
 4986  034352  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4987  034355  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4988  034360
 4989  034360  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4990  034363  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4991  034366
 4992  034366  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4993  034371  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4994  034374
 4995  034374  040  064  040          C70     V0,V5,V0,V5,V0,V5
 4996  034377  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4997  034402
 4998  034402  074  050  074          C70     V7,V2,V7,V2,V7,V2
 4999  034405  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5000  034410
 5001  034410  040  064  040          C70     V0,V5,V0,V5,V0,V5
 5002  034413  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5003  034416
 5004  034416  074  050  074          C70     V7,V2,V7,V2,V7,V2
 5005  034421  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5006  034424
 5007  034424  040  064  040          C70     V0,V5,V0,V5,V0,V5
 5008  034427  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5009  034432
 5010  034432  074  050  074          C70     V7,V2,V7,V2,V7,V2
 5011  034435  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5012  034440
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C70     V0,V5,V0,V5,V0,V5
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5013  034440  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5014  034443  024  000  024
5015  034446                       C70     V7,V2,V7,V2,V7,V2
5016  034446  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5017  034451  010  034  010
5018  034454                       C70     V0,V5,V0,V5,V0,V5
5019  034454  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5020  034457  024  000  024
5021  034462                       C70     V7,V2,V7,V2,V7,V2
5022  034462  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5023  034465  010  034  010
5024  034470                       C70     V0,V5,V0,V5,V0,V5
5025  034470  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5026  034473  024  000  024
5027  034476                       C70     V7,V2,V7,V2,V7,V2
5028  034476  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5029  034501  010  034  010
5030  034504                       C70     V0,V5,V0,V5,V0,V5
5031  034504  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5032  034507  024  000  024
5033  034512                       C70     V7,V2,V7,V2,V7,V2
5034  034512  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5035  034515  010  034  010
5036  034520                       C70     V0,V5,V0,V5,V0,V5
5037  034520  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5038  034523  024  000  024
5039  034526                       C70     V7,V2,V7,V2,V7,V2
5040  034526  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5041  034531  010  034  010
5042  034534                       C70     V0,V5,V0,V5,V0,V5
5043  034534  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5044  034537  024  000  024
5045  034542                       C70     V7,V2,V7,V2,V7,V2
5046  034542  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5047  034545  010  034  010
5048  034550                       C70     V0,V5,V0,V5,V0,V5
5049  034550  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5050  034553  024  000  024
5051  034556                       C70     V7,V2,V7,V2,V7,V2
5052  034556  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5053  034561  010  034  010
5054  034564                       C70     V0,V5,V0,V5,V0,V5
5055  034564  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5056  034567  024  000  024
5057  034572                       C70     V7,V2,V7,V2,V7,V2
5058  034572  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5059  034575  010  034  010
5060  034600                       C70     V0,V5,V0,V5,V0,V5
5061  034600  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5062  034603  024  000  024
5063  034606                       C70     V7,V2,V7,V2,V7,V2
5064  034606  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5065  034611  010  034  010
5066  034614                       C70     V0,V5,V0,V5,V0,V5
5067  034614  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5068  034617  024  000  024
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5069  034622
5070  034622  074  050  074          C70     V7,V2,V7,V2,V7,V2
5071  034625  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5072  034630
5073  034630  040  064  040          C70     V0,V5,V0,V5,V0,V5
5074  034633  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5075  034636
5076  034636  074  050  074          C70     V7,V2,V7,V2,V7,V2
5077  034641  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5078  034644
5079  034644  040  064  040          C70     V0,V5,V0,V5,V0,V5
5080  034647  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5081  034652
5082  034652  074  050  074          C70     V7,V2,V7,V2,V7,V2
5083  034655  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5084  034660
5085  034660  040  064  040          C70     V0,V5,V0,V5,V0,V5
5086  034663  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5087  034666
5088  034666  074  050  074          C70     V7,V2,V7,V2,V7,V2
5089  034671  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5090  034674
5091  034674  040  064  040          C70     V0,V5,V0,V5,V0,V5
5092  034677  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5093  034702
5094  034702  074  050  074          C70     V7,V2,V7,V2,V7,V2
5095  034705  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5096  034710
5097  034710  040  064  040          C70     V0,V5,V0,V5,V0,V5
5098  034713  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5099  034716
5100  034716  074  050  074          C70     V7,V2,V7,V2,V7,V2
5101  034721  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5102  034724
5103  034724  040  064  040          C70     V0,V5,V0,V5,V0,V5
5104  034727  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5105  034732
5106  034732  074  050  074          C70     V7,V2,V7,V2,V7,V2
5107  034735  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5108  034740
5109  034740  040  064  040          C70     V0,V5,V0,V5,V0,V5
5110  034743  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5111  034746
5112  034746  074  050  074          C70     V7,V2,V7,V2,V7,V2
5113  034751  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5114  034754
5115  034754  040  064  040          C70     V0,V5,V0,V5,V0,V5
5116  034757  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5117  034762
5118  034762  074  050  074          C70     V7,V2,V7,V2,V7,V2
5119  034765  010  034  010          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5120  034770
5121  034770  040  064  040          C70     V0,V5,V0,V5,V0,V5
5122  034773  024  000  024          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5123  034776
5124  034776  074  050  074          C70     V7,V2,V7,V2,V7,V2
                                     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
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 5125  035001  010  034  010
 5126  035004
 5127  035004  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5128  035007  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5129  035012
 5130  035012  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5131  035015  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5132  035020
 5133  035020  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5134  035023  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5135  035026
 5136  035026  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5137  035031  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5138  035034
 5139  035034  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5140  035037  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5141  035042
 5142  035042  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5143  035045  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5144  035050
 5145  035050  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5146  035053  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5147  035056
 5148  035056  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5149  035061  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5150  035064
 5151  035064  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5152  035067  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5153  035072
 5154  035072  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5155  035075  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5156  035100
 5157  035100  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5158  035103  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5159  035106
 5160  035106  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5161  035111  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5162  035114
 5163  035114  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5164  035117  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5165  035122
 5166  035122  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5167  035125  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5168  035130
 5169  035130  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5170  035133  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5171  035136
 5172  035136  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5173  035141  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5174  035144
 5175  035144  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5176  035147  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5177  035152
 5178  035152  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5179  035155  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5180  035160                       C70     V0,V5,V0,V5,V0,V5
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5181  035160  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5182  035163  024  000  024
5183  035166                       C70     V7,V2,V7,V2,V7,V2
5184  035166  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5185  035171  010  034  010
5186  035174                       C70     V0,V5,V0,V5,V0,V5
5187  035174  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5188  035177  024  000  024
5189  035202                       C70     V7,V2,V7,V2,V7,V2
5190  035202  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5191  035205  010  034  010
5192  035210                       C70     V0,V5,V0,V5,V0,V5
5193  035210  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5194  035213  024  000  024
5195  035216                       C70     V7,V2,V7,V2,V7,V2
5196  035216  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5197  035221  010  034  010
5198  035224                       C70     V0,V5,V0,V5,V0,V5
5199  035224  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5200  035227  024  000  024
5201  035232                       C70     V7,V2,V7,V2,V7,V2
5202  035232  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5203  035235  010  034  010
5204  035240                       C70     V0,V5,V0,V5,V0,V5
5205  035240  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5206  035243  024  000  024
5207  035246                       C70     V7,V2,V7,V2,V7,V2
5208  03[illegible]246  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5209  0[illegible]251  010  034  010
5210  03[illegible]254                       C70     V0,V5,V0,V5,V0,V5
5211  03[illegible]54  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5212  03[illegible]257  024  000  024
5213  0[illegible]262                       C70     V7,V2,V7,V2,V7,V2
5214  0[illegible]62  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5215  0[illegible]65  010  034  010
5216  03[illegible]270                       C70     V0,V5,V0,V5,V0,V5
5217  0[illegible]270  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5218  0[illegible]273  024  000  024
5219  035276                       C70     V7,V2,V7,V2,V7,V2
5220  035276  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5221  035301  010  034  010
5222  035304                       C70     V0,V5,V0,V5,V0,V5
5223  035304  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5224  035307  024  000  024
5225  035312                       C70     V7,V2,V7,V2,V7,V2
5226  035312  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5227  035315  010  034  010
5228  035320                       C70     V0,V5,V0,V5,V0,V5
5229  035320  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5230  035323  024  000  024
5231  035326                       C70     V7,V2,V7,V2,V7,V2
5232  03[illegible]326  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5233  035331  010  034  010
5234  035334                       C70     V0,V5,V0,V5,V0,V5
5235  035334  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5236  035337  024  000  024
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5237  035342
5238  035342  074  050  074          C70     V7,V2,V7,V2,V7,V2
5239  035345  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5240  035350
5241  035350  040  064  040          C70     V0,V5,V0,V5,V0,V5
5242  035353  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5243  035356
5244  035356  074  050  074          C70     V7,V2,V7,V2,V7,V2
5245  035361  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5246  035364
5247  035364  040  064  040          C70     V0,V5,V0,V5,V0,V5
5248  035367  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5249  035372
5250  035372  074  050  074          C70     V7,V2,V7,V2,V7,V2
5251  035375  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5252  035400
5253  035400  040  064  040          C70     V0,V5,V0,V5,V0,V5
5254  035403  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5255  035406
5256  035406  074  050  074          C70     V7,V2,V7,V2,V7,V2
5257  035411  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5258  035414
5259  035414  040  064  040          C70     V0,V5,V0,V5,V0,V5
5260  035417  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5261  035422
5262  035422  074  050  074          C70     V7,V2,V7,V2,V7,V2
5263  035425  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5264  035430
5265  035430  040  064  040          C70     V0,V5,V0,V5,V0,V5
5266  035433  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5267  035436
5268  035436  074  050  074          C70     V7,V2,V7,V2,V7,V2
5269  035441  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5270  035444
5271  035444  040  064  040          C70     V0,V5,V0,V5,V0,V5
5272  035447  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5273  035452
5274  035452  074  050  074          C70     V7,V2,V7,V2,V7,V2
5275  035455  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5276  035460
5277  035460  040  064  040          C70     V0,V5,V0,V5,V0,V5
5278  035463  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5279  035466
5280  035466  074  050  074          C70     V7,V2,V7,V2,V7,V2
5281  035471  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5282  035474
5283  035474  040  064  040          C70     V0,V5,V0,V5,V0,V5
5284  035477  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5285  035502
5286  035502  074  050  074          C70     V7,V2,V7,V2,V7,V2
5287  035505  010  034  010          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5288  035510
5289  035510  040  064  040          C70     V0,V5,V0,V5,V0,V5
5290  035513  024  000  024          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5291  035516
5292  035516  074  050  074          C70     V7,V2,V7,V2,V7,V2
                                     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
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5293  035521  010  034  010
5294  035524
5295  035524  040  064  040        C70     V0,V5,V0,V5,V0,V5
5296  035527  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5297  035532
5298  035532  074  050  074        C70     V7,V2,V7,V2,V7,V2
5299  035535  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5300  035540
5301  035540  040  064  040        C70     V0,V5,V0,V5,V0,V5
5302  035543  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5303  035546
5304  035546  074  050  074        C70     V7,V2,V7,V2,V7,V2
5305  035551  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5306  035554
5307  035554  040  064  040        C70     V0,V5,V0,V5,V0,V5
5308  035557  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5309  035562
5310  035562  074  050  074        C70     V7,V2,V7,V2,V7,V2
5311  035565  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5312  035570
5313  035570  040  064  040        C70     V0,V5,V0,V5,V0,V5
5314  035573  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5315  035576
5316  035576  074  050  074        C70     V7,V2,V7,V2,V7,V2
5317  035601  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5318  035604
5319  035604  040  064  040        C70     V0,V5,V0,V5,V0,V5
5320  035607  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5321  035612
5322  035612  074  050  074        C70     V7,V2,V7,V2,V7,V2
5323  035615  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5324  035620
5325  035620  040  064  040        C70     V0,V5,V0,V5,V0,V5
5326  035623  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5327  035626
5328  035626  074  050  074        C70     V7,V2,V7,V2,V7,V2
5329  035631  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5330  035634
5331  035634  040  064  040        C70     V0,V5,V0,V5,V0,V5
5332  035637  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5333  035642
5334  035642  074  050  074        C70     V7,V2,V7,V2,V7,V2
5335  035645  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5336  035650
5337  035650  040  064  040        C70     V0,V5,V0,V5,V0,V5
5338  035653  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5339  035656
5340  035656  074  050  074        C70     V7,V2,V7,V2,V7,V2
5341  035661  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5342  035664
5343  035664  040  064  040        C70     V0,V5,V0,V5,V0,V5
5344  035667  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5345  035672
5346  035672  074  050  074        C70     V7,V2,V7,V2,V7,V2
5347  035675  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5348  035700                       C70     V0,V5,V0,V5,V0,V5
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5349  035700  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5350  035703  024  000  024
5351  035706                       C70     V7,V2,V7,V2,V7,V2
5352  035706  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5353  035711  010  034  010
5354  035714                       C70     V0,V5,V0,V5,V0,V5
5355  035714  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5356  035717  024  000  024
5357  035722                       C70     V7,V2,V7,V2,V7,V2
5358  035722  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5359  035725  010  034  010
5360  035730                       C70     V0,V5,V0,V5,V0,V5
5361  035730  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5362  035733  024  000  024
5363  035736                       C70     V7,V2,V7,V2,V7,V2
5364  035736  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5365  035741  010  034  010
5366  035744                       C70     V0,V5,V0,V5,V0,V5
5367  035744  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5368  035747  024  000  024
5369  035752                       C70     V7,V2,V7,V2,V7,V2
5370  035752  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5371  035755  010  034  010
5372  035760                       C70     V0,V5,V0,V5,V0,V5
5373  035760  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5374  035763  024  000  024
5375  035766                       C70     V7,V2,V7,V2,V7,V2
5376  035766  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5377  035771  010  034  010
5378  035774                       C70     V0,V5,V0,V5,V0,V5
5379  035774  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5380  035777  024  000  024
5381  036002                       C70     V7,V2,V7,V2,V7,V2
5382  036002  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5383  036005  010  034  010
5384  036010                       C70     V0,V5,V0,V5,V0,V5
5385  036010  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5386  036013  024  000  024
5387  036016                       C70     V7,V2,V7,V2,V7,V2
5388  036016  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5389  036021  010  034  010
5390  036024                       C70     V0,V5,V0,V5,V0,V5
5391  036024  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5392  036027  024  000  024
5393  036032                       C70     V7,V2,V7,V2,V7,V2
5394  036032  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5395  036035  010  034  010
5396  036040                       C70     V0,V5,V0,V5,V0,V5
5397  036040  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5398  036043  024  000  024
5399  036046                       C70     V7,V2,V7,V2,V7,V2
5400  036046  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5401  036051  010  034  010
5402  036054                       C70     V0,V5,V0,V5,V0,V5
5403  036054  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5404  036057  024  000  024
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5405  036062                          C70     V7,V2,V7,V2,V7,V2
5406  036062  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5407  036065  010     034     010
5408  036070                          C70     V0,V5,V0,V5,V0,V5
5409  036070  040     064     040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5410  036073  024     000     024
5411  036076                          C70     V7,V2,V7,V2,V7,V2
5412  036076  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5413  036101  010     034     010
5414  036104                          C70     V0,V5,V0,V5,V0,V5
5415  036104  040     064     040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5416  036107  024     000     024
5417  036112                          C70     V7,V2,V7,V2,V7,V2
5418  036112  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5419  036115  010     034     010
5420  036120                          C70     V0,V5,V0,V5,V0,V5
5421  036120  040     064     040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5422  036123  024     000     024
5423  036126                          C70     V7,V2,V7,V2,V7,V2
5424  036126  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5425  036131  010     034     010
5426  036134                          C70     V0,V5,V0,V5,V0,V5
5427  036134  040     064     040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5428  036137  024     000     024
5429  036142                          C70     V7,V2,V7,V2,V7,V2
5430  036142  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5431  036145  010     034     010
5432  036150                          C70     V0,V5,V0,V5,V0,V5
5433  036150  040     064     040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5434  036153  024     000     024
5435  036156                          C70     V7,V2,V7,V2,V7,V2
5436  036156  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5437  036161  010     034     010
5438  036164                          C70     V0,V5,V0,V5,V0,V5
5439  036164  040     064     040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5440  036167  024     000     024
5441  036172                          C70     V7,V2,V7,V2,V7,V2
5442  036172  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5443  036175  010     034     010
5444  036200                          C70     V0,V5,V0,V5,V0,V5
5445  036200  040     064     040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5446  036203  024     000     024
5447  036206                          C70     V7,V2,V7,V2,V7,V2
5448  036206  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5449  036211  010     034     010
5450  036214                          C73     V0,V5,V0,V5,V0,V5
5451  036214  040     064     040     .BYTE   I!V0,I!V5,I!V0,O!V5,I!V0,I!V5   ;MTK CODE 73. DATA MARK.
5452  036217  024     040     064
5453  036222                          C73     V7,V2,V7,V2,V7,V2
5454  036222  074     050     074     .BYTE   I!V7,I!V2,I!V7,O!V2,I!V7,I!V2   ;MTK CODE 73. DATA MARK.
5455  036225  010     074     050
5456  036230                  FCKSM:
5457  036230                          C73     V0,V0,V0,V0,V0,V0
5458  036230  040     040     040     .BYTE   I!V0,I!V0,I!V0,O!V0,I!V0,I!V0   ;MTK CODE 73. DATA MARK.
5459  036233  000     040     040
5460  036236                          C73     V0,V0,V0,V0,V0,V0
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5461  036236  040     040     040          .BYTE   I!V0,I!V0,I!V0,0!V0,I!V0,I!V0   ;MTK CODE 73. DATA MARK.
5462  036241  000     040     040
5463  036244                               C51     V0,V0,V0,V0,V0,V0
5464  036244  040     000     040          .BYTE   I!V0,0!V0,I!V0,0!V0,0!V0,I!V0   ;MTK CODE 51. FWD GUARD.
5465  036247  000     000     040
5466  036252                               C45     V0,V0,V0,V0,V0,V0
5467  036252  040     000     000          .BYTE   I!V0,0!V0,0!V0,I!V0,0!V0,I!V0   ;MTK CODE 45. REV BLOCK MARK.
5468  036255  040     000     040
5469  036260                               C25
5470  036260  000     040     000          .BYTE   0,I,0,I,0,I                     ;MTK CODE 25. EXTENSION MARK.
5471  036263  040     000     040
5472  036266                               CEND
5473  036266  377                          .BYTE   -1
5474  036267                       GCKSM:
5475  036267                               C73     V7,V7,V0,V0,V0,V0
5476  036267  074     074     040          .BYTE   I!V7,I!V7,I!V0,0!V0,I!V0,I!V0   ;MTK CODE 73. DATA MARK.
5477  036272  000     040     040
5478  036275                       BCKSM:
5479  036275                               C73     V0,V0,V0,V0,V0,V0
5480  036275  040     040     040          .BYTE   I!V0,I!V0,I!V0,0!V0,I!V0,I!V0   ;MTK CODE 73. DATA MARK.
5481  036300  000     040     040
5482          036304                       .EVEN
5483  036304  000000                       OPEN
5484          036306                       RBUF=.
5485          040306                       .=RBUF+1024.
5486          000001                       .END
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A     = 100000            194#
AINCRT  015551           3207#
APGEND  015571           3210#
ASETSR  015511           3201#
A0001   002676            927     936#
A0002   002746            941     950#
A0003   003016            955     964#
A0004   003066            969     978#
A0005   003152            996     998#
A0006   003214           1013    1015#
A0007   003266           1027    1033#
A0010   003340           1050#   1056
A0011   003434           1066    1074#
A0012   003514           1094#   1102    1105
A0013   003604           1115    1118#
A0014   003730           1142    1144#
A0015   004004           1158    1160#
A0016   004056           1177    1180#
A0017   004172           1208    1211#
A0020   004304           1238    1241#
A0021   004404           1257    1264#
A0022   004476           1286    1289#
A0023   004576           1313    1316#
A0024   004714           1343    1349#
A0025   005002           1371    1374#
A0026   005076           1399    1402#
A0027   005176           1427    1430#
A0030   005272           1453    1456#
A0031   005364           1479    1482#
A0032   005626           1535    1538#
A0033   006104           1594    1598#
A0034   006300           1639    1642#
A0035   006504           1687    1690#
A0036   006710           1735    1738#
A0037   007112           1782    1785#
A0040   007260           1818    1821#
A0041   007600           1890    1892#
A0042   010056           1953    1956#
A0043   010240           2000    2003#
A0044   010466           2054    2057#
A0045   010642           2094    2097#
A0055   011372           2235    2238#
B     = 040000            195#
BCKSM   036275           2562    5478#
BELL  = 000007            188#
BIT0  = 000001            149#    227     1140    1141
BIT00 = 000001            139#    149
BIT01 = 000002            138#    148
BIT02 = 000004            137#    147
BIT03 = 000010            136#    146
BIT04 = 000020            135#    145
BIT05 = 000040            134#    144
BIT06 = 000100            133#    143
BIT07 = 000200            132#    142
BIT08 = 000400            131#    141     2645
BIT09 = 001000            130#    140     2653    2735
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BIT1   = 000002  148#  220   222   224   226  1156  1157
BIT10  = 002000  129#  214   215   216   217  1826  1846  1857  2720
BIT11  = 004000  128#  207  2600  2660
BIT12  = 010000  127#  206  1176  1185  1207  1216  1242
BIT13  = 020000  126#  196   205  1118  1123  1127  1139  1155  1370  2507  2727
BIT14  = 040000  125#  195  1534  1593  2631
BIT15  = 100000  124#  183   194  1241
BIT2   = 000004  147#  221   222   225   226
BIT3   = 000010  146#  223   224   225   226
BIT4   = 000020  145#
BIT5   = 000040  144#
BIT6   = 000100  143#  218  1030  1048  1070  1091  1260
BIT7   = 000200  142# 1114  1119  1124
BIT8   = 000400  141#  211   213   215   217
BIT9   = 001000  140#  212   213   216   217  1952  1961
BMOVA    012622 2498# 2500
BMOVE    012610 1361  1389  1416  2397  2401  2405  2458  2465  2494#  2541  2545  2561
BPTVEC=  000014  156#
BTCTR    013000 2512# 2519# 2521  2535#
B00010   003352 1045  1054#
B00011   003436 1073  1075#
B00012   003526 1088  1098#
B00013   003626 1120  1123#
B00016   004070 1181  1184#
B00017   004204 1212  1215#
B00020   004324 1240  1243  1245#
B00021   004420 1265  1267#
B00022   004514 1288  1291  1293#
B00023   004606 1315  1317  1323#
B00025   005012 1373  1375  1377#
B00026   005106 1401  1403  1405#
B00027   005206 1429  1431  1433#
B00031   005376 1483  1486#
B00032   005632 1533  1540#
B00033   006124 1599  1603#
B00034   006324 1643  1648#
B00035   006530 1691  1696#
B00036   006734 1739  1744#
B00037   007124 1784  1789#
B00040   007320 1827  1831#
B00041   007622 1895  1898#
B00042   010070 1957  1960#
B00043   010312 2013  2016#
B00044   010540 2067  2070#
B00045   010720 2103  2110#
B00045A  010732 2111  2114#
B00055   011444 2248  2251#
C      = 020000  196#
CDCNT    013002 2506# 2508  2536#
CDCTR    013004 2508# 2528# 2537#
CDTCK    013202 2255  2572  2575  2580#
CDTCKA   013234 2585  2587#
CHLT     012244 2411#
CKDAT    013130 1652  1700  1747  1785  1904  2030  2070  2123  2566#
CKDTA    013150 2571# 2577
CKDTB    013174 2574  2578#
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CKSELE  013256          2146    2158    2169    2180    2191    2202    2216    2595#
CKSELT  015326          2535#   2596#   2597    3180#
CLRBUF  012432          1469    1523    1584    1629    1677    1725    1772    1875    2457#   2540    2551
COOCRL  001260           459#   2504#   2523    2526    2538#
CR    = 000015            64#   2879    2889
CRBUF   001270           463#   2581#   2584    3897
CRBUFA  001272           464#   2582#   2584    3897
CRLF  = 000200            65#   2850    2889
CTRA    001274           465#   1689#   1926#   2101#   2115#
CTRLB   013112          2553#   2556#   2560#
CURTST  001266           462#
C0012   003542          1099    1101#
C0013   003646          1117    1122    1125    1127#
C0016   004110          1186    1189#
C0017   004224          1217    1220#
C0021   004434          1264    1271#
C0031   005420          1487    1491#
C0032   005644          1541    1544#
C0033   006146          1597    1602    1605    1608#
C0034   006340          1649    1652#
C0035   006544          1697    1700#
C0036   006746          1745    1747#
C0037   007132          1774    1792#
C0040   007424          1847    1851#
C0041   007636          1899    1902#
C0042   010112          1955    1959    1962    1965#
C0043   010324          2017    2020#
C0044   010552          2056    2069    2074#
C0045   010746          2116    2118#
C0055   011464          2255#   2257
DATAOR  013252          2580#   2593#
DDISP = 177570            71#    370     898
DINH  = 010000           206#
DISPLA  001142           370#    898#    906#   2674#   2719#
DISPRE  000174           175#    906
DLY     012336          2434#   2451
DLYA    012350          2437#   2441
DLYB    012354          2438#   2439
DO    = 000001           227#   1289    1307    1337    1365    1393    1421    1447    1473    1512    1527    1573    1588
                        1619    1633    1667    1681    1715    1729    1762    1776    1800    1812    1821    1834    1841
                        1879    1932    1947    1976    1978    1994    2006    2048    2060    2088    2104    2229    2241
                        2596
DSWR  = 177570            70#    369     897
D0012   003546          1098    1103#
D0016   004120          1179    1183    1188    1190    1192#
D0017   004234          1210    1214    1219    1221    1223#
D0021   004436          1263    1270    1272#
D0030   005274          1445    1455    1457#
D0031   005444          1492    1497#
D0032   005666          1545    1549#
D0033   006154          1586    1611#
D0034   006352          1641    1647    1651    1656#
D0035   006556          1689    1695    1699    1704#
D0036   006760          1737    1743    1751#
D0040   007444          1852    1856#
D0041   007642          1893    1904#
```

```
000A1A  007670          1909    1912#
000A1B  007702          1913    1916#
00042   010120          1945    1968#
00043   010350          2021    2026#
00044   010560          2063    2077#
00045   010764          2119    2123#
00055   011474          2237    2250    2258#
EH1     016203           494    3260#
EH10    017566           536    3417#
EH11    017742           542    3439#
EH12    020116           548    3461#
EH13    020272           554    3483#
EH14    020465           560    3508#
EH15    020632           566    3529#
EH16    021004           572    3551#
EH17    021164           578    3574#
EH2     016362           500    3283#
EH20    021344           584    3597#
EH21    021527           590    3621#
EH22    021676           596    3642#
EH23    022026           602    3661#
EH24    022201           608    3683#
EH25    022362           614    3706#
EH26    022515           620    3726#
EH27    022646           626    3746#
EH3     016523           506    3304#
EH30    023052           632    3772#
EH31    023242           638    3796#
EH32    023442           644    3822#
EH33    023610           650    3843#
EH34    023761           656     662    3865#
EH35    024111          3884#
EH36    024311           666    3908#
EH37    024414           672    3923#
EH4     016727           512    3330#
EH40    024536           678    3941#
EH41    024676           684    3961#
EH42    025030           690    3980#
EH43    025170           696    4000#
EH44    025356           702    4024#
EH45    025536           708    4047#
EH46    025677           714    4068#
EH47    026052           720    4090#
EH5     017055           518    3349#
EH50    026200           726    4109#
EH51    026353           732    4132#
EH52    026535           738    4156#
EH53    026715           744    4180#
EH54    027064           750    4203#
EH55    027231           756    4225#
EH56    027416           762    4250#
EH57    027603           768    4274#
EH6     017247           524    3374#
EH60    027770           774    4299#
EH61    030161           780    4324#
EH62    030340           786    4347#
```

```
EM63    030504            792    4368#
EM64    030654            798    4390#
EM65    031051            804    4416#
EM66    031245            810    4441#
EM67    031423            816    4464#
EM7     017420            530    3396#
EM70    031575            822    4486#
EM71    031774            828    4512#
EM72    032142            834    4534#
EM73    032311            840    4556#
EM74    032461            844    4577#
EM75    032605            849    4595#
EM76    032731            854    4613#
EM77    033055            859    4631#
EMTVEC= 000030            159#    879#    880#
EMTX   = 000000            228#
EM1     016115            493    3250#
EM10    017514            535    3410#
EM11    017662            541    3431#
EM12    020036            547    3453#
EM13    020212            553    3475#
EM14    020366            559    3497#
EM15    020562            565    3522#
EM16    020726            571    3543#
EM17    021100            577    3565#
EM2     016300            499    3274#
EM20    021260            583    3588#
EM21    021440            589    3611#
EM22    021624            595    3635#
EM23    021772            601    3656#
EM24    022122            607    3675#
EM25    022276            613    3697#
EM26    022456            619    3720#
EM27    022604            625    3740#
EM3     016456            505    3297#
EM30    022742            631    3760#
EM31    023146            637    3786#
EM32    023364            643    3814#
EM33    023536            649    3836#
EM34    023704            655     661    3857#
EM35    024056           3879#
EM36    024234            665    3900#
EM37    024406            671    3922#
EM4     016620            511    3318#
EM40    024510            677    3937#
EM41    024632            683    3955#
EM42    024772            689    3975#
EM43    025124            695    3994#
EM44    025314            701    4018#
EM45    025502            707    4042#
EM46    025662            713    4065#
EM47    025774            719    4082#
EM5     017024            517    3344#
EM50    026146            725    4104#
EM51    026310            731    4126#
EM52    026476            737    4150#
```

```
EM53    026644            743    4173#
EM54    027024            749    4197#
EM55    027172            755    4219#
EM56    027340            761    4242#
EM57    027524            767    4266#
EM6     017152            523    3363#
EM60    027712            773    4291#
EM61    030076            779    4315#
EM62    030302            785    4342#
EM63    030446            791    4363#
EM64    030626            797    4386#
EM65    030762            803    4406#
EM66    031146            809    4430#
EM67    031342            815    4455#
EM7     017344            529    3388#
EM70    031520            821    4478#
EM71    031726            827    4505#
EM72    032102            833    4528#
EM73    032250            839    4550#
EM74    032406            843    4569#
EM75    032532            848    4587#
EM76    032656            853    4605#
EM77    033002            858    4623#
ERRVEC= 000004            152#    895    896#    907#   2636   2637#   2639#   2642#
ET1     016262            495    3269#
ET10    017644            537    3426#
ET11    020020            543    3448#
ET12    020174            549    3470#
ET13    020350            555    3492#
ET14    020544            561    3517#
ET15    020710            567    3538#
ET16    021062            573    3560#
ET17    021242            579    3583#
ET2     016440            501    3292#
ET20    021422            585    3606#
ET21    021606            591    3630#
ET22    021754            597    3651#
ET23    022104            603    3670#
ET24    022260            609    3692#
ET25    022440            615    3715#
ET26    022570            621    3735#
ET27    022724            627    3755#
ET3     016602            507    3313#
ET30    023130            633    3781#
ET31    023342            639    3808#
ET32    023520            645    3831#
ET33    023666            651    3852#
ET34    024040            657     663    3874#
ET35    024214           3897#
ET36    024370            667    3917#
ET37    024472            673    3932#
ET4     017006            513    3339#
ET40    024614            679    3950#
ET41    024754            685    3970#
ET42    025106            691    3989#
ET43    025272            697    4012#
```

```
ET44    025460            703    4036#
ET45    025640            709    4059#
ET46    025756            715    4077#
ET47    026130            721    4099#
ET5     017134            519    3358#
ET50    026270            727    4120#
ET51    026454            733    4144#
ET52    026624            739    4167#
ET53    027004            745    4191#
ET54    027152            751    4213#
ET55    027320            757    4236#
ET56    027504            763    4260#
ET57    027672            769    4285#
ET6     017326            525    3383#
ET60    030056            775    4309#
ET61    030260            781    4336#
ET62    030426            787    4357#
ET63    030606            793    4380#
ET64    030742            799    4400#
ET65    031130            805    4425#
ET66    031324            811    4450#
ET67    031502            817    4473#
ET7     017476            531    3405#
ET70    031704            823    4499#
ET71    032062            829    4522#
ET72    032230            835    4544#
ET73    032370            841    4565#
ET74    032520            845    4584#
ET75    032644            850    4602#
ET76    032770            855    4620#
ET77    033114            860    4638#
FCKSM   036230           2407    2563    5456#
FWD   = 000000            208#   1174    1205    1235    1267    1289    1307    1337    1365    1393    1421    1447    1473
                         1527    1588    1633    1681    1729    1812    1834    1879    1947    1994    2088    2229
F0031   005464           1481    1485    1490    1496    1498    1501#
F0032   005700           1550    1553#
F0034   006360           1631    1659#
F0035   006564           1679    1707#
F0036   006766           1727    1754#
F0037   007150           1793    1798#
F0040   007474           1820    1830    1850    1855    1858    1862#
F0041   007716           1877    1920#
F0043   010364           2027    2030#
F0045   011010           2128    2131#
F0055   011502           2244    2261#
GCKSM   036267           2406    5474#
GETROY  002604            916     918#
GNS   = ******  U         173    3155    3160    3165    3170    3175
GTBIN   012510           2477#   2554
GTBINP  012550           2485#
G0031   005472           1471    1504#
G0032   005724           1554    1559#
G0033   006172           1612    1617#
G0041   007726           1887    1897    1901    1903    1911    1915    1917    1919    1923#
G0042   010136           1969    1974#
G0043   010376           2002    2015    2019    2025    2029    2034#
```

```
G0045   011022  2096  2113  2122  2130  2132  2134#
HT    = 000011    62#  2848  2889
H0032   005736  1537  1539  1543  1548  1552  1558  1560  1562#
H0034   006376  1660  1665#
H0035   006602  1708  1713#
H0036   007004  1755  1760#
H0042   010154  1975  1978#
H0043   010404  2009  2037#
I     = 000040   192#  4643  4647  4651  4655  4659  4663  4666  4669  4672  4676  4680  4684
                 4688  4695  4698  4701  4704  4707  4710  4713  4716  4719  4722  4725  4728
                 4731  4734  4737  4740  4743  4746  4749  4752  4755  4758  4761  4764  4767
                 4770  4773  4776  4779  4782  4785  4788  4791  4794  4797  4800  4803  4806
                 4809  4812  4815  4818  4821  4824  4827  4830  4833  4836  4839  4842  4845
                 4848  4851  4854  4857  4860  4863  4866  4869  4872  4875  4878  4881  4884
                 4887  4890  4693  4896  4899  4902  4905  4908  4911  4914  4917  4920  4923
                 4926  4929  4932  4935  4938  4941  4944  4947  4950  4953  4956  4959  4962
                 4965  4968  4971  4974  4977  4980  4983  4986  4989  4992  4995  4998  5001
                 5004  5007  5010  5013  5016  5019  5022  5025  5028  5031  5034  5037  5040
                 5043  5046  5049  5052  5055  5058  5061  5064  5067  5070  5073  5076  5079
                 5082  5085  5088  5091  5094  5097  5100  5103  5106  5109  5112  5115  5118
                 5121  5124  5127  5130  5133  5136  5139  5142  5145  5148  5151  5154  5157
                 5160  5163  5166  5169  5172  5175  5178  5181  5184  5187  5190  5193  5196
                 5199  5202  5205  5208  5211  5214  5217  5220  5223  5226  5229  5232  5235
                 5238  5241  5244  5247  5250  5253  5256  5259  5262  5265  5268  5271  5274
                 5277  5280  5283  5286  5289  5292  5295  5298  5301  5304  5307  5310  5313
                 5316  5319  5322  5325  5328  5331  5334  5337  5340  5343  5346  5349  5352
                 5355  5358  5361  5364  5367  5370  5373  5376  5379  5382  5385  5388  5391
                 5394  5397  5400  5403  5406  5409  5412  5415  5418  5421  5424  5427  5430
                 5433  5436  5439  5442  5445  5448  5451  5454  5458  5461  5464  5467  5470
                 5476  5480
IE    = 000100   218#  1447  1473  1527  1588  1633  1681  1729  1776  1879  1932  1947  1976
                 2104
INBIN   012452  2464#
IOTVEC= 000020   157#   877*  878*
IO031   005510  1505  1510#
IO032   005744  1525  1565#
IO041   007734  1921  1926#
IO045   011030  2107  2137#
KO032   005762  1566  1571#
LBBIND  013046  2227  2550#
LBOAT1  013014  1992  2046  2086  2540#
LBINDA  013070  2554#  2557
LF    = 000012    63#  2883  2889
LMTCA   012676  2511#  2533
LMTCAA  012642  2505#  2539
LMTCB   012702  2512#  2532
LMTCC   012710  2513#  2522  2524  2527
LMTCD   012770  2529  2531#
LMTCE   012760  2520  2528#
LMTC00  012636  1309  1339  1367  1395  1423  1449  1475  1529  1590  1635  1683  1731  1778
                 1814  1823  1836  1843  1881  1949  1996  2050  2090  2231  2504#
LMTCOE  013006  2008  2062  2106  2243  2538#
MAINT = 020000   205#  1174  1205  1235  1267  1289  1307  1337  1365  1393  1421  1447  1473
                 1527  1588  1633  1681  1729  1776  1812  1834  1879  1947  1994  2048  2088
                 2229
MANUAL= 100000   183#
```

```
MBCKSM  013114          1583    2561#
MLPC    013246          2587#   2591#
MTKADR  012776          2505#   2511    2534#
MTKC10  033126          2388    4641#
MTKERO  033142          1390    4649#
MTKER   033134          1362    4645#
MTKVAR  033236          1363    2399    4686#
MTK5    033214          1391    1418    2108    2403    4674#
MTK5P   033156          2402    4657#
MTK55   033150          1417    4653#
MTK7    033164          1310    1340    1368    1396    1424    1450    1476    1530    1591    1636    1684    1732    1779
                        1815    1837    1882    1950    1997    2051    2091    2232    4661#
MTK7A   033222          1824    2010    2064    2245    4678#
MTK7B   033230          1844    4682#
NOP   = 000240           181#    2346
NXTST   001264           461#
OPEN  = 000000           182#     459     460     461     462     463     464     465     474     475    2452    2455    2470
                        2471    2472    2473    2474    2475    2534    2535    2536    2537    2560    2592    2593    2594
                        3180    5483
PIND    012502          2473#   2487#
PIRQ  = 177772            69#
PIRQVE= 000240           163#
POPSP = 005726           186#
POPSP2= 022626           187#    1074    1103    1271
POWFES  016050          2772    3243#
POWPOP  001314           473#   2771
POWPUS  001312           472#   2770
PR0   = 000000            86#
PR1   = 000040            87#
PR2   = 000100            88#
PR3   = 000140            89#
PR4   = 000200            90#
PR5   = 000240            91#
PR6   = 000300            92#
PR7   = 000340            93#
PS    = 177776            66#      67
PSW   = 177776            67#     918#    1029#   1046#   1068#   1069#   1090#   1259#   2436#
PTO     012476          2471#   2477    2482#
PTOP    012504          2474#   2485    2490#
PTI     012500          2472#   2477#   2478#   2481#   2482    2483
PTIP    012506          2475#   2485#   2486#   2489#   2490    2491
PUSH  = 005746           184#
PUSH2 = 024646           185#
PWRVEC= 000024           158#     883#    884#   2754#   2755#   2779#   2786#   2806#   2807#
RALL  = 000006           222#    1932    1976    1978
RBUF  = 036306          1486    1497    1511    1544    1549    1559    1572    1618    1648    1654    1666    1696    1702
                        1714    1744    1749    1761    1787    1799    1811    1833    1892    1894    1898    1906    1908
                        1916    1927    1929    2004    2005    2026    2032    2058    2059    2072    2098    2099    2100
                        2118    2125    2131    2239    2240    2251    2252    2457#   2459    2460    2543    2546    2547
                        2552    4012    4059    4120    4144    4336    4499    5484#   5485
RDATA = 000004           221#    1512    1573    1619    1667    1715    1762    1800    1821    1841
RESTAR  015771          3235#
RESVEC= 000010           153#
REV   = 004000           207#    1776    2048
RIND    012474          2464#   2466    2467    2470#   2479#
RNGEN   012264          2418#   2447
```

```
RNUM  = 000002   220#  1289  1307  1337  1365  1393  1421  1447  1473  1527  1588  1633  1681
                1729  1776  1812  1834  1879  1947  1994  2048  2088  2229
RP1     012332  2418  2422#  2429  2431#
RP2     012334  2421  2425#  2428#  2432#
RSTMTK  012204   921  2397#  2630
RS04    012060  2362#  2501  2558  2578
RS05    012110  2373#
RS05S   012104  2371#  2387  2415  2442  2453
RTNM0   001262   460#   910#
RTSPC = 000207   191#  2343  2349
R0001   002660   932#
R0002   002730   946#
R0003   003000   960#
R0004   003050   974#
R0005   003134   992#
R0006   003174  1009#
R0007   003236  1026#
R0010   003310  1044#
R0011   003372  1065#
R0012   003464  1087#
R0013   003570  1114#
R0014   003702  1139#
R0015   003756  1155#
R0016   004032  1174#
R0017   004146  1205#
R0020   004262  1235#
R0021   004352  1256#
R0022   004464  1285#
R0023   004542  1306#
R0024   004630  1336#
R0025   004736  1361#
R0026   005034  1389#
R0027   005130  1416#
R0030   005230  1444#
R0031   005316  1469#
R0032   005550  1523#
R0033   006022  1583#
R0034   006232  1629#
R0035   006436  1677#
R0036   006642  1725#
R0037   007044  1772#
R0040   007210  1809#
R0040A  007254  1819#  1840
R0041   007516  1875#
R0041A  007552  1884#  1931
R0041B  007564  1885   1888#
R0042   010012  1944#
R0043   010200  1992#
R0044   010426  2046#
R0045   010602  2086#
R0046   011052  2146#
R0047   011104  2158#
R0050   011134  2169#
R0051   011164  2180#
R0052   011214  2191#
R0053   011244  2202#
```

```
R0054   011302          2216#
SAT   = 000000           219#
SBOAT   013250          2567*  2571   2592#
SBOAT1  001276           466#  1653   1701   1748   1905   2031   2124   2542
SBOAT2  001302           468#  1786
SBOAT3  001306           470#  2071
SPBOT = 001000           180#
SRSETT  012162           920   1128   1144   1160   1192   1223   1245   1293   1861   1964   2390#  2393*  2629
SST   = 000010           223#  2596
STACK = 001100            57#
STAL    012372          2446#
STALA   012420          2450*  2452#
STALB   012426          2449   2454#
START   002312           178    864#  2329
STARTX  002574           915#  2304
STKLMT= 177774            68#
STLMSK  012430          2448   2455#
STMES   015330           912   3181#
STTCV   012136          1026   1044   1065   1087   1256   1444   1470   1524   1585   1630   1678   1726   1773
                        1876   1930   1944   1974   2102   2383#
SV04    011772          2342#  2494   2550   2566
SV05    012016          2349#
SV05A   012024          2347   2350#
SV05B   012032          2344   2352#
SV05C   012050          2343*  2346*  2349*  2358#
SV05S   012006          2346#  2383   2411   2434   2446
SWR     001140           369#   873    897*   899    905*  2631   2645   2647   2653   2660   2720   2727   2732
                        2735   2777   2795*
SWREG   000176           176#   905
SW0   = 000001           121#
SW00  = 000001           111#   121
SW01  = 000002           110#   120
SW02  = 000004           109#   119
SW03  = 000010           108#   118
SW04  = 000020           107#   117
SW05  = 000040           106#   116
SW06  = 000100           105#   115
SW07  = 000200           104#   114
SW08  = 000400           103#   113
SW09  = 001000           102#   112
SW1   = 000002           120#
SW10  = 002000           101#
SW11  = 004000           100#
SW12  = 010000            99#
SW13  = 020000            98#
SW14  = 040000            97#
SW15  = 100000            96#
SW2   = 000004           119#
SW3   = 000010           118#
SW4   = 000020           117#
SW5   = 000040           116#
SW6   = 000100           115#
SW7   = 000200           114#
SW8   = 000400           113#
SW9   = 001000           112#
TBITVE= 000014           154#
```

```
TC8A    001244          453#    975     976*    1497    1499    1511*   1559    1572*   1618*   1648    1666*   1696    1714*
                        1744    1761*   1799*   1811*   1833*   1916    1929*   2004*   2026    2058*   2098*   2131    2239*
                        2716
TCCM    001240          451#    933     934*    992     1009    1028*   1030*   1047*   1048*   1050*   1067*   1070*   1075*
                        1089*   1091*   1094*   1118*   1123*   1127*   1139*   1155*   1174*   1180    1184*   1189    1205*
                        1211    1215*   1220    1235*   1237    1241*   1258*   1260*   1267*   1272*   1285    1289*   1290
                        1306*   1307*   1312    1316    1336*   1337*   1365*   1374    1393*   1402    1420*   1421*   1430
                        1446*   1447*   1452    1472*   1473*   1478    1482    1504    1512*   1526*   1527*   1532    1540
                        1565    1573*   1587*   1588*   1598    1603*   1604    1611    1619*   1632*   1633*   1638    1659
                        1667*   1680*   1681*   1686    1707    1715*   1728*   1729*   1734    1754    1762*   1775*   1776*
                        1781    1792    1800*   1809*   1812*   1817    1821*   1831*   1834*   1839    1841*   1851    1856*
                        1857    1878*   1879*   1884    1920    1932*   1946*   1947*   1956    1960*   1968    1976*   1978*
                        1993*   1994*   1999    2006*   2012    2016    2047*   2048*   2053    2060*   2066    2087*   2088*
                        2093    2104*   2110    2228*   2229*   2234    2241*   2247    2507*   2597*   2598    2627*   2714
TCCMT   001316          474#
TCDT    001246          454#    1342    1344    1346    1888    2037    2077    2114*   2137    2261
TCLVL   001252          456#    1046    1068    2386
TCST    001236          450#    947     948*    1114    1119    1124    1140*   1141    1156*   1157    1176    1185    1207
                        1216    1242    1370    1398    1426    1534    1593    1826    1846    1952    1961    2509    2600
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TCSTT   001320          475#
TCVTR   001250          455#    1098*   1264*   2384
TCWC    001242          452#    961     962*    1491    1493    1510*   1553    1555    1571*   1595    1600    1606    1617*
                        1642    1644    1665*   1690    1692    1713*   1738    1740    1760*   1798*   1810*   1828    1832*
                        1848    1853    1859    1912    1928*   2003*   2020    2022    2057*   2097*   2127    2238*   4357
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TKVEC = 000060          161#
TLAST = 177777          189#
TMESAD  011672          2310*   2312*   2318#
TORDER  011730          930     944     958     972     990     1007    1024    1042    1063    1085    1112    1137    1153
                        1172    1203    1233    1254    1283    1304    1334    1359    1387    1414    1442    1467    1521
                        1581    1627    1675    1723    1770    1807    1873    1942    1990    2044    2084    2144    2156
                        2167    2178    2189    2200    2214    2225    2332#
TPB     001256          458#
TPS     001254          457#
TPVEC = 000064          162#
TRAPVE= 000034          160#    881*    882*
TRAPX   011652          2311    2313#
TRAP10  011634          986     2310#
TRAP4   011644          985     2312#
TRC   = 000003          190#
TRPMES  015645          2322    3219#
TRPM10  015717          2310    3227#
TRPMMS  015575          2312    3212#
TRTVEC= 000014          155#
TRYAGN  011700          2321#   2339
TYPDS = 104405          2292    3175#
TYPE  = 104401          911     912     2289    2293    2321    2322    2722    2730    2808    2853    2956    3027    3054
                        3072    3074    3077    3079    3083    3090    3155#
TYPOC = 104402          2320    3063    3087    3160#
TYPON = 104404          3170#
TYPOS = 104403          3165#
TORDER  011770          2335    2340#
TOOO1   002630          922     926#
TOOO2   002700          935     940#
TOOO3   002750          949     954#
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T00005  003070    977    984#
T00006  003160   1000   1005#
T00007  003222   1017   1022#
T00010  003274   1035   1040#
T00011  003356   1053   1061#
T00012  003450   1078   1083#
T00013  003554   1097   1110#
T00014  003666   1131   1135#
T00015  003742   1147   1151#
T00016  004016   1163   1170#
T00017  004132   1195   1201#
T00020  004246   1226   1231#
T00021  004336   1248   1252#
T00022  004450   1275   1281#
T00023  004526   1296   1302#
T00024  004614   1325   1332#
T00025  004722   1351   1357#
T00026  005020   1379   1385#
T00027  005114   1407   1412#
T00030  005214   1435   1440#
T00031  005302   1459   1465#
T00032  005534   1503   1509   1519#
T00033  006006   1564   1570   1579#
T00034  006216   1610   1616   1625#
T00035  006422   1658   1664   1673#
T00036  006626   1706   1712   1721#
T00037  007030   1753   1759   1768#
T00040  007174   1791   1797   1805#
T00041  007502   1864   1871#
T00042  007776   1925   1940#
T00043  010164   1967   1973   1988#
T00044  010412   2036   2042#
T00045  010566   2076   2082#
T00046  011036   2136   2142#
T00047  011070   2151   2154#
T00050  011120   2165#
T00051  011150   2176#
T00052  011200   2187#
T00053  011230   2198#
T00054  011266   2212#
T00055  011316   2223#
T00056  011510   2260   2265#
U0    = 000000    210#  1174   1205   1235   1267   1289   1307   1337   1365   1393   1421   1447   1473
           1527   1588   1633   1681   1729   1776   1812   1834   1879   1947   1994   2048   2088
           2229
U1    = 000400    211#  2147
U2    = 001000    212#  2159
U3    = 001400    213#  2170
U4    = 002000    214#  2181
U5    = 002400    215#  2192
U6    = 003000    216#  2203
U7    = 003400    217#  2217
V0    = 000000    197#  4659   4669   4672   4676   4680   4684   4695   4701   4707   4713   4719   4725
           4731   4737   4743   4749   4755   4761   4767   4773   4779   4785   4791   4797   4803
           4809   4815   4821   4827   4833   4839   4845   4851   4857   4863   4869   4875   4881
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                    5043    5049    5055    5061    5067    5073    5079    5085    5091    5097    5103    5109    5115
                    5121    5127    5133    5139    5145    5151    5157    5163    5169    5175    5181    5187    5193
                    5199    5205    5211    5217    5223    5229    5235    5241    5247    5253    5259    5265    5271
                    5277    5283    5289    5295    5301    5307    5313    5319    5325    5331    5337    5343    5349
                    5355    5361    5367    5373    5379    5385    5391    5397    5403    5409    5415    5421    5427
                    5433    5439    5445    5451    5458    5461    5464    5467    5476    5480
V1      = 000004     198#
V2      = 000010     199#    4643    4669    4688    4698    4704    4710    4716    4722    4728    4734    4740    4746
                    4752    4758    4764    4770    4776    4782    4788    4794    4800    4806    4812    4818    4824
                    4830    4836    4842    4848    4854    4860    4866    4872    4878    4884    4890    4896    4902
                    4908    4914    4920    4926    4932    4938    4944    4950    4956    4962    4968    4974    4980
                    4386    4992    499C    5004    5010    5016    5022    5028    5034    5040    5046    5052    5058
                    5064    5070    5076    5082    5088    5094    5100    5106    5112    5118    5124    5130    5136
                    5142    5148    5154    5160    5166    5172    5178    5184    5190    5196    5202    5208    5214
                    5220    5226    5232    5238    5244    5250    5256    5262    5268    5274    5280    5286    5292
                    5298    5304    5310    5316    5322    5328    5334    5340    5346    5352    5358    5364    5370
                    5376    5382    5388    5394    5400    5406    5412    5418    5424    5430    5436    5442    5448
                    5454
V3      = 000014     200#
V4      = 000020     201#
V5      = 000024     202#    4669    4672    4684    4695    4701    4707    4713    4719    4725    4731    4737    4743
                    4749    4755    4761    4767    4773    4779    4785    4791    4797    4803    4809    4815    4821
                    4827    4833    4839    4845    4851    4857    4863    4869    4875    4881    4887    4893    4899
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                    5061    5067    5073    5079    5085    5091    5097    5103    5109    5115    5121    5127    5133
                    5139    5145    5151    5157    5163    5169    5175    5181    5187    5193    5199    5205    5211
                    5217    5223    5229    5235    5241    5247    5253    5259    5265    5271    5277    5283    5289
                    5295    5301    5307    5313    5319    5325    5331    5337    5343    5349    5355    5361    5367
                    5373    5379    5385    5391    5397    5403    5409    5415    5421    5427    5433    5439    5445
                    5451
V6      = 000030     203#    4659    4676
V7      = 000034     204#    4643    4688    4698    4704    4710    4716    4722    4728    4734    4740    4746    4752
                    4758    4764    4770    4776    4782    4788    4794    4800    4806    4812    4818    4824    4830
                    4836    4842    4848    4854    4860    4866    4872    4878    4884    4890    4896    4902    4908
                    4914    4920    4926    4932    4938    4944    4950    4956    4962    4968    4974    4980    4986
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                    5070    5076    5082    5088    5094    5100    5106    5112    5118    5124    5130    5136    5142
                    5148    5154    5160    5166    5172    5178    5184    5190    5196    5202    5208    5214    5220
                    5226    5232    5238    5244    5250    5256    5262    5268    5274    5280    5286    5292    5298
                    5304    5310    5316    5322    5328    5334    5340    5346    5352    5358    5364    5370    5376
                    5382    5388    5394    5400    5406    5412    5418    5424    5430    5436    5442    5448    5454
                    5476
WALL    = 000016     226#    2104
WDATA   = 000014     225#    2006    2060    2241
WDCNT   = 013254    2254*   2570*   2583*   2594#
WRTM    = 000012     224#    1174    1205    1235    1267
X       = 177777     193#
$AUTOB  001134       366#
$BDADR  001122       361#
$JOBAT  001126       363#
$BELL   001226       440#    2722    2748
$CHARC  014444      2855*   2865*   2872    2881*   2886#
$CKSWR= ****** U     3180
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F10


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$CM1  = 000010          382#    386     388#    389     391#    392     394#    395     397#    398     400#    401     403#
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$CM2  = 000020          382#    386     388#    389     391#    392     394#    395     397#    398     400#    401     403#
                        404     406#    407     409#
$CM3  = 000010          379#    380     383
$CMH  = 000010          410#    414     416#    417     419#    420     422#    423     425#    426     428#    429     431#
                        432     434#    435     437#
$CRLF   001233          442#    911     2321    2730    2748    2854    2889    3054    3074    3079    3083
$DBLK   014664          2918    2956    2964#
$DOAGN  011610          2285    2295    2302#
$DTBL   014654          2921    2960#
$ENDAD  011600          2298#   2743
$ENDCT  011546           885    2287#
$ENDMG  011617          2289    2306#
$ENULL  011614          2293    2305#
$EOP    011512          2276#
$EOPCT  011540           885*   2284#   2288
$ERFLG  001103           352#   2612    2649    2651    2657*   2678    2717*   2748
$ERMAX  001115           358#    888*   2651    2673*   267
$ERROR  013614           879    2704#
$ERRPC  001116           359#   2724*   2725*   2726    274     306     3269    3292    3313    3339    3358    3383    3405
                        3426    3448    3470    3492    3517    3538    3560    3583    3606    3630    3651    3670    3692
                        3715    3735    3755    3781    3808    3831    3852    3874    3897    3917    3932    3950    3970
                        3989    4012    4036    4059    4077    4099    4120    4144    4167    4191    4213    4236    4260
                        4285    4309    4336    4357    4380    4400    4425    4450    4473    4499    4522    4544    4565
                        4584    4602    4620    4638
$ERRTB  001322           491#   3069
$ERRTY  015122          2729    3053#
$ERTTL  001112           356#   2723*   2748
$ESCAP  001224           439#    887*   2672*   2738    2740    2748
$FILLC  001156           377#   2858    2889
$FILLS  001155           376#   2889
$GOAOR  001120           360#
$GOOAT  001124           362#
$GET42  011570          2294#
$GTSWR= ****** U        3179
$HD   = 000000            29
$ICNT   001104           353#   2664*   2665    2667*   2677
$ILLUP  014212          2754    2786    2811#
$INTAG  001135           367#
$ITEMB  001114           357#   2726*   2748    3057
$LF     001234           443#   2748    2889
$LPAOR  001106           354#    889*   2655*   2670*   2675    2677
$LPEAR  001110           355#    890*   2655    2671*   2677    2737
$MAIL = ****** U         909    2670    2732    2842
$MXCNT  013612          2668    2677#
$NULL   001154           375#   2860    2889
$OCNT   015116          2999*   3028*   3041#
$OMODE  015120          2994*   2998*   3003    3006*   3017*   3043#
$OVER   013576          2632    2648    2656    2666    2674#
$PASS   001100           350#   2281*   2282*   2291    2305    2662    2678
$POWER  014220          2809    2814#
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$PWRMG  014206          2809#
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$RODEC= ****** U       3180
$ROLIN= ****** U       3180
$ROOCT= ****** U       3180
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$REG0   001162          387#  1345#  1347#  1488#  1494#  1546#  1556#  1595#  1600#  1606#  1645#  1693#  1741#
                       1828#  1848#  1853#  1859#  2023#  2120#  2332#  2334   2336   2337#  3735   3808   4012
                       4036   4167   4191   4213   4236   4260   4285   4309   4336   4400   4499
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                       3808   3831   3852   3874   3897   3917   3932   3950   3970   3989   4012   4036   4059
                       4077   4099   4120   4144   4167   4191   4213   4236   4260   4285   4309   4336   4357
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                       3831   3852   3874   3897   3917   3932   3950   3970   3989   4012   4036   4059   4077
                       4099   4120   4144   4167   4191   4213   4236   4260   4285   4309   4336   4357   4380
                       4400   4425   4450   4473   4499   4522   4544   4565
$REG3   001170          396#  2716#  4144   4380   4544
$REG4   001172          399#  1344#  1346#  1493#  1499#  1555#  1644#  1692#  1740#  2022#  3808   4036   4059
$REG5   001174          402#  2712#  2713#  3269   3292   3313   3339   3358   3383   3405   3426   3448   3470
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                       3781   3808   3831   3852   3874   3897   3917   3932   3950   3970   3989   4012   4036
                       4059   4077   4099   4120   4144   4167   4191   4213   4236   4260   4285   4309   4336
                       4357   4380   4400   4425   4450   4473   4499   4522   4544   4565   4584   4602   4620
                       4638
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                       3781   3808   3831   3852   3874   3897   3917   3932   3950   3970   3989   4012   4036
                       4059   4077   4099   4120   4144   4167   4191   4213   4236   4260   4285   4309   4336
                       4357   4380   4400   4425   4450   4473   4499   4522   4544   4565   4584   4602   4620
                       4638
$REG7   001200          408#  2711#  3269   3292   3313   3339   3358   3383   3405   3426   3448   3470   3492
                       3517   3538   3560   3583   3606   3630   3651   3670   3692   3715   3735   3755   3781
                       3808   3831   3852   3874   3897   3917   3932   3950   3970   3989   4012   4036   4059
                       4077   4099   4120   4144   4167   4191   4213   4236   4260   4285   4309   4336   4357
                       4380   4400   4425   4450   4473   4499   4522   4544   4565   4584   4602   4620   4638
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$SAVRE= ****** U       3180
$SAVR6  014216         2778#  2787   2788#  2789#  2813#
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$SETUP= 000037           17#   863#   876    877    879    881    883    885    886    887    889   2278   2279
                       2623   2705   2735   2742   2743
$STUP = 177777           17#   863#
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$SWR  = 167400            8#    29     34     35     36     37     38     39     40    438    439    440    886
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                       2631   2643   2645   2646   2649   2650   2651   2658   2659   2660   2671   2674   2677
                       2696   2697   2698   2699   2700   2720   2727   2732   2735   2748   2810
$SWRMK= 000000           40     41     42   2617   2618   2619   2647
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$TKB    001146         372#
$TKS    001144         371#
$TMPO   001202         415#
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$TMP2   001206            421#
$TMP3   001210            424#
$TMP4   001212            427#
$TMP5   001214            430#
$TMP6   001216            433#
$TMP7   001220            436#
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$TPB    001152            374#   2878#   2889
$TPFLG  001157            378#   2836    2889
$TPS    001150            373#   2876    2889
$TRAP   015256            881    3104#
$TRAP2  015300           3115#   3154
$TRP  = 000006           3144#   3146    3147    3157#   3159    3160    3162#   3164    3165    3167#   3169    3170    3172#
                         3174    3175    3177#
$TRPAD  015312           3109    3154#
$TSTNM  001102            351#   2279#   2334    2612    2647    2669#   2674    2678    2713    2719    2748
$TYPBN= ****** U         3178
$TYPDS  014450           2903#   3173    3176
$TYPE   014230           2317    2836#   3145    3156
$TYPEC  014400           2857    2864    2871    2876#   2877
$TYPEX  014446           2882    2884    2887#
$TYPOC  014720           2997#   3158    3161
$TYPON  014734           2996    2999#   3171
$TYPOS  014674           2992#   3166
$XTSTR  013354           2634#
$$GET4= 000000           2296#   2297
$OFILL  015117           2993#   2997#   3007    3042#
$40CAT= ****** U         2631    2729
.     = 040306            169#    173     174#    323#    348#    444     874     889     890     2305    2309    2480    2488
                         2599    2601    2677    2678    2748    2781    2812    2889    2964#   3093#   3268#   3312#   3338#
                         3357#   3382#   3516#   3629#   3691#   3734#   3873#   3896#   3916#   4035#   4058#   4076#   4166#
                         4190#   4235#   4284#   4335#   4424#   4449#   4472#   4498#   4564#   5482#   5484    5485#
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CEND      293#  5472
COMMEN    164#
C10       275#  4642  4658  4675  4679  4683  4687
C22       290#  4650
C25       266#  4662  4665  5469
C26       269#  4668
C32       272#  4671
C45       287#  5466
C51       284#  5463
C55       263#  4654
C70       278#  4694  4697  4700  4703  4706  4709  4712  4715  4718  4721  4724  4727  4730  4733
          4736  4739  4742  4745  4748  4751  4754  4757  4760  4763  4766  4769  4772  4775  4778
          4781  4784  4787  4790  4793  4796  4799  4802  4805  4808  4811  4814  4817  4820  4823
          4826  4829  4832  4835  4838  4841  4844  4847  4850  4853  4856  4859  4862  4865  4868
          4871  4874  4877  4880  4883  4886  4889  4892  4895  4898  4901  4904  4907  4910  4913
          4916  4919  4922  4925  4928  4931  4934  4937  4940  4943  4946  4949  4952  4955  4958
          4961  4964  4967  4970  4973  4976  4979  4982  4985  4988  4991  4994  4997  5000  5003
          5006  5009  5012  5015  5018  5021  5024  5027  5030  5033  5036  5039  5042  5045  5048
          5051  5054  5057  5060  5063  5066  5069  5072  5075  5078  5081  5084  5087  5090  5093
          5096  5099  5102  5105  5108  5111  5114  5117  5120  5123  5126  5129  5132  5135  5138
          5141  5144  5147  5150  5153  5156  5159  5162  5165  5168  5171  5174  5177  5180  5183
          5186  5189  5192  5195  5198  5201  5204  5207  5210  5213  5216  5219  5222  5225  5228
          5231  5234  5237  5240  5243  5246  5249  5252  5255  5258  5261  5264  5267  5270  5273
          5276  5279  5282  5285  5288  5291  5294  5297  5300  5303  5306  5309  5312  5315  5318
          5321  5324  5327  5330  5333  5336  5339  5342  5345  5348  5351  5354  5357  5360  5363
          5366  5369  5372  5375  5378  5381  5384  5387  5390  5393  5396  5399  5402  5405  5408
          5411  5414  5417  5420  5423  5426  5429  5432  5435  5438  5441  5444  5447
C73       281#  5450  5453  5457  5460  5475  5479
EMTDEF    310#
EMTE      296#  4646
ENDCOM    164#
ERROR      58#   936   950   964   978   997  1014  1032  1054  1072  1093  1104  1116  1121  1126
          1143  1159  1178  1182  1187  1191  1209  1213  1218  1222  1239  1244  1262  1269  1287
          1292  1314  1318  1348  1372  1376  1400  1404  1428  1432  1454  1456  1480  1484  1489
          1495  1500  1506  1536  1538  1542  1547  1551  1557  1561  1567  1596  1601  1607  1613
          1640  1646  1650  1661  1688  1694  1698  1709  1736  1742  1746  1756  1783  1794  1819
          1829  1849  1854  1860  1886  1896  1900  1902  1910  1914  1918  1922  1954  1958  1963
          1970  2001  2014  2018  2024  2028  2055  2068  2095  2112  2121  2129  2133  2148  2160
          2171  2182  2193  2204  2218  2236  2249  2338  2589
ESCAPE    164#
GETPRI    164#
GETSWR    164#
MTCOO     299#  1308  1338  1366  1394  1422  1448  1474  1528  1589  1634  1682  1730  1777  1813
          1822  1835  1842  1880  1948  1995  2049  2089  2230
MTCOE     304#  2007  2061  2105  2242
MULT      164#
NEWTST    164#
POP       164#  2791  2796  2947
PUSH      164#  2756  2766  2773  2903
REPORT    164#
SAVE     2678#  2708
SCOMAC    317#  2626
SCOPE      59#   926   940   954   968   984  1005  1022  1040  1061  1083  1110  1135  1151  1170
          1201  1231  1252  1281  1302  1332  1357  1385  1412  1440  1465  1519  1579  1625  1673
          1721  1768  1805  1871  1940  1988  2042  2082  2142  2154  2165  2176  2187  2198  2212
```

```
        2223    2265    2277
SETPRI   164#
SETRAP   259#
SETTRA  3119#   3145    3158    3163    3168    3173
SETUP    164#    868
SKIP     164#
SLASH    164#
SPACE    164#
STARS     14#    164#    343     444    2269    2608    2691    2751    2783    2820    2892    2968    3047    3097
SWRSU    164#    891#    892
TRNTRP  3141#
TYPBIN   164#
TYPDEC   164#   2290
TYPNAM   164#
TYPNUM   164#
TYPOCS   164#
TYPOCT   164#   3060    3085
TYPTXT   164#
$$CMRE   327#    386     389     392     395     398     401     404     407
$$CMTM   334#    414     417     420     423     426     429     432     435
$$ESCA   164#
$$NEWT   164#
$$SET   3125#   3146    3159    3164    3169    3174
$$SKIP   164#
.EQUAT    11#     53
.HEADE    11#     18
.SETUP    12#     16     862
.SWRHI    12#     29
.SWRLO    12#     42#
.$CATC    11#    166
.$CMTA    15#    326
.$EOP     11#   2266
.$ERRO    14#   2688
.$ERRT    14#   3044
.$POWE    13#   2748
.$SCOP    12#   2605
.$TRAP    13#   3094
.$TYPD    13#   2889
.$TYPE    14#   2817
.$TYPO    13#   2965

. ABS.  040306     000

 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED:  0

 DZTCB0.BIN,DZTCB0.LST/CRF/SOL=DZTCB0.P11
 RUN-TIME: 19 12 2 SECONDS
 RUN-TIME RATIO: 157/35=4.4
 CORE USED:  22K  (44 PAGES)
```