IDENTIFICATION

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

PRODUCT NAME: TC2 - TC11 TEST 2

DATE: MAY 1, 1975

MAINTAINER: DIAGNOSTIC GROUP

AUTHOR: L. R. KOLLER

MODIFIER: J. E. COMEAU

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 (8k 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)

3.0 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.

5.0 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.

5.1 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.

5.2 ERROR PRINTOUTS

THERE ARE 2 TYPES OF ERROR PRINTOUTS, NORMAL ERROR PRINTOUTS AND FATAL ERROR PRINTOUTS. EACH TYPE IS GENERATED BY THE SYSMAC .$ERROR SUBROUTINE. THE ".$ERROR" 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

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MAINDEC-11-DZTCB-C      TC11 TEST #2    MACY11 27(732)  14-SEP-76  10:51  PAGE 2
DZTCBC.P11

                                        .ABS
                                        .ENABL AMA
                                        .LIST   MC,MD,BIN,LD,SEQ,ME
                                        .NLIST  CND
        167400                          $SWR=167400
```

```
                        $TN=0
                        .ENABL ABS
                        .MCALL  .HEADER,.$CATCH,.$EOP,.EQUAT
                        .MCALL  .SWRHI,.SWRLO,.$SCOPE,.SETUP
                        .MCALL  .$TYPOCT,.$TYPDEC,.$TRAP,.$POWER
                        .MCALL  .$ERROR,.$TYPE,STARS,.$ERRTYP
                        .MCALL  .$CMTAG
000000                  .SETUP  <.$SCOPE,.$EOP,.$POWER,.$TRAP,.$ERROR>
                        .LIST
000000                  .HEADER <MAINDEC-11-DZTCB-C     TC11 TEST #2>,<1972,1975>,<J. COMEAU>
                        .TITLE  MAINDEC-11-DZTCB-C      TC11 TEST #2
                        ;*COPYRIGHT (C) 1972,1975
                        ;*DIGITAL EQUIPMENT CORP.
                        ;*MAYNARD, MASS. 01754
                        ;*
                        ;*PROGRAM BY J. COMEAU
                        ;*
                        ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                        ;*PACKAGE (MAINDEC-11-DZQAC-A1).
                        ;*
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
                        ;*         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  IOT,SCOPE               ;BASIC DEFINITION OF SCOPE CALL
177776                  PS=     177776                  ;PROCESSOR STATUS WORD
                        .EQUIV  PS,PSW
177774                  STKLMT= 177774                  ;STACK LIMIT REGISTER
177772                  PIRQ=   177772                  ;PROGRAM INTERRUPT REQUEST REGISTER
177570                  SWR=    177570                  ;SWITCH REGISTER
177570                  DISPLAY=SWR

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

                        ;*"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

                                        .SBTTL  STARTING ADDRESS(ES)
                        000200                  .=200

000200  000137  002304                  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          RDY=BIT6
                    000000          SAT=0
                    000002          RNUM=BIT1
                    000004          RDATA=BIT2
                    000006          RALL=BIT2!BIT1
                    000010          SST=BIT3
                    000012          WRTM=BIT3!BIT1
                    000014          WDATA=BIT3!BIT2
                    000016          WALL=BIT3!BIT2!BIT1
                    000001          DO=BIT0
                    000000          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
```

```
                        CODCAL: 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,P  3,B4,B5
                                .BYTE   0!B0,I!B1,0!B2,  3,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
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```
                                .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
                                .WORD   0
000050  000000                  .WORD   0
000052  000000                  .$CMTAG 10,10,ADITAG,1100
000054                          .MACRO  $$CMREG A,B
                                $REG'A: .WORD   0               ;CONTAINS (($REGAD)+'B)
                                .NLIST
                                $CM1=$CM1+1
                                $CM2=$CM2+2
                                .LIST
                                .ENDM   $$CMREG
                                .MACRO  $$CMTMP A
                                $TMP'A: .WORD   0               ;USER DEFINED
                                .NLIST
                                $CM4=$CM4+1
                                .LIST
                                .ENDM   $$CMTMP
                                .PAGE
```

```
                                STARS
                                ;;*****************************************************************

                                .SBTTL  COMMON TAGS

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

                        000046          .=46
000046  011464                  $ENDAD                          ;LOGICAL END OF PROGRAM

                        001100          .=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 1100
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 1100 OF 'GOOD' DATA
001122  000000          $BDADR: .WORD   0                       ;CONTAINS 1100 OF 'BAD' DATA
001124  000000          $GDDAT: .WORD   0                       ;CONTAINS 'GOOD' DATA
001126  000000          $BDDAT: .WORD   0                       ;CONTAINS 'BAD' DATA
001130  000000  000000  000000          .WORD   0,0,0           ;RESERVED--NOT TO BE USED
001136  177560          $TKS:   177560                          ;TTY KBD STATUS
001140  177562          $TKB:   177562                          ;TTY KBD BUFFER
001142  177564          $TPS:   177564                          ;TTY PRINTER STATUS REG. 1100
001144  177566          $TPB:   177566                          ;TTY PRINTER BUFFER REG. 1100
001146  000             $NULL:  .BYTE   0                       ;CONTAINS NULL CHARACTER FOR FILLS
001147  002             $FILLS: .BYTE   2                       ;CONTAINS # OF FILLER CHARACTERS REQUIRED
001150  012             $FILLC: .BYTE   12                      ;INSERT FILL CHARS. AFTER A "LINE FEED"
001151  000             $TPFLG: .BYTE   0                       ;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
                                .LIST
001152  000000          $REGAD: .WORD   0                       ;CONTAINS THE 1100 FROM
                                                                ;WHICH  ($REG0) WAS OBTAINED

                                .LIST
                                        .REPT   $CM3
                                        $$CMREG \$CM1,\$CM2
                                        .ENDR
001154                          $$CMREG \$CM1,\$CM2
001154  000000          $REG0:  .WORD   0                       ;CONTAINS (($REGAD)+0)
                                .LIST
001156                          $$CMREG \$CM1,\$CM2
001156  000000          $REG1:  .WORD   0                       ;CONTAINS (($REGAD)+2)
                                .LIST
001160                          $$CMREG \$CM1,\$CM2
001160  000000          $REG2:  .WORD   0                       ;CONTAINS (($REGAD)+4)
                                .LIST
001162                          $$CMREG \$CM1,\$CM2
001162  000000          $REG3:  .WORD   0                       ;CONTAINS (($REGAD)+6)
                                .LIST
```

```
                                        $$CMREG \$CM1,\$CM2
001164  000000                  $REG4:  .WORD   0                       ;CONTAINS (($REGAD)+10)
                                .LIST
                                        $$CMREG \$CM1,\$CM2
001166  000000                  $REG5:  .WORD   0                       ;CONTAINS (($REGAD)+12)
                                .LIST
                                        $$CMREG \$CM1,\$CM2
001170  000000                  $REG6:  .WORD   0                       ;CONTAINS (($REGAD)+14)
                                .LIST
                                        $$CMREG \$CM1,\$CM2
001172  000000                  $REG7:  .WORD   0                       ;CONTAINS (($REGAD)+16)
                                .LIST
                                .LIST
                                .REPT   10
                                $$CMTMP \$CM4
                                .ENDR
001174                          $$CMTMP \$CM4
001174  000000                  $TMP0:  .WORD   0                       ;USER DEFINED
                                .LIST
001176                          $$CMTMP \$CM4
001176  000000                  $TMP1:  .WORD   0                       ;USER DEFINED
                                .LIST
001200                          $$CMTMP \$CM4
001200  000000                  $TMP2:  .WORD   0                       ;USER DEFINED
                                .LIST
001202                          $$CMTMP \$CM4
001202  000000                  $TMP3:  .WORD   0                       ;USER DEFINED
                                .LIST
001204                          $$CMTMP \$CM4
001204  000000                  $TMP4:  .WORD   0                       ;USER DEFINED
                                .LIST
001206                          $$CMTMP \$CM4
001206  000000                  $TMP5:  .WORD   0                       ;USER DEFINED
                                .LIST
001210                          $$CMTMP \$CM4
001210  000000                  $TMP6:  .WORD   0                       ;USER DEFINED
                                .LIST
001212                          $$CMTMP \$CM4
001212  000000                  $TMP7:  .WORD   0                       ;USER DEFINED
                                .LIST
001214  000000                  $TIMES: 0                               ;MAX. NUMBER OF ITERATIONS
001216  000000                  $ESCAPE:0                               ;ESCAPE ON ERROR 1100
001220  177607  000377          $BELL:  .ASCIZ  <207><377><377>         ;CODE FOR BELL
001224     077                  $QUES:  .ASCII  /?/                     ;QUESTION MARK
001225     015                  $CRLF:  .ASCII  <15>                    ;CARRIAGE RETURN
001226  000012                  $LF:    .ASCIZ  <12>                    ;LINE FEED
                                .IRP A,<ADITAG>
                                A
                                .ENDM
001230                          ADITAG
001230  177340                  TCST:   177340                  ;TC11 STATUS REGISTER.
001232  177342                  TCCM:   177342                  ;TC11 COMMAND REGISTER.
001234  177344                  TCWC:   177344                  ;TC11 WORD COUNT REGISTER.
001236  177346                  TCBA:   177346                  ;TC11 BUS ADDRESS REGISTER.
001240  177350                  TCDT:   177350                  ;TC11 DATA REGISTER.
001242  000214                  TCVTR:  214                     ;TC11 INTERRUPT VECTOR
```

```
  439  001244  000300                TCLVL:  300                     ;TC11 INTERRUPT PRIORITY LEVEL.
  440  001246  177564                TPS:    177564                  ;LSP CSR
  441  001250  177566                TPB:    177566                  ;LSP BUFFER
  442  001252  000000                CODCNL: OPEN
  443  001254  000000                RTNNO:  OPEN
  444  001256  000000                NXTST:  OPEN
  445  001260  000000                CURTST: OPEN
  446  001262  000000                CRBUF:  OPEN
  447  001264  000000                CRBUFA: OPEN
  448  001266  000000                CTRA:   OPEN
  449  001270  050505                SBDAT1: 50505
  450  001272  127272                        127272
  451  001274  072727                SBDAT2: 72727
  452  001276  105050                        105050
  453  001300  072727                SBDAT3: 72727
  454  001302  105056                        105056
  455  001304  000000                POWPUS: .WORD   000000
  456  001306  000000                POWPOP: .WORD   000000
  457  001310  000000                TCCMT:  OPEN
  458  001312  000000                TCSTT:  OPEN
  459                                .PAGE
```

```
                                STARS
                                ;;*************************************************************
                                .SBTTL  ERROR POINTER TABLE

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

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


001314                          $ERRTB:

                                        EM1     ;"SAT (STOP ALL TRANSPORTS) COMMAND DID NOT CLEAR READY"
                                        EH1     ;"   PC      SP      PS      TEST#   TCCM    TCST"
                                        ET1     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001314  015617                        000200
001316  015705
001320  015764
001322  000000

                                EM2     ;"SST (STOP SELECTED TRANSPORT) DID NOT CLEAR READY"
                                EH2     ;"   PC      SP      PS      TEST#   TCCM    TCST"
                                ET2     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001324  016002                  000000
001326  016064
001330  016142
001332  000000

                                EM3     ;"READY BIT DID NOT CAUSE AN INTERRUPT"
                                EH3     ;"   PC      SP      PS      TEST#   TCCM    TCST"
                                ET3     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001334  016160                  000000
001336  016225
001340  016304
001342  000000

                                EM4     ;"READY BIT CAUSED AN INTERRUPT WITH PROCESSOR AND TC11 AT SAME PRIORITY
                                EH4     ;"   PC      SP      PS      TEST#   TCCM    TCST"
                                ET4     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001344  016322                  000000
001346  016431
001350  016510
001352  000000

                                EM5     ;"TC11 FAILED TO INTERRUPT"
                                EH5     ;"   PC      SP      PS      TEST#     CM    TCST"
                                ET5     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001354  016526                  000000
001356  016557
001360  016636
001362  000000

                                EM6     ;"TC11 DID NOT DROP INTERRUPT REQUEST AFTER IT WAS ACKNOLEDGED"
                                EH6     ;"   PC      SP      PS      TEST#   TCCM    TCST"
                                ET6     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001364  016654                  000000
001366  016751
001370  017030
001372  000000

                                EM7     ;"DOING A RESET INSTRUCTION DID NOT CLEAR UPS"
001374  017046
```

```
001376  017122                  EH7     ;"   PC      SP      PS     TEST#   TCCM    TCST"
001400  017200                  ET7     ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001402  000000                  000000
001404  017216                  EM10    ;"ENTERING MAINTANENCE MODE DID NOT SET UPS"
001406  017270                  EH10    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001410  017346                  ET10    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001412  000000                  000000
001414  017364                  EM11    ;"UPS DID NOT CLEAR WHEN LEAVING MAINTANENCE MODE"
001416  017444                  EH11    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001420  017522                  ET11    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001422  000000                  000000
001424  017540                  EM12    ;"TCST BIT 0 CAN BE SET WHILE IN MAINTANENCE MODE"
001426  017620                  EH12    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001430  017676                  ET12    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001432  000000                  000000
001434  017714                  EM13    ;"TCST BIT 1 CAN BE SET WHILE IN MAINTANENCE MODE"
001436  017774                  EH13    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001440  020052                  ET13    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001442  000000                  000000
001444  020070                  EM14    ;"WRTM COMMAND WITH WRTM SWITCH DISABLED FAILED TO SET ILO ERROR"
001446  020157                  EH14    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001450  020246                  ET14    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001452  000000                  000000
001454  020264                  EM15    ;"ILO ERROR FAILED TO SET THE 'ERROR' BIT"
001456  020334                  EH15    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001460  020412                  ET15    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001462  000000                  000000
001464  020430                  EM16    ;"CLEARING ILLEGAL OP FAILED TO CLEAR ILO ERROR"
001466  020506                  EH16    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001470  020564                  ET16    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001472  000000                  000000
001474  020602                  EM17    ;"CLEARING ILLEGAL OP FAILED TO CLEAR THE 'ERROR' BIT"
001476  020666                  EH17    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001500  020744                  ET17    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001502  000000                  000000
001504  020762                  EM20    ;"WRTM WITH WRTM SWITCH OFF DID NOT SET ILO ERROR BIT"
001506  021046                  EH20    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001510  021124                  ET20    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
```

```
572  001512  000000                          000000
573
574
575  001514  021142                          EM21    ;"ILO ERROR SETTING DID NOT CAUSE THE 'ERROR' BIT TO SET"
576  001516  021231                          EH21    ;"   PC       SP       PS      TEST#    TCCM     TCST"
577  001520  021310                          ET21    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
578  001522  000000                          000000
579
580
581  001524  021326                          EM22    ;"CLEARING ERROR BIT ALSO CLEARED ILO ERROR"
582  001526  021400                          EH22    ;"   PC       SP       PS      TEST#    TCCM     TCST"
583  001530  021456                          ET22    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
584  001532  000000                          000000
585
586
587  001534  021474                          EM23    ;"THE 'ERROR' BIT DID NOT SET"
588  001536  021530                          EH23    ;"   PC       SP       PS      TEST#    TCCM     TCST"
589  001540  021606                          ET23    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
590  001542  000000                          000000
591
592
593  001544  021624                          EM24    ;"THE 'ERROR' BIT SET DID NOT CAUSE AN INTERRUPT"
594  001546  021703                          EH24    ;"   PC       SP       PS      TEST#    TCCM     TCST"
595  001550  021762                          ET24    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
596  001552  000000                          000000
597
598
599  001554  022000                          EM25    ;"DOING A RESET INSTRUCTION DID NOT SET THE READY BIT"
600  001556  022064                          EH25    ;"   PC       SP       PS      TEST#    TCCM     TCST"
601  001560  022142                          ET25    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
602  001562  000000                          000000
603
604
605  001564  022160                          EM26    ;"TEST EXECUTION IS OUT OF ORDER"
606  001566  022217                          EH26    ;"   PC       SP       PS      TEST#  TEST# S/B"
607  001570  022272                          ET26    ;$ERRPC,$REG6,$REG7,$REG5,TEST# S/B
608  001572  000000                          000000
609
610
611  001574  022306                          EM27    ;"ERROR TRYING TO READ A BLOCK MARK"
612  001576  022350                          EH27    ;"   PC       SP       PS      TEST#    TCCM     TCST"
613  001600  022426                          ET27    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
614  001602  000000                          000000
615
616
617  001604  022441                          EM30    ;"READY WAS NOT SET AFTER BLOCK MARK WAS SHIFTED INTO THE WINDOW REGISTE
618  001606  022554                          EH30    ;"   PC       SP       PS      TEST#    TCCM     TCST"
619  001610  022632                          ET30    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
620  001612  000000                          000000
621
622
623  001614  022650                          EM31    ;"INCORRECT BLOCK # IN DATA REG AFTER BLOCK MARK WAS DETECTED"
624  001616  022744                          EH31    ;"   PC       SP       PS      TEST#    TCCM     TCST"
625  001620  023044                          ET31    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
626  001622  000000                          000000
627
```

```
                        
001624  023066                  EM32    ;"MTE WAS NOT SET BY AN ILLEGAL MARK TRACK CODE"
001626  023144                  EH32    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001630  023222                  ET32    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001632  000000                  000000
                        
                        
001634  023240                  EM33    ;"MTE SETTING FAILED TO SET THE 'ERROR' BIT"
001636  023312                  EH33    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001640  023370                  ET33    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001642  000000                  000000
                        
                        
001644  023406                  EM34    ;"ENDZ BIT DID NOT SET WHEN ENDZ MARK DETECTED"
001646  023463                  EH34    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001650  023542                  ET34    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001652  000000                  000000
                        
                        
001654  023406                  EM34
001656  023463                  EH34
001660  023542                  ET34
001662  000000                  0000
001664  023736                  EM36    ;"MARK TRACK CODE 55 WAS MISTAKEN FOR END ZONE"
001666  024013                  EH36    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001670  024072                  ET36    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001672  000000                  000000
                        
                        
001674  024110                  EM37    ;"ERROR"
001676  024116                  EH37    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001700  024174                  ET37    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001702  000000                  000000
                        
                        
001704  024212                  EM40    ;"READY BIT DID NOT SET"
001706  024240                  EH40    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001710  024316                  ET40    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001712  000000                  000000
                        
                        
001714  024334                  EM41    ;"THE 'ERROR' BIT SHOULD NOT HAVE SET"
001716  024400                  EH41    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001720  024456                  ET41    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001722  000000                  000000
                        
                        
001724  024474                  EM42    ;"READY BIT SHOULD NOT HAVE SET"
001726  024532                  EH42    ;"   PC      SP      PS     TEST#   TCCM    TCST"
001730  024610                  ET42    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001732  000000                  000000
                        
                        
001734  024626                  EM43    ;"WORD TRANSFERED INCORRECTLY TO CORE"
001736  024672                  EH43    ;"   PC      SP      PS     TEST#   TCCM    TCST    RBUF    RBUF S/B"
001740  024774                  ET43    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF    RBUF S/B
```

```
001742  000000                  000000


001744  025016                  EM44    ;"WORD COUNT INCREMENTED IMPROPERLY"
001746  025060                  EH44    ;"  PC        SP        PS      TEST#   TCCM     TCST     TCWC"
001750  025162                  ET44    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
001752  000000                  000000


001754  025204                  EM45    ;"TCBA INCREMENTED IMPROPERLY"
001756  025240                  EH45    ;"  PC        SP        PS      TEST#   TCCM     TCST     TCBA"
001760  025342                  ET45    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCBA
001762  000000                  000000


001764  025364                  EM46    ;"PARITY ERROR"
001766  025401                  EH46    ;"  PC        SP        PS      TEST#   TCCM     TCST"
001770  025460                  ET46    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
001772  000000                  000000


001774  025476                  EM47    ;"READY DID NOT SET AFTER READING WAS COMPLETED"
001776  025554                  EH47    ;"  PC        SP        PS      TEST#   TCCM     TCST"
002000  025632                  ET47    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002002  000000                  000000


002004  025650                  EM50    ;"TRANSFERED TOO MANY WORDS"
002006  025702                  EH50    ;"  PC        SP        PS      TEST#   TCCM     TCST     RBUF+2"
002010  025772                  ET50    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+2
002012  000000                  000000


002014  026012                  EM51    ;"TCBA CONTAINS AN INCORRECT ADDRESS"
002016  026055                  EH51    ;"  PC        SP        PS      TEST#   TCCM     TCST     TCBA     TCBA S/B"
002020  026156                  ET51    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCBA   TCBA S/B
002022  000000                  000000


002024  026200                  EM52    ;"PARRITY ERROR WAS NOT DETECTED"
002026  026237                  EH52    ;"  PC        SP        PS      TEST#   TCCM     TCST"
002030  026326                  ET52    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002032  000000                  000000


002034  026346                  EM53    ;"PARITY ERROR DID NOT SET THE 'ERROR' BIT"
002036  026417                  EH53    ;"  PC        SP        PS      TEST#   TCCM     TCST"
002040  026506                  ET53    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002042  000000                  000000


002044  026526                  EM54    ;"PARITY ERROR BIT WILL NOT CLEAR"
002046  026566                  EH54    ;"  PC        SP        PS      TEST#   TCCM     TCST"
002050  026654                  ET54    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002052  000000                  000000
```

```
                    
002054  026674                  EM55    ;"BLOCK MISS SHOULD NOT HAVE SET"
002056  026733                  EH55    ;"   PC      SP      PS     TEST#   TCCM    TCST"
002060  027022                  ET55    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002062  000000                  000000
                    
                    
002064  027042                  EM56    ;"RDATR WAS ISSUED BUT BLOCK MISS FAILED TO SET"
002066  027120                  EH56    ;"   PC      SP      PS     TEST#   TCCM    TCST"
002070  027206                  ET56    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002072  000000                  000000
                    
                    
002074  027?26                  EM57    ;"BLOCK MISS SETTING DID NOT SET THE 'ERROR' BIT"
002076  027305                  EH57    ;"   PC      SP      PS     TEST#   TCCM    TCST"
002100  027374                  ET57    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002102  000000                  000000
                    
                    
002104  027414                  EM60    ;"CLEARING ERROR BIT FAILED TO CLEAR BLOCK MISS"
002106  027472                  EH60    ;"   PC      SP      PS     TEST#   TCCM    TCST"
002110  027560                  ET60    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002112  000000                  000000
                    
                    
002114  027600                  EM61    ;"FORWARD CHECKSUM WAS WRITTEN INCORRECTLY INTO CORE"
002116  027663                  EH61    ;"   PC      SP      PS     TEST#   TCCM    TCST   RBUF+514"
002120  0277o2                  ET61    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+514
002122  000000                  000000
                    
                    
002124  030004                  EM62    ;"TCWC WAS MODIFIED DURRING RAL"
002126  030042                  EH62    ;"   PC      SP      PS     TEST#   TCCM    TCST    TCWC"
002130  030130                  ET62    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
002132  000000                  000000
                    
                    
002134  030150                  EM63    ;"TCBA WAS MODIFIED DURRING RAL"
002136  030206                  EH63    ;"   PC      SP      PS     TEST#   TCCM    TCST    TCBA"
002140  030310                  ET63    ;$ERRPC,$REG6,$REG7,$PEG5,$REG2,$REG1,TCBA
002142  000000                  000000
                    
                    
002144  030330                  EM64    ;"DATA MISS DID NOT SET"
002146  030356                  EH64    ;"   PC      SP      PS     TEST#   TCCM    TCST"
002150  030444                  ET64    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002152  000000                  000000
                    
                    
002154  030464                  EM65    ;"DATA MISS SETTING DID NOT CAUSE THE 'ERROR' BIT TO SET"
002156  030553                  EH65    ;"   PC      SP      PS     TEST#   TCCM    TCST"
002160  030632                  ET65    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002162  000000                  000000
                    
                    
002164  030650                  EM66    ;"CLEARING THE 'ERROR' BIT DID NOT CAUSE DATA MISS TO BE CLEARED"
```

```
002166  030747                  EH66    ;"  PC      SP      PS      TEST#   TCCM    TCST"
002170  031026                  ET66    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002172  000000                  000000


002174  031044                  EM67    ;"READY BIT WAS NOT SET AFTER THE DATA WAS WRITTEN"
002176  031125                  EH67    ;"  PC      SP      PS      TEST#   TCCM    TCST"
002200  031204                  ET67    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002202  000000                  000000


002204  031222                  EM70    ;"THE REVERSE CHECKSUM WAS WRITTEN INCORRECTLY"
002206  031277                  EH70    ;"  PC      SP      PS      TEST#   TCCM    TCST    RBUF+512 RBUF+512 S/B
002210  031406                  ET70    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+512 RBUF+512 S/B
002212  000000                  000000


002214  031430                  EM71    ;"WORD COUNT MODIFIED DURRING WRITE ALL"
002216  031476                  EH71    ;"  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
002220  031564                  ET71    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
002222  000000                  000000


002224  031604                  EM72    ;"TCBA MODIFIED DURRING WRITE ALL"
002226  031644                  EH72    ;"  PC      SP      PS      TEST#   TCCM    TCST    TCBA"
002230  031732                  ET72    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCBA
002232  000000                  000000


002234  031752                  EM73    ;"SST DID NOT CAUSE A SELECT ERROR"
002236  032013                  EH73    ;"  PC      SP      PS      TEST#   TCCM    TCST"
002240  032072                  ET73    ;$ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
002242  000000                  000000
002244  032110                  EM74
002246  032163                  EH74
002250  032222                  ET74
002252  000000                  0000

002254  032234                  EM75
002256  032307                  EH75
002260  032346                  ET75
002262  000000                  0000

002264  032360                  EM76
002266  032433                  EH76
002270  032472                  ET76
002272  000000                  0000

002274  032504                  EM77
002276  032557                  EH77
002300  032616                  ET77
002302  000000                  0000
002304                  .SETUP  <.$EOP,.$SCOPE,.$TRAP,.$ERROR,.$POWER>
                        .LIST
002304  000240          START:  NOP
002306  000240                  NOP
```

```
 852  002310  000240                    NOP
 853  002312  000240                    NOP
 854  002314                            SETUP   1000
 855  002314  012706  001100            MOV     #$CMTAG,R6              ;FIRST LOCATION TO BE CLEARED
 856  002320  005026                    CLR     (R6)+                   ;CLEAR MEMORY LOCATION
 857  002322  022706  001136            CMP     #$TKS,R6                ;DONE?
 858  002326  001374                    BNE     .-6                     ;LOOP BACK IF NO
 859  002330  012706  001000            MOV     #1000,SP                        ;SETUP THE STACK POINTER
 860  002334  012737  013210  000020    MOV     #$SCOPE,@#IOTVEC        ;IOT VECTOR FOR SCOPE ROUTINE
 861  002342  012737  000340  000022    MOV     #340,@#IOTVEC+2         ;LEVEL 7
 862  002350  012737  013476  000030    MOV     #$ERROR,@#EMTVEC        ;EMT VECTOR FOR ERROR ROUTINE
 863  002356  012737  000340  000032    MOV     #340,@#EMTVEC+2         ;LEVEL 7
 864  002364  012737  014776  000034    MOV     #$TRAP,@#TRAPVEC        ;TRAP VECTOR FOR TRAP CALLS
 865  002372  012737  000340  000036    MOV     #340,@#TRAPVEC+2        ;LEVEL 7
 866  002400  012737  013706  000024    MOV     #$PWRDN,@#PWRVEC        ;POWER FAILURE VECTOR
 867  002406  012737  000340  000026    MOV     #340,@#PWRVEC+2         ;LEVEL 7
 868  002414  013737  011434  011426    MOV     $ENDCT,$EOPCT           ;SETUP END-OF-PROGRAM COUNTER
 869  002422  112737  000001  001115    MOVB    #1,$ERMAX               ;ALLOW ONE ERROR PER TEST
 870  002430  012737  002430  001106    MOV     #.,$LPADR               ;INITIALIZE THE LOOP ADDRESS FOR SCOPE
 871  002436  012706  001000            MOV     #1000,SP        ;SET BOTTOM OF SP STACK.
 872  002442  005037  001254            CLR     RTNNO
 873  002446  104400  001225            TYPE    ,$CRLF
 874  002452  104400  015032            TYPE    ,STMES          ;PRINTOUT STARTUP MESSAGE
 875  002456  000240                    NOP
 876  002460  000000                    HALT                    ;HERE IS YOUR CHANCE TO SET THE SWITCH REGISTER
 877  002462  005737  000042    STARTX: TST     42
 878  002466  001401                    BEQ     GETRDY
 879  002470  000005                    RESET
 880  002472  005037  177776    GETRDY: CLR     PSW
 881  002476  012706  001000            MOV     #1000,SP        ;SET BOTTOM OF STACK.
 882  002502  004737  012046            JSR     PC,SRSETT       ;ISSUE RESET.
 883  002506  004737  012070            JSR     PC,RSTMTK       ;RESTORE MARK TRACK.
 884  002512  000137  002516            JMP     T0001
 885                                    .SBTTL T0001
 886                                    ;CHECK THAT THE TCCM REGISTER CAN BE ACCESSED WITHOUT A TRAP OCCURING
 887                                    ;*****************************************************************
 888  002516  000004            T0001:  SCOPE
 889  002520  012737  002564  000004    MOV     #A0001,@#4      ;SETUP THE FATAL TRAP VECTOR
 890  002526  012737  000340  000006    MOV     #340,@#6        ;MAKE SURE WE GET NO INTERRUPTS IF WE TRAP
 891  002534  012706  001000            MOV     #1000,SP        ;SETUP THE STACK POINTER
 892  002540  004737  011614            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
 893  002544  000001                    00001                   ;HERE LIES THE NUMBER OF THIS TEST
 894  002546  012706  001000    R0001:  MOV     #1000,SP        ;INIT THE STACK POINTER
 895  002552  005777  176454            TST     @TCCM           ;TRY TO READ THE TCCM
 896  002556  005077  176450            CLR     @TCCM           ;TRY TO MODIFY THE TCCM
 897  002562  000401                    BR      T0002           ;NO ERRORS. GO ON TO THE NEXT TEXT
 898  002564  104074    A0001:  ERROR   74                      ;COULD NOT ACCESS TCCM
 899                                    .SBTTL T0002
 900                                    ;CHECK THAT THE TCST REGISTER CAN BE ACCESSED WITHOUT A TRAP OCCURING
 901                                    ;*****************************************************************
 902  002566  000004            T0002:  SCOPE
 903  002570  012737  002634  000004    MOV     #A0002,@#4      ;SETUP THE FATAL TRAP VECTOR
 904  002576  012737  000340  000006    MOV     #340,@#6        ;MAKE SURE WE GET NO INTERRUPTS IF WE TRAP
 905  002604  012706  001000            MOV     #1000,SP        ;SETUP THE STACK POINTER
 906  002610  004737  011614            JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
 907  002614  000002                    00002                   ;HERE LIES THE NUMBER OF THIS TEST
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                                RO002:  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 PRPOER SEQUENCE
                                        00003                   ;HERE LIES THE NUMBER OF THIS TEST
                                RO003:  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 PRPOER SEQUENCE
                                        00004                   ;HERE LIES THE NUMBER OF THIS TEST
                                RO004:  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
                                ;******************************************************************
                                T0005:  SCOPE
                                        MOV     #TRAP4,4        ;SETUP FATAL TRAP VECTORS
                                        MOV     #TRAP10,10
                                        MOV     #340,6
                                        MOV     #340,12
                                        MOV     #1000,SP        ;SETUP THE STACK POINTER
                                        JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
                                        00005                   ;HERE LIES THE NUMBER OF THIS TEST
                                RO005:  MOV     TCCM,R0         ;TCCM ADDR TO R0.
                                        CLR     (0)             ;SELECT U0, FUNCTION 0.(SAT COMMAND).
                                        INC     (0)             ;DO.
                                        TSTB    (0)             ;SEE IF READY IS SET.
                                        BPL     A0005           ;BR IF READY NOT SET. (OK).
                                        ERROR 1                         ;SAT COMMAND FAILED TO CLEAR READY.
                                A0005:
                                        MOV     #1000,SP        ;RESTORE THE STACK POINTER
                                        BR      T0006           ;GO ON TO THE NEXT TEST
                                ;CHECK THAT ISSUING SST COMMAND (STOP SELECTED TRANSPORT) CAUSES READY
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                                ;BIT TO CLEAR IMMEDIATELY (TCCM BIT 7)
                                .SBTTL T0006
                                ;*****************************************************************
003046  000004                T0006:  SCOPE
003050  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
003054  004737  011614                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003060  000006                        00006                   ;HERE LIES THE NUMBER OF THIS TEST
003062  013700  001232        R0006:  MOV     TCCM,R0         ;TCCM ADDR TO R0.
003066  012710  000010                MOV     #10,(0)         ;SELECT U0,FUNCTION 100. (SST COMMAND).
003072  005210                        INC     (0)             ;DO.
003074  105710                        TSTB    (0)             ;SEE IF READY IS SET.
003076  100001                        BPL     A0006           ;BR IF READY NOT SET. (OK).
003100  104002                        ERROR 2                 ;SST COMMAND FAILED TO CLEAR READY.
003102                          A0006:
003102  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
003106  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
                                ;*****************************************************************
003110  000004                T0007:  SCOPE
003112  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
003116  004737  011614                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003122  000007                        00007                   ;HERE LIES THE NUMBER OF THIS TEST
003124  004737  012022        R0007:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO CB.
003130  003154                        A0007
003132  005077  176074                CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
003136  005037  177776                CLR     PSW             ;SET PROCESSOR PRIORITY 0.
003142  052777  000100  176062        BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
003150  000240                        NOP
003152  104003                        ERROR 3                 ;READY DID NOT INTERRUPT.
003154                          A0007:
003154  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
003160  000400                        BR      T0010           ;GO ON TO THE NEXT TEST
                                ;TEST THAT READY DOES NOT CAUSE INTERRUPT WITH PROCESSOR AT SAME PRIORITY
                                ;LEVEL AS THE TC11 INTERRUPT PRIORITY.
                                .SBTTL T0010
                                ;*****************************************************************
003162  000004                T0010:  SCOPE
003164  012706  001000                MOV     #1000,SP        ;SETUP THE STACK POINTER
003170  004737  011614                JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003174  000010                        00010                   ;HERE LIES THE NUMBER OF THIS TEST
003176  004737  012022        R0010:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO DC.
003202  003240                        B0010
003204  013737  001244  177776        MOV     TCLVL,PSW       ;SET PROCESSOR TO SAME PRTY AS TC11.
003212  005077  176014                CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
003216  052777  000100  176006        BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
003224  000240                        NOP
003226  005077  176000        A0010:  CLR     @TCCM           ;DISABLE TC11 INTERRUPTS. (OK).

003232  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
003236  000402                        BR      T0011           ;GO ON TO THE NEXT TEST
003240  104000                B0010:  ERROR                   ;HERE IF INT. OCCURS.
                                                                ;TC11 INTERRUPTED. WITH PROCESSOR AT SAME
003242  000771                        BR      A0010           ;PRTY AS TC11 INTERRUPT PRTY.
                                ;TEST THAT TC11 INTERRUPTS WHEN PROCESSOR IS AT PRIORITY ONE LEVEL LOWER
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                                        ;THAN THE TC11 INTERRUPT PRIORITY.
                                        .SBTTL T0011
                                        ;*************************************************************************
003244  000004                          T0011:  SCOPE
003246  012706  001000                          MOV     #1000,SP        ;SETUP THE STACK POINTER
003252  004737  011614                          JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003256  000011                                  00011                   ;HERE LIES THE NUMBER OF THIS TEST
003260  004737  012022                  R0011:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO EB.
003264  003322                                  A0011
003266  005077  175740                          CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
003272  013737  001244  177776                  MOV     TCLVL,PSW       ;SET PROCESSOR TO PRTY ONE LEVEL LOWER
003300  162737  000040  177776                  SUB     #40,PSW         ;THAN TC11 INTERRUPT PRTY.
003306  052777  000100  175716                  BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
003314  000240                                  NOP
003316  104003                                  ERROR 3                 ;TC11 FAILED TO INT. WITH PROCESSOR AT
003320  000401                                  BR      B0011           ;PRTY ONE LEVEL LOWER THAN TC11 INT. PRTY.
003322  022626                  A0011:  POPSP2                          ;HERE IF INT. OCCURS. POP STACK TWICE.
003324  005077  175702          B0011:  CLR     @TCCM                   ;DISABLE TC11 INTERRUPTS.

003330  012706  001000                          MOV     #1000,SP        ;RESTORE THE STACK POINTER
003334  000400                                  BR      T0012           ;GO ON TO THE NEXT TEST

                                        ;TEST TC11 DOES NOT REINTERRUPT AFTER INITIAL INTERRUPT HAS BEEN SERVICED.
                                        .SBTTL T0012
                                        ;*************************************************************************
003336  000004                          T0012:  SCOPE
003340  012706  001000                          MOV     #1000,SP        ;SETUP THE STACK POINTER
003344  004737  011614                          JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003350  000012                                  00012                   ;HERE LIES THE NUMBER OF THIS TEST
003352  004737  012022                  R0012:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO FC.
003356  003414                                  B0012
003360  005077  175646                          CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
003364  005037  177776                          CLR     PSW             ;SET PROCESSOR PRTY 0.
003370  052777  000100  175634                  BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
003376  000240                                  NOP
003400  104005                                  ERROR  5                ;TC11 FAILED TO INTERRUPT.
003402  005077  175624          A0012:  CLR     @TCCM                   ;DISABLE TC11 INTERRUPTS.

003406  012706  001000                          MOV     #1000,SP        ;RESTORE THE STACK POINTER
003412  000413                                  BR      T0013           ;GO ON TO THE NEXT TEST
003414  012777  003434  175620  B0012:  MOV     #D0012,@TCVTR   ;CHANGE INT POINTER TO FE.
003422  012716  003430                          MOV     #C0012,@SP      ;CHANGE INT EXIT POINTER TO FD.
003426  000002                                  RTI                     ;EXIT INTERRUPT.
003430  000240                  C0012:  NOP                             ;OK IF NO INT. REOCCURS.
003432  000763                                  BR      A0012
003434  022626                  D0012:  POPSP2                          ;HERE IF REINTERRUPT OCCURS.
003436  104006                                  ERROR 6                 ;TC11 REINTERRUPTED AFTER RTI.
003440  000760                                  BR      A0012
                                        ;TEST THAT SETTING MAINTENANCE BIT (TCCM BIT 13) SETS UPS BIT (TCST BIT 7)
                                        ;THAT CLEARING MAINTENANCE BIT CLEARS UPS, AND THAT RESET CLEARS UPS.
                                        .SBTTL T0013
                                        ;*************************************************************************
003442  000004                          T0013:  SCOPE
003444  012706  001000                          MOV     #1000,SP        ;SETUP THE STACK POINTER
003450  004737  011614                          JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
003454  000013                                  00013                   ;HERE LIES THE NUMBER OF THIS TEST
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1076  003456  032777  000200  175544  R0013:  BIT     #BIT7,@TCST     ;SEE IF UPS IS CLEAR.
1077  003464  001402                          BEQ     A0013           ;BR IF UPS IS CLEAR.
1078  003466  104007                          ERROR 7                 ;RESET FAILED TO CLEAR UPS.
1079  003470  000421                          BR      C0013
1080  003472  052777  020000  175532  A0013:  BIS     #BIT13,@TCCM    ;SET MAINTENALCE BIT.
1081  003500  032777  000200  175522          BIT     #BIT7,@TCST     ;SEE IF UPS IS SET.
1082  003506  001002                          BNE     B0013           ;BR IF UPS IS SET.
1083  003510  104010                          ERROR 10                ;MAINT BIT FAILED TO SET UPS.
1084  003512  000410                          BR      C0013
1085  003514  042777  020000  175510  B0013:  BIC     #BIT13,@TCCM    ;CLEAR MAINT BIT.
1086  003522  032777  000200  175500          BIT     #BIT7,@TCST     ;SEE IF UPS IS CLEAR.
1087  003530  001401                          BEQ     C0013           ;BR IF UPS IS CLEAR.
1088  003532  104011                          ERROR 11                ;CLEARING MAINT. BIT FAILED TO CLEAR UPS.
1089  003534  052777  020000  175470  C0013:  BIS     #BIT13,@TCCM    ;SET MAINT BIT TO SET UPS.
1090  003542  004737  012046                  JSR     PC,SRSETT       ;ISSUE RESET TO CLEAR MAINT AND UPS BITS.
1091
1092  003546  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1093  003552  000400                          BR      T0014           ;GO ON TO THE NEXT TEST
1094                                  ;TEST THAT SETTING MAINT. BIT DISABLES LOADING XD15 (TCST BIT 0).
1095                                  .SBTTL T0014
1096                                  ;******************************************************************************
1097  003554  000004                  T0014:  SCOPE
1098  003556  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1099  003562  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1100  003566  000014                          00014                   ;HERE LIES THE NUMBER OF THIS TEST
1101  003570  052777  020000  175434  R0014:  BIS     #BIT13,@TCCM    ;SET MAINTENANCE BIT.
1102  003576  052777  000001  175424          BIS     #BIT0,@TCST     ;TRY SETTILG XD16.
1103  003604  032777  000001  175416          BIT     #BIT0,@TCST     ;SEE IF XD16 IS SET.
1104  003612  001401                          BEQ     A0014           ;BR IF XD16 IS CLEAR.
1105  003614  104012                          ERROR 12                ;MAINT BIT SET FAILS TO PREVENT LOADING
1106  003616  004737  012046          A0014:  JSR     PC,SRSETT       ;OF XD16.
1107
1108  003622  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1109  003626  000400                          BR      T0015           ;GO ON TO THE NEXT TEST
1110                                  ;TEST THAT SETTING MAINT. BIT DISABLES LOADING XD17 (TCST BIT 1).
1111                                  .SBTTL T0015
1112                                  ;******************************************************************************
1113  003630  000004                  T0015:  SCOPE
1114  003632  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1115  003636  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1116  003642  000015                          00015                   ;HERE LIES THE NUMBER OF THIS TEST
1117  003644  052777  020000  175360  R0015:  BIS     #BIT13,@TCCM    ;SET MAINTENANCE BIT.
1118  003652  052777  000002  175350          BIS     #BIT1,@TCST     ;TRY SETTING XD17.
1119  003660  032777  000002  175342          BIT     #BIT1,@TCST     ;SEE ID XD17 IS SET.
1120  003666  001401                          BEQ     A0015           ;BR IF XD17 IS CLEAR.
1121  003670  104013                          ERROR 13                ;MAINT BIT FAILED TO PREVENT SETTING
1122  003672  004737  012046          A0015:  JSR     PC,SRSETT       ;OF XD17.
1123
1124  003676  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1125  003702  000400                          BR      T0016           ;GO ON TO THE NEXT TEST
1126
1127                                  ;CHECK THAT ISSUING WRTM COMMAND WITH WRTM SWITCH OFF CAUSES AN ILO ERROR.
1128                                  ;(ILLEGAL OP- TCST BIT 12), AND THAT ERROR BIT SETS.;(TCCM BIT 15).
1129                                  ;TEST DONE WITH MAINTENANCE BIT SET.
1130                                  .SBTTL T0016
1131                                  ;******************************************************************************
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1132  003704  000004                    TO016:  SCOPE
1133  003706  012706  001000                    MOV     #1000,SP        ;SETUP THE STACK POINTER
1134  003712  004737  011614                    JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1135  003716  000016                            DO016                   ;HERE LIES THE NUMBER OF THIS TEST
1136  003720  012777  020012  175304  RO016:    MOV     #MAINT!FWD!UO!WRTM,@TCCM
1137  003726  000240                            NOP
1138  003730  032777  010000  175272            BIT     #BIT12,@TCST    ;SEE IF ILO ERROR IS SET.
1139  003736  001002                            BNE     AO016           ;BR IF ILO ERR IS SET.
1140  003740  104014                            ERROR 14                ;WRTM COMMAND WITH WRTM SWITCH DISABLED
1141  003742  000421                            BR      DO016           ;FAILED TO SET ILO ERROR.
1142  003744  005777  175262          AO016:    TST     @TCCM           ;SEE IF EPROR BIT IS SET.
1143  003750  100402                            BMI     BO016           ;BR IF ERROR BIT IS SET.
1144  003752  104015                            ERROR 15                ;ILO ERR FAILED TO SET ERROP BIT.
1145  003754  000414                            BR      DO016
1146  003756  005077  175250          BO016:    CLR     @TCCM           ;CLEAR ILLEGAL COMMAND.
1147  003762  032777  010000  175240            BIT     #BIT12,@TCST    ;SEE IF ILO ERROR IS SET.
1148  003770  001402                            BEQ     CO016           ;BR IF ILO ERROR IS CLEAR.
1149  003772  104016                            ERROR 16                ;CLEARING ILLEGAL OP FAILED TO CLEAR
1150  003774  000404                            BR      DO016           ;ILO ERROR.
1151  003776  005777  175230          CO016:    TST     @TCCM           ;SEE IF ERROR BIT IS CLEAR.
1152  004002  100001                            BPL     DO016           ;BR IF ERROR IS CLEAR.
1153  004004  104017                            ERROR 17                ;CLEARING ILLEGAL OP FAILED TO
1154  004006  004737  012046          DO016:    JSR     PC,SRSETT       ;CLEAR ERROR BIT.
1155
1156  004012  012706  001000                    MOV     #1000,SP        ;RESTORE THE STACK POINTER
1157  004016  000400                            BR      TO017           ;GO ON TO THE NEXT TEST
1158                                    ;CHECK THAT ISSUING WRTM COMMAND (WRITE TIMING AND MARK) WITH WRTM SWITCH
1159                                    ;OFF CAUSES AN ILO ERROR(ILLEGAL OP- TCST BIT 12),ALD THAT ERROR BIT SETS.
1160                                    ;(TCCM BIT 15). TEST DONE WITH MAINTENANCE @IT SET.
1161                                    .SBTTL TO017
1162                                    ;*****************************************************************************
1163  004020  000004                    TO017:  SCOPE
1164  004022  012706  001000                    MOV     #1000,SP        ;SETUP THE STACK POINTER
1165  004026  004737  011614                    JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1166  004032  000017                            DO017                   ;HERE LIES THE NUMBER OF THIS TEST
1167  004034  012777  020012  175170  RO017:    MOV     #MAINT!FWD!UO!WRTM,@TCCM
1168  004042  000240                            NOP
1169  004044  032777  010000  175156            BIT     #BIT12,@TCST    ;SEE IF ILO ERR IS SET.
1170  004052  001002                            BNE     AO017           ;BR IF ILO SET.
1171  004054  104020                            ERROR 20                ;WRTM WITH WRTM SW OFF FAILED TO SET
1172  004056  000421                            BR      DO017           ;ILO ERROR.
1173  004060  005777  175146          AO017:    TST     @TCCM           ;ERROR BIT SET?
1174  004064  100402                            BMI     BO017           ;BR IF ERROR BIT SET.
1175  004066  104021                            ERROR 21                ;ERROR BIT NOT SET WITH ILO ERR SET.
1176  004070  000414                            BR      DO017
1177  004072  005077  175134          BO017:    CLR     @TCCM           ;CLEAR ILLEGAL COMMAND.
1178  004076  032777  010000  175124            BIT     #BIT12,@TCST    ;SEE IF ILO ER IS CLEAR.
1179  004104  001402                            BEQ     CO017           ;BR ID ILO ERR IS CLEAR.
1180  004106  104016                            ERROR 16                ;CLEARING ILLEGAL OP FAILED TO
1181  004110  000404                            BR      DO017           ;CLEAR ILO ERR.
1182  004112  005777  175114          CO017:    TST     @TCCM           ;ERROR BIT SET?
1183  004116  100001                            BPL     DO017           ;BR IF ERROR BIT IS CLEAR.
1184  004120  104017                            ERROR 17                ;CLEARING ILLEGAL OP FAILED TO
1185  004122  004737  012046          DO017:    JSR     PC,SRSETT       ;CLEAR ERROR BIT.
1186
1187  004126  012706  001000                    MOV     #1000,SP        ;RESTORE THE STACK POINTER
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1188  004132  000400                          BR      T0020           ;GO ON TO THE NEXT TEST
1189
1190                                  ;TEST THAT CLEARING ERROR BIT DOES NOT CLEAR ILO ERROR.
1191                                  .SBTTL T0020
1192                                  ;******************************************************************************
1193  004134  000004                  T0020:  SCOPE
1194  004136  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1195  004142  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1196  004146  000020                          0020                    ;HERE LIES THE NUMBER OF THIS TEST
1197  004150  012777  020012  175054  R0020: MOV     #MAINT!FWD!UO!WRTM,@TCCM
1198  004156  000240                          NOP
1199  004160  005777  175046                  TST     @TCCM           ;ERROR SET?
1200  004164  100402                          BMI     A0020           ;BR IF ERROR BIT IS SET.
1201  004166  104023                          ERROR 23                ;ERROR BIT FAILED TO SET.
1202  004170  000410                          BR      B0020
1203  004172  042777  100000  175032  A0020: BIC     #BIT15,@TCCM    ;TRY CLEARING ERROR BIT.
1204  004200  032777  010000  175022          BIT     #BIT12,@TCST    ;ILO SET?
1205  004206  001001                          BNE     B0020           ;BR IF ILO IS SET.
1206  004210  104022                          ERROR 22                ;0 TO ERROR BIT CLEARED ILO ERROR.
1207  004212  004737  012046          B0020:  JSR     PC,SRSET        ;RESET.
1208
1209  004216  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1210  004222  000400                          BR      T0021           ;GO ON TO THE NEXT TEST
1211                                  ;TEST THAT ERROR BIT (TCCM BIT15) IS ABLE TO CAUSE AN INTERRUPT.
1212                                  .SBTTL T0021
1213                                  ;******************************************************************************
1214  004224  000004                  T0021:  SCOPE
1215  004226  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1216  004232  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1217  004236  000021                          0021                    ;HERE LIES THE NUMBER OF THIS TEST
1218  004240  004737  012022          R0021:  JSR     PC,STTCV        ;SET TC11 INT. VECTOR TO MB.
1219  004244  004272                          A0021
1220  004246  005077  174760                  CLR     @TCCM           ;DISABLE TC11 INTERRUPTS.
1221  004252  005037  177776                  CLR     PSW             ;SET PRTY 0.
1222  004256  052777  000100  174746          BIS     #BIT6,@TCCM     ;ENABLE TC11 INTERRUPTS.
1223  004264  000240                          NOP
1224  004266  104005                          ERROR 5                 ;TC11 FAILED TO INTERRUPT.
1225  004270  000415                          BR      D0021
1226  004272  012777  004322  174742  A0021: MOV     #C0021,@TCVTR   ;CHANGE INT VECTOR TO MD.
1227  004300  012716  004306                  MOV     #B0021,@SP      ;CHANGE INT EXIT POINTER TO MC.
1228  004304  000002                          RTI                     ;EXIT INTERRUPT
1229  004306  052777  020012  174716  B0021: BIS     #MAINT!FWD!UO!WRTM,@TCCM
1230  004314  000240                          NOP
1231  004316  104024                          ERROR 24                ;ERROR BIT FAILED TO INTERRUPT.
1232  004320  000401                          BR      D0021
1233  004322  022626                  C0021:  POPSP2                  ;HERE IF ERROR INTERRUPTS.
1234  004324  005077  174702          D0021:  CLR     @TCCM           ;DISABLE INT. CLEAR ILLEGAL OP.
1235
1236  004330  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1237  004334  000400                          BR      T0022           ;GO ON TO THE NEXT TEST
1238
1239                                  ;TEST THAT ISSUING RNUM COMMAND (READ BLOCK #) CLEARS READY BIT.
1240                                  ;RESET INSTRUCTION SHOULD SET READY. TEST DONE WITH MAINT. BIT SET.
1241                                  .SBTTL T0022
1242                                  ;******************************************************************************
1243  004336  000004                  T0022:  SCOPE
```

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1244  004340  012706  001000                    MOV     #1000,SP        ;SETUP THE STACK POINTER
1245  004344  004737  011614                    JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1246  004350  000022                            00022                   ;HERE LIES THE NUMBER OF THIS TEST
1247  004352  105777  174654          R0022:    TSTB    @TCCM           ;READY SET?
1248  004356  100402                            BMI     A0022           ;BR IF READY IS SET.
1249  004360  104025                            ERROR 25                ;RESET DID NOT FORCE READY TO SET.
1250  004362  000407                            BR      B0022
1251  004364  012777  020003  174640  A0022:    MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1252  004372  105777  174634                    TSTB    @TCCM           ;READY CLEAR?
1253  004376  100001                            BPL     B0022           ;BR IF READY IS CLEAR.
1254  004400  104076                            ERROR 76                ;RNUM,DO, FAILED TO CLEAR READY.
1255  004402  004737  012046          B0022:    JSR     PC,SRSETT       ;ISSUE RESET TO FORCE READY TO SET.
1256
1257  004406  012706  001000                    MOV     #1000,SP        ;RESTORE THE STACK POINTER
1258  004412  000400                            BR      T0023           ;GO ON TO THE NEXT TEST
1259                                    ;TEST THAT TC11 CONTROL CAN RECOGNIZE A BLOCK MARK. WITH MAINT BIT SET,
1260                                    ;RNUM COMMAND IS ISSUED. A SUBROUTINE PROVIDES TIMING AND MARK DATA.
1261                                    ;WHEN THE BLOCK MARK HAS BEEN SHIFTED INTO THE WINDOW, THE READY BIT SHOULD SET.
1262                                    .SBTTL T0023
1263                                    ;*******  **********************************************************************
1264  004414  000004                    T0023:  SCOPE
1265  004416  012706  001000                    MOV     #1000,SP        ;SETUP THE STACK POINTER
1266  004422  004737  011614                    JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1267  004426  000023                            00023                   ;HERE LIES THE NUMBER OF THIS TEST
1268  004430  005077  174576          R0023:    CLR     @TCCM
1269  004434  012777  020003  174570            MOV     #MAINT!UO!FWD!R   1!DO,@TCCM
1270  004442                                    MTCOD   MTK7,6
1271  004442  004537  012522                    JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1272  004446  032666                            MTK7                    ;ADDRESS OF MARK TRACK CODES.
1273  004450  000006                            6                       ;MARK TRACK CODE COUNT.
1274  004452  005777  174554                    TST     @TCCM           ;ERROR BIT SET?
1275  004456  100002                            BPL     A0023           ;BR IF NO ERROR.
1276  004460  104027                            ERROR 27                ;ERROR BIT SET. EXAMINE TCST OR LIGHT PANEL.
1277  004462  000404                            BR      B0023
1278  004464  105777  174542          A0023:    TSTB    @TCCM           ;READY BIT SET?
1279  004470  100401                            BMI     B0023           ;BR IF READY IS SET.
1280  004472  104030                            ERROR 30                ;READY NOT SET AFTER BLOCK MARK WAS
1281                                                                    ;SHIFTED INTO WINDOW REG WITH RNUM COMMAND
1282                                                                    ;IN EFFECT.EVERYTHING IS SUSPECT AT THIS
1283                                                                    ;POINT. ABILITY TO SHIFT TIMING AND MARK
1284                                                                    ;DATA WHILE IN MAINT MODE HAS NOT BEEN
1285  004474                          B0023:
1286  004474  012706  001000                    MOV     #1000,SP        ;RESTORE THE STACK POINTER
1287  004500  000400                            BR      T0024           ;GO ON TO THE NEXT TEST
1288                                    ;TEST THAT TC11 CONTROL TRANSFERS THE BLOCK NUMBER TO THE DATA REGISTER
1289                                    ;WHEN BLOCK MARK IS DETECTED AND CONTROL IS DOING RNUM COMMAND. A SUBROUTINE
1290                                    ;PROVIDES TIMING, MARK, AND DATA. WHEN THE READY BIT SETS, THE BLOCK #
1291                                    ;EXPECTED IN THE DATA REGISTER IS 000525.
1292                                    .SBTTL T0024
1293                                    ;**********************************************************************
1294  004502  000004                    T0024:  SCOPE
1295  004504  012706  001000                    MOV     #1000,SP        ;SETUP THE STACK POINTER
1296  004510  004737  011614                    JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1297  004514  000024                            00024                   ;HERE LIES THE NUMBER OF THIS TEST
1298  004516  005077  174510          R0024:    CLR     @TCCM
1299  004522  012777  020003  174502            MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
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1300  004530                                  MTCOD   MTK7,6
1301  004530  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1302  004534  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1303  004536  000006                          6                       ;MARK TRACK CODE COUNT.
1304  004540  022777  052525  174472          CMP     #52525,@TCDT    ;TCDT=52525?
1305  004546  001415                          BEQ     A0024           ;BR IF TCDT CORRECT.
1306  004550  017737  174464  001164          MOV     @TCDT,$REG4     ;SETUP BLOBK # FOR PRINTOUT
1307  004556  012737  052525  001154          MOV     #52525,$REG0    ;SETUP GOOD BLOBK # TO PRINTOUT
1308  004564  017737  174450  001164          MOV     @TCDT,$REG4     ;SETUP BLOBK # FOR PRINTOUT
1309  004572  012737  052525  001154          MOV     #52525,$REG0    ;SETUP GOOD BLOBK # TO PRINTOUT
1310  004600  104031                          ERROR 31                ;ERROR.BLOCK # IN TCDT NOT 52525. EXAMINE TCDT.
1311  004602                          A0024:
1312  004602  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1313  004606  000400                          BR      T0025           ;GO ON TO THE NEXT TEST
1314                                  ;TEST THAT TC11 CONTROL IS ABLE TO DETECT AN INCORRECT MARK TRACK CODE.
1315                                  ;A SUBROUTINE PROVIDES TIMING AND MARK DATA WHILE CONTROL IS IN RNUM
1316                                  ;COMMAND. WHEN THE INCORRECT MARK IS SHIFTED, THE MTE AND ERR BITS SHOULD SET.
1317                                  .SBTTL T0025
1318                                  ;******************************************************************************
1319  004610  000004                  T0025:  SCOPE
1320  004612  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1321  004616  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1322  004622  000025                          00025                   ;HERE LIES THE NUMBER OF THIS TEST
1323  004624  004537  012474          R0025:  JSR     R5,BMOVE        ;SET INVALID CODE IN MARK TRACK.
1324  004630  032636                          MTKER
1325  004632  032740                          MTKVAR
1326  004634  000006                          6
1327  004636  012777  020003  174366          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1328  004644                                  MTCOD   MTK7,9.
1329  004644  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1330  004650  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1331  004652  000011                          9.                      ;MARK TRACK CODE COUNT.
1332  004654  032777  020000  174346          BIT     #BIT13,@TCST    ;MTE BIT SET? (MARK TRACK ERROR).
1333  004662  001002                          BNE     A0025           ;BR IF MTE BIT IS SET.
1334  004664  104032                          ERROR 32                ;INVALID MARK TRACK CODE FAILED TO SET MTE.
1335  004666  000404                          BR      B0025
1336  004670  005777  174336          A0025:  TST     @TCCM           ;ERROR BIT SET?
1337  004674  100401                          BMI     B0025           ;BR IF ERROR BIT IS SET.
1338  004676  104033                          ERROR 33                ;MTE BIT FAILED TO SET ERROR BIT.
1339  004700                          B0025:
1340  004700  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1341  004704  000400                          BR      T0026           ;GO ON TO THE NEXT TEST
1342                                  ;TEST THAT TC11 CONTROL DETECTS END ZONE MARK CODES. A SUBROUTINE PROVIDES
1343                                  ;TIMING AND MARK DATA WHILE CONTROL IS IN RNUM COMMAND. WHEN THE ENDZ
1344                                  ;MARK CODE IS SHIFTED INTO THE WINDOW, THE ENDZ AND ERROR BITS SHOULD SET.
1345                                  .SBTTL T0026
1346                                  ;******************************************************************************
1347  004706  000004                  T0026:  SCOPE
1348  004710  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1349  004714  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1350  004720  000026                          00026                   ;HERE LIES THE NUMBER OF THIS TEST
1351  004722  004537  012474          R0026:  JSR     R5,BMOVE        ;SET END CODE IN MARK TRACK.
1352  004726  032644                          MTKEND
1353  004730  032716                          MTK5
1354  004732  000006                          6
1355  004734  012777  020003  174270          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
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004742                                  MTCOD   MTK7,5
004742  004537  012522                  JSR     R5,LMTCOD         ;CALL LOAD MT CODES SUB.
004746  032666                          MTK7                      ;ADDRESS OF MARK TRACK CODES.
004750  000005                          5                         ;MARK TRACK CODE COUNT.
004752  005777  174252                  TST     @TCST             ;ENDZ BIT SET?
004756  100402                          BMI     A0026             ;BR IF ENDZ BIT IS SET.
004760  104034                          ERROR 34                  ;ENDZ MARK FAILED TO SET ENDZ BIT.
004762  000404                          BR      B0026
004764  005777  174242          A0026:  TST     @TCCM             ;ERROR BIT SET?
004770  100401                          BMI     B0026             ;BR IF ERROR BIT IS SET.
004772  104035                          ERROR 35                  ;ENDZ BIT FAILED TO SET ERROR BIT.
004774                          B0026:
004774  012706  001000                  MOV     #1000,SP          ;RESTORE THE STACK POINTER
005000  000400                          BR      T0027             ;GO ON TO THE NEXT TEST
                                ;TEST THAT TC11 CONTROL DOES NOT RECOGNIZE MARK TRACK CODE 55 AS END ZONE
                                ;BLOCK MARK. SUBROUTINE PROVIDES TIMING AND MARK DATA.
                                .SBTTL T0027
                                ;*********************************************************************
005002  000004                  T0027:  SCOPE
005004  012706  001000                  MOV     #1000,SP          ;SETUP THE STACK POINTER
005010  004737  011614                  JSR     PC,TORDER         ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
005014  000027                          00027                     ;HERE LIES THE NUMBER OF THIS TEST
005016  004537  012474          R0027:  JSR     R5,BMOVE          ;SET CODE 55 IN MARK TRACK.
005022  032652                          MTK55
005024  032716                          MTK5
005026  000006                          6
005030  005077  174176                  CLR     @TCCM
005034  012777  020003  174170          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
005042                                  MTCOD   MTK7,5
005042  004537  012522                  JSR     R5,LMTCOD         ;CALL LOAD MT CODES SUB.
005046  032666                          MTK7                      ;ADDRESS OF MARK TRACK CODES.
005050  000005                          5                         ;MARK TRACK CODE COUNT.
005052  005777  174152                  TST     @TCST             ;ENDZ BIT SET?
005056  100002                          BPL     A0027             ;BR IF NOT SET.
005060  104036                          ERROR 36                  ;MARK CODE 55 INTERPRETED AS END ZONE.
005062  000404                          BR      B0027
005064  005777  174142          A0027:  TST     @TCCM             ;ERROR BIT SET?
005070  100001                          BPL     B0027             ;BR IF NO ERROR.
005072  104037                          ERROR 37                  ;ERROR BIT SET. EXAMINE TCST.
005074                          B0027:
005074  012706  001000                  MOV     #1000,SP          ;RESTORE THE STACK POINTER
005100  000400                          BR      T0030             ;GO ON TO THE NEXT TEST
                                ;TEST THAT TC11 INTERRUPTS. RNUM COMMAND IS ISSUED. SUBROUTINE PROVIDES
                                ;TIMING AND MARK. WHEN BLOCK IS FOUND INTERRUPT SHOULD OCCUR.
                                .SBTTL T0030
                                ;*********************************************************************
005102  000004                  T0030:  SCOPE
005104  012706  001000                  MOV     #1000,SP          ;SETUP THE STACK POINTER
005110  004737  011614                  JSR     PC,TORDER         ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
005114  000030                          00030                     ;HERE LIES THE NUMBER OF THIS TEST
005116  004737  012022          R0030:  JSR     PC,STTCV          ;SET INTERRUPT VECTOR TO UE.
005122  005162                          00030
005124  005077  174102                  CLR     @TCCM
005130  012777  020103  174074          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
005136                                  MTCOD   MTK7,4
005136  004537  012522                  JSR     R5,LMTCOD         ;CALL LOAD MT CODES SUB.
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1412  005142  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1413  005144  000004                          4                       ;MARK TRACK CODE COUNT.
1414  005146  105777  174060                  TSTB    @TCCM           ;READY SET?
1415  005152  100402                          BMI     A0030           ;BR IF READY SET.
1416  005154  104040                          ERROR 40                ;READY DID NOT SET.
1417  005156  000401                          BR      D0030
1418  005160  104003                  A0030:  ERROR 3                 ;READY FAILED TO INTERRUPT.
1419  005162                           D0030:
1420  005162  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1421  005166  000400                          BR      T0031           ;GO ON TO THE NEXT TEST
1422                                   ;TEST THAT TC11 IS ABLE TO TRANSFER ONE WORD TO CORE STORAGE. SUBROUTINE
1423                                   ;PROVIDES TIMING AND MARK. AFTER BLOCK IS "FOUND" TEST SWITCHES TO
1424                                   ;RDATA COMMAND WITH WORD COUNT OF -1.
1425                                   .SBTTL T0031
1426                                   ;******************************************************************************
1427  005170  000004                  T0031:  SCOPE
1428  005172  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1429  005176  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1430  005202  000031                          D0031                   ;HERE LIES THE NUMBER OF THIS TEST
1431  005204  004737  012316          R0031:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1432  005210  004737  012022                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO VG.
1433  005214  005360                          G0031
1434  005216  005077  174010                  CLR     @TCCM
1435  005222  012777  020103  174002          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1436  005230                                   MTCOD   MTK7,7
1437  005230  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1438  005234  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1439  005236  000007                          7                       ;MARK TRACK CODE COUNT.
1440  005240  005777  173766                  TST     @TCCM           ;ERROR BIT SET?
1441  005244  100002                          BPL     A0031           ;BR IF NO ERROR.
1442  005246  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1443  005250  000440                          BR      F0031
1444  005252  105777  173754          A0031:  TSTB    @TCCM           ;READY BIT SET?
1445  005256  100002                          BPL     B0031           ;BR IF READY NOT SET.
1446  005260  104042                          ERROR 42                ;READY SHOULD NOT BE SET.
1447  005262  000433                          BR      F0031
1448  005264  022737  050505  036010  B0031:  CMP     #50505,RBUF     ;SEE IF 1ST WORD IN RBUF IS 50505.
1449  005272  001405                          BEQ     C0031           ;BR IF WORD IS 50505.
1450  005274  012737  050505  001154          MOV     #50505,$REG0    ;GOOD DATA FOR PRINTOUT
1451  005302  104043                          ERROR 43                ;WORD IN RBUF IS NOT 50505. EXAMINE RBUF.
1452  005304  000422                          BR      F0031           ;TRANSFER MAY NOT HAVE OCCURRED.
1453  005306  005777  173722          C0031:  TST     @TCWC           ;WORD COUNT 0?
1454  005312  001407                          BEQ     D0031           ;BR IF WORD COUNT IS 0.
1455  005314  017737  173714  001164          MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1456  005322  005077  173626                  CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1457  005326  104044                          ERROR 44                ;WORD COUNT NOT 0.
1458  005330  000410                          BR      F0031
1459  005332  022777  036012  173676  D0031:  CMP     #RBUF+2,@TCBA   ;DID BUS ADDRESS INCREMENT CORRECTLY?
1460  005340  001404                          BEQ     F0031           ;BR IF TCBA IS CORRECT.
1461  005342  017737  173670  001164          MOV     @TCBA,$REG4
1462  005350  104045                          ERROR 45                ;TCBA DID NO  INCREMENT OR DID IT INCORRECTLY.
1463  005352                           F0031:
1464  005352  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1465  005356  000421                          BR      T0032           ;GO ON TO THE NEXT TEST
1466  005360  005777  173646          G0031:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR BIT SET?
1467  005364  100004                          BPL     I0031           ;BR IF NO ERROR.
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 1468  005366  104041                          ERROR 41                ;ERROR BI  SET. EXAMINE TCST.
 1469
 1470  005370  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
 1471  005374  000412                          BR      T0032           ;GO ON TO THE NEXT TEST
 1472  005376  012777  177777  173630  I0031:  MOV     #-1,@TCWC       ;SET WORD COUNT TO -1.
 1473  005404  012777  036010  173624          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
 1474  005412  112777  000005  173612          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
 1475  005420  000002                          RTI                     ;EXIT INTERRUPT.
 1476                                  ;TEST THAT RDATA COMMAND WITH WORD COUNT SET TO -1 TRANSFERS ONLY ONE WORD.
 1477                                  ;THAT READY IS SET WHEN THE ENTIRE 256 WORD BLOCK HAS BEEN PROCESSED, AND
 1478                                  ;THAT NO PARITY ERROR OCCURS. TEST DONE UNDER MAINTENANCE MODE.
 1479                                  .SBTTL T0032
 1480                                  ;*************************************************************************
 1481  005422  000004                  T0032:  SCOPE
 1482  005424  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
 1483  005430  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
 1484  005434  000032                          00032                   ;HERE LIES THE NUMBER OF THIS TEST
 1485  005436  004737  012316          R0032:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
 1486  005442  004737  012022                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO WI.
 1487  005446  005632                          I0032
 1488  005450  005077  173556                  CLR     @TCCM
 1489  005454  012777  020103  173550          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
 1490  005462                                  MTCOD   MTK7,267.
 1491  005462  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
 1492  005466  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
 1493  005470  000413                          267.                    ;MARK TRACK CODE COUNT.
 1494  005472  005777  173534                  TST     @TCCM           ;ERROR BIT SET?
 1495  005476  100010                          BPL     B0032           ;BR IF NO ERROR.
 1496  005500  032777  040000  173522          BIT     #BIT14,@TCST    ;WAS IT PARITY ERROR?
 1497  005506  001402                          BEQ     A0032           ;BR IF NOT PARITY ERROR.
 1498  005510  104046                          ERROR 46                ;PARITY ERROR.
 1499  005512  000444                          BR      H0032
 1500  005514  104041          A0032:          ERROR 41                ;ERROR BIT SET. NOT DUE TO PARITY ERROR.
 1501  005516  000442                          BR      H0032
 1502  005520  105777  173506          B0032:  TSTB    @TCCM           ;READY BIT SET?
 1503  005524  100402                          BMI     C0032           ;BR IF READY IS SET.
 1504  005526  104047                          ERROR 47                ;READY FAILED TO SET AFTER COMPLETION
 1505  005530  000436                          BR      H0032           ;OF RDATA COMMAND.
 1506  005532  022737  050505  036010  C0032:  CMP     #50505,RBUF     ;1ST WORD EQUAL 50505?
 1507  005540  001405                          BEQ     D0032           ;BR IF WORD IS 50505.
 1508  005542  012737  050505  001154          MOV     #50505,$REG0    ;GOOD DATA FOR PRINTOUT
 1509  005550  104043                          ERROR 43                ;1ST WORD DID NOT TRANSFER TO RBUF CORRECTLY.
 1510  005552  000424                          BR      H0032
 1511  005554  005737  036012          D0032:  TST     RBUF+2          ;RBUF+2 EQUAL 0?
 1512  005560  001402                          BEQ     F0032           ;BR IF RBUF+2 EQUAL 0.
 1513  005562  104050                          ERROR 50                ;RBUF+2 NOT 0. NO DATA SHOULD HAVE
 1514  005564  000417                          BR      H0032           ;TRANSFERRED TO IT.
 1515  005566  005777  173442          F0032:  TST     @TCWC           ;WORD COUNT 0?
 1516  005572  001407                          BEQ     G0032           ;BR IF WORD COUNT IS 0.
 1517  005574  017737  173434  001164          MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOF PRINTOUT
 1518  005602  005077  173346                  CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
 1519  005606  104044                          ERROR 44                ;WORD COUNT NOT 0.
 1520  005610  000405                          BR      H0032
 1521  005612  022777  036012  173416  G0032:  CMP     #RBUF+2,@TCBA   ;IS BUS ADDR CORRECT?
 1522  005620  001401                          BEQ     H0032           ;BR IF TCBA OK.
 1523  005622  104045                          ERROR 45                ;TCBA ADDR INCORRECT. SHOULD CONTAIN RBUF+2.
```

```
1524  005624                                  H0032:
1525  005624  012706  001000                          MOV     #1000,SP        ;RESTORE THE STACK POINTER
1526  005630  000421                          I0032:  BR      T0033           ;GO ON TO THE NEXT TEST
1527  005632  005777  173374                          TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1528  005636  100004                                  BPL     K0032           ;BR IF NO ERROR.
1529  005640  104041                                  ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1530
1531  005642  012706  001000                          MOV     #1000,SP        ;RESTORE THE STACK POINTER
1532  005646  000412                                  BR      T0033           ;GO ON TO THE NEXT TEST
1533  005650  012777  177777  173356  K0032:  MOV     #-1,@TCWC       ;SET WORD COUNT TO -1.
1534  005656  012777  036010  173352          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1535  005664  112777  000005  173340          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1536  005672  000002                          RTI                     ;EXIT INTERRUPT.
1537                                  ;TEST THAT TC11 IS ABLE TO DETECT INCORRECT PARITY. RDATA COMMAND IS ISSUED.
1538                                  ;TCWC=-1. BLOCK TO BE READ CONTAINS BAD CHECKSUM. TEST DONE IN MAINT. MODE.
1539                                  .SBTTL T0033
1540                                  ;*************************************************************************
1541  005674  000004                  T0033:  SCOPE
1542  005676  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1543  005702  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1544  005706  000033                          00033                   ;HERE LIES THE NUMBER OF THIS TEST
1545  005710  004737  013000          R0033:  JSR     PC,MBCKSM       ;BAD CHECKSUM TO FCKSM.
1546  005714  004737  012316                  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1547  005720  004737  012022                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO XE.
1548  005724  006042                          00033
1549  005726  005077  173300                  CLR     @TCCM
1550  005732  012777  020103  173272          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1551  005740                                  MTCOD   MTK7,267.
1552  005740  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1553  005744  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1554  005746  000413                          267.                    ;MARK TRACK CODE COUNT.
1555  005750  032777  040000  173252          BIT     #BIT14,@TCST    ;PARITY ERROR SET?
1556  005756  001005                          BNE     A0033           ;BR IF PARITY ERROR SET.
1557  005760  017737  173250  001154          MOV     @TCWC,$REG0
1558  005766  104052                          ERROR 52                ;PARITY ERROR NOT DETECTED.(BIT NOT SET).
1559  005770  000421                          BR      C0033
1560  005772  005777  173234          A0033:  TST     @TCCM           ;ERROR BIT SET?
1561  005776  100405                          BMI     B0033           ;BR IF ERROR BIT SET.
1562  006000  017737  173230  001154          MOV     @TCWC,$REG0
1563  006006  104053                          ERROR 53                ;PARITY ERROR DID NOT SET ERROR BIT.
1564  006010  000411                          BR      C0033
1565  006012  005077  173214          B0033:  CLR     @TCCM           ;CLEAR COMMAND REGISTER.
1566  006016  005777  173210                  TST     @TCCM           ;ERROR BIT CLEAR?
1567  006022  100004                          BPL     C0033           ;BR IF ERROR BIT IS CLEAR.
1568  006024  017737  173204  001154          MOV     @TCWC,$REG0
1569  006032  104054                          ERROR 54                ;CLEARING TCCM FAILED TO CLEAR PARITY ERROR.
1570  006034                          C0033:
1571  006034  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1572  006040  000421                          BR      T0034           ;GO ON TO THE NEXT TEST
1573  006042  005777  173164          D0033:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1574  006046  100004                          BPL     G0033           ;BR IF NO ERROR.
1575  006050  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1576
1577  006052  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1578  006056  000412                          BR      T0034           ;GO ON TO THE NEXT TEST
1579  006060  012777  177777  173146  G0033:  MOV     #-1,@TCWC       ;-1 TO WORD COUNT.
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1580  006066  012777  036010  173142          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1581  006074  112777  000005  173130          MOVB    #RDATA!DO,@TCCM ;RDATA COMMAND.
1582  006102  000002                          RTI                     ;EXIT INTERRUPT.
1583                                  ;READ 256 WORDS WITH RDATA COMMAND UNDER MAINTENANCE MODE. ALL DATA SHOULD
1584                                  ;TRANSFER CORRECTLY. NO CONTROL ERRORS SHOULD OCCUR.
1585                                  .SBTTL T0034
1586                                  ;*****************************************************************************
1587  006104  000004                  T0034:  SCOPE
1588  006106  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1589  006112  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1590  006116  000034                          0034                    ;HERE LIES THE NUMBER OF THIS TEST
1591  006120  004737  012316          R0034:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1592  006124  004737  012022                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO YF.
1593  006130  006246                          F0034
1594  006132  005077  173074                  CLR     @TCCM
1595  006136  012777  020103  173066          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1596  006144                                  MTCOD   MTK7,267.
1597  006144  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1598  006150  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1599  006152  000413                          267.                    ;MARK TRACK CODE COUNT.
1600  006154  005777  173052                  TST     @TCCM           ;ERROR BIT SET?
1601  006160  100002                          BPL     A0034           ;BR IF NO ERROR.
1602  006162  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1603  006164  000425                          BR      D0034
1604  006166  005777  173042          A0034:  TST     @TCWC           ;WORD COUNT 0?
1605  006172  001407                          BEQ     B0034           ;BR IF WORD COUNT IS 0.
1606  006174  017737  173034  001164          MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1607  006202  005077  172746                  CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1608  006206  104044                          ERROR 44                ;WORD COUNT NOT 0.
1609  006210  000413                          BR      D0034
1610  006212  022777  037010  173016  B0034:  CMP     #RBUF+512.,@TCBA;BUS ADDR CORRECT?
1611  006220  001402                          BEQ     C0034           ;BR IF TCBA OK.
1612  006222  104051                          ERROR 51                ;TCBA INCORRECT. SHOULD BE EQUAL TO
1613  006224  000405                          BR      D0034           ;RBUF+512.
1614  006226  004537  013014          C0034:  JSR     R5,CKDAT        ;COMPARE 256 WORDS STARTING AT RBUF.
1615  006232  001270                          SBDAT1                  ;REPORT ANY ERRORS.
1616  006234  036010                          RBUF
1617  006236  000400                          256.
1618  006240                          D0034:
1619  006240  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1620  006244  000421                          BR      T0035           ;GO ON TO THE NEXT TEST
1621  006246  005777  172760          F0034:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1622  006252  100004                          BPL     H0034           ;BR IF NO ERROR.
1623  006254  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1624
1625  006256  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1626  006262  000412                          BR      T0035           ;GO ON TO THE NEXT TEST
1627  006264  012777  177400  172742  H0034:  MOV     #-256.,@TCWC    ;-256 TO WORD COUNT.
1628  006272  012777  036010  172736          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1629  006300  112777  000005  172724          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1630  006306  000002                          RTI                     ;EXIT INTERRUPT.
1631                                  ;READ 2 DATA BLOCKS (512 WORDS) WITH RDATA COMMAND UNDER MAINTENANCE MODE.
1632                                  ;ALL DATA SHOULD TRANSFER CORRECTLY. NO ERRORS SHOULD OCCUR.
1633                                  .SBTTL T0035
1634                                  ;*****************************************************************************
1635  006310  000004                  T0035:  SCOPE
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1636  006312  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1637  006316  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1638  006322  000035                          00035                   ;HERE LIES THE NUMBER OF THIS TEST
1639  006324  004737  012316          R0035:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1640  006330  004737  012022                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TOZF.
1641  006334  006 52                          F0035
1642  006336  005077  172670                  CLR     @TCCM
1643  006342  012777  020103  172662          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1644  006350                                  MTCOD   MTK7,534.
1645  006350  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1646  006354  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1647  006356  001026                          534.                    ;MARK TRACK CODE COUNT.
1648  006360  005777  172646                  TST     @TCCM           ;ERROR BIT SET?
1649  006364  100002                          BPL     A0035           ;BR IF NO ERROR.
1650  006366  104041                          ERROR 41                ;ERROR BIT SET EXAMINE TCST.
1651  006370  000425                          BR      D0035
1652  006372  005777  172636          A0035:  TST     @TCWC           ;WORD COUNT 0?
1653  006376  001407                          BEQ     B0035           ;BR IF WORD COUNT IS 0.
1654  006400  017737  172630  001164          MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1655  006406  005077  172542                  CLR     @$REG0  ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1656  006412  104044                          ERROR 44                ;WORD COUNT NOT 0.
1657  006414  000413                          BR      D0035
1658  006416  022777  040010  172612  B0035:  CMP     #RBUF+1024.,@TCBA;TCBA CORRECT?
1659  006424  001402                          BEQ     C0035           ;BR IF TCBA IS OK.
1660  006426  104045                          ERROR 45                ;TCBA INCORRECT. SHOULD BE RBUF+1024.
1661  006430  000405                          BR      D0035
1662  006432  004537  013014          C0035:  JSR     R5,CKDAT        ;COMPARE 512 WORDS STARTING AT RBUF.
1663  006436  001270                          SPDAT1                  ;REPORT ANY ERRORS.
1664  006440  036010                          RBUF
1665  006442  001000                          512.
1666  006444                          D0035:
1667  006444  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1668  006450  000421                          BR      T0036           ;GO ON TO THE NEXT TEST
1669  006452  005777  172554          F0035:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1670  006456  100004                          BPL     H0035           ;BR IF NO ERROR.
1671  006460  104041                          ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1672
1673  006462  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1674  006466  000412                          BR      T0036           ;GO ON TO THE NEXT TEST
1675  006470  012777  177000  172536  H0035:  MOV     #-512.,@TCWC    ;-512 TO WORD COUNT.
1676  006476  012777  036010  172532          MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1677  006504  112777  000005  172520          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1678  006512  000002                          RTI                     ;EXIT INTERRUPT.
1679                          ;READ 1.5 BLOCKS (384 WORDS) WITH RDATA COMMAND UNDER MAINTENANCE MODE.
1680                          ;ALL DATA SHOULD TRANSFER CORRECTLY. NO ERRORS SHOULD OCCUR.
1681                          .SBTTL T0036
1682                          ;******************************************************************************
1683  006514  000004          T0036:  SCOPE
1684  006516  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1685  006522  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1686  006526  000036                          00036                   ;HERE LIES THE NUMBER OF THIS TEST
1687  006530  004737  012316          R0035:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
1688  006534  004737  012022                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO A1F.
1689  006540  006654                          F0036
1690  006542  005077  172464                  CLR     @TCCM
1691  006546  012777  020103  172456          MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
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1692  006554                                    MTCOD   MTK7,534.
1693  006554  004537  012522                    JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1694  006560  032666                            MTK7                    ;ADDRESS OF MARK TRACK CODES.
1695  006562  001026                            534.                    ;MARK TRACK CODE COUNT.
1696  006564  005777  172442                    TST     @TCCM           ;ERROR BIT SET?
1697  006570  100002                            BPL     A0036           ;BR IF NO ERROR.
1698  006572  104041                            ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1699  006574  000424                            BR      D0036
1700  006576  005777  172432          A0036:    TST     @TCWC           ;WORD COUNT 0?
1701  006602  001407                            BEQ     B0036           ;BR IF WORD COUNT 0.
1702  006604  017737  172424  001164            MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
1703  006612  005077  172336                    CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
1704  006616  104044                            ERROR 44                ;WORD COUNT NOT 0.
1705  006620  000412                            BR      D0036
1706  006622  022777  037410  172406  B0036:    CMP     #RBUF+768.,@TCBA        ;TCBA CORRECT?
1707  006630  001401                            BEQ     C0036           ;BR IF TCBA OK.
1708  006632  104045                            ERROR 45                ;TCBA INCORRECT. SHOULD BE RBUF+768.
1709  006634  004537  013014          C0036:    JSR     R5,CKDAT        ;COMPARE 384 WORDS STARTING AT RBUF.
1710  006640  001270                            SBDAT1                  ;REPORT ANY ERRORS.
1711  006642  036010                            RBUF
1712  006644  000600                            384.
1713  006646                           D0036:
1714  006646  012706  001000                    MOV     #1000,SP        ;RESTORE THE STACK POINTER
1715  006652  000421                            BR      T0037           ;GO ON TO THE NEXT TEST
1716  006654  005777  172352          F0036:    TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
1717  006660  100004                            BPL     H0036           ;BR IF NO ERROR.
1718  006662  104041                            ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
1719
1720  006664  012706  001000                    MOV     #1000,SP        ;RESTORE THE STACK POINTER
1721  006670  000412                            BR      T0037           ;GO ON TO THE NEXT TEST
1722  006672  012777  177200  172334  H0036:    MOV     #-384.,@TCWC    ;-384 TO WORD COUNT.
1723  006700  012777  036010  172330            MOV     #RBUF,@TCBA     ;SET BUS ADDR TO RBUF.
1724  006706  112777  000005  172316            MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1725  006714  000002                            RTI                     ;EXIT INTERRUPT.
1726                           ;COMPLEMENT OBVERSE READ TEST.  READ ONE BLOCK (256 WORDS) WITH RDATA IN REVERSE.
1727                           ;ALL DATA SHOULD COMPLEMENT OBVERSE CORRECTLY.  NO CONTROL ERRORS SHOULD OCCUR.
1728                           .SBTTL T0037
1729                           ;**********************************************************************
1730  006716  000004          T0037:    SCOPE
1731  006720  012706  001000                    MOV     #1000,SP        ;SETUP THE STACK POINTER
1732  006724  004737  011614                    JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1733  006730  000037                            D0037                   ;HERE LIES THE NUMBER OF THIS TEST
1734  006732  004737  012316          R0037:    JSR     PC,CLRBUF       ;CLEAR READ BUFFER
1735  006736  004737  012022                    JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO B1D
1736  006742  007020                            C0037
1737  006744  005077  172262                    CLR     @TCCM
1738  006750  012777  024103  172254            MOV     #MAINT!UO!REV!IE!RNUM!DO,@TCCM
1739  006756                                    MTCOD   MTK7,267.
1740  006756  004537  012522                    JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1741  006762  032666                            MTK7                    ;ADDRESS OF MARK TRACK CODES.
1742  006764  000413                            267.                    ;MARK TRACK CODE COUNT.
1743  006766  005777  172240                    TST     @TCCM           ;ERROR BIT SET?
1744  006772  100002                            BPL     A0037           ;BR IF NO ERROR.
1745  006774  104041                            ERROR 41                ;ERROR BIT SET.  EXAMINE TCST.
1746  006776  000405                            BR      B0037
1747  007000  004537  013014          A0037:    JSR     R5,CKDAT        ;COMPARE 256 WORDS STARTING AT RBUF.
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1748  007004  001274                          SBDAT2                  ;REPORT ANY ERRORS.
1749  007006  036010                          RBUF
1750  007010  000400                          256.
1751  007012                          B0037:
1752  007012  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1753  007016  000421                          BR      T0040           ;GO ON TO THE NEXT TEST
1754  007020  005777  172206          C0037:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS.  ERROR.
1755  007024  100004                          BPL     F0037           ;BR IF NO ERROR.
1756  007026  104041                          ERROR 41                ;ERROR BIT SET.  EXAMINE TCST.
1757
1758  007030  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1759  007034  000412                          BR      T0040           ;GO ON TO THE NEXT TEST
1760  007036  012777  177400  172170  F0037:  MOV     #-256.,@TCWC    ;-256 TO AND COUNT.
1761  007044  012777  036010  172164          MOV     #RBUF,@TCBA     ;ADDR OF RBUF TO BUS ADDRESS.
1762  007052  112777  000005  172152          MOVB    #RDATA!DO,@TCCM ;READ DATA COMMAND.
1763  007060  000002                          RTI                     ;EXIT INTERRUPT
1764                                  ;CHECK FOR CORRECT OPERATION OF BLOCK MISS ERROR.
1765                                  .SBTTL T0040
1766                                  ;******************************************************************************
1767  007062  000004                  T0040:  SCOPE
1768  007064  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
1769  007070  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1770  007074  000040                          0040                    ;HERE LIES THE NUMBER OF THIS TEST
1771  007076  005077  172130          R0040:  CLR     @TCCM
1772  007102  012777  177776  172124          MOV     #-2,@TCWC       ;-2 TO WORD COUNT.
1773  007110  012777  036010  172120          MOV     #RBUF,@TCBA     ;RBUF ADDR TO TCBA.
1774  007116  012777  020003  172106          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1775  007124                                  MTCOD   MTK7,5
1776  007124  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1777  007130  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1778  007132  000005                          5                       ;MARK TRACK CODE COUNT.
1779  007134  005777  172072                  TST     @TCCM           ;ERROR BIT SET?
1780  007140  100002                          BPL     A0040           ;BR IF NO ERROR.
1781  007142  104041                  R0040A: ERROR 41                ;ERROR BIT SET EXAMINE TCST.
1782  007144  000506                          BR      F0040
1783  007146  112777  000005  172056  A0040:  MOVB    #RDATA!DO,@TCCM ;ISSUE RDATA COMMAND.
1784  007154                                  MTCOD   MTK7A,2
1785  007154  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1786  007160  032724                          MTK7A                   ;ADDRESS OF MARK TRACK CODES.
1787  007162  000002                          2                       ;MARK TRACK CODE COUNT.
1788  007164  032777  002000  172036          BIT     #BIT10,@TCST    ;BLOCK MISS ERROR SET?
1789  007172  001405                          BEQ     F0040           ;BR IF NO BLOCK MISS.  OK.
1790  007174  017737  172024  001154          MOV     @TCWC,$REGD     ;MAKE WORD COUNT INFO PRINTABLE
1791  007202  104055                          ERROR 55                ;BLOCK MISS SET WHEN RDATA ISSUED JUST
1792  007204  000466                          BR      F0040           ;BEFORE REV CHECK MARK.  SHOULDN'T HAVE.
1793  007206  005077  172020                  CLR     @TCCM
1794  007212  012777  177776  172014          MOV     #-2,@TCWC       ;-2 TO WORD COUNT.
1795  007220  012777  036010  172010          MOV     #RBUF,@TCBA     ;RBUF ADDR TO TCBA.
1796  007226  012777  020003  171776          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
1797  007234                                  MTCOD   MTK7,6
1798  007234  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1799  007240  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
1800  007242  000006                          6                       ;MARK TRACK CODE COUNT.
1801  007244  005777  171762                  TST     @TCCM           ;ERROR BIT SET?
1802  007250  100734                          BMI     R0040A          ;BR IF ERROR BIT SET?
1803  007252  112777  000005  171752          MOVB    #RDATA!DO,@TCCM ;ISSUE RDATA COMMAND.
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 1804  007260                                          MTCOD   MTK7B,2
 1805  007260  004537  012522                         JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
 1806  007264  032732                                 MTK7B                   ;ADDRESS OF MARK TRACK CODES
 1807  007266  000002                                 2                       ;MARK TRACK CODE COUNT.
 1808  007270  032777  002000  171732                 BIT     #BIT13,@TCST    ;BLOCK MISS ERROR SET?
 1809  007276  001005                                 BNE     C0040           ;BR IF BLOCK MISS.
 1810  007300  017737  171730  001154                 MOV     @TCWC,$REG0     ;MAKE WORD COUNT INFO PRINTABLE
 1811  007306  104056                                 ERROR 56                ;BLOCK MISS FAILED TO SET WHEN RDATA ISSUED
 1812  007310  000424                                 BR      F0040           ;REGISTER REV CHECK WORK.  IT SHOULD HAVE.
 1813  007312  005777  171714          C0040:  TST     @TCCM           ;ERROR BIT SET?
 1814  007316  100405                                 BMI     D0040           ;BR IF ERROR BIT SET.
 1815  007320  017737  171710  001154                 MOV     @TCWC,$REG0     ;MAKE WORD COUNT INFO PRINTABLE
 1816  007326  104057                                 ERROR 57                ;BLOCK MISS FAILED TO SET ERROR BIT.
 1817  007330  000414                                 BR      F0040
 1818  007332  005077  171674          D0040:  CLR     @TCCM           ;CLEAR ERROR BIT.
 1819  007336  032777  002000  171666                 BIT     #BIT10,@TCCM    ;BLOCK MISS CLEARED?
 1820  007344  001406                                 BEQ     F0040           ;BR IF BLOCK MISS CLEARED.
 1821  007346  017737  171662  001154                 MOV     @TCWC,$REG0     ;MAKE WORD COUNT INFO PRINTABLE
 1822  007354  104060                                 ERROR 60                ;TO ERROR FAILED TO CLEAR BLOCK MISS.
 1823  007356  004737  012046                         JSR     PC,SRSETT
 1824  007362                          F0040:
 1825  007362  012706  001000                         MOV     #1000,SP        ;RESTORE THE STACK POINTER
 1826  007366  000400                                 BR      T0041           ;GO ON TO THE NEXT TEST
 1827                                  ;READ ALL TEST (RALL)
 1828                                  ;AFTER BLOCK IS FOUND, SWITCH TO RALL.  READ 258 WORDS.  1ST WORD READ SHOULD BE
 1829                                  ;THE REVERSE CHECKSUM (SHOULD BE 0).  LAST WORD READ SHOULD BE THE FORWARD
 1830                                  ;CHECKSUM (SHOULD BE 770000).  ALL OTHER WORDS SHOULD BE DATA.
 1831                                  .SBTTL T0041
 1832                                  ;*****************************************************************************
 1833  007370  000004                  T0041:  SCOPE
 1834  007372  012706  001000                         MOV     #1000,SP        ;SETUP THE STACK POINTER
 1835  007376  004737  011614                         JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PROPER SEQUENCE
 1836  007402  000041                                 0041                    ;HERE LIES THE NUMBER OF THIS TEST
 1837  007404  004737  012316          R0041:  JSR     PC,CLRBUF       ;CLEAR READ BUFFER.
 1838  007410  004737  012022                         JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO EIF.
 1839  007414  007604                                 F0041
 1840  007416  005077  171610                         CLR     @TCCM
 1841  007422  012777  020103  171602                 MOV     #MAINT!UO!FWD!IE!RNUM!D0,@TCCM
 1842  007430                                         MTCOD   MTK7,257.
 1843  007430  004537  012522                         JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
 1844  007434  032666                                 MTK7                    ;ADDRESS OF MARK TRACK CODES.
 1845  007436  000413                                 257.                    ;MARK TRACK CODE COUNT.
 1846  007440  005777  171566          R0041A: TST     @TCCM           ;ERROR BIT SET?
 1847  007444  100002                                 BPL     R0041B          ;BR IF NO ERROR.
 1848  007446  104041                                 ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
 1849  007450  000461                                 BR      G0041
 1850  007452  017724  171562          R0041B: MOV     @TCDT,(4)+      ;SAVE DATA IN READ BUFFER.
 1851  007456  005337  001266                         DEC     CTRA            ;258 WORDS READ?
 1852  007462  001401                                 BEQ     A0041           ;BR IF 258 WORDS READ.
 1853  007464  000002                                 RTI                     ;NOT DONE YET.  EXIT INTERRUPT.
 1854  007466  005737  036010          A0041:  TST     RBUF            ;1ST WORD IN RBUF EQUAL 0?
 1855  007472  001416                                 BEQ     D0041           ;BR IF 1ST WORD IS 0.
 1856  007474  022737  055555  036010                 CMP     #55555,RBUF     ;1ST WORD EQUAL 55555?
 1857  007502  001002                                 BNE     B0041           ;BR IF NOT 55555.
 1858  007504  104043                                 ERROR 43                ;55555.  1ST WORD READ WITH RALL WAS
 1859  007506  000442                                 BR      G0041           ;REV GUARD INSTEAD OF REV CHECKSUM.
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1860  007510  022737  066666  036010  B0041:  CMP     #66666,RBUF     ;1ST WORD EQUAL 66666?
1861  007516  001002                          BNE     C0041           ;BR IF NOT 66666.
1862  007520  104043                          ERROR 43                ;66666.  1ST WORD READ WITH RALL WAS
1863  007522  000434                          BR      G0041           ;REV LOCK INSTEAD OF REV CHECKSUM.
1864  007524  104043                  C0041:  ERROR 43                ;1ST WORD READ WITH RALL WAS NOT
1865  007526  000432                          BR      G0041           ;REV CHECKSUM.  EXAMINE RBUF (1ST WORD).
1866  007530  004537  013014          D0041:  JSR     R5,CKDAT
1867  007534  001270                          SBDAT1
1868  007536  036012                          RBUF+2
1869  007540  000400                          256.
1870  007542  022737  170000  037012          CMP     #170000,RBUF+514.;FWD CHKSUM EQUAL 170000? 1ST WORD READ.
1871  007550  001402                          BEQ     D0041A
1872  007552  104061                          ERROR 61                ;LAST WORD READ SHOULD HAVE BEEN THE FWD CHECKSUM.
1873  007554  000417                          BR      G0041           ;IN CORE IT SHOULD BE 170000.
1874  007556  005777  171452          D0041A: TST     @TCWC           ;WORD COUNT STILL 0?
1875  007562  001402                          BEQ     D0041B
1876  007564  104062                          ERROR 62                ;TCWC (WORD COUNT) WAS MODIFIED DURING
1877  007566  000412                          BR      G0041           ;RALL.  SHOULDN'T HAVE.
1878  007570  022777  036010  171440  D0041B: CMP     #RBUF,@TCBA     ;BUS ADDRESS STILL EQUAL #RBUF?
1879  007576  001406                          BEQ     G0041
1880  007600  104063                          ERROR 63                ;TCBA (BUS ADDRESS) MODIFIED DURING
1881  007602  000404                          BR      G0041           ;RALL.  SHOULDN'T HAVE.
1882  007604  005777  171422          F0041:  TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS.  ERROR!
1883  007610  100004                          BPL     I0041           ;BR IF NO ERROR.
1884  007612  104041                          ERROR 41                ;ERROR BIT SET.  EXAMINE TCST.
1885  007614                          G0041:
1886  007614  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
1887  007620  000421                          BR      T0042           ;GO ON TO THE NEXT TEST
1888  007622  012737  000402  001266  I0041:  MOV     #258.,CTRA      ;NUMBER OF WORDS TO READ TO CTRA.
1889  007630  012704  036010                  MOV     #RBUF,R4        ;ADDR TO STORE DATA TO R4.
1890  007634  005077  171374                  CLR     @TCWC           ;ZERO WORD COUNT.
1891  007640  012777  036010  171370          MOV     #RBUF,@TCBA     ;SET BUS ADDRESS TO RBUF.
1892  007646  004737  012022                  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO E1AA.
1893  007652  007440                          R0041A
1894  007654  112777  000107  171350          MOVB    #RALL!IE!DO,@TCCM       ;RALL COMMAND.
1895  007662  000002                          RTI                     ;EXIT INTERRUPT.
1896                          ;DATA MISS TEST. TEST THAT DATA MISS ERROR SETS WHEN DATA REGISTER (TCDT) IS
1897                          ;NOT REFERENCED UNDER RALL COMMAND, BEFORE THE NEXT DATA WORD IS LOADED INTO
1898                          ;THE DATA REGISTER. (READY BIT IS CLEARED WHEN IN RALL BY REFERENCING
1899                          ;THE DATA REGISTER (TCDT).
1900                          .SBTTL T0042
1901                          ;*****************************************************************************
1902  007664  000004          T0042:  SCOPE
1903  007666  012706  001000          MOV     #1000,SP        ;SETUP THE STACK POINTER
1904  007672  004737  011614          JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
1905  007676  000042                  00042                   ;HERE LIES THE NUMBER OF THIS TEST
1906  007700  004737  012022  R0042:  JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO F1E.
1907  007704  010006                  D0042
1908  007706  005077  171320          CLR     @TCCM
1909  007712  012777  020103  171312  MOV     #MAINT!UO!FWD!IE!RNUM!DO,@TCCM
1910  007720                          MTCOD   MTK7,7
1911  007720  004537  012522          JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
1912  007724  032666                  MTK7                    ;ADDRESS OF MARK TRACK CODES.
1913  007726  000007                  7                       ;MARK TRACK CODE COUNT.
1914  007730  032777  001000  171272  BIT     #BIT9,@TCST     ;DATA MISS ERROR SET?
1915  007736  001002                  BNE     A0042           ;BR IF DATA MISS IS SET.
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                                        ERROR 64                ;DATA MISS FAILED TO SET.
                                        BR      C0042
                        A0042:          TST     @TCCM           ;ERROR BIT SET?
                                        BMI     B0042           ;BR IF ERROR BIT SET.
                                        ERROR 65                ;DATA MISS FAILED TO SET ERROR BIT.
                                        BR      C0042
                        B0042:          CLR     @TCCM           ;0 TO ERROR BIT.
                                        BIT     #BIT9,@TCST     ;DATA MISS CLEARED?
                                        BEQ     C0042           ;BR IF DATA MISS IS CLEAR.
                                        ERROR 66                ;0 TO ERROR FAILED TO CLEAR DATA MISS.
                                        JSR     PC,SRSETT
                        C0042:
                                        MOV     #1000,SP        ;RESTORE THE STACK POINTER
                                        BR      T0043           ;GO ON TO THE NEXT TEST
                        D0042:          TST     @TCCM           ;HERE WHEN RNUM INTERRUPTS. ERROR?
                                        BPL     G0042           ;BR IF NO ERROR.
                                        ERROR 41                ;ERROR BIT SET. EXAMINE TCST.

                                        MOV     #1000,SP        ;RESTORE THE STACK POINTER
                                        BR      T0043           ;GO ON TO THE NEXT TEST
                        G0042:          JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO F1H.
                                        H0042
                                        MOVB    #RALL!IE!DO,@TCCM;ISSUE RALL. IE SET.
                                        RTI                     ;EXIT INTERRUPT.
                        H0042:          MOVB    #RALL!DO,@TCCM  ;HERE WHEN RALL INTERRUPTS. DISABLE INTERRUPTS,
                                        RTI                     ;DO NOT READ TCDT, EXIT INTERRUPT.
                        ;WRITE DATA TEST. AFTER BLOCK NUMBER IS "FOUND", ISSUE WDATA COMMAND
                        ;UNDER MAINTENANCE MODE, WORD COUNT = -256, TCBA = RBUF. AFTER
                        ;EACH MARK TRACK CODE IS PASSED, THE DATA IN THE DATA REGISTER IS SAVED.
                        ;WHEN THE OPERATION IS COMPLETED, A COMPARE OF WRITE DATA AND THE DATA
                        ;REGISTER DATA SAVED IS MADE TO SEE IF THEY MATCH. WORD COUNT AND TCBA
                        ;ARE ALSO CHECKED FOR CORRECT CONTENTS.
                        .SBTTL T0043
                        ;******************************************************************************
                        T0043:          SCOPE
                                        MOV     #1000,SP        ;SETUP THE STACK POINTER
                                        JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
                                        0043                    ;HERE LIES THE NUMBER OF THIS TEST
                        R0043:          JSR     PC,LBDAT1       ;SET UP WRITE DATA (256 WORDS).
                                        CLR     @TCCM
                                        MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
                                        MTCOD   MTK7,5
                                        JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
                                        MTK7                    ;ADDRESS OF MARK TRACK CODES.
                                        5                       ;MARK TRACK CODE COUNT.
                                        TST     @TCCM           ;ERROR BIT SET?
                                        BPL     A0043           ;BR IF NO ERROR.
                                        ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
                                        BR      G0043
                        A0043:          MOV     #-256.,@TCWC    ;-256 TO WORD COUNT.
                                        MOV     #RBUF,@TCBA     ;ADDR OF RBUF TO TCBA.
                                        MOV     #RBUF+512.,R4   ;ADDR TO SAVE TCDT DATA TO R4.
                                        MOVB    #WDATA!DO,@TCCM ;ISSUE WDATA COMMAND.
                                        MTCOE   H0043,MTK7A,262.
                                        JSR     R5,LMTCOE       ;CALL LOAD MT CODES SUBROUTINE.
                                        H0043                   ;ADDR TO GO AFTER EACH CODE PASSED.
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 1972  010162  032724                          M1K7A                   ;ADDRESS OF MARK TRACK CODES.
 1973  010164  000406                          262.                    ;MARK TRACK CODE COUNT.
 1974  010166  005777  171040                  TST     @TCCM           ;ERROR BIT SET?
 1975  010172  100002                          BPL     B0043           ;BR IF NO ERROR.
 1976  010174  104041                          ERPOR 41                ;ERROR BIT SET. EXAMINE TCST.
 1977  010176  000432                          BR      G0043
 1978  010200  105777  171026          B0043:  TSTB    @TCCM           ;READY BIT SET?
 1979  010204  100402                          BMI     C0043           ;BR IF READY IS SET.
 1980  010206  104067                          ERROR 67                ;READY BIT FAILED TO SET.
 1981  010210  000425                          BR      G0043
 1982  010212  005777  171016          C0043:  TST     @TCWC           ;WORD COUNT 0?
 1983  010216  001407                          BEQ     D0043           ;BR IF WORD COUNT IS 0.
 1984  010220  017737  171010  001164          MOV     @TCWC,$REG4     ;PREPERE ERONIOUS WORD COUNT FOR PRINTOUT
 1985  010226  005077  170722                  CLR     @$REG0          ;PREPARE GOOD WORD COUNT INFO FOR PRINTOUT
 1986  010232  104044                          ERROR 44                ;WORD COUNT NOT 0.
 1987  010234  000413                          BR      G0043
 1988  010236  022777  037010  170772  D0043:  CMP     #RBUF+512.,@TCBA        ;TCBA CORRECT?
 1989  010244  001402                          BEQ     F0043           ;BR IF TCBA CORRECT.
 1990  010246  104045                          ERROR 45                ;TCBA INCORRECT. SHOULD BE RBUF+512.
 1991  010250  000405                          BR      G0043
 1992  010252  004537  013014          F0043:  JSR     R5,CKDAT        ;COMPARE WRITE DATA AGAINST TCDT SAVED
 1993  010256  001270                          SBDAT1                  ;DATA. REPORT ERRORS.
 1994  010260  037010                          RBUF+512.
 1995  010262  000400                          256.
 1996  010264                          G0043:
 1997  010264  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
 1998  010270  000403                          BR      J0044           ;GO ON TO THE NEXT TEST
 1999  010272  017724  170742          H0043:  MOV     @TCDT,(4)+      ;HERE AFTER EACH MARK CODE IS PASSED.
 2000  010276  000002                          RTI                     ;SAVE TCDT DATA AND EXIT IOT TRAP.
 2001                                  ;WRITE DATA COMPLEMENT OBVERSE TEST.
 2002                                  .SBTTL T0044
 2003                                  ;*************************************************************************
 2004  010300  000004                  T0044:  SCOPE
 2005  010302  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
 2006  010306  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
 2007  010312  000044                          00044                   ;HERE LIES THE NUMBER OF THIS TEST
 2008  010314  004737  012700          R0044:  JSR     PC,LBDAT1       ;SET UP WRITE DATA (256 WORDS).
 2009  010320  005077  170706                  CLR     @TCC:
 2010  010324  012777  024003  170700          MOV     #MAINT!UO!REV!RNUM!D0,@TCCM
 2011  010332                                  MTCOD   MTK7,5
 2012  010332  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
 2013  010336  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
 2014  010340  000005                          5                       ;MARK TRACK CODE COUNT.
 2015  010342  005777  170664                  TST     @TCCM           ;ERROR BIT SET?
 2016  010346  100002                          BPL     A0044           ;BR IF NO ERROR.
 2017  010350  104041                          ERROR 41                ;ERROR BIT SET EXAMINE TCST.
 2018  010352  000432                          BR      C0044
 2019  010354  012777  177400  170652  A0044:  MOV     #-256.,@TCWC    ;-256 TO WORD COUNT.
 2020  010362  012777  036010  170646          MOV     #RBUF,@TCBA     ;ADDR OF RBUF TO TCBA.
 2021  010370  012704  037010                  MOV     #RBUF+512.,R4   ;ADDR TO SAVE TCDT DATA TO R4.
 2022  010374  112777  000015  170630          MOVB    #WDATA!D0,@TCCM ;ISSUE WDATA COMMAND.
 2023  010402                                  MTCOE   D0044,MTK7A,262.
 2024  010402  004537  012672                  JSR     R5,LMTCOE       ;CALL LOAD MT CODES SUBROUTINE.
 2025  010406  010446                          D0044                   ;ADDR TO GO AFTER EACH CODE PASSED.
 2026  010410  032724                          MTK7A                   ;ADDRESS OF MARK TRACK CODES.
 2027  010412  000406                          262.                    ;MARK TRACK CODE COUNT.
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2028  010414  005777  170612          TST     @TCCM           ;ERROR BIT SET?
2029  010420  100002                  BPL     B0044           ;BR IF NO ERROR.
2030  010422  104041                  ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
2031  010424  000405                  BR      C0044
2032  010426  004537  013014  B0044:  JSR     R5,CKDAT        ;CHECK THAT SAVED TCDT DATA WAS COMPLEMENT
2033  010432  001300                  SBDAT3                  ;OBVERSED CORRECTLY.
2034  010434  037010                  RBUF+512.
2035  010436  000400                  256.
2036  010440                  C0044:
2037  010440  012706  001000          MOV     #1000,SP        ;RESTORE THE STACK POINTER
2038  010444  000403                  BR      T0045           ;GO ON TO THE NEXT TEST
2039  010446  017724  170566  D0044:  MOV     @TCDT,(4)+      ;HERE AFTER EACH MARK CODE IS PASSED.
2040  010452  000002                  RTI                     ;SAVE TCDT DATA AND EXIT IOT TRAP.
2041                          ;WRITE ALL TEST.
2042                          .SBTTL T0045
2043                          ;*****************************************************************************
2044  010454  000004          T0045:  SCOPE
2045  010456  012706  001000          MOV     #1000,SP        ;SETUP THE STACK POINTER
2046  010462  004737  011614          JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
2047  010466  000045                  0045                    ;HERE LIES THE NUMBER OF THIS TEST
2048  010470  004737  012700  R0045:  JSR     PC,LBDAT1       ;SET UP WRITE DATA.
2049  010474  005077  170532          CLR     @TCCM
2050  010500  012777  020003  170524  MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
2051  010506                  MTCOD   MTK7,4
2052  010506  004537  012522          JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
2053  010512  032666                  MTK7                    ;ADDRESS OF MARK TRACK CODES.
2054  010514  000004                  4                       ;MARK TRACK CODE COUNT.
2055  010516  005777  170510          TST     @TCCM           ;ERROR BIT SET?
2056  010522  100002                  BPL     A0045           ;BR IF NO ERROR.
2057  010524  104041                  ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
2058  010526  000470                  BR      G0045
2059  010530  005077  170500  A0045:  CLR     @TCWC           ;0 TO WORD COUNT.
2060  010534  012777  036010  170474  MOV     #RBUF,@TCBA     ;ADDR OF RBUF TO TCBA.
2061  010542  012703  036006          MOV     #RBUF-2,R3
2062  010546  012704  037010          MOV     #RBUF+512.,R4
2063  010552  012737  000402  001266  MOV     #258.,CTRA      ;# OF WORDS TO WRITE TO CTRA.
2064  010560  004737  012022          JSR     PC,STTCV        ;SET INTERRUPT VECTOR TO 11C.
2065  010564  010606                  B0045
2066  010566  112777  000117  170436  MOVB    #WALL!IE!DO,@TCCM;ISSUE WRITE ALL COMMAND. INTERRUPT ENABLED.
2067  010574                  MTCOE   I0045,MTK5,260.
2068  010574  004537  012672          JSR     R5,LMTCOE       ;CALL LOAD MT CODES SUBROUTINE.
2069  010600  010716                  I0045                   ;ADDR TO GO AFTER EACH CODE PASSED.
2070  010602  032716                  MTK5                    ;ADDRESS OF MARK TRACK CODES.
2071  010604  000404                  260.                    ;MARK TRACK CODE COUNT.
2072  010606  005777  170420  B0045:  TST     @TCCM           ;ERROR BIT SET?
2073  010612  100002                  BPL     B0045A          ;BR IF NO ERROR.
2074  010614  104041                  ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
2075  010616  000434                  BR      G0045
2076  010620  012377  170414  B0045A: MOV     (3)+,@TCDT      ;WRITE DATA TO TCDT.
2077  010624  005337  001266          DEC     CTRA            ;WROTE 257 WORDS?
2078  010630  001401                  BEQ     C0045           ;BR IF 257 WORDS WRITTEN.
2079  010632  000002                  RTI                     ;NOT DONE. EXIT INTERRUPT.
2080  010634  005737  037010  C0045:  TST     @#RBUF+512.     ;1ST WORD WRITTEN EQUAL 0?
2081  010640  001404                  BEQ     D0045           ;BR IF FIRST WORD 0.
2082  010642  005037  001154          CLR     $REG0
2083  010646  104070                  ERROR 70                ;1ST WORD WRITTEN NOT 0. (REV CHECKSUM).
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 2084  010650  000417                          BR      G0045
 2085  010652  004537  013014          D0045:  JSR     R5,CKDAT        ;CHECK THAT SAVED TCDT DATA MATCHES
 2086  010656  001270                          SBDAT1                  ;WRITE DATA.
 2087  010660  037012                          RBUF+514.
 2088  010662  000400                          256.
 2089  010664  005777  170344                  TST     @TCWC           ;WORD COUNT STILL 0?
 2090  010670  001402                          BEQ     F0045           ;BR IF WORD COUNT IS 0.
 2091  010672  104071                          ERROR 71                ;WORD COUNT MODIFIED DURING WRITE ALL.
 2092  010674  000405                          BR      G0045
 2093  010676  022777  036010  170332  F0045:  CMP     #RBUF,@TCBA     ;TCBA STILL EQUAL RBUF?
 2094  010704  001401                          BEQ     G0045           ;BR IF TCBA STILL SAME.
 2095  010706  104072                          ERROR 72                ;TCBA MODIFIED DURING WRITE ALL.
 2096  010710                          G0045:
 2097  010710  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
 2098  010714  000403                          BR      T0046           ;GO ON TO THE NEXT TEST
 2099  010716  017724  170316          I0045:  MOV     @TCDT,(4)+      ;HERE AFTER EACH MARK CODE IS PASSED.
 2100  010722  000002                          RTI                     ;SAVE TCDT DATA AND EXIT IOT TRAP.
 2101
 2102                                  .SBTTL T0046
 2103                                  ;******************************************************************************
 2104  010724  000004                  T0046:  SCOPE
 2105  010726  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
 2106  010732  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
 2107  010736  000046                          0046                    ;HERE LIES THE NUMBER OF THIS TEST
 2108  010740  004537  013142          R0046:  JSR     R5,CKSELE       ;SST TO U1.
 2109  010744  000400                          U1
 2110  010746  104073                          ERROR 73                ;SST TO U1 DID NOT CAUSE SELECT ERROR.
 2111
 2112  010750  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
 2113  010754  000400                          BR      T0047           ;GO ON TO THE NEXT TEST
 2114                                  .SBTTL T0047
 2115                                  ;******************************************************************************
 2116  010756  000004                  T0047:  SCOPE
 2117  010760  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
 2118  010764  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
 2119  010770  000047                          0047                    ;HERE LIES THE NUMBER OF THIS TEST
 2120  010772  004537  013142          R0047:  JSR     R5,CKSELE       ;SST TO U2.
 2121  010776  001000                          U2
 2122  011000  104073                          ERROR 73                ;SST TO U2 DID NOT CAUSE SELECT ERROR.
 2123
 2124  011002  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
 2125                                  .SBTTL T0050
 2126                                  ;******************************************************************************
 2127  011006  000004                  T0050:  SCOPE
 2128  011010  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
 2129  011014  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
 2130  011020  000050                          0050                    ;HERE LIES THE NUMBER OF THIS TEST
 2131  011022  004537  013142          R0050:  JSR     R5,CKSELE       ;SST TO U1.
 2132  011026  001400                          U3
 2133  011030  104073                          ERROR 73                ;SST TO U3 DID NOT CAUSE SELECT ERROR.
 2134
 2135  011032  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
 2136                                  .SBTTL T0051
 2137                                  ;******************************************************************************
 2138  011036  000004                  T0051:  SCOPE
 2139  011040  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
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2140  011044  004737  011614          JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
2141  011050  000051                  00051                   ;HERE LIES THE NUMBER OF THIS TEST
2142  011052  004537  013142  R0051:  JSR     R5,CKSELE       ;ISSUE A SST COMMAND
2143  011056  002000                  U4
2144  011060  104073                  ERROR 73                ;SST TO U4 DID NOT CAUSE SELECT ERROR.
2145
2146  011062  012706  001000          MOV     #1000,SP        ;RESTORE THE STACK POINTER
2147                                .SBTTL T0052
2148                                ;******************************************************************************
2149  011066  000004                T0052:  SCOPE
2150  011070  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
2151  011074  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
2152  011100  000052                          00052                   ;HERE LIES THE NUMBER OF THIS TEST
2153  011102  004537  013142          R0052:  JSR     R5,CKSELE       ;ISSUE A SST COMMAND
2154  011106  002400                          U5
2155  011110  104073                          ERROR 73                ;SST TO U5 DID NOT CAUSE SELECT ERROR.
2156
2157  011112  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
2158                                .SBTTL T0053
2159                                ;******************************************************************************
2160  011116  000004                T0053:  SCOPE
2161  011120  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
2162  011124  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
2163  011130  000053                          00053                   ;HERE LIES THE NUMBER OF THIS TEST
2164  011132  004537  013142          R0053:  JSR     R5,CKSELE       ;ISSUE A SST COMMAND
2165  011136  003000                          U6
2166  011140  104073                          ERROR 73                ;SST TO U6 DID NOT CAUSE SELECT ERROR.
2167  011142  000240                          NOP
2168  011144  000240                          NOP
2169  011146  000240                          NOP
2170
2171  011150  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
2172                                .SBTTL T0054
2173                                ;******************************************************************************
2174  011154  000004                T0054:  SCOPE
2175  011156  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
2176  011162  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
2177  011166  000054                          00054                   ;HERE LIES THE NUMBER OF THIS TEST
2178  011170  004537  013142          R0054:  JSR     R5,CKSELE       ;ISSUE A SST COMMAND
2179  011174  003400                          U7
2180  011176  104073                          ERROR 73                ;SST TO U7 DID NOT CAUSE SELECT ERROR.
2181
2182  011200  012706  001000                  MOV     #1000,SP        ;RESTORE THE STACK POINTER
2183                                .SBTTL T0055
2184                                ;******************************************************************************
2185  011204  000004                T0055:  SCOPE
2186  011206  012706  001000                  MOV     #1000,SP        ;SETUP THE STACK POINTER
2187  011212  004737  011614                  JSR     PC,TORDER       ;MAKE SURE TESTS ARE IN PRPOER SEQUENCE
2188  011216  000055                          00055                   ;HERE LIES THE NUMBER OF THIS TEST
2189  011220  004737  012732                  JSR     PC,LBBIND       ;LOAD BUFFER WITH BINARY DATA.
2190  011224  005077  170002                  CLR     @TCCM
2191  011230  012777  020003  167774          MOV     #MAINT!UO!FWD!RNUM!DO,@TCCM
2192  011236                                  MTCOD   MTK7,5
2193  011236  004537  012522                  JSR     R5,LMTCOD       ;CALL LOAD MT CODES SUB.
2194  011242  032666                          MTK7                    ;ADDRESS OF MARK TRACK CODES.
2195  011244  000005                          5                       ;MARK TRACK CODE COUNT.
```

```
2196  011246  005777  167760                TST     @TCCM           ;ERROR BIT SET?
2197  011252  100002                        BPL     A0055           ;BR IF NO ERROR.
2198  011254  104041                        ERROR 41                ;ERROR BIT SET. EXAMINE TCST.
2199  011256  000441                        BR      D0055
2200  011260  012777  177400  167746  A0055: MOV     #-256.,@TCWC    ;-256 TO WORD COUNT.
2201  011266  012777  036010  167742        MOV     #RBUF,@TCBA     ;RBUF ADDR TO TCBA.
2202  011274  012704  037010                MOV     #RBUF+512.,R4   ;ADDR TO SAVE TCDT DATA TO R4.
2203  011300  112777  000015  167724        MOVB    #WDATA!DO,@TCCM ;ISSUE WRITE DATA COMMAND.
2204  011306                                MTCOE   F0055,MTK7A,262.
2205  011306  004537  012672                JSR     R5,LMTCOE       ;CALL LOAD MT CODES SUBROUTINE.
2206  011312  011370                        F0055                   ;ADDR TO GO AFTER EACH CODE PASSED.
2207  011314  032724                        MTK7A                   ;ADDRESS OF MARK TRACK CODES.
2208  011316  000406                        262.                    ;MARK TRACK CODE COUNT.
2209  011320  005777  167706                TST     @TCCM           ;ERROR BIT SET?
2210  011324  100002                        BPL     B0055           ;BR IF NO ERROR.
2211  011326  104044                        ERROR 44                ;ERROR BIT SET. EXAMINE TCST.
2212  011330  000414                        BR      D0055
2213  011332  012701  037010        B0055:  MOV     #RBUF+512.,R1   ;ADDR OF DATA TO CHECK TO R1.
2214  011336  012703  036010                MOV     #RBUF,R3        ;ADDR OF EXPECTED DATA TO R3.
2215  011342  012702  000400                MOV     #256.,R2        ;# OF WORDS TO CHECK TO R2.
2216  011346  005037  013140                CLR     WDCNT
2217  011352  004737  013066        C0055:  JSR     PC,CDTCK        ;CHECK DATA WORD.
2218  011356  005302                        DEC     R2              ;ALL WORDS CHECKED?
2219  011360  001374                        BNE     C0055           ;BR IF NOT DONE YET.
2220  011362                        D0055:
2221  011362  012706  001000                MOV     #1000,SP        ;RESTORE THE STACK POINTER
2222  011366  000403                        BR      T0056           ;GO ON TO THE NEXT TEST
2223  011370  017724  167644        F0055:  MOV     @TCDT,(4)+      ;HERE AFTER EACH MARK CODE IS PASSED.
2224  011374  000002                        RTI                     ;SAVE TCDT DATA AND EXIT.
2225
2226                                .SBTTL T0056
2227  011376  000004                T0056:  SCOPE
2228  011400                        .$EOP STARTX,,PASCNT
2229  011400                        STARS
2230                                ;;*****************************************************************
2231
2232                                .SBTTL  END OF PASS ROUTINE
2233
2234                                ;*INCREMENT THE PASS NUMBER ($PASS)
2235                                ;*TYPE "END PASS #XXXXX" (WHERE XXXXX IS A DECIMAL NUMBER)
2236                                ;*IF THERES A MONITOR GO TO IT
2237                                ;*IF THERE ISN'T JUMP TO STARTX
2238
2239  011400                        $EOP:
2240  011400  000004                        SCOPE
2241  011402  005037  001102                CLR     $TSTNM                  ;ZERO THE TEST NUMBER
2242  011406  005037  001214                CLR     $TIMES                  ;ZERO THE NUMBER OF ITERATIONS
2243  011412  005237  001100                INC     $PASS                   ;INCREMENT THE PASS NUMBER
2244  011416  042737  100000  001100        BIC     #100000,$PASS           ;DON'T ALLOW A NEG. NUMBER
2245  011424  005327                        DEC     (PC)+                   ;LOOP?
2246  011426  000001        $EOPCT: .WORD   1
2247  011430  003021                        BGT     $DOAGN                  ;YES
2248  011432  012737                        MOV     (PC)+,@(PC)+            ;RESTORE COUNTER
2249  011434  000001        $ENDCT: .WORD   1
2250  011436  011426                        $EOPCT
2251  011440  104400  011500                TYPE    ,$ENDMG                 ;TYPE "END PASS #"
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2252  011444                                  TYPDEC  $PASS
2253  011444  013746  001100                  MOV     $PASS,-(SP)             ;SAVE $PASS FOR TYPEOUT
2254  011450  104410                          TYPDS                           ;GO TYPE--DECIMAL ASCII WITH SIGN
2255  011452  104400  011515                  TYPE    ,$ENULL                 ;TYPE A NULL CHARACTER
2256  011456  013700  000042          $GET42: MOV     @#42,R0                 ;GET MONITOR ADDRESS
2257  011462  001404                          BEQ     $DOAGN                  ;IF NONE
2258  011464  004710                  $ENDAD: JSR     PC,(R0)                 ;GO TO MONITOR
2259  011466  000240                          NOP                             ;SAVE ROOM
2260  011470  000240                          NOP                             ;FOR
2261  011472  000240                          NOP                             ;ACT11
2262  011474  000137  002462          $DOAGN: JMP     @#STARTX                        ;RETURN
2263  011500  005015  047105  020104  $ENDMG: .ASCIZ   <15><12>/END PASS #/
2264  011506  040520  051523  021440
2265  011514     000
2266  011515     377     377     000  $ENULL: .BYTE   -1,-1,0                 ;NULL CHARACTER STRING
2267                                          ;*
                                              THIS ROUTINE HANDLES FATAL TRAP ERRORS
2268  011520  012737  015421  011556  TRAP10: MOV     #TRPM10,TMESAD          ;ADDRESS OF TRAP TO 10 MESSAGE TO THE MESSAGE PO
2269  011526  000403                          BR      TRAPX           ;ENTER THE FATAL TRAP ERROR REPORT ROUTINE
2270  011530  012737  015277  011556  TRAP4:  MOV     #TRPM4S,TMESAD
2271  011536  011600                  TRAPX:  MOV     (SP),R0         ;SAVE PC OF WHERE TRAP OCCURRED
2272  011540  162700  000002                  SUB     #2,R0           ;MAKE IT POINT EXACTLY AT THE OFFENDING WORD
2273  011544  012706  001000                  MOV     #1000,SP        ;MAKE SURE THAT THE STACK GIVES NO PROBLEMS
2274  011550  005046                          CLR     -(SP)           ;FAKEOUT THE PRINTOUT ROUTINE
2275  011552  004737  014062                  JSR     PC,$TYPE        ;PRINT THE TRAP MESSAGE
2276  011556  000000          TMESAD: 000000                          ;ADDRESS OF THE TRAP MESSAGE GOES HERE
2277  011560  010016                          MOV     R0,(SP)         ;PUT ERROR PC BACK ONTO THE STACK
2278  011562  104402                          TYPOC
2279  011564  104400  001225          TRYAGN: TYPE    ,$CRLF
2280  011570  104400  015347                  TYPE    ,TRPMES                 ;THEN PRINTOUT THE TRAP MESSAGE
2281  011574  000240                          NOP                             ;PATCHING SPACE, THOUGHTFULLY PROVIDED
2282  011576  000240                          NOP                             ;PATCHING SPACE, THOUGHTFULLY PROVIDED
2283  011600  000240                          NOP                             ;PATCHING SPACE, THOUGHTFULLY PROVIDED
2284  011602  000240                          NOP                             ;PATCHING SPACE, THOUGHTFULLY PROVIDED
2285  011604  000240                          NOP                             ;PATCHING SPACE, THOUGHTFULLY PROVIDED
2286  011606  000005                          RESET
2287  011610  000137  002304                  JMP     @#START
2288                                  ;SUBROUTINE TO CHECK TO MAKE SURE THAT EACH TEST IN
2289                                  ;RUNNING WHEN IT SHOULD
2290  011614  011637  001154          TORDER: MOV     (SP),$REG0              ;GET ADDRESS OF TEST #
2291  011620  062716  000002                  ADD     #2,(SP)                 ;BUMP PRETURN ADDRESS TO HOP OVER THE IN LINE TEST #
2292  011624  123777  001102  167322          CMPB    $TSTNM,@$REG0           ;FIND OUT IF THE TEST #'S MATCH
2293  011632  001410                          BEQ     TORDER                  ;IF THEY DO HOP OVER THE ERROR SIGNAL STUFF
2294  011634  013737  001154  001156          MOV     $REG0,$REG1             ;SAVE ADDRESS OF TEST
2295  011642  017737  167306  001154          MOV     @$REG0,$REG0            ;GET TEST# WAS DATA READY FOR PRINTOUT
2296  011650  104026                          ERROR   26                      ;PRINTOUT  "OUT OF ORDER" MESSAGE
2297  011652  000744                          BR      TRYAGN                  ;GO TRY TO START OVER
2298  011654  000207          TORDER: RTS     PC      ;RETURN
2299                                  ;SAVE REGS 0 TO 4 SUBROUTINE.
2300  011656  012666  177764  SV04:   MOV     (6)+,-12.(6)    ;MOVE PC UPSTACK.
2301  011662  012737  000207  011734          MOV     #RTSPC,SV05C
2302  011670  000412                          BR      SV05B
2303                                  ;SUB TO SAVE REGS 0 TO 5 AND PLACE JSR PC IN R5.
2304  011672  012737  000240  011734  SV05S:  MOV     #NOP,SV05C
2305  011700  000403                          BR      SV05A
2306                                  ;SUB TO SAVE REGS 0 TO 5.
2307  011702  012737  000207  011734  SV05:   MOV     #RTSPC,SV05C
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2308  011710  012666  177762          SVOSA:  MOV     (6)+,-14.(6)    ;MOVE PC UPSTACK.
2309  011714  010546                          MOV     R5,-(6)
2310  011716  010446                  SVOSB:  MOV     R4,-(6)
2311  011720  010346                          MOV     R3,-(6)
2312  011722  010246                          MOV     R2,-(6)
2313  011724  010146                          MOV     R1,-(6)
2314  011726  010046                          MOV     R0,-(6)
2315  011730  162706  000002                  SUB     #2,SP
2316  011734  000207                  SVOSC:  RTS PC                  ;RTS PC OR NOP.
2317  011736  016605  000016                  MOV     14.(6),R5       ;JSR PC TO R5.
2318  011742  000207                          RTS PC                  ;EXIT.
2319                                  ;RESTORE REGS 0 TO 4 SUBROUTINE.
2320  011744  062706  000002          RS04:   ADD     #2,SP
2321  011750  012600                          MOV     (6)+,R0         ;RESTORE REGS 0 TO 4.
2322  011752  012601                          MOV     (6)+,R1
2323  011754  012602                          MOV     (6)+,R2
2324  011756  012603                          MOV     (6)+,R3
2325  011760  012604                          MOV     (6)+,R4
2326  011762  016646  177764                  MOV     -12.(6),-(6)    ;MOVE PC  DOWN STACK.
2327  011766  000207                          RTS     PC              ;EXIT
2328                                  ;SUB TO SET R5 IN EMT PC AND RESTORE REGS 0 TOS.
2329  011770  010566  000016          RS05S:  MOV     R5,14.(6)       ;SET EMT PC TO R5 CONTENTS.
2330                                  ;SUB TO RESTORE REGS 0 TO 5.
2331  011774  062706  000002          RS05:   ADD     #2,SP
2332  012000  012600                          MOV     (6)+,R0
2333  012002  012601                          MOV     (6)+,R1
2334  012004  012602                          MOV     (6)+,R2
2335  012006  012603                          MOV     (6)+,R3
2336  012010  012604                          MOV     (6)+,R4
2337  012012  012605                          MOV     (6)+,R5
2338  012014  016646  177762                  MOV     -14.(6),-(6)    ;MOVE PC DOWNSTACK.
2339  012020  000207                          RTS     PC              ;EXIT
2340                                  ;ROUTINE TO SET TC11 INTERRUPT VECTOR AND PRIORITY
2341  012022  004737  011672          STTCV:  JSR     PC,SVOSS
2342  012026  013701  001242                  MOV     TCVTR,R1        ;VECTOR TO R1.
2343  012032  012521                          MOV     (5)+,(1)+       ;SET DESIRED VECTOR.
2344  012034  013721  001244                  MOV     TCLVL,(1)+      ;SET TC11 PRIORITY.
2345  012040  004737  011770                  JSR     PC,RS05S
2346  012044  000207                          RTS     PC
2347                                  ;ROUTINE TO ISSUE RESET.
2348  012046  010046                  SRSETT: MOV     R0,-(6)         ;PUSH R0.
2349  012050  012700  052525                  MOV     #52525,R0       ;DATA TO R0.
2350  012054  005100                          COM     R0              ;COMPLEMENT (R0).
2351  012056  010037  012052                  MOV     R0,SRSETT+4     ;(R0) TO SRSETT+4.
2352  012062  000005                          RESET                   ;ISSUE RESET. (R0) IS
2353  012064  012600                          MOV     (6)+,R0         ;RESTORE R0.
2354  012066  000207                          RTS     PC              ;EXIT
2355  012070  004537  012474          RSTMTK: JSR     R5,BMOVE        ;RESTORE MTKVAR MARK CODE.
2356  012074  032630                          MTKC10                  ;AND GOOD CHECKSUM.
2357  012076  032740                          MTKVAR
2358  012100  000006                          6
2359  012102  004537  012474                  JSR     R5,BMOVE
2360  012106  032660                          MTK5P
2361  012110  032716                          MTK5
2362  012112  000006                          6
2363  012114  004537  012474                  JSR     R5,BMOVE
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2364  012120  035771                        GOKSM
2365  012122  035732                        FCKSM
2366  012124  000006                        6
2367  012126  000207                        RTS     PC                      ;EXIT.
2368                                ;COMMON HALT ROUTINE
2369  012130  004737  011672      CHLT:   JSR     PC,SVOSS
2370  012134  010500                        MOV     R5,R0                   ;DEVELOP ADDR OF CALLER.
2371  012136  005740                        TST     -(0)
2372  012140  000000                        HALT                            ;HALT CALL ADDR IN DATA LIGTHS.
2373  012142  004737  011770              JSR     PC,RSOSS
2374  012146  000207                        RTS     PC                      ;EXIT.
2375                                ;RANDOM NUMBER GENERATOR. ROUTINE EXITS WITH NUMBER IN REGISTER 0.
2376  012150  013700  012216      RNGEN:  MOV     RP1,R0
2377  012154  006100                        ROL     R0
2378  012156  006100                        ROL     R0
2379  012160  063700  012220              ADD     RP2,R0
2380  012164  010037  012216              MOV     R0,RP1
2381  012170  006100                        ROL     R0
2382  012172  006100                        ROL     R0
2383  012174  063700  012220              ADD     RP2,R0
2384  012200  006100                        ROL     R0
2385  012202  006100                        ROL     R0
2386  012204  010037  012220              MOV     R0,RP2
2387  012210  013700  012216              MOV     RP1,R0
2388  012214  000207                        RTS     PC                      ;EXIT. NUMBER IN R0
2389  012216  001233                RP1:    1233
2390  012220  007622                RP2:    7622
2391                                ;SUBROUTINE TO DELAY A SPECIFIED NUMBER OF MILLISECONDS
2392  012222  004737  011672      DLY:    JSR     PC,SVOSS
2393  012226  012500                        MOV     (5)+,R0                 ;DELAY COUNT TO R0.
2394  012230  005037  177776              CLR     PSW                     ;SET PRIORITY 0.
2395  012234  012701  000226      DLYA:   MOV     #226,R1                 ;1 MSEC COUNT TO R1.
2396  012240  005301              DLYB:   DEC     R1                      ;DECREMENT 1 MSEC COUNT.
2397  012242  001376                        BNE     DLYB                    ;BR IF NOT 0.
2398  012244  005300                        DEC     R0                      ;DECREMENT DELAY COUNT.
2399  012246  001372                        BNE     DLYA                    ;BR IF NOT DONE DELAYING.
2400  012250  004737  011770              JSR     PC,RSOSS
2401  012254  000207                        RTS PC                          ;EXIT.
2402                                ;SUBROUTINE TO STALL A RANDOM NUMBER OF MILLISECONDS. MAXIMUM STALL
2403                                ;DETERMINED BY CONTENTS OF LOC STLMSK.
2404  012256  004737  011672      STAL:   JSR     PC,SVOSS
2405  012262  004737  012150              JSR     PC,RNGEN                ;GO GET RANDOM NUMBER.
2406  012266  043700  012314              BIC     STLMSK,R0               ;# IN R0. APPLY STALL MASK.
2407  012272  001407                        BEQ     STALB                   ;BRANCH IF RESULT IS 0.
2408  012274  010037  012304              MOV     R0,STALA
2409  012300  004737  012222              JSR     PC,DLY                          ;DELAY
2410  012304  000000              STALA:  OPEN                            ;DELAY COUNT
2411  012306  004737  011770              JSR     PC,RSOSS
2412  012312  000207              STALB:  RTS PC                          ;DONE. EXIT.
2413  012314  000000              STLMSK: OPEN                            ;STALL MASK.
2414                                ;SUBROUTINE TO CLEAR DECTAPE READ BUFFER.
2415  012316  005037  036010      CLRBUF: CLR     RBUF                    ;CLEAR 512 WORD READ BUFFER.
2416  012322  004537  012474              JSR     R5,BMOVE                ;TO ALL 0'S.
2417  012326  036010                        RBUF
2418  012330  036011                        RBUF+1
2419  012332  001777                        1023.
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2420  012334  000207                          RTS     PC              ;EXIT.
2421                                  ;SUBROUTINE TO INITIALIZE BINARY COUNT PATTERNS
2422  012336  012737  177777  012360  INBIN:  MOV     #-1,RIND        ;SET ALL VARIABLES
2423  012344  004537  012474                  JSR     R5,BMOVE        ;TO MINUS 1.
2424  012350  012360                          RIND
2425  012352  012361                          RIND+1
2426  012354  000013                          11.
2427  012356  000207                          RTS     PC              ;EXIT
2428  012360  000000                  RIND:   OPEN
2429  012362  000000                  PT0:    OPEN
2430  012364  000000                  PT1:    OPEN
2431  012366  000000                  PIND:   OPEN
2432  012370  000000                  PT0P:   OPEN
2433  012372  000000                  PT1P:   OPEN
2434                                  ;SPECIAL BINARY COUNT PATTERN SUBROUTINE. EXITS WITH BIN CHAR IN R0
2435  012374  013737  012362  012364  GTBIN:  MOV     PT0,PT1         ;PREVIOUS BIN CHAR TO PT1
2436  012402  005137  012364                  COM     PT1
2437  012406  005137  012360                  COM     RIND
2438  012412  001002                          BNE     .+6
2439  012414  005237  012364                  INC     PT1
2440  012420  013737  012364  012362          MOV     PT1,PT0         ;SAVE BIN CHAR IN PT0
2441  012426  013700  012364                  MOV     PT1,R0          ;BIN CHAR TO R0.
2442  012432  000207                          RTS     PC              ;EXIT.
2443  012434  013737  012370  012372  GTBINP: MOV     PT0P,PT1P       ;PREVIOUS BIN CHAR TO PT1P
2444  012442  005137  012372                  COM     PT1P
2445  012446  005137  012366                  COM     PIND
2446  012452  001002                          BNE     .+6
2447  012454  005237  012372                  INC     PT1P
2448  012460  013737  012372  012370          MOV     PT1P,PT0P       ;SAVE BIN CHAR IN PT0P.
2449  012466  013701  012372                  MOV     PT1P,R1         ;BIN CHAR TO R1.
2450  012472  000207                          RTS     PC              ;EXIT.
2451                                  ;SUBROUTINE TO MOVE A VARIABLE NUMBER OF BYTES.
2452  012474  004737  011656          BMOVE:  JSR     PC,SV04                 ;SAVE REGS.
2453  012500  012501                          MOV     (5)+,R1         ;GET"FROM"ADDRESS
2454  012502  012502                          MOV     (5)+,R2         ;GET"TO"ADDRESS
2455  012504  012503                          MOV     (5)+,R3         ;GET COUNT
2456  012506  112122                  BMOVA:  MOVB    (1)+,(2)+       ;MOVE BYTE
2457  012510  005303                          DEC     R3              ;DECREMENT COUNT
2458  012512  001375                          BNE     BMOVA           ;BRANCH IF NOT DONE.
2459  012514  004737  011744                  JSR     PC,R5U4                 ;RESTORE REGS.
2460  012520  000205                          RTS     R5              ;DONE EXIT
2461                                  ;SUB TO PASS TIMING, MARK, AND DATA TO TC11 CONTROL UNDER MAINTENANCE MODE.
2462  012522  005037  001252          LMTCOD: CLR     CODCAL          ;DO NOT CALL CODE AFTER EACH MARK
2463  012526  012537  012662          LMTCAA: MOV     (5)+,MTKADR     ;GET MARK TRACK ADDRESS.
2464  012532  012537  012666                  MOV     (5)+,CDCNT      ;GET NTH CODE COUNT.
2465  012536  052777  020000  166466          BIS     #BIT13,@TCCM    ;SET MAINTENANCE BIT.
2466  012544  013737  012666  012670          MOV     CDCNT,CDCTR     ;CODE COUNT TO CODE COUNTER.
2467  012552  013701  012[illegible]          MOV     TCST,R1         ;ADDR CONTAINING TCST ADDR TO R1.
2468  012556  012702  000100                  MOV     #100,R2
2469  012562  013700  012662          LMTCA:  MOV     MTKADR,R0       ;MARK TRACK ADDR TO R0.
2470  012566  012737  000006  012664  LMTCB:  MOV     #6,BTCTR        ;6 TO BIT COUNTER.
2471  012574  111011          LMTCC:  MOVB    (0),(1)         ;SET MARK TRACK BIT AND DATA .
2472  012576  150210                  BISB    R2,(0)
2473  012600  111011                  MOVB    (0),(1)         ;TP1. LOADS MARK TRACK.
2474  012602  111011                  MOVB    (0),(1)         ;RELOAD DATA.
2475  012604  150210                  BISB    R2,(0)
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2476  012606  112011                        MOVB    (0)+,(1)        ;TPD. SHIFTS DATA IN RWB.
2477  012610  005337  012664                DEC     BTCTR           ;6TH BIT SET?
2478  012614  001413                        BEQ     LMTCE           ;BR IF 6TH BIT SET.
2479  012616  022737  000002  012664        CMP     #2,BTCTR        ;NOT 6TH. 4TH BIT SET?
2480  012624  001363                        BNE     LMTCC           ;BRANCH IF NOT.
2481  012626  005737  001252                TST     CODCAL          ;DO WE WANT TO CALL CODE
2482  012632  001760                        BEQ     LMTCC           ;DO NOT IF CODE CALL SWITCH = 0
2483  012634  005046                        CLR     -(6)            ;IF ITS NOT =0 FAKE A INTERRUPT
2484  012636  004777  166410                JSR     PC,@CODCAL      ;TO LOCATION SPECIFIED IN CODE CALL SWITCH
2485  012642  000754                        BR      LMTCC
2486  012644  005337  012670        LMTCE:  DEC     CDCTR           ;NTH CODE SET?
2487  012650  001001                        BNE     LMTCD           ;BRANCH IF NOT.
2488  012652  000205                        RTS     R5              ;EXIT.
2489  012654  105710                LMTCD:  TSTB    @R0             ;LAST CODE?
2490  012656  100343                        BPL     LMTCB           ;BRANCH IF NOT LAST CODE.
2491  012660  000740                        BR      LMTCA           ;LAST CODE.
2492  012662  000000                MTKADR: OPEN
2493  012664  000000                BTCTR:  OPEN
2494  012666  000000                CDCNT:  OPEN
2495  012670  000000                CDCTR:  OPEN
2496  012672  012537  001252        LMTCOE: MOV     (5)+,CODCAL     ;SAVE ADDRESS TO GO TO AFTER EACH MARK
2497  012676  000713                        BR      LMTCAA
2498  012700  004737  012316        LBDAT1: JSR     PC,CLRBUF       ;CLEAR BUFFER AREA.
2499  012704  004537  012474                JSR     R5,BMOVE        ;LOAD 256 WORD BUFFER WITH SBDAT1 DATA.
2500  012710  001270                        SBDAT1
2501  012712  036010                        RBUF
2502  012714  000004                        4
2503  012716  004537  012474                JSR     R5,BMOVE
2504  012722  036010                        RBUF
2505  012724  036014                        RBUF+4
2506  012726  000774                        508.
2507  012730  000207                        RTS     PC              ;EXIT.
2508  012732  004737  011656        LBBIND: JSR     PC,SV04
2509  012736  004737  012316                JSR     PC,CLRBUF       ;CLEAR BUFFER AREA AND FILL
2510  012742  012704  036010                MOV     #RBUF,R4        ;256 WORD BUFFER WITH BINARY DATA.
2511  012746  012737  000400  012776        MOV     #256.,CTRLB
2512  012754  004737  012374        LBINDA: JSR     PC,GTBIN        ;GET BINARY WORD.
2513  012760  010024                        MOV     R0,(4)+         ;STORE PER R4.
2514  012762  005337  012776                DEC     CTRLB           ;256 WORDS STORED?
2515  012766  001372                        BNE     LBINDA          ;BR IF NOT DONE YET.
2516  012770  004737  011744                JSR     PC,RS04
2517  012774  000207                        RTS     PC              ;DONE. EXIT.
2518  012776  000000                CTRLB:  OPEN
2519  013000  004537  012474        MBCKSM: JSR     R5,BMOVE        ;BAD CHECKSUM TO FCKSM.
2520  013004  035777                        BCKSM
2521  013006  035732                        FCKSM
2522  013010  000006                        6
2523  013012  000207                        RTS     PC              ;EXIT.
2524  013014  004737  011656        CKDAT:  JSR     PC,SV04                 ;SAVE REGS.
2525  013020  012537  013134                MOV     (5)+,SBDAT      ;ADDR OF S/B DATA TO SBDAT.
2526  013024  012501                        MOV     (5)+,R1         ;ADDR OF DATA TO R1.
2527  013026  012502                        MOV     (5)+,R2         ;WORD COUNT TO R2.
2528  013030  005037  013140                CLR     WDCNT           ;CLEAR # OF WORD BEING CHECKED.
2529  013034  013703  013134        CKDTA:  MOV     SBDAT,R3        ;ADDR OF S/B DATA TO R3.
2530  013040  004737  013066                JSR     PC,CDTCK        ;GO CHECK DATA.
2531  013044  005302                        DEC     R2              ;LAST WORD CHECKED?
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2532  013046  001404                        BEQ     CKDTB           ;BR IF LAST WORD CHECKED.
2533  013050  004737  013066                JSR     PC,CDTCK        ;CHECK ANOTHER WORD.
2534  013054  005302                        DEC     R2              ;LAST WORD CHECKED?
2535  013056  001366                        BNE     CKDTA           ;BR IF NOT LAST WORD.
2536  013060  004737  011744        CKDTB:  JSR     PC,RS04                 ;RESTORE REGS.
2537  013064  000205                        RTS     R5              ;EXIT.
2538  013066  010137  013136        CDTCK:  MOV     R1,DATADR       ;ADDR OF DATA TO DATADR.
2539  013072  012337  001262                MOV     (3)+,CRBUF      ;S/B WORD TO CRBUF.
2540  013076  012137  001264                MOV     (1)+,CRBUFA     ;WAS WORD TO CRBUFA.
2541  013102  005237  013140                INC     WDCNT           ;INCREMENT WORD NUMBER.
2542  013106  023737  001262  001264        CMP     CRBUF,CRBUFA    ;COMPARE S/B AND WAS DATA.
2543  013114  001001                        BNE     CDTCKA          ;BR IF DATA NOT SAME.
2544  013116  000207                        RTS     PC              ;EXIT.
2545  013120  016737  000004  013132  CDTCKA: MOV    4(PC),MLPC      ;MAKE MAIN LINE PC ACCESS.
2546
2547  013126  104035                        ERROR   35              ;PRINTOUT ERROR MESSAGE
2548  013130  000207                        RTS     PC              ;EXIT
2549  013132  000000                MLPC:   000000
2550  013134  000000                SBDAT:  OPEN
2551  013136  000000                DATADR: OPEN
2552  013140  000000                WDCNT:  OPEN
2553  013142  012537  015030        CKSELE: MOV     (5)+,CKSELT     ;UNIT # TO CKSELT.
2554  013146  052737  000011  015030        BIS     #SST!DO,CKSELT
2555  013154  013777  015020  166050        MOV     CKSELT,@TCCM    ;ISSUE SST TO DESIRED UNIT
2556  013162  105777  166044                TSTB    @TCCM           ;WAIT FOR READY.
2557  013166  100375                        BPL     .-4
2558  013170  032777  040000  166032        BIT     #BIT11,@TCST    ;SELECT ERROR SET?
2559  013176  001001                        BNE     .+4             ;BR IF SELECT ERROR SET.
2560  013200  000205                        RTS     R5              ;ERROR EXIT. SELECT ERROR SHOULD BE SET.
2561  013202  062705  000006                ADD     #6,R5
2562  013206  000205                        RTS     R5              ;OK EXIT.
2563  013210                        .$SCOPE 4,SCOMAC
2564  013210                        STARS
2565                                ;;**************************************************************
2566
2567                                .SBTTL  SCOPE HANDLER ROUTINE
2568
2569                                ;*SW14=1         LOOP ON TEST
2570                                ;*SW11=1         INHIBIT ITERATIONS
2571                                ;*SW09=1         LOOP ON ERROR
2572                                ;*SW08=1         LOOP ON TEST IN SWR<7:0>
2573                                ;*THE TEST NUMBER ($TSTNM) IS INCREMENTED AND DISPLAYED IN DISPLAY<7:0>
2574                                ;*AND THE ERROR FLAG ($ERFLG) IS DISPLAYED IN DISPLAY<15:08>
2575
2576  013210                        $SCOPE:
2577                                .IRP NEWINS,<SCOMAC>
2578                                        NEWINS
2579                                .ENDM
2580  013210                                SCOMAC
2581  013210  005077  166016                CLR     @TCCM
2582  013214  005066  000002                CLR     2(SP)           ;PS TO =0 AFTER WE EXIT THE SCOPE ROUTINE
2583  013220  004737  012046                JSR     PC,SRSETT
2584  013224  004737  012070                JSR     PC,RSTMTK
2585  013230  006137  177570                ROL     @#SWR                   ;LOOP ON PRESENT TEST?
2586  013234  100511                        BMI     $OVER                   ;YES IF SW14=1
2587                                ;#####START OF CODE FOR THE XOR TESTER#####
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 2588  013236  000416                    $XTSTR: BR      6$                      ;IF RUNNING ON THE "XOR" TESTER CHANGE
 2589                                            ;THIS INSTRUCTION TO A "NOP" (NOP=240)
 2590  013240  013746  000004                    MOV     @#ERRVEC,-(SP)          ;SAVE THE CONTENTS OF THE ERROR VECTOR
 2591  013244  012737  013264  000004            MOV     #5$,@#ERRVEC            ;SET FOR TIMEOUT
 2592  013252  005737  177060                    TST     @#177060                ;TIME OUT ON XOR?
 2593  013256  012637  000004                    MOV     (SP)+,@#ERRVEC          ;RESTORE THE ERROR VECTOR
 2594  013262  000463                            BR      $SVLAD                  ;GO TO THE NEXT TEST
 2595  013264  022626                    5$:     CMP     (SP)+,(SP)+             ;CLEAR THE STACK AFTER A TIME OUT
 2596  013266  012637  000004                    MOV     (SP)+,@#ERRVEC          ;RESTORE THE ERROR VECTOR
 2597  013272  000423                            BR      7$                      ;LOOP ON THE PRESENT TEST
 2598  013274                            6$:     ;*****END OF CODE FOR THE XOR TESTER*****
 2599  013274  032737  000400  177570            BIT     #SW08,@#SWR             ;LOOP ON SPEC. TEST?
 2600  013302  001404                            BEQ     2$                      ;BR IF NO
 2601  013304  123737  177570  001102            CMPB    @#SWR,$TSTNM            ;ON THE RIGHT TEST?     SWR<7:0>
 2602  013312  001462                            BEQ     $OVER                   ;BR IF YES
 2603  013314  105737  001103            2$:     TSTB    $ERFLG                  ;HAS AN ERROR OCCURRED?
 2604  013320  001421                            BEQ     3$                      ;BR IF NO
 2605  013322  123737  001115  001103            CMPB    $ERMAX,$ERFLG           ;MAX. ERRORS FOR THIS TEST OCCURRED?
 2606  013330  101015                            BHI     3$                      ;BR IF NO
 2607  013332  032737  001000  177570            BIT     #SW09,@#SWR             ;LOOP ON ERROR?
 2608  013340  001404                            BEQ     4$                      ;BR IF NO
 2609  013342  013737  001110  001106    7$:     MOV     $LPERR,$LPADR           ;SET LOOP ADDRESS TO LAST SCOPE
 2610  013350  000443                            BR      $OVER
 2611  013352  105037  001103            4$:     CLRB    $ERFLG                  ;ZERO THE ERROR FLAG
 2612  013356  005037  001214                    CLR     $TIMES                  ;CLEAR THE NUMBER OF ITERATIONS TO MAKE
 2613  013362  000415                            BR      1$                      ;ESCAPE TO THE NEXT TEST
 2614  013364  032737  004000  177570    3$:     BIT     #SW11,@#SWR             ;INHIBIT ITERATIONS?
 2615  013372  001011                            BNE     1$                      ;BR IF YES
 2616  013374  005737  001100                    TST     $PASS                   ;IF FIRST PASS OF PROGRAM
 2617  013400  001406                            BEQ     1$                      ;       INHIBIT ITERATIONS
 2618  013402  005237  001104                    INC     $ICNT                   ;INCREMENT ITERATION COUNT
 2619  013406  023737  001214  001104            CMP     $TIMES,$ICNT            ;CHECK THE NUMBER OF ITERATIONS MADE
 2620  013414  002021                            BGE     $OVER                   ;BR IF MORE ITERATION REQUIRED
 2621  013416  012737  000001  001104    1$:     MOV     #1,$ICNT                ;REINITIALIZE THE ITERATION COUNTER
 2622  013424  013737  013474  001214            MOV     $MXCNT,$TIMES           ;SET NUMBER OF ITERATIONS TO DO
 2623  013432  105237  001102            $SVLAD: INCB    $TSTNM                  ;COUNT TEST NUMBERS
 2624  013436  011637  001106                    MOV     (SP),$LPADR             ;SAVE SCOPE LOOP ADDRESS
 2625  013442  011637  001110                    MOV     (SP),$LPERR             ;SAVE ERROR LOOP ADDRESS
 2626  013446  005037  001216                    CLR     $ESCAPE                 ;CLEAR THE ESCAPE FROM ERROR ADDRESS
 2627  013452  112737  000001  001115            MOVB    #1,$ERMAX               ;ONLY ALLOW ONE(1) ERROR ON NEXT TEST
 2628  013460  013737  001102  177570    $OVE".  MOV     $TSTNM,@#DISPLAY        ;DISPLAY TEST NUMBER
 2629  013466  013716  001106                    MOV     $LPADR,(SP)             ;FUDGE RETURN ADDRESS
 2630  013472  000002                            RTI                             ;FIXES PS
 2631  013474  000004                    $MXCNT: 4                               ;MAX. NUMBER OF ITERATIONS
 2632                                    .MACRO  SAVE
 2633                                            MOV     SP,$REG6
 2634                                            SUB     #4,$REG6
 2635                                            MOV     2($SP),$REG7
 2636                                            CLR     $REG5
 2637                                            MOVB    $TSTNM,$REG5
 2638                                            MOV     @TCCM,$REG2
 2639                                            MOV     @TCST,$REG1
 2640                                            MOV     @TCBA,$REG3
 2641                                    .ENDM SAVE
 2642  013476                            .SERROR $ERRTYP,SAVE
 2643  013476                            STARS
```

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

                                    .SBTTL  ERROR HANDLER ROUTINE

                                    ;*SW15=1        HALT ON ERROR
                                    ;*SW13=1        INHIBIT ERROR TYPEOUTS
                                    ;*SW10=1        BELL ON ERROR
                                    ;*SW09=1        LOOP ON ERROR
                                    ;*GO TO $ERRTYP ON ERROR

013476                              $ERROR:
                                    .IRP NEWINS,<SAVE>
                                            NEWINS
                                    .ENDM
013476                                      SAVE
013476  010637  001170                      MOV     SP,$REG6
013502  162737  000004  001170              SUB     #4,$REG6
013510  016637  000002  001172              MOV     2(SP),$REG7
013516  005037  001166                      CLR     $REGS
013522  113737  001102  001166              MOVB    $TSTNM,$REGS
013530  017737  165476  001160              MOV     @TCCM,$REG2
013536  017737  165466  001156              MOV     @TCST,$REG1
013544  017737  165466  001162              MOV     @TCBA,$REG3
013552  105237  001103            7$:       INCB    $ERFLG                  ;SET THE ERROR FLAG
013556  001775                              BEQ     7$                      ;DON'T LET THE FLAG GO TO ZERO
013560  013737  001102  177570              MOV     $TSTNM,@#DISPLAY        ;DISPLAY TEST NUMBER AND ERROR FLAG
013566  032737  002000  177570              BIT     #SW10,@#SWR             ;BELL ON ERROR?
013574  001402                              BEQ     1$                      ;NO - SKIP
013576  104400  001220                      TYPE    ,$BELL                  ;RING BELL
013602  005237  001112            1$:       INC     $ERTTL                  ;COUNT THE NUMBER OF ERRORS
013606  011637  001116                      MOV     (SP),$ERRPC             ;GET ADDRESS OF ERROR INSTRUCTION
013612  162737  000002  001116              SUB     #2,$ERRPC
013620  117737  165272  001114              MOVB    @$ERRPC,$ITEMB          ;STRIP AND SAVE THE ERROR ITEM CODE
013626  032737  020000  177570              BIT     #SW13,@#SWR             ;SKIP TYPEOUT IF SET
013634  001004                              BNE     2$                      ;SKIP TYPEOUTS
013636  004737  014642                      JSR     PC,@#$ERRTYP            ;GO TO USER ERROR ROUTINE
013642  104400  001225                      TYPE    ,$CRLF
013646  005737  177570            2$:       TST     @#SWR                   ;HALT ON ERROR
013652  100001                              BPL     3$                      ;SKIP IF CONTINUE
013654  000000                              HALT                            ;HALT ON ERROR!
013656  032737  001000  177570    3$:       BIT     #SW09,@#SWR             ;LOOP ON ERROR SWITCH SET?
013664  001402                              BEQ     4$                      ;BR IF NO
013666  013716  001110                      MOV     $LPERR,(SP)             ;FUDGE RETURN FOR LOOPING
013672  005737  001216            4$:       TST     $ESCAPE                 ;CHECK FOR AN ESCAPE ADDRESS
013676  001402                              BEQ     5$                      ;BR IF NONE
013700  013716  001216                      MOV     $ESCAPE,(SP)            ;FUDGE RETURN ADDRESS FOR ESCAPE
013704  000002            5$:       RTI                                     ;RETURN
013706                              .$POWER <POWPUS>,<POWPOP>,<POWMES>
013706                              STARS
                                    ;;**********************************************************************

                                    .SBTTL  POWER DOWN AND UP ROUTINES

                                    ;POWER DOWN ROUTINE
013706  012737  014044  000024  $PWRDN: MOV     #$ILLUP,@#PWRVEC        ;SET FOR FAST UP
013714  012737  000340  000026          MOV     #340,@#PWRVEC+2         ;PRIO:7
```

```
2700  013722                                  PUSH    <R0,R1,R2,R3,R4,R5>
2701                                  .IRP    B,<R0,R1,R2,R3,R4,R5>
2702                                  MOV     B,-(SP)                 ;PUSH B ON STACK
2703                                  .ENDM
2704  013722  010046                 MOV     R0,-(SP)                ;PUSH R0 ON STACK
2705  013724  010146                 MOV     R1,-(SP)                ;PUSH R1 ON STACK
2706  013726  010246                 MOV     R2,-(SP)                ;PUSH R2 ON STACK
2707  013730  010346                 MOV     R3,-(SP)                ;PUSH R3 ON STACK
2708  013732  010446                 MOV     R4,-(SP)                ;PUSH R4 ON STACK
2709  013734  010546                 MOV     R5,-(SP)                ;PUSH R5 ON STACK
2710  013736                          PUSH    <<POWPUS>,<POWPOP>,<POWMES>>
2711                                  .IRP    B,<<POWPUS>,<POWPOP>,<POWMES>>
2712                                  MOV     B,-(SP)                 ;PUSH B ON STACK
2713                                  .ENDM
2714  013736  013746  001304          MOV     POWPUS,-(SP)            ;PUSH POWPUS ON STACK
2715  013742  013746  001306          MOV     POWPOP,-(SP)            ;PUSH POWPOP ON STACK
2716  013746  013746  015552          MOV     POWMES,-(SP)            ;PUSH POWMES ON STACK
2717  013752  010637  014050          MOV     SP,$SAVR6               ;SAVE SP
2718  013756  012737  013770  000024  MOV     #$PWRUP,@#PWRVEC        ;SET UP VECTOR
2719  013764  000000                  HALT
2720  013766  000776                  BR      .-2                     ;HANG UP
2721
2722                                  ;POWER UP ROUTINE
2723  013770  013706  014050  $PWRUP: MOV     $SAVR6,SP               ;GET SP
2724  013774  005037  014050          CLR     $SAVR5                  ;WAIT LOOP FOR THE TTY
2725  014000  005237  014050  1$:     INC     $SAVR6                  ;WAIT FOR THE INC
2726  014004  001375                  BNE     1$                      ;OF <POWPUS>,<POWPOP>,<POWMES> WORD
2727  014006                          POP     <R5,R4,R3,R2,R1,R0>
2728                                  .IRP    B,<R5,R4,R3,R2,R1,R0>
2729                                  MOV     (SP)+,B                 ;POP STACK INTO B
2730                                  .ENDM
2731  014006  012605                  MOV     (SP)+,R5                ;POP STACK INTO R5
2732  014010  012604                  MOV     (SP)+,R4                ;POP STACK INTO R4
2733  014012  012603                  MOV     (SP)+,R3                ;POP STACK INTO R3
2734  014014  012602                  MOV     (SP)+,R2                ;POP STACK INTO R2
2735  014016  012601                  MOV     (SP)+,R1                ;POP STACK INTO R1
2736  014020  012600                  MOV     (SP)+,R0                ;POP STACK INTO R0
2737  014022  012737  013706  000024  MOV     #$PWRDN,@#PWRVEC        ;SET UP THE POWER DOWN VECTOR
2738  014030  012737  000340  000026  MOV     #340,@#PWRVEC+2         ;PRIO:7
2739  014036  104400  014052          TYPE    ,$POWER                 ;POWER FAIL MESSAGE
2740  014042  000002                  RTI
2741  014044  000000  $ILLUP: HALT                                    ;THE POWER UP SEQUENCE WAS STARTED
2742  014046  000776                  BR      .-2                     ; BEFORE THE POWER DOWN WAS COMPLETE
2743  014050  000000  $SAVR6: 0                                       ;PUT THE SP HERE
2744  014052  005015  047520  042527  $POWER: .ASCIZ  <15><12>"POWER"
2745  014060  000122
2746                                  .EVEN
2747  014062                          .$TYPE
2748  014062                          STARS
2749                                  ;;*****************************************************************
2750
2751                                  .SBTTL  TYPE ROUTINE
2752
2753                                  ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
2754                                  ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
2755                                  ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
```

```
                                    ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
                                    ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
                                    ;*
                                    ;*CALL:
                                    ;*1) USING A TRAP INSTRUCTION
                                    ;*      TYPE    ,MESADR                 ;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
                                    ;*OR
                                    ;*      TYPE
                                    ;*      MESADR
                                    ;*
                                    ;*2) USING A JSR INSTRUCTION
                                    ;*      MOV     PS,-(SP)                ;PUSH PROCESSOR STATUS WORD ON THE STACK
                                    ;*      JSR     PC,$TYPE                ;CALL TYPE ROUTINE
                                    ;*      MESADDR                         ;FIRST ADRESS OF MESSAGE

014062  105737  001151      $TYPE:  TSTB    $TPFLG                  ;IS THERE A TERMINAL?
014066  100002                      BPL     1$                      ;BR IF YES
014070  000000                      HALT                            ;HALT HERE IF NO TERMINAL
014072  000407                      BR      3$                      ;LEAVE
014074  010046              1$:     MOV     R0,-(SP)                ;SAVE R0
014076  017600  000002              MOV     @2(SP),R0               ;GET ADDRESS OF ASCIZ STRING
014102  112046              2$:     MOVB    (R0)+,-(SP)             ;PUSH CHARACTER TO BE TYPED ONTO STACK
014104  001005                      BNE     4$                      ;BR IF IT ISN'T THE TERMINATOR
014106  005726                      TST     (SP)+                   ;IF TERMINATOR POP IT OFF THE STACK
014110  012600                      MOV     (SP)+,R0                ;RESTORE R0
014112  062716  000002      3$:     ADD     #2,(SP)                 ;ADJUST RETURN PC
014116  000002                      RTI                             ;RETURN
014120  004737  014152      4$:     JSR     PC,7$                   ;GO TYPE THIS CHARACTER
014124  123726  001150      5$:     CMPB    $FILLC,(SP)+            ;IS IT TIME FOR FILLER CHARS.?
014130  001364                      BNE     2$                      ;IF NO GO GET NEXT CHAR.
014132  013746  001146              MOV     $NULL,-(SP)             ;GET # OF FILLER CHARS. NEEDED
                                                                    ;AND THE NULL CHAR.
014136  105366  000001      6$:     DECB    1(SP)                   ;DOES A NULL NEED TO BE TYPED?
014142  002770                      BLT     5$                      ;BR IF NO--GO POP THE NULL OFF OF STACK
014144  004737  014152              JSR     PC,7$                   ;GO TYPE A NULL
014150  000772                      BR      6$                      ;LOOP
014152  105777  164764      7$:     TSTB    @$TPS                   ;WAIT UNTIL PRINTER IS READY
014156  100375                      BPL     7$
014160  116677  000002  164756      MOVB    2(SP),@$TPB             ;LOAD CHAR TO BE TYPED INTO DATA REG.
014166  000207                      RTS     PC
014170                          .$TYPDEC
014170                          STARS
                                ;;**********************************************************************

                                .SBTTL  CONVERT BINARY TO DECIMAL AND TYPE ROUTINE

                                ;*CALL:
                                ;*      MOV     NUM,-(SP)               ;PUT THE BINARY NUMBER ON THE STACK
                                ;*      TYPDS                           ;GO TO THE ROUTINE

014170                          $TYPDS: PUSH    <R0,R1,R2,R3,R5>
                                .IRP    B,<R0,R1,R2,R3,R5>
                                        MOV     B,-(SP)                 ;PUSH B ON STACK
                                .ENDM
014170  010046                          MOV     R0,-(SP)                ;PUSH R0 ON STACK
014172  010146                          MOV     R1,-(SP)                ;PUSH R1 ON STACK
```

```
2812  014174  010246                        MOV     R2,-(SP)            ;PUSH R2 ON STACK
2813  014176  010346                        MOV     R3,-(SP)            ;PUSH R3 ON STACK
2814  014200  010546                        MOV     R5,-(SP)            ;PUSH R5 ON STACK
2815  014202  012746  020200                MOV     #20200,-(SP)        ;SET BLANK SWITCH AND SIGN
2816  014206  016605  000020                MOV     20(SP),R5           ;GET THE INPUT NUMBER
2817  014212  100004                        BPL     1$                  ;BR IF INPUT IS POS.
2818  014214  005405                        NEG     R5                  ;MAKE THE BINARY NUMBER POS.
2819  014216  112766  000055  000001        MOVB    #'-,1(SP)           ;MAKE THE ASCII NUMBER NEG.
2820  014224  005000                1$:     CLR     R0                  ;ZERO THE CONSTANTS INDEX
2821  014226  012703  014404                MOV     #$DBLK,R3           ;SETUP THE OUTPUT POINTER
2822  014232  112723  000040                MOVB    #' ,(R3)+           ;SET THE FIRST CHARACTER TO A BLANK
2823  014236  005002                2$:     CLR     R2                  ;CLEAR THE BCD NUMBER
2824  014240  016001  014374                MOV     $DTBL(R0),R1        ;GET THE CONSTANT
2825  014244  160105                3$:     SUB     R1,R5               ;FORM THIS BCD DIGIT
2826  014246  002402                        BLT     4$                  ;BR IF DONE
2827  014250  005202                        INC     R2                  ;INCREASE THE BCD DIGIT BY 1
2828  014252  000774                        BR      3$
2829  014254  060105                4$:     ADD     R1,R5               ;ADD BACK THE CONSTANT
2830  014256  005702                        TST     R2                  ;CHECK IF BCD DIGIT=0
2831  014260  001002                        BNE     5$                  ;FALL THROUGH IF 0
2832  014262  105716                        TSTB    (SP)                ;STILL DOING LEADING 0'S?
2833  014264  100407                        BMI     7$                  ;BR IF YES
2834  014266  106316                5$:     ASLB    (SP)                ;MSD?
2835  014270  103003                        BCC     6$                  ;BR IF NO
2836  014272  116663  000001  177777        MOVB    1(SP),-1(R3)        ;YES--SET THE SIGN
2837  014300  052702  000060        6$:     BIS     #'0,R2              ;MAKE THE BCD DIGIT ASCII
2838  014304  052702  000040        7$:     BIS     #' ,R2              ;MAKE IT A SPACE IF NOT ALREADY A DIGIT
2839  014310  110223                        MOVB    R2,(R3)+            ;PUT THIS CHARACTER IN THE OUTPUT BUFFER
2840  014312  005720                        TST     (R0)+               ;JUST INCREMENTING
2841  014314  020027  000010                CMP     R0,#10              ;CHECK THE TABLE INDEX
2842  014320  002746                        BLT     2$                  ;GO DO THE NEXT DIGIT
2843  014322  003002                        BGT     8$                  ;GO TO EXIT
2844  014324  010502                        MOV     R5,R2               ;GET THE LSD
2845  014326  000764                        BR      6$                  ;GO CHANGE TO ASCII
2846  014330  105726                8$:     TSTB    (SP)+               ;WAS THE LSD THE FIRST NON-ZERO?
2847  014332  100003                        BPL     9$                  ;BR IF NO
2848  014334  116663  177777  177776        MOVB    -1(SP),-2(R3)       ;YES--SET THE SIGN FOR TYPING
2849  014342  105013                9$:     CLRB    (R3)                ;SET THE TERMINATOR
2850  014344                                POP     <R5,R3,R2,R1,R0>
2851                                .IRP    B,<R5,R3,R2,R1,R0>
2852                                        MOV     (SP)+,B             ;POP STACK INTO B
2853                                .ENDM
2854  014344  012605                        MOV     (SP)+,R5            ;POP STACK INTO R5
2855  014346  012603                        MOV     (SP)+,R3            ;POP STACK INTO R3
2856  014350  012602                        MOV     (SP)+,R2            ;POP STACK INTO R2
2857  014352  012601                        MOV     (SP)+,R1            ;POP STACK INTO R1
2858  014354  012600                        MOV     (SP)+,R0            ;POP STACK INTO R0
2859  014356  104400  014404                TYPE    ,$DBLK              ;NOW TYPE THE NUMBER
2860  014362  016666  000002  000004        MOV     2(SP),4(SP)         ;ADJUST THE STACK
2861  014370  012616                        MOV     (SP)+,(SP)
2862  014372  000002                        RTI                         ;RETURN TO USER
2863  014374  023420                $DTBL:  10000.
2864  014376  001750                        1000.
2865  014400  000144                        100.
2866  014402  000012                        10.
2867  014404  000004                $DBLK:  .BLKW   4
```

```
                                .$TYPOCT
                                STARS
                                ;;**********************************************************************

                                .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE

                                ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
                                ;*CALL:
                                ;*      MOV     NUM,-(SP)               ;NUMBER TO BE TYPED
                                ;*      TYPOS                           ;CALL FOR TYPEOUT
                                ;*      .BYTE   N                       ;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
                                ;*      .BYTE   M                       ;M=1 OR 0
                                ;*                                              ;1=TYPE LEADING ZEROS
                                ;*                                              ;0=SUPPRESS LEADING ZEROS
                                ;*
                                ;*$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

014414  017646  000000          $TYPOS: MOV     @(SP),-(SP)             ;PICKUP THE MODE
014420  116637  000001  014637          MOVB    1(SP),$OFILL            ;LOAD ZERO FILL SWITCH
014426  112637  014641                  MOVB    (SP)+,$OMODE+1          ;NUMBER OF DIGITS TO TYPE
014432  062716  000002                  ADD     #2,(SP)                 ;ADJUST RETURN ADDRESS
014436  000406                          BR      $TYPON
014440  112737  000001  014637  $TYPOC: MOVB    #1,$OFILL               ;SET THE ZERO FILL SWITCH
014446  112737  000006  014641          MOVB    #6,$OMODE+1             ;SET FOR SIX(6) DIGITS
014454  112737  000005  014636  $TYPON: MOVB    #5,$OCNT                ;SET THE ITERATION COUNT
014462  010346                          MOV     R3,-(SP)                ;SAVE R3
014464  010446                          MOV     R4,-(SP)                ;SAVE R4
014466  010546                          MOV     R5,-(SP)                ;SAVE R5
014470  113704  014641                  MOVB    $OMODE+1,R4             ;GET THE NUMBER OF DIGITS TO TYPE
014474  005404                          NEG     R4
014476  062704  000006                  ADD     #6,R4                   ;SUBTRACT IT FOR MAX. ALLOWED
014502  110437  014640                  MOVB    R4,$OMODE               ;SAVE IT FOR USE
014506  113704  014637                  MOVB    $OFILL,R4               ;GET THE ZERO FILL SWITCH
014512  016605  000012                  MOV     12(SP),R5               ;PICKUP THE INPUT NUMBER
014516  005003                          CLR     R3                      ;CLEAR THE OUTPUT WORD
014520  006105                  1$:     ROL     R5                      ;ROTATE MSB INTO "C"
014522  000404                          BR      3$                      ;GO DO MSB
014524  006105                  2$:     ROL     R5                      ;FORM THIS DIGIT
014526  006105                          ROL     R5
014530  006105                          ROL     R5
014532  010503                          MOV     R5,R3
014534  006103                  3$:     ROL     R3                      ;GET LSB OF THIS DIGIT
014536  105337  014640                  DECB    $OMODE                  ;TYPE THIS DIGIT?
014542  100016                          BPL     7$                      ;BR IF NO
014544  042703  177770                  BIC     #177770,R3              ;GET RID OF JUNK
014550  001002                          BNE     4$                      ;TEST FOR 0
014552  005704                          TST     R4                      ;SUPPRESS THIS 0?
```

```
2924  014554  001403                          BEQ     5$                      ;BR IF YES
2925  014556  005204                  4$:     INC     R4                      ;DON'T SUPPRESS ANYMORE 0'S
2926  014560  052703  000060                  BIS     #'0,R3                  ;MAKE THIS DIGIT ASCII
2927  014564  052703  000040          5$:     BIS     #' ,R3                  ;MAKE ASCII IF NOT ALREADY
2928  014570  110337  014634                  MOVB    R3,8$                   ;SAVE FOR TYPING
2929  014574  104400  014634                  TYPE    ,8$                     ;GO TYPE THIS DIGIT
2930  014600  105337  014636          7$:     DECB    $OCNT                   ;COUNT BY 1
2931  014604  003347                          BGT     2$                      ;BR IF MORE TO DO
2932  014606  002402                          BLT     6$                      ;BR IF DONE
2933  014610  005204                          INC     R4                      ;INSURE LAST DIGIT ISN'T A BLANK
2934  014612  000744                          BR      2$                      ;GO DO THE LAST DIGIT
2935  014614  012605                  6$:     MOV     (SP)+,R5                ;RESTORE R5
2936  014616  012604                          MOV     (SP)+,R4                ;RESTORE R4
2937  014620  012603                          MOV     (SP)+,R3                ;RESTORE R3
2938  014622  016666  000002  000004          MOV     2(SP),4(SP)             ;SET THE STACK FOR RETURNING
2939  014630  012616                          MOV     (SP)+,(SP)
2940  014632  000002                          RTI                             ;RETURN
2941  014634     000                  8$:     .BYTE   0                       ;STORAGE FOR ASCII DIGIT
2942  014635     000                          .BYTE   0                       ;TERMINATOR FOR TYPE ROUTINE
2943  014636     000                  $OCNT:  .BYTE   0                       ;OCTAL DIGIT COUNTER
2944  014637     000                  $OFILL: .BYTE   0                       ;ZERO FILL SWITCH
2945  014640  000000                  $OMODE: 0                               ;NUMBER OF DIGITS TO TYPE
2946  014642                          .$ERRTYP
2947  014642                          STARS
2948                                  ;;*****************************************************************
2949
2950                                  .SBTTL  ERROR MESSAGE TYPEOUT ROUTINE
2951
2952                                  ;*THIS ROUTINE USES THE "ITEM CONTROL BYTE" ($ITEMB) TO DETERMINE WHICH
2953                                  ;*ERROR IS TO BE REPORTED. IT THEN OBTAINS, FROM THE "ERROR TABLE" ($ERRTB),
2954                                  ;*AND REPORTS THE APPROPRIATE INFORMATION CONCERNING THE ERROR.
2955
2956  014642                          $ERRTYP:
2957  014642  104400  001225                  TYPE    ,$CRLF                  ;"CARRIAGE RETURN" & "LINE FEED"
2958  014646  010046                          MOV     R0,-(SP)                ;SAVE R0
2959  014650  005000                          CLR     R0                      ;PICKUP THE ITEM INDEX
2960  014652  153700  001114                  BISB    @#$ITEMB,R0
2961  014656  001004                          BNE     1$                      ;IF ITEM NUMBER IS ZERO, JUST
2962                                                                          ;TYPE THE PC OF THE ERROR
2963  014660                                  TYPOCT  $ERRPC,<ERROR ADDRESS>
2964  014660  013746  001116                  MOV     $ERRPC,-(SP)            ;SAVE $ERRPC FOR TYPEOUT
2965                                                                          ;ERROR ADDRESS
2966  014664  104402                          TYPOC                           ;GO TYPE--OCTAL ASCII(ALL DIGITS)
2967  014666  000426                          BR      6$                      ;GET OUT
2968  014670  005300                  1$:     DEC     R0                      ;ADJUST THE INDEX SO THAT IT WILL
2969  014672  006300                          ASL     R0                      ;       WORK FOR THE ERROR TABLE
2970  014674  006300                          ASL     R0
2971  014676  006300                          ASL     R0
2972  014700  062700  001314                  ADD     #$ERRTB,R0              ;FORM TABLE POINTER
2973  014704  012037  014714                  MOV     (R0)+,2$                ;PICKUP "ERROR MESSAGE" POINTER
2974  014710  001404                          BEQ     3$                      ;SKIP TYPEOUT IF NO POINTER
2975  014712  104400                          TYPE                            ;TYPE THE "ERROR MESSAGE"
2976  014714  000000                  2$:     .WORD   0                       ;"ERROR MESSAGE" POINTER GOES HERE
2977  014716  104400  001225                  TYPE    ,$CRLF                  ;"CARRIAGE RETURN" & "LINE FEED"
2978  014722  012037  014732          3$:     MOV     (R0)+,4$                ;PICKUP "DATA HEADER" POINTER
2979  014726  001404                          BEQ     5$                      ;SKIP TYPEOUT IF 0
```

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2980  014730  104400                        TYPE                    ;TYPE THE "DATA HEADER"
2981  014732  000000                4$:     .WORD   0               ;"DATA HEADER" POINTER GOES HERE
2982  014734  104400  001225                TYPE    .$CRLF          ;"CARRIAGE RETURN" & "LINE FEED"
2983  014740  011000                5$:     MOV     (R0),R0         ;PICKUP "DATA TABLE" POINTER
2984  014742  001004                        BNE     7$              ;GO TYPE THE DATA
2985  014744  012600                6$:     MOV     (SP)+,R0        ;RESTORE R0
2986  014746  104400  001225                TYPE    .$CRLF          ;"CARRIAGE RETURN" & "LINE FEED"
2987  014752  000207                        RTS     PC              ;RETURN
2988  014754                        7$:     TYPOCT  @(R0)+          ;TYPE AN OCTAL NUMBER
2989  014754  013046                        MOV     @(R0)+,-(SP)    ;SAVE @(R0)+ FOR TYPEOUT
2990  014756  104402                        TYPOC                   ;GO TYPE--OCTAL ASCII(ALL DIGITS)
2991  014760  005710                        TST     (R0)            ;IS THERE ANOTHER NUMBER?
2992  014762  001770                        BEQ     6$              ;BR IF NO
2993  014764  104400  014772                TYPE    .8$             ;TYPE TWO(2) SPACES
2994  014770  000771                        BR      7$              ;LOOP
2995  014772  020040      000       8$:     .ASCIZ  /  /            ;TWO(2) SPACES
2996          014776                        .EVEN
2997  014776                        .$TRAP
2998  014776                        STARS
2999                                ;;**********************************************************************
3000
3001                                .SBTTL  TRAP DECODER
3002
3003                                ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
3004                                ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
3005                                ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
3006                                ;*GO TO THAT ROUTINE.
3007
3008  014776  010046                $TRAP:  MOV     R0,-(SP)        ;SAVE R0
3009  015000  016600  000002                MOV     2(SP),R0        ;GET TRAP ADDRESS
3010  015004  005740                        TST     -(R0)           ;BACKUP BY 2
3011  015006  111000                        MOVB    (R0),R0         ;GET RIGHT BYTE OF TRAP
3012  015010  016000  015016                MOV     $TRPAD(R0),R0   ;INDEX TO TABLE
3013  015014  000200                        RTS     R0              ;GO TO ROUTINE
3014
3015                                .MACRO  SETTRAP A,B,MSG
3016                                        $$SET   A,B,\<TRAP+$TRP>,\$TRP,<MSG>
3017                                .NLIST
3018                                $TRP=$TRP+2
3019                                .LIST
3020                                .ENDM   SETTRAP
3021                                .MACRO  $$SET   A,B,C,D,COMNT
3022                                .IF EQ $TRP
3023
3024                                .SBTTL  TRAP TABLE
3025
3026                                ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
3027                                ;*BY THE "TRAP" INSTRUCTION.
3028
3029                                ;       ROUTINE
3030                                ;       -------
3031                                $TRPAD:
3032                                .ENDC
3033                                .IIF NDF GNS,.NLIST
3034                                        A=      C
3035                                .IIF NDF GNS,.LIST
```

```
                                                B                   ;CALL=A TRAP+0(C)       COMNT
                                        .ENDM   $$SET
                                        .MACRO  TRMTRP
                                        $TERM=.-$TRPAD
                                        .ENDM   TRMTRP
                                        .LIST
015016                                          SETTRAP TYPE,$TYPE,↑/TTY TYPEOUT ROUTINE/
015016                                          $$SET   TYPE,$TYPE,\<TRAP+$TRP>,\$TRP,<TTY TYPEOUT ROUTINE>

                                        .SBTTL  TRAP TABLE

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

                                        ;       ROUTINE
                                        ;       -------
015016                                  $TRPAD:
                                        .LIST
015016  014062                                  $TYPE           ;CALL=TYPE      TRAP+0(104400)  TTY TYPEOUT ROUTINE
                                        .LIST
015020                                          SETTRAP TYPOC,$TYPOC,↑/TYPE OCTAL NUMBER (WITH LEADING ZEROS)/
015020                                          $$SET   TYPOC,$TYPOC,\<TRAP+$TRP>,\$TRP,<TYPE OCTAL NUMBER (WITH LEADING ZEROS)>
                                        .LIST
015020  014440                                  $TYPOC          ;CALL=TYPOC     TRAP+2(104402)  TYPE OCTAL NUMBER (WITH LEADING
                                        .LIST
015022                                          SETTRAP TYPOS,$TYPOS,↑/TYPE OCTAL NUMBER (NO LEADING ZEROS)/
015022                                          $$SET   TYPOS,$TYPOS,\<TRAP+$TRP>,\$TRP,<TYPE OCTAL NUMBER (NO LEADING ZEROS)>
                                        .LIST
015022  014414                                  $TYPOS          ;CALL=TYPOS     TRAP+4(104404)  TYPE OCTAL NUMBER (NO LEADING ZE
                                        .LIST
015024                                          SETTRAP TYPON,$TYPON,↑/TYPE OCTAL NUMBER (AS PER LAST CALL)/
015024                                          $$SET   TYPON,$TYPON,\<TRAP+$TRP>,\$TRP,<TYPE OCTAL NUMBER (AS PER LAST CALL)>
                                        .LIST
015024  014454                                  $TYPON          ;CALL=TYPON     TRAP+6(104406)  TYPE OCTAL NUMBER (AS PER LAST C
                                        .LIST
015026                                          SETTRAP TYPDS,$TYPDS,↑/TYPE DECIMAL NUMBER (WITH SIGN)/
015026                                          $$SET   TYPDS,$TYPDS,\<TRAP+$TRP>,\$TRP,<TYPE DECIMAL NUMBER (WITH SIGN)>
                                        .LIST
015026  [ 170                                   $TYPDS          ;CALL=TYPDS     TRAP+10(104410) TYPE DECIMAL NUMBER (WITH SIGN)
                                        .LIST
015030  000000                          CKSELT: OPEN
015032  055104  041524  026502          STMES:  .ASCII  'DZTCB-C - TC11 TEST'<15><12>
015040  020103  020055  041524
015046  030461  052040  051505
015054  006524    012
015057    123   052105  052440                  .ASCII  'SET UNIT0 TO REMOTE AND WRITE LOCK.'
015064  044516  030124  052040
015072  020117  042522  047515
015100  042524  040440  042116
015106  053440  044522  042524
015114  046040  041517  027113
015122  046101  020114  052117                  .ASCII  'ALL OTHER UNITS OFF.'<15><12>
015130  042510  020122  047125
015136  052111  020123  043117
015144  027106  005015
015150  051127  046524  051440                  .ASCIZ  'WRTM SWITCH OFF, WALL SWITCH ON.'<15><12>
```

```
3092  015156  044527  041524  020110
3093  015164  043117  026106  053440
3094  015172  046101  020114  053523
3095  015200  052111  044103  047440
3096  015206  027116  005015     000
3097  015213     015  051412  052105  ASETSR: .ASCIZ  <15><12>'SET SR OPTIONS. NORMAL SR = 0'
3098  015220  051440  020122  050117
3099  015226  044524  047117  027123
3100  015234  047040  051117  040515
3101  015242  020114  051123  036440
3102  015250  030040     000
3103  015253     015  044412  053116  AINCRT: .ASCIZ  <15><12>'INVALID TEST.'
3104  015260  046101  042111  052040
3105  015266  051505  027124     000
3106  015273     007                  APGEND: .BYTE   007
3107  015274  025045     000                  .ASCIZ  '%*'
3108  015277     106  052101  046101  TRPM4S: .ASCIZ  "FATAL ERROR TRAP TO LOCATION 4 FROM LOC"
3109  015304  042440  051122  051117
3110  015312  052040  040522  020120
3111  015320  047524  046040  041517
3112  015326  052101  047511  020116
3113  015334  020064  051106  046517
3114  015342  046040  041517     000
3115  015347     050  041077  042101  TRPMES: .ASCIZ  "(?BAD CPU?) ATTEMPTING TO RESTART PROGRAM"
3116  015354  041440  052520  024477
3117  015362  040440  052124  046505
3118  015370  052120  047111  020107
3119  015376  047524  051040  051505
3120  015404  040524  052122  050040
3121  015412  047522  051107  046501
3122  015420     000
3123  015421     106  052101  046101  TRPM10: .ASCIZ  "FATAL ERROR TRAP TO LOCATION 10 FROM LOC "
3124  015426  042440  051122  051117
3125  015434  052040  040522  020120
3126  015442  047524  046040  041517
3127  015450  052101  047511  020116
3128  015456  030061  043040  047522
3129  015464  020115  047514  020103
3130  015472     000
3131  015473     124  051505  051524  RESTART:        .ASCIZ  "TESTS ARE OUT OF SEQUENCE - - - RESTARTING...."
3132  015500  040440  042522  047440
3133  015506  052125  047440  020106
3134  015514  042523  052521  047105
3135  015522  042503  026440  026440
3136  015530  026440  051040  051505
3137  015536  040524  052122  047111
3138  015544  027107  027056  000056
3139  015552  005015  042522  052123  POWMES: .ASCIZ <15> <12> "RESTARTING AFTER A POWER FAILURE"<15> <12>
3140  015560  051101  044524  043516
3141  015566  040440  052106  051105
3142  015574  040440  050040  053517
3143  015602  051105  043040  044501
3144  015610  052514  042522  005015
3145  015616     000
3146  015617     123  052101  024040  EM1:    .ASCIZ "SAT (STOP ALL TRANSPORTS) COMMAND DID NOT CLEAR READY"
3147  015624  052123  050117  040440
```

```
3148  015632  046114  052040  040522
3149  015640  051516  047520  052122
3150  015646  024523  041440  046517
3151  015654  040515  042116  042040
3152  015662  042111  047040  052117
3153  015670  041440  042514  051101
3154  015676  051040  040505  054504
3155  015704     000
3156  015705     040  050040  020103  EH1:    .ASCIZ  "  PC      SP      PS      TEST#   TCOM    TCST"
3157  015712  020040  020040  051440
3158  015720  020120  020040  020040
3159  015726  050040  020123  020040
3160  015734  020040  042524  052123
3161  015742  020043  020040  041524
3162  015750  046503  020040  020040
3163  015756  041524  052123     000
3164          015764                  .EVEN
3165  015764  001116  00.170  001172  ET1:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3166  015772  001166  001160  001156
3167  016000  000000                          000000
3168
3169
3170  016002  051523  020124  051450  EM2:    .ASCIZ "SST (STOP SELECTED TRANSPORT) DID NOT CLEAR READY"
3171  016010  047524  020120  042523
3172  016016  042514  052103  042105
3173  016024  052040  040522  051516
3174  016032  047520  052122  020051
3175  016040  044504  020104  047516
3176  016046  020124  046103  040505
3177  016054  020122  042522  042101
3178  016062  000131
3179  016064  020040  041520  020040  EH2:    .ASCIZ  "  PC      SP      PS      TEST#   TCOM    TCST"
3180  016072  020040  020040  050123
3181  016100  020040  020040  020040
3182  016106  051520  020040  020040
3183  016114  052040  051505  021524
3184  016122  020040  052040  041503
3185  016130  020115  020040  052040
3186  016136  051503  000124
3187                          .EVEN
3188  016142  001116  001170  001172  ET2:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3189  016150  001166  001160  001156
3190  016156  000000                          000000
3191
3192
3193  016160  042522  042101  020131  EM3:    .ASCIZ "READY BIT DID NOT CAUSE AN INTERRUPT"
3194  016166  044502  020124  044504
3195  016174  020104  047516  020124
3196  016202  040503  051525  020105
3197  016210  047101  044440  052116
3198  016216  051105  052522  052120
3199  016224     000
3200  016225     040  050040  020103  EH3:    .ASCIZ  "  PC      SP      PS      TEST#   TCOM    TCST"
3201  016232  020040  020040  051440
3202  016240  020120  020040  020040
3203  016246  050040  020123  020040
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3204  016254  020040  042524  052123
3205  016262  020043  020040  041524
3206  016270  046503  020040  020040
3207  016276  041524  052123     000
3208          016304                  .EVEN
3209  016304  001116  001170  001172  ET3:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3210  016312  001166  001160  001156
3211  016320  000000                          000000
3212
3213
3214  016322  042522  042101  020131  EM4:    .ASCIZ "READY BIT CAUSED AN INTERRUPT WITH PROCESSOR AND TC11 AT SAME PRIORITY"
3215  016330  044502  020124  040503
3216  016336  051525  042105  040440
3217  016344  020116  047111  042524
3218  016352  051122  050125  020124
3219  016360  044527  044124  050040
3220  016366  047522  042503  051523
3221  016374  051117  040440  042116
3222  016402  052040  030503  020061
3223  016410  052101  051440  046501
3224  016416  020105  051120  047511
3225  016424  044522  054524     000
3226  016431     040  050040  020103  EH4:    .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST"
3227  016436  020040  020040  051440
3228  016444  020120  020040  020040
3229  016452  050040  020123  020040
3230  016460  020040  042524  052123
3231  016466  020043  020040  041524
3232  016474  046503  020040  020040
3233  016502  041524  052123     000
3234          016510                  .EVEN
3235  016510  001116  001170  001172  ET4:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3236  016516  001166  001160  001156
3237  016524  000000                          000000
3238
3239
3240  016526  041524  030461  043040  EM5:    .ASCIZ "TC11 FAILED TO INTERRUPT"
3241  016534  044501  042514  020104
3242  016542  047524  044440  052116
3243  016550  051105  052522  052120
3244  016556     000
3245  016557     040  050040  020103  EH5:    .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST"
3246  016564  020040  020040  051440
3247  016572  020120  020040  020040
3248  016600  050040  020123  020040
3249  016606  020040  042524  052123
3250  016614  020043  020040  041524
3251  016622  046503  020040  020040
3252  016630  041524  052123     000
3253          016636                  .EVEN
3254  016636  001116  001170  001172  ET5:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3255  016644  001166  001160  001156
3256  016652  000000                          000000
3257
3258
3259  016654  041524  030461  0420?   ..16:   .ASCIZ "TC11 DID NOT DROP INTERRUPT REQUEST AFTER IT WAS ACKNOLEDGED"
```

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 3260  016662  042111  047040  052117
 3261  016670  042040  047522  020120
 3262  016676  047111  042524  051122
 3263  016704  050125  020124  042522
 3264  016712  052521  051505  020124
 3265  016720  043101  042524  020122
 3266  016726  052111  053440  051501
 3267  016734  040440  045503  047516
 3268  016742  042514  043504  042105
 3269  016750     000
 3270  016751     040  050040  020103  EM6:    .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 3271  016756  020040  020040  051440
 3272  016764  020120  020040  020040
 3273  016772  050040  020123  020040
 3274  017000  020040  042524  052123
 3275  017006  020043  020040  041524
 3276  017014  046503  020040  020040
 3277  017022  041524  052123     000
 3278          017030                  .EVEN
 3279  017030  001116  001170  001172  ET6:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3280  017036  001166  001160  001156
 3281  017044  000000                  000000
 3282
 3283
 3284  017046  047504  047111  020107  EM7:    .ASCIZ "DOING A RESET INSTRUCTION DID NOT CLEAR UPS"
 3285  017054  020101  042522  042523
 3286  017062  020124  047111  052123
 3287  017070  052522  052103  047511
 3288  017076  020116  044504  020104
 3289  017104  047516  020124  046103
 3290  017112  040505  020122  050105
 3291  017120  000123
 3292  017122  020040  041520  020040  EM7:    .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 3293  017130  020040  020040  050123
 3294  017136  020040  020040  020040
 3295  017144  051520  020040  020040
 3296  017152  052040  051505  021524
 3297  017160  020040  052040  041503
 3298  017166  020115  020040  052040
 3299  017174  051503  000124
 3300                          .EVEN
 3301  017200  001116  001170  001172  ET7:    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3302  017206  001166  001160  001156
 3303  017214  000000                  000000
 3304
 3305
 3306  017216  047105  042524  044522  EM10:   .ASCIZ "ENTERING MAINTANENCE MODE DID NOT SET UPS"
 3307  017224  043516  046440  044501
 3308  017232  052116  047101  047105
 3309  017240  042503  046440  042117
 3310  017246  020105  044504  020104
 3311  017254  047516  020124  042523
 3312  017262  020124  050125  000123
 3313  017270  020040  041520  020040  EM10:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 3314  017276  020040  020040  050123
 3315  017304  020040  020040  020040
```

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3316  017312  051520  020040  020040
3317  017320  052040  051505  021524
3318  017326  020040  052040  041503
3319  017334  020115  020040  052040
3320  017342  051503  000124
3321                                  .EVEN
3322  017346  001116  001170  001172  ET10:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3323  017354  001166  001160  001156
3324  017362  000000                        000000
3325
3326
3327  017364  050125  020123  044504  EM11:   .ASCIZ "UPS DID NOT CLEAR WHEN LEAVING MAINTANENCE MODE"
3328  017372  020104  047516  020124
3329  017400  046103  040505  020122
3330  017406  044127  047105  046040
3331  017414  040505  044526  043516
3332  017422  046440  044501  052116
3333  017430  047101  047105  042503
3334  017436  046440  042117  000105
3335  017444  020040  041520  020040  EM11:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3336  017452  020040  020040  050123
3337  017460  020040  020040  020040
3338  017466  051520  020040  020040
3339  017474  052040  051505  021524
3340  017502  020040  052040  041503
3341  017510  020115  020040  052040
3342  017516  051503  000124
3343                                  .EVEN
3344  017522  001116  001170  001172  ET11:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3345  017530  001166  001160  001156
3346  017536  000000                        000000
3347
3348
3349  017540  041524  052123  041040  EM12:   .ASCIZ "TCST BIT 0 CAN BE SET WHILE IN MAINTANENCE MODE"
3350  017546  052111  030040  041440
3351  017554  047101  041040  020105
3352  017562  042523  020124  044127
3353  017570  046111  020105  047111
3354  017576  046440  044501  052116
3355  017604  047101  047105  042503
3356  017612  046440  042117  000105
3357  017620  020040  041520  020040  EM12:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
3358  017626  020040  020040  050123
3359  017634  020040  020040  020040
3360  017642  051520  020040  020040
3361  017650  052040  051505  021524
3362  017656  020040  052040  041503
3363  017664  020115  020040  052040
3364  017672  051503  000124
3365                                  .EVEN
3366  017676  001116  001170  001172  ET12:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3367  017704  001166  001160  001156
3368  017712  000000                        000000
3369
3370
3371  017714  041524  052123  041040  EM13:   .ASCIZ "TCST BIT 1 CAN BE SET WHILE IN MAINTANENCE MODE"
```

```
3372  017722  052111  030440  041440
3373  017730  047101  041040  020105
3374  017736  042523  020124  044127
3375  017744  046111  020105  047111
3376  017752  046440  044501  052116
3377  017760  047101  047105  042503
3378  017766  046440  042117  000105
3379  017774  020040  041520  020040  EM13:   .ASCIZ "  PC      SP      PS     TEST#   TCOM    TCST"
3380  020002  020040  020040  050123
3381  020010  020040  020040  020040
3382  020016  051520  020040  020040
3383  020024  052040  051505  021524
3384  020032  020040  052040  041503
3385  020040  020115  020040  052040
3386  020046  051503  000124
3387                                  .EVEN
3388  020052  001116  001170  001172  ET13:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3389  020060  001166  001160  001156
3390  020066  000000                        000000
3391
3392
3393  020070  051127  046524  041440  EM14:   .ASCIZ "WRTM COMMAND WITH WRTM SWITCH DISABLED FAILED TO SET ILO ERROR"
3394  020076  046517  040515  042116
3395  020104  053440  052111  020110
3396  020112  051127  046524  051440
3397  020120  044527  041524  020110
3398  020126  044504  040523  046102
3399  020134  042105  043040  044501
3400  020142  042514  020104  047524
3401  020150  051440  052105  044440
3402  020156  047514  042440  051122
3403  020164  051117     000
3404  020167     040  050040  020103  EM14:   .ASCIZ "  PC      SP      PS     TEST#   TCOM    TCST"
3405  020174  020040  020040  051440
3406  020202  020120  020040  020040
3407  020210  050040  020123  020040
3408  020216  020040  042524  052123
3409  020224  020043  020040  041524
3410  020232  046503  020040  020040
3411  020240  041524  052123     000
3412          020246                  .EVEN
3413  020246  001116  001170  001172  ET14:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3414  020254  001166  001160  001156
3415  020262  000000                        000000
3416
3417
3418  020264  046111  020117  051105  EM15:   .ASCIZ "ILO ERROR FAILED TO SET THE 'ERROR' BIT"
3419  020272  047522  020122  040506
3420  020300  046111  042105  052040
3421  020306  020117  042523  020124
3422  020314  044124  020105  042447
3423  020322  051122  051117  020047
3424  020330  044502  000124
3425  020334  020040  041520  020040  EM15:   .ASCIZ "  PC      SP      PS     TEST#   TCOM    TCST"
3426  020342  020040  020040  050123
3427  020350  020040  020040  020040
```

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 3428  020356  051520  020040  020040
 3429  020364  052040  051505  021524
 3430  020372  020040  052040  041503
 3431  020400  020115  020040  052040
 3432  020406  051503  000124
 3433                                  .EVEN
 3434  020412  001116  001170  001172  ET15:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3435  020420  001166  001160  001156
 3436  020426  000000                        000000
 3437
 3438
 3439  020430  046103  040505  044522  EM16:   .ASCIZ "CLEARING ILLEGAL OP FAILED TO CLEAR ILO ERROR"
 3440  020436  043516  044440  046114
 3441  020444  043505  046101  047440
 3442  020452  020120  040506  046111
 3443  020460  042105  052040  020117
 3444  020466  046103  040505  020122
 3445  020474  046111  020117  051105
 3446  020502  047522  000122
 3447  020506  020040  041520  020040  EM16:   .ASCIZ "  PC      SP      PS     TEST#   TCOM    TCST"
 3448  020514  020040  020040  050123
 3449  020522  020040  020040  020040
 3450  020530  051520  020040  020040
 3451  020536  052040  051505  021524
 3452  020544  020040  052040  041503
 3453  020552  020115  020040  052040
 3454  020560  051503  000124
 3455                                  .EVEN
 3456  020564  001116  001170  001172  ET16:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3457  020572  001166  001160  001156
 3458  020600  000000                        000000
 3459
 3460
 3461  020602  046103  040505  044522  EM17:   .ASCIZ "CLEARING ILLEGAL OP FAILED TO CLEAR THE 'ERROR' BIT"
 3462  020610  043516  044440  046114
 3463  020616  043505  046101  047440
 3464  020624  020120  040506  046111
 3465  020632  042105  052040  020117
 3466  020640  046103  040505  020122
 3467  020646  044124  020105  042447
 3468  020654  051122  051117  020047
 3469  020662  044502  000124
 3470  020666  020040  041520  020040  EM17:   .ASCIZ "  PC      SP      PS     TEST#   TCOM    TCST"
 3471  020674  020040  020040  050123
 3472  020702  020040  020040  020040
 3473  020710  051520  020040  020040
 3474  020716  052040  051505  021524
 3475  020724  020040  052040  041503
 3476  020732  020115  020040  052040
 3477  020740  051503  000124
 3478                                  .EVEN
 3479  020744  001116  001170  001172  ET17:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3480  020752  001166  001160  001156
 3481  020760  000000                        000000
 3482
 3483
```

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 3484  020762  051127  046524  053440  EM20:   .ASCIZ "WRTM WITH WRTM SWITCH OFF DID NOT SET ILO ERROR BIT"
 3485  020770  052111  020110  051127
 3486  020776  046524  051440  044527
 3487  021004  041524  020110  043117
 3488  021012  020106  044504  020104
 3489  021020  047516  020124  042523
 3490  021026  020124  046111  020117
 3491  021034  051105  047522  020122
 3492  021042  044502  000124
 3493  021046  020040  041520  020040  EH20:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 3494  021054  020040  020040  050123
 3495  021062  020040  020040  020040
 3496  021070  051520  020040  020040
 3497  021076  052040  051505  021524
 3498  021104  020040  052040  041503
 3499  021112  020115  020040  052040
 3500  021120  051503  000124
 3501                          .EVEN
 3502  021124  001116  001170  001172  ET20:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3503  021132  001166  001160  001156
 3504  021140  000000                  000000
 3505
 3506
 3507  021142  046111  020117  051105  EM21:   .ASCIZ "ILO ERROR SETTING DID NOT CAUSE THE 'ERROR' BIT TO SET"
 3508  021150  047522  020122  042523
 3509  021156  052124  047111  020107
 3510  021164  044504  020104  047516
 3511  021172  020124  040503  051525
 3512  021200  020105  044124  020105
 3513  021206  042447  051122  051117
 3514  021214  020047  044502  020124
 3515  021222  047524  051440  052105
 3516  021230     000
 3517  021231     040  050040  020103  EH21:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 3518  021236  020040  020040  051440
 3519  021244  020120  020040  020040
 3520  021252  050040  020123  020040
 3521  021260  020040  042524  052123
 3522  021266  020043  020040  041524
 3523  021274  046503  020040  020040
 3524  021302  041524  052123     000
 3525          021310                  .EVEN
 3526  021310  001116  001170  001172  ET21:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3527  021316  001166  001160  001156
 3528  021324  000000                  000000
 3529
 3530
 3531  021326  046103  040505  044522  EM22:   .ASCIZ "CLEARING ERROR BIT ALSO CLEARED ILO ERROR"
 3532  021334  043516  042440  051122
 3533  021342  051117  041040  052111
 3534  021350  040440  051514  020117
 3535  021356  046103  040505  042522
 3536  021364  020104  046111  020117
 3537  021372  051105  047522  000122
 3538  021400  020040  041520  020040  EH22:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 3539  021406  020040  020040  050123
```

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 3540  021414  020040  020040  020040
 3541  021422  051520  020040  020040
 3542  021430  052040  051505  021524
 3543  021436  020040  052040  041503
 3544  021444  020115  020040  052040
 3545  021452  051503  000124
 3546                                  .EVEN
 3547  021456  001116  001170  001172  ET22:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3548  021464  001166  001160  001156
 3549  021472  000000                        000000
 3550
 3551
 3552  021474  044124  020105  042447  EM23:   .ASCIZ "THE 'ERROR' BIT DID NOT SET"
 3553  021502  051122  051117  020047
 3554  021510  044502  020124  044504
 3555  021516  020104  047516  020124
 3556  021524  042523  000124
 3557  021530  020040  041520  020040  EH23:   .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST"
 3558  021536  020040  020040  050123
 3559  021544  020040  020040  020040
 3560  021552  051520  020040  020040
 3561  021560  052040  051505  021524
 3562  021566  020040  052040  041503
 3563  021574  020115  020040  052040
 3564  021602  051503  000124
 3565                                  .EVEN
 3566  021606  001116  001170  001172  ET23:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3567  021614  001166  001160  001156
 3568  021622  000000                        000000
 3569
 3570
 3571  021624  044124  020105  042447  EM24:   .ASCIZ "THE 'ERROR' BIT SET DID NOT CAUSE AN INTERRUPT"
 3572  021632  051122  051117  020047
 3573  021640  044502  020124  042523
 3574  021646  020124  044504  020104
 3575  021654  047516  020124  040503
 3576  021662  051525  020105  047101
 3577  021670  044440  052116  051105
 3578  021676  052522  052120     000
 3579  021703     040  050040  020103  EH24:   .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST"
 3580  021710  020040  020040  051440
 3581  021716  020120  020040  020040
 3582  021724  050040  020123  020040
 3583  021732  020040  042524  052123
 3584  021740  020043  020040  041524
 3585  021746  046503  020040  020040
 3586  021754  041524  052123     000
 3587          021762                  .EVEN
 3588  021762  001116  001170  001172  ET24:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3589  021770  001166  001160  001156
 3590  021776  000000                        000000
 3591
 3592
 3593  022000  047504  047111  020107  EM25:   .ASCIZ "DOING A RESET INSTRUCTION DID NOT SET THE READY BIT"
 3594  022006  020101  042522  042523
 3595  022014  020124  047111  052123
```

```
3596  022022  052522  052103  047511
3597  022030  020116  044504  020104
3598  022036  047516  020124  042523
3599  022044  020124  044124  020105
3600  022052  042522  042101  020131
3601  022060  044502  000124
3602  022064  020040  041520  020040  EH25:   .ASCIZ  "  PC      SP      PS      TEST#   TCOM    TCST"
3603  022072  020040  020040  050123
3604  022100  020040  020040  020040
3605  022106  051520  020040  020040
3606  022114  052040  051505  021524
3607  022122  020040  052040  041503
3608  022130  020115  020040  052040
3609  022136  051503  000124
3610                                  .EVEN
3611  022142  001116  001170  001172  ET25:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3612  022150  001166  001160  001156
3613  022156  000000                        000000
3614
3615
3616  022160  042524  052123  042440  EM26:   .ASCIZ "TEST EXECUTION IS OUT OF ORDER"
3617  022166  042530  052503  044524
3618  022174  047117  044440  020123
3619  022202  052517  020124  043117
3620  022210  047440  042122  051105
3621  022216     000
3622  022217     040  050040  020103  EH26:   .ASCIZ  "  PC      SP      PS      TEST#  TEST# S/B"
3623  022224  020040  020040  051440
3624  022232  020120  020040  020040
3625  022240  050040  020123  020040
3626  022246  020040  042524  052123
3627  022254  020043  052040  051505
3628  022262  021524  051440  041057
3629  022270     000
3630          022272                  .EVEN
3631  022272  001116  001170  001172  ET26:   $ERRPC,$REG6,$REG7,$REG0,$REG5
3632  022300  001154  001166
3633  022304  000000                        000000
3634
3635
3636  022306  051105  047522  020122  EM27:   .ASCIZ "ERROR TRYING TO READ A BLOCK MARK"
3637  022314  051124  044531  043516
3638  022322  052040  020117  042522
3639  022330  042101  040440  041040
3640  022336  047514  045503  046440
3641  022344  051101  000113
3642  022350  020040  041520  020040  EH27:   .ASCIZ  "  PC      SP      PS      TEST#   TCOM    TCST"
3643  022356  020040  020040  050123
3644  022364  020040  020040  020040
3645  022372  051520  020040  020040
3646  022400  052040  051505  021524
3647  022406  020040  052040  041503
3648  022414  020115  020040  052040
3649  022422  051503  000124
3650                                  .EVEN
3651  022426  001116  001170  001172  ET27:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
```

```
 3652  022434  001166  001160  001156
 3653  022442  000000                          000000
 3654
 3655
 3656  022444  042522  042101  020131  EM30:   .ASCIZ "READY WAS NOT SET AFTER BLOCK MARK WAS SHIFTED INTO THE WINDOw REGISTER"
 3657  022452  040527  020123  047516
 3658  022460  020124  042523  020124
 3659  022466  043101  042524  020122
 3660  022474  046102  041517  020113
 3661  022502  040515  045522  053440
 3662  022510  051501  051440  044510
 3663  022516  052106  042105  044440
 3664  022524  052116  020117  044124
 3665  022532  020105  044527  042116
 3666  022540  053517  051040  043505
 3667  022546  051511  042524  000122
 3668  022554  020040  041520  020040  EH30:   .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST"
 3669  022562  020040  020040  050123
 3670  022570  020040  020040  020040
 3671  022576  051520  020040  020040
 3672  022604  052040  051505  021524
 3673  022612  020040  052040  041503
 3674  022620  020115  020040  052040
 3675  022626  051503  000124
 3676                                  .EVEN
 3677  022632  001116  001170  001172  ET30:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3678  022640  001166  001160  001156
 3679  022646  000000                          000000
 3680
 3681
 3682  022650  047111  047503  051122  EM31:   .ASCIZ "INCORRECT BLOCK # IN DATA REG AFTER BLOCK MARK WAS DETECTED"
 3683  022656  041505  020124  046102
 3684  022664  041517  020113  020043
 3685  022672  047111  042040  052101
 3686  022700  020101  042522  020107
 3687  022706  043101  042524  020122
 3688  022714  046102  041517  020113
 3689  022722  040515  045522  053440
 3690  022730  051501  042040  052105
 3691  022736  041505  042524  000104
 3692  022744  020040  041520  020040  EH31:   .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST    TCDT  TCDT S/B"
 3693  022752  020040  020040  050123
 3694  022760  020040  020040  020040
 3695  022766  051520  020040  020040
 3696  022774  052040  051505  021524
 3697  023002  020040  052040  041503
 3698  023010  020115  020040  052040
 3699  023016  051503  020124  020040
 3700  023024  052040  042103  020124
 3701  023032  052040  042103  020124
 3702  023040  027523  000102
 3703                                  .EVEN
 3704  023044  001116  001170  001172  ET31:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG4,$REG0
 3705  023052  001166  001160  001156
 3706  023060  001164  001154
 3707  023064  000000                          000000
```

```
                                                    .ASCIZ "MTE WAS NOT SET BY AN ILLEGAL MARK TRACK CODE"
                                                    .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
                                                    .EVEN
                                                    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
                                                    000000
                                                    .ASCIZ "MTE SETTING FAILED TO SET THE 'ERROR' BIT"
                                                    .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
                                                    .EVEN
                                                    $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
                                                    000000
                                                    .ASCIZ "ENDZ BIT DID NOT SET WHEN ENDZ MARK DETECTED"
                                                    .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
```

```
 3764  023504  050040  020123  020040
 3765  023512  020040  042524  052123
 3766  023520  020043  020040  041524
 3767  023526  046503  020040  020040
 3768  023534  041524  052123     000
 3769          023542                    .EVEN
 3770  023542  001116  001170  001172  ET34:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3771  023550  001166  001160  001156
 3772  023556  000000                          000000
 3773
 3774
 3775  023560  040504  040524  052040  EM35:   .ASCIZ  "DATA TRANSFERED INCORECTLY"
 3776  023566  040522  051516  042506
 3777  023574  042522  020104  047111
 3778  023602  047503  042522  052103
 3779  023610  054514     000
 3780  023613     040  050040  020103  EH35:   .ASCIZ  "  PC       SP       PS     TEST#    TCCM    TCST  DATA S/B DATA WAS"
 3781  023620  020040  020040  020040
 3782  023626  050123  020040  020040
 3783  023634  020040  051520  020040
 3784  023642  020040  042524  052123
 3785  023650  020043  020040  052040
 3786  023656  041503  020115  020040
 3787  023664  052040  051503  020124
 3788  023672  042040  052101  020101
 3789  023700  027523  020102  040504
 3790  023706  040524  053440  051501
 3791  023714     000
 3792          023716                    .EVEN
 3793  023716  001116  001170  001172  ET35:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,CRBUF,CRBUFA
 3794  023724  001166  001160  001156
 3795  023732  001262  001264
 3796  023736  040515  045522  052040  EM36:   .ASCIZ "MARK TRACK CODE 55 WAS MISTAKEN FOR END ZONE"
 3797  023744  040522  045503  041440
 3798  023752  042117  020105  032465
 3799  023760  053440  051501  046440
 3800  023766  051511  040524  042513
 3801  023774  020116  047506  020122
 3802  024002  047105  020104  047532
 3803  024010  042516     000
 3804  024013     040  050040  020103  EH36:   .ASCIZ  "  PC       SP       PS     TEST#    TCCM    TCST"
 3805  024020  020040  020040  051440
 3806  024026  020120  020040  020040
 3807  024034  050040  020123  020040
 3808  024042  020040  042524  052123
 3809  024050  020043  020040  041524
 3810  024056  046503  020040  020040
 3811  024064  041524  052123     000
 3812          024072                    .EVEN
 3813  024072  001116  001170  001172  ET36:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3814  024100  001166  001160  001156
 3815  024106  000000                          000000
 3816
 3817
 3818  024110  051105  047522  000122  EM37:   .ASCIZ "ERROR"
 3819  024116  020040  041520  020040  EH37:   .ASCIZ  "  PC       SP       PS     TEST#    TCCM    TCST"
```

```
3820  024124  020040  020040  050123
3821  024132  020040  020040  020040
3822  024140  051520  020040  020040
3823  024146  052040  051505  021524
3824  024154  020040  052040  041503
3825  024162  020115  020040  052040
3826  024170  051503  000124
3827                                  .EVEN
3828  024174  001116  001170  001172  ET37:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3829  024202  001166  001160  001156
3830  024210  000000                        000000
3831
3832
3833  024212  042522  042101  020131  EM40:   .ASCIZ "READY BIT DID NOT SET"
3834  024220  044502  020124  044504
3835  024226  020104  047516  020124
3836  024234  042523  000124
3837  024240  020040  041520  020040  EH40:   .ASCIZ  "  PC      SP      PS     TEST#   TCOM    TCST"
3838  024246  020040  020040  050123
3839  024254  020040  020040  020040
3840  024262  051520  020040  020040
3841  024270  052040  051505  021524
3842  024276  020040  052040  041503
3843  024304  020115  020040  052040
3844  024312  051503  000124
3845                                  .EVEN
3846  024316  001116  001170  001172  ET40:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3847  024324  001166  001160  001156
3848  024332  000000                        000000
3849
3850
3851  024334  044124  020105  042447  EM41:   .ASCIZ "THE 'ERROR' BIT SHOULD NOT HAVE SET"
3852  024342  051122  051117  020047
3853  024350  044502  020124  044123
3854  024356  052517  042114  047040
3855  024364  052117  044040  053101
3856  024372  020105  042523  000124
3857  024400  020040  041520  020040  EH41:   .ASCIZ  "  PC      SP      PS     TEST#   TCOM    TCST"
3858  024406  020040  020040  050123
3859  024414  020040  020040  020040
3860  024422  051520  020040  020040
3861  024430  052040  051505  021524
3862  024436  020040  052040  041503
3863  024444  020115  020040  052040
3864  024452  051503  000124
3865                                  .EVEN
3866  024456  001116  001170  001172  ET41:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3867  024464  001166  001160  001156
3868  024472  000000                        000000
3869
3870
3871  024474  042522  042101  020131  EM42:   .ASCIZ "READY BIT SHOULD NOT HAVE SET"
3872  024502  044502  020124  044123
3873  024510  052517  042114  047040
3874  024516  052117  044040  053101
3875  024524  020105  042523  000124
```

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 3876  024532  020040  041520  020040  EH42:   .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST"
 3877  024540  020040  020040  050123
 3878  024546  020040  020040  020040
 3879  024554  051520  020040  020040
 3880  024562  052040  051505  021524
 3881  024570  020040  052040  041503
 3882  024576  020115  020040  052040
 3883  024604  051503  000124
 3884                                  .EVEN
 3885  024610  001116  001170  001172  ET42:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3886  024616  001166  001160  001156
 3887  024624  000000                        000000
 3888
 3889
 3890  024626  047527  042122  052040  EM43:   .ASCIZ "WORD TRANSFERED INCORRECTLY TO CORE"
 3891  024634  040522  051516  042506
 3892  024642  042522  020104  047111
 3893  024650  047503  051122  041505
 3894  024656  046124  020131  047524
 3895  024664  041440  051117  000105
 3896  024672  020040  041520  020040  EH43:   .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST    RBUF    RBUF S/B"
 3897  024700  020040  020040  050123
 3898  024706  020040  020040  020040
 3899  024714  051520  020040  020040
 3900  024722  052040  051505  021524
 3901  024730  020040  052040  041503
 3902  024736  020115  020040  052040
 3903  024744  051503  020124  020040
 3904  024752  051040  052502  020106
 3905  024760  020040  051040  052502
 3906  024766  020106  027523  000102
 3907                                  .EVEN
 3908  024774  001116  001170  001172  ET43:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF,$REG0
 3909  025002  001166  001160  001156
 3910  025010  036010  001154
 3911  025014  000000                        000000
 3912
 3913
 3914  025016  047527  042122  041440  EM44:   .ASCIZ "WORD COUNT INCREMENTED IMPROPERLY"
 3915  025024  052517  052116  044440
 3916  025032  041516  042522  042515
 3917  025040  052116  042105  044440
 3918  025046  050115  047522  042520
 3919  025054  046122  000131
 3920  025060  020040  041520  020040  EH44:   .ASCIZ  "  PC      SP      PS     TEST#   TCCM    TCST    TCWC    TCWC S/B"
 3921  025066  020040  020040  050123
 3922  025074  020040  020040  020040
 3923  025102  051520  020040  020040
 3924  025110  052040  051505  021524
 3925  025116  020040  052040  041503
 3926  025124  020115  020040  052040
 3927  025132  051503  020124  020040
 3928  025140  052040  053503  020103
 3929  025146  020040  041524  041527
 3930  025154  051440  041057     000
 3931          025162                   .EVEN
```

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3932  025162  001116  001170  001172  ET44:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG4,$REG0
3933  025170  001166  001160  001156
3934  025176  001164  001154
3935  025202  000000                          000000
3936
3937
3938  025204  041524  040502  044440  EM45:   .ASCIZ "TCBA INCREMENTED IMPROPERLY"
3939  025212  041516  042522  042515
3940  025220  052116  042105  044440
3941  025226  050115  047522  042520
3942  025234  046122  000131
3943  025240  020040  041520  020040  EH45:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCBA   TCBA S/B"
3944  025246  020040  020040  050123
3945  025254  020040  020040  020040
3946  025262  051520  020040  020040
3947  025270  052040  051505  021524
3948  025276  020040  052040  041503
3949  025304  020115  020040  052040
3950  025312  051503  020124  020040
3951  025320  052040  041103  020101
3952  025326  020040  041524  040502
3953  025334  051440  041057     000
3954          025342                  .EVEN
3955  025342  001116  001170  001172  ET45:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG4,RBUF+2
3956  025350  001166  001160  001156
3957  025356  001164  036012
3958  025362  000000                          000000
3959
3960
3961  025364  040520  044522  054524  EM46:   .ASCIZ "PARITY ERROR"
3962  025372  042440  051122  051117
3963  025400     000
3964  025401     040  050040  020103  EH46:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3965  025406  020040  020040  051440
3966  025414  020120  020040  020040
3967  025422  050040  020123  020040
3968  025430  020040  042524  052123
3969  025436  020043  020040  041524
3970  025444  046503  020040  020040
3971  025452  041524  052123     000
3972          025460                  .EVEN
3973  025460  001116  001170  001172  ET46:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
3974  025466  001166  001160  001156
3975  025474  000000                          000000
3976
3977
3978  025476  042522  042101  020131  EM47:   .ASCIZ "READY DID NOT SET AFTER READING WAS COMPLETED"
3979  025504  044504  020104  047516
3980  025512  020124  042523  020124
3981  025520  043101  042524  020122
3982  025526  042522  042101  047111
3983  025534  020107  040527  020123
3984  025542  047503  050115  042514
3985  025550  042524  000104
3986  025554  020040  041520  020040  EH47:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
3987  025562  020040  020040  050123
```

```
 3988  025570  020040  020040  020040
 3989  025576  051520  020040  020040
 3990  025604  052040  051505  021524
 3991  025612  020040  052040  041503
 3992  025620  020115  020040  052040
 3993  025626  051503  000124
 3994                                  .EVEN
 3995  025632  001116  001170  001172  ET47:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 3996  025640  001166  001160  001156
 3997  025646  000000                        000000
 3998
 3999
 4000  025650  051124  047101  043123  EM50:   .ASCIZ "TRANSFERED TOO MANY WORDS"
 4001  025656  051105  042105  052040
 4002  025664  047517  046440  047101
 4003  025672  020131  047527  042122
 4004  025700  000123
 4005  025702  020040  041520  020040  EH50:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    RBUF+2"
 4006  025710  020040  020040  050123
 4007  025716  020040  020040  020040
 4008  025724  051520  020040  020040
 4009  025732  052040  051505  021524
 4010  025740  020040  052040  041523
 4011  025746  020115  020040  052040
 4012  025754  051503  020124  020040
 4013  025762  051040  052502  025506
 4014  025770  000062
 4015                                  .EVEN
 4016  025772  001116  001170  001172  ET50:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+2
 4017  026000  001166  001160  001156
 4018  026006  036012
 4019  026010  000000                        000000
 4020
 4021
 4022  026012  041524  040502  041440  EM51:   .ASCIZ "TCBA CONTAINS AN INCORRECT ADDRESS"
 4023  026020  047117  040524  047111
 4024  026026  020123  047101  044440
 4025  026034  041516  051117  042522
 4026  026042  052103  040440  042104
 4027  026050  042522  051523     000
 4028  026055     040  050040  020103  EH51:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCBA    TCBA S/B"
 4029  026062  020040  020040  051440
 4030  026070  020120  020040  020040
 4031  026076  050040  020123  020040
 4032  026104  020040  042524  052123
 4033  026112  020043  020040  041524
 4034  026120  046503  020040  020040
 4035  026126  041524  052123  020040
 4036  026134  020040  041524  040502
 4037  026142  020040  052040  041103
 4038  026150  020101  027523  000102
 4039                                  .EVEN
 4040  026156  001116  001170  001172  ET51:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG3,RBUF+512
 4041  026164  001166  001160  001156
 4042  026172  001162  036522
 4043  026176  000000                        000000
```

```
4044
4045
4046  026200  040520  051122  052111  EMS2:   .ASCIZ "PARRITY ERROR WAS NOT DETECTED"
4047  026206  020131  051105  047522
4048  026214  020122  040527  020123
4049  026222  047516  020124  042504
4050  026230  042524  052103  042105
4051  026236     000
4052  026237     040  050040  020103  EH52:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
4053  026244  020040  020040  051440
4054  026252  020120  020040  020040
4055  026260  050040  020123  020040
4056  026266  020040  042524  052123
4057  026274  020043  020040  041524
4058  026302  046503  020040  020040
4059  026310  041524  052123  020040
4060  026316  020040  041524  041527
4061  026324     000
4062          026326                  .EVEN
4063  026326  001116  001170  001172  ET52:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4064  026334  001166  001160  001156
4065  026342  001154
4066  026344  000000                  000000
4067
4068
4069  026346  040520  044522  054524  EM53:   .ASCIZ "PARITY ERROR DID NOT SET THE 'ERROR' BIT"
4070  026354  042440  051122  051117
4071  026362  042040  042111  047040
4072  026370  052117  051440  052105
4073  026376  052040  042510  023440
4074  026404  051105  047522  023522
4075  026412  041040  052111     000
4076  026417     040  050040  020103  EH53:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
4077  026424  020040  020040  051440
4078  026432  020120  020040  020040
4079  026440  050040  020123  020040
4080  026446  020040  042524  052123
4081  026454  020043  020040  041524
4082  026462  046503  020040  020040
4083  026470  041524  052123  020040
4084  026476  020040  041524  041527
4085  026504     000
4086          026506                  .EVEN
4087  026506  001116  001170  001172  ET53:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4088  026514  001166  001160  001156
4089  026522  001154
4090  026524  000000                  000000
4091
4092
4093  026526  040520  044522  054524  EM54:   .ASCIZ "PARITY ERROR BIT WILL NOT CLEAR"
4094  026534  042440  051122  051117
4095  026542  041040  052111  053440
4096  026550  046111  020114  047516
4097  026556  020124  046103  040505
4098  026564  000122
4099  026566  020040  041520  020040  EH54:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
```

```
#100  026574  020040  020040  050123
#101  026602  020040  020040  020040
#102  026610  051520  020040  020040
#103  026616  052040  051505  021524
#104  026624  020040  052040  041503
#105  026632  020115  020040  052040
#106  026640  051503  020124  020040
#107  026646  052040  053503  000103
#108                          .EVEN
#109  026654  001116  001170  001172  ET54:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
#110  026662  001166  001160  001156
#111  026670  001154
#112  026672  000000                        000000
#113
#114
#115  026674  046102  041517  020113  EM55:   .ASCIZ "BLOCK MISS SHOULD NOT HAVE SET"
#116  026702  044515  051523  051440
#117  026710  047510  046125  020104
#118  026716  047516  020124  040510
#119  026724  042526  051440  052105
#120  026732     000
#121  026733     040  050040  020103  EH55:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
#122  026740  020040  020040  051440
#123  026746  020120  020040  020040
#124  026754  050040  020123  020040
#125  026762  020040  042524  052123
#126  026770  020043  020040  041524
#127  026776  046503  020040  020040
#128  027004  041524  052123  020040
#129  027012  020040  041524  041527
#130  027020     000
#131          027022                       .EVEN
#132  027022  001116  001170  001172  ET55:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
#133  027030  001166  001160  001156
#134  027036  001154
#135  027040  000000                        000000
#136
#137
#138  027042  042122  052101  020101  EM56:   .ASCIZ "RDATA WAS ISSUED BUT BLOCK MISS FAILED TO SET"
#139  027050  040527  020123  051511
#140  027056  052523  042105  041040
#141  027064  052125  041040  047514
#142  027072  045503  046440  051511
#143  027100  020123  040506  046111
#144  027106  042105  052040  020117
#145  027114  042523  000124
#146  027120  020040  041520  020040  EH56:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
#147  027126  020040  020040  050123
#148  027134  020040  020040  020040
#149  027142  051520  020040  020040
#150  027150  052040  051505  021524
#151  027156  020040  052040  041503
#152  027164  020115  020040  052040
#153  027172  051503  020124  020040
#154  027200  052040  053503  000103
#155                          .EVEN
```

```
4156  027206  001116  001170  001172  ET56:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4157  027214  001166  001160  001156
4158  027222  001154
4159  027224  000000                          000000
4160
4161
4162  027226  046102  041517  020113  EM57:   .ASCIZ "BLOCK MISS SETTING DID NOT SET THE 'ERROR' BIT"
4163  027234  044515  051523  051440
4164  027242  052105  044524  043516
4165  027250  042040  042111  047040
4166  027256  052117  051440  052105
4167  027264  052040  042510  023440
4168  027272  051105  047522  023522
4169  027300  041040  052111     000
4170  027305     040  050040  020103  EH57:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
4171  027312  020040  020040  051440
4172  027320  020120  020040  020040
4173  027326  050040  020123  020040
4174  027334  020040  042524  052123
4175  027342  020043  020040  041524
4176  027350  046503  020040  020040
4177  027356  041524  052123  020040
4178  027364  020040  041524  041527
4179  027372     000
4180          027374                  .EVEN
4181  027374  001116  001170  001172  ET57:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4182  027402  001166  001160  001156
4183  027410  001154
4184  027412  000000                          000000
4185
4186
4187  027414  046103  040505  044522  EM60:   .ASCIZ "CLEARING ERROR BIT FAILED TO CLEAR BLOCK MISS"
4188  027422  043516  042440  051122
4189  027430  051117  041040  052111
4190  027436  043040  044501  042514
4191  027444  020104  047524  041440
4192  027452  042514  051101  041040
4193  027460  047514  045503  046440
4194  027466  051511  000123
4195  027472  020040  041520  020040  EH60:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
4196  027500  020040  020040  050123
4197  027506  020040  020040  020040
4198  027514  051520  020040  020040
4199  027522  052040  051505  021524
4200  027530  020040  052040  041503
4201  027536  020115  020040  052040
4202  027544  051503  020124  020040
4203  027552  052040  053503  000103
4204                          .EVEN
4205  027560  001116  001170  001172  ET60:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
4206  027566  001166  001160  001156
4207  027574  001154
4208  027576  000000                          000000
4209
4210
4211  027600  047506  053522  051101  EM61:   .ASCIZ "FORWARD CHECKSUM WAS WRITTEN INCORRECTLY INTO CORE"
```

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4212  027606  020104  044103  041505
4213  027614  051513  046525  053440
4214  027622  051501  053440  044522
4215  027630  052124  047105  044440
4216  027636  041516  051117  042522
4217  027644  052103  054514  044440
4218  027652  052116  020117  047503
4219  027660  042522     000
4220  027663     040  050040  020103  EH61:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST   RBUF+514 TCWC"
4221  027670  020040  020040  051440
4222  027676  020120  020040  020040
4223  027704  050040  020123  020040
4224  027712  020040  042524  052123
4225  027720  020043  020040  041524
4226  027726  046503  020040  020040
4227  027734  041524  052123  020040
4228  027742  051040  052502  025506
4229  027750  030465  020064  041524
4230  027756  041527     000
4231          027762          .EVEN
4232  027762  001116  001170  001172  ET61:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+514,$REG0
4233  027770  001166  001160  001156
4234  027776  036524  001154
4235  030002  000000                  000000
4236
4237
4238  030004  041524  041527  053440  EM62:   .ASCIZ "TCWC WAS MODIFIED DURRING RAL"
4239  030012  051501  046440  042117
4240  030020  043111  042511  020104
4241  030026  052504  051122  047111
4242  030034  020107  040522  000114
4243  030042  020040  041520  020040  EH62:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
4244  030050  020040  020040  050123
4245  030056  020040  020040  020040
4246  030064  051520  020040  020040
4247  030072  052040  051505  021524
4248  030100  020040  052040  041503
4249  030106  020115  020040  052040
4250  030114  051503  020124  020040
4251  030122  052040  053503  000103
4252                          .EVEN
4253  030130  001116  001170  001172  ET62:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
4254  030136  001166  001160  001156
4255  030144  001234
4256  030146  000000                  000000
4257
4258
4259  030150  041524  040502  053440  EM63:   .ASCIZ "TCBA WAS MODIFIED DURRING RAL"
4260  030156  051501  046440  042117
4261  030164  043111  042511  020104
4262  030172  052504  051122  047111
4263  030200  020107  040522  000114
4264  030206  020040  041520  020040  EH63:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST    TCBA    TCBA S/B"
4265  030214  020040  020040  050123
4266  030222  020040  020040  020040
4267  030230  051520  020040  020040
```

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 4268  030236  052040  051505  021524
 4269  030244  020040  052040  041503
 4270  030252  020115  020040  052040
 4271  030260  051503  020124  020040
 4272  030266  052040  041103  020101
 4273  030274  020040  052040  041103
 4274  030302  020101  027523  000102
 4275                                  .EVEN
 4276  030310  001116  001170  001172  ET63:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG3
 4277  030316  001166  001160  001156
 4278  030324  001162
 4279  030326  000000                        000000
 4280
 4281
 4282  030330  040504  040524  046440  EM64:   .ASCIZ "DATA MISS DID NOT SET"
 4283  030336  051511  020123  044504
 4284  030344  020104  047516  020124
 4285  030352  042523  000124
 4286  030356  020040  041520  020040  EH64:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST    TCWC"
 4287  030364  020040  020040  050123
 4288  030372  020040  020040  020040
 4289  030400  051520  020040  020040
 4290  030406  052040  051505  021524
 4291  030414  020040  052040  041503
 4292  030422  020115  020040  052040
 4293  030430  051503  020124  020040
 4294  030436  052040  053503  000103
 4295                                  .EVEN
 4296  030444  001116  001170  001172  ET64:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG0
 4297  030452  001166  001160  001156
 4298  030460  001154
 4299  030462  000000                        000000
 4300
 4301
 4302  030464  040504  040524  046440  EM65:   .ASCIZ "DATA MISS SETTING DID NOT CAUSE THE 'ERROR' BIT TO SET"
 4303  030472  051511  020123  042523
 4304  030500  052124  047111  020107
 4305  030506  044504  020104  047516
 4306  030514  020124  040503  051525
 4307  030522  020105  044124  020105
 4308  030530  042447  051122  051117
 4309  030536  020047  044502  020124
 4310  030544  047524  051440  052105
 4311  030552     000
 4312  030553     040  050040  020103  EH65:   .ASCIZ "  PC      SP      PS     TEST#   TCCM    TCST"
 4313  030560  020040  020040  051440
 4314  030566  020120  020040  020040
 4315  030574  050040  020123  020040
 4316  030602  020040  042524  052123
 4317  030610  020043  020040  041524
 4318  030616  046503  020040  020040
 4319  030624  041524  052123     000
 4320          030632                  .EVEN
 4321  030632  001116  001170  001172  ET65:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 4322  030640  001166  001160  001156
 4323  030646  000000                        000000
```

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 4324
 4325
 4326  030650  046103  040505  044522  EM66:   .ASCIZ "CLEARING THE 'ERROR' BIT DID NOT CAUSE DATA MISS TO BE CLEARED"
 4327  030656  043516  052040  042510
 4328  030664  023440  051105  047522
 4329  030672  023522  041040  052111
 4330  030700  042040  042111  047040
 4331  030706  052117  041440  052501
 4332  030714  042523  042040  052101
 4333  030722  020101  044515  051523
 4334  030730  052040  020117  042502
 4335  030736  041440  042514  051101
 4336  030744  042105     000
 4337  030747     040  050040  020103  EH66:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
 4338  030754  020040  020040  051440
 4339  030762  020120  020040  020040
 4340  030770  050040  020123  020040
 4341  030776  020040  042524  052123
 4342  031004  020043  020040  041524
 4343  031012  046503  020040  020040
 4344  031020  041524  052123     000
 4345          031026                  .EVEN
 4346  031026  001116  001170  001172  ET66:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 4347  031034  001166  001160  001156
 4348  031042  000000                          000000
 4349
 4350
 4351  031044  042522  042101  020131  EM67:   .ASCIZ "READY BIT WAS NOT SET AFTER THE DATA WAS WRITTEN"
 4352  031052  044502  020124  040527
 4353  031060  020123  047516  020124
 4354  031066  042523  020124  043101
 4355  031074  042524  020122  044124
 4356  031102  020105  040504  040524
 4357  031110  053440  051501  053440
 4358  031116  044522  052124  047105
 4359  031124     000
 4360  031125     040  050040  020103  EH67:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
 4361  031132  020040  020040  051440
 4362  031140  020120  020040  020040
 4363  031146  050040  020123  020040
 4364  031154  020040  042524  052123
 4365  031162  020043  020040  041524
 4366  031170  046503  020040  020040
 4367  031176  041524  052123     000
 4368          031204                  .EVEN
 4369  031204  001116  001170  001172  ET67:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 4370  031212  001166  001160  001156
 4371  031220  000000                          000000
 4372
 4373
 4374  031222  044124  020105  042522  EM70:   .ASCIZ "THE REVERSE CHECKSUM WAS WRITTEN INCORRECTLY"
 4375  031230  042526  051522  020105
 4376  031236  044103  041505  051513
 4377  031244  046525  053440  051501
 4378  031252  053440  044522  052124
 4379  031260  047105  044440  041516
```

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 4380  031266  051117  042522  052103
 4381  031274  054514     000
 4382  031277     040  050040  020103  EH70:   .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST   RBUF+512 RBUF+512 S/B"
 4383  031304  020040  020040  051440
 4384  031312  020120  020040  020040
 4385  031320  050040  020123  020040
 4386  031326  020040  042524  052123
 4387  031334  020043  020040  041524
 4388  031342  046503  020040  020040
 4389  031350  041524  052123  020040
 4390  031356  051040  052502  025506
 4391  031364  030465  020062  041122
 4392  031372  043125  032453  031061
 4393  031400  051440  041057     000
 4394          031406                  .EVEN
 4395  031406  001116  001170  001172  ET70:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,RBUF+512,$REG0
 4396  031414  001166  001160  001156
 4397  031422  036522  001154
 4398  031426  000000                  000000
 4399
 4400
 4401  031430  047527  042122  041440  EM71:   .ASCIZ "WORD COUNT MODIFIED DURRING WRITE ALL"
 4402  031436  052517  052116  046440
 4403  031444  042117  043111  042511
 4404  031452  020104  052504  051122
 4405  031460  047111  020107  051127
 4406  031466  052111  020105  046101
 4407  031474  000114
 4408  031476  020040  041520  020040  EH71:   .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST    TCWC"
 4409  031504  020040  020040  050123
 4410  031512  020040  020040  020040
 4411  031520  051520  020040  020040
 4412  031526  052040  051505  021524
 4413  031534  020040  052040  041503
 4414  031542  020115  020040  052040
 4415  031550  051503  020124  020040
 4416  031556  052040  053503  000103
 4417                          .EVEN
 4418  031564  001116  001170  001172  ET71:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,TCWC
 4419  031572  001166  001160  001156
 4420  031600  001234
 4421  031602  000000                  000000
 4422
 4423
 4424  031604  041524  040502  046440  EM72:   .ASCIZ "TCBA MODIFIED DURRING WRITE ALL"
 4425  031612  042117  043111  042511
 4426  031620  020104  052504  051122
 4427  031626  047111  020107  051127
 4428  031634  052111  020105  046101
 4429  031642  000114
 4430  031644  020040  041520  020040  EH72:   .ASCIZ  "  PC      SP      PS      TEST#   TCCM    TCST    TCBA"
 4431  031652  020040  020040  050123
 4432  031660  020040  020040  020040
 4433  031666  051520  020040  020040
 4434  031674  052040  051505  021524
 4435  031702  020040  052040  041503
```

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 4436  031710  020115  020040  052040
 4437  031716  051503  020124  020040
 4438  031724  052040  041103  000101
 4439                                   .EVEN
 4440  031732  001116  001170  001172  ET72:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1,$REG3
 4441  031740  001166  001160  001156
 4442  031746  001162
 4443  031750  000000                          000000
 4444
 4445
 4446  031752  051523  020124  044504  EM73:   .ASCIZ "SST DID NOT CAUSE A SELECT ERROR"
 4447  031760  020104  047516  020124
 4448  031766  040503  051525  020105
 4449  031774  020101  042523  042514
 4450  032002  052103  042440  051122
 4451  032010  051117     000
 4452  032013     040  050040  020103  EH73:   .ASCIZ "  PC      SP      PS      TEST#   TCCM    TCST"
 4453  032020  020040  020040  051440
 4454  032026  020120  020040  020040
 4455  032034  050040  020123  020040
 4456  032042  020040  042524  052123
 4457  032050  020043  020040  041524
 4458  032056  046503  020040  020040
 4459  032064  041524  052123     000
 4460          032072                   .EVEN
 4461  032072  001116  001170  001172  ET73:   $ERRPC,$REG6,$REG7,$REG5,$REG2,$REG1
 4462  032100  001166  001160  001156
 4463  032106  000000                          000000
 4464
 4465  032110  051124  050101  042520  EM74:   .ASCIZ  "TRAPPED TO LOC 4 ATTEMPTING TO ACCESS TCCM"
 4466  032116  020104  047524  046040
 4467  032124  041517  032040  040440
 4468  032132  052124  046505  052120
 4469  032140  047111  020107  047524
 4470  032146  040440  041503  051505
 4471  032154  020123  041524  046503
 4472  032162     000
 4473  032163     040  050040  020103  EH74:   .ASCIZ "  PC      SP      PS      TEST#"
 4474  032170  020040  020040  051440
 4475  032176  020120  020040  020040
 4476  032204  050040  020123  020040
 4477  032212  020040  042524  052123
 4478  032220  000043
 4479                                   .EVEN
 4480  032222  001116  001170  001172  ET74:   $ERRPC,$REG6,$REG7,$REG5
 4481  032230  001166
 4482  032232  000000                          000000
 4483  032234  051124  050101  042520  EM75:   .ASCIZ  "TRAPPED TO LOC 4 ATTEMPTING TO ACCESS TCST"
 4484  032242  020104  047524  046040
 4485  032250  041517  032040  040440
 4486  032256  052124  046505  052120
 4487  032264  047111  020107  047524
 4488  032272  040440  041503  051505
 4489  032300  020123  041524  052123
 4490  032306     000
 4491  032307     040  050040  020103  EH75:   .ASCIZ "  PC      SP      PS      TEST#"
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4492  032314  020040  020040  051440
4493  032322  020120  020040  020040
4494  032330  050040  020123  020040
4495  032336  020040  042524  052123
4496  032344  000043
4497                                  .EVEN
4498  032346  001116  001170  001172  ET75:   $ERRPC,$REG6,$REG7,$REG5
4499  032354  001166
4500  032356  000000                  000000
4501  032360  051124  050101  042520  EM76:   .ASCIZ  "TRAPPED TO LOC 4 ATTEMPTING TO ACCESS TCWC"
4502  032366  020104  047524  046040
4503  032374  041517  032040  040440
4504  032402  052124  046505  052120
4505  032410  047111  020107  047524
4506  032416  040440  041503  051505
4507  032424  020123  041524  041527
4508  032432     000
4509  032433     040  050040  020103  EH76:   .ASCIZ "  PC       SP       PS      TEST#"
4510  032440  020040  020040  051440
4511  032446  020120  020040  020040
4512  032454  050040  020123  020040
4513  032462  020040  042524  052123
4514  032470  000043
4515                                  .EVEN
4516  032472  001116  001170  001172  ET76:   $ERRPC,$REG6,$REG7,$REG5
4517  032500  001166
4518  032502  000000                  000000
4519  032504  051124  050101  042520  EM77:   .ASCIZ  "TRAPPED TO LOC 4 ATTEMPTING TO ACCESS TCBA"
4520  032512  020104  047524  046040
4521  032520  041517  032040  040440
4522  032526  052124  046505  052120
4523  032534  047111  020107  047524
4524  032542  040440  041503  051505
4525  032550  020123  041524  040502
4526  032556     000
4527  032557     040  050040  020103  EH77:   .ASCIZ "  PC       SP       PS      TEST#"
4528  032564  020040  020040  051440
4529  032572  020120  020040  020040
4530  032600  050040  020123  020040
4531  032606  020040  042524  052123
4532  032614  000043
4533                                  .EVEN
4534  032616  001116  001170  001172  ET77:   $ERRPC,$REG6,$REG7,$REG5
4535  032624  001166
4536  032626  000000                  000000
4537  032630                        MTKC10:
4538  032630                                  C10     V7,V2,V7,V2,V7,V2
4539  032630     034     010     074          .BYTE   0!V7,0!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 10.
4540  032633     010     034     010
4541  032636                        MTKER:
4542  032636                                  EMTE
4543  032636     040     040     040          .BYTE   I,I,I,0,0,I
4544  032641     000     000     040
4545  032644                        MTKEND:
4546  032644                                  C22
4547  032644     000     040     000          .BYTE   0,I,0,0,I,0             ;MTK CODE 22. FWD END ZONE.
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4548  032647  000  040  000
4549  032652                    MTK55:
4550  032652                            C55
4551  032652  040  000  040              .BYTE   I,0,I,I,0,I                ;MTK CODE 55. REV END ZONE MARK.
4552  032655  040  000  040
4553  032660                    MTK5P:
4554  032660                            C10     V0,V6,V6,V6,V6,V6
4555  032660  000  030  070              .BYTE   0!V0,0!V6,I!V6,0!V6,0!V6,0!V6    ;MTK CODE 10.
4556  032663  030  030  030
4557  032666                    MTK7:
4558  032666                            C25
4559  032666  000  040  000              .BYTE   0,I,0,I,0,I                ;MTK CODE 25. EXTENSION MARK.
4560  032671  040  000  040
4561  032674                            C25
4562  032674  000  040  000              .BYTE   0,I,0,I,0,I                ;MTK CODE 25. EXTENSION MARK.
4563  032677  040  000  040
4564  032702                            C26     V0,V5,V2,V5,V2,V5
4565  032702  000  064  010              .BYTE   0!V0,I!V5,0!V2,I!V5,I!V2,0!V5    ;FWD BLOCK MARK.
4566  032705  064  050  024
4567  032710                            C32     V0,V5,V5,V5,V5,V5
4568  032710  000  064  064              .BYTE   0!V0,I!V5,I!V5,0!V5,I!V5,0!V5    ;REV GUARD.
4569  032713  024  064  024
4570  032716                    MTK5:
4571  032716                            C10     V0,V6,V6,V6,V6,V6
4572  032716  000  030  070              .BYTE   0!V0,0!V6,I!V6,0!V6,0!V6,0!V6    ;MTK CODE 10.
4573  032721  030  030  030
4574  032724                    MTK7A:
4575  032724                            C10     V0,V0,V0,V0,V0,V0
4576  032724  000  000  040              .BYTE   0!V0,0!V0,I!V0,0!V0,0!V0,0!V0    ;MTK CODE 10.
4577  032727  000  000  000
4578  032732                    MTK7B:
4579  032732                            C10     V0,V5,V0,V5,V0,V5
4580  032732  000  024  040              .BYTE   0!V0,0!V5,I!V0,0!V5,0!V0,0!V5    ;MTK CODE 10.
4581  032735  024  000  024
4582  032740                    MTKVAR:
4583  032740                            C10     V7,V2,V7,V2,V7,V2
4584  032740  034  010  074              .BYTE   0!V7,0!V2,I!V7,0!V2,0!V7,0!V2    ;MTK CODE 10.
4585  032743  010  034  010
4586                                      .REPT   126.
4587                                      C70     V0,V5,V0,V5,V0,V5
4588                                      C70     V7,V2,V7,V2,V7,V2
4589                                      .ENDR
4590  032746                            C70     V0,V5,V0,V5,V0,V5
4591  032746  040  064  040              .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5    ;MTK CODE 70. DATA MARK.
4592  032751  024  000  024
4593  032754                            C70     V7,V2,V7,V2,V7,V2
4594  032754  074  050  074              .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2    ;MTK CODE 70. DATA MARK.
4595  032757  010  034  010
4596  032762                            C70     V0,V5,V0,V5,V0,V5
4597  032762  040  064  040              .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5    ;MTK CODE 70. DATA MARK.
4598  032765  024  000  024
4599  032770                            C70     V7,V2,V7,V2,V7,V2
4600  032770  074  050  074              .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2    ;MTK CODE 70. DATA MARK.
4601  032773  010  034  010
4602  032776                            C70     V0,V5,V0,V5,V0,V5
4603  032776  040  064  040              .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5    ;MTK CODE 70. DATA MARK.
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4604  033001  024  000  024
4605  033004
4606  033004  074  050  074        C70     V7,V2,V7,V2,V7,V2
4607  033007  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4608  033012
4609  033012  040  064  040        C70     V0,V5,V0,V5,V0,V5
4610  033015  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4611  033020
4612  033020  074  050  074        C70     V7,V2,V7,V2,V7,V2
4613  033023  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4614  033026
4615  033026  040  064  040        C70     V0,V5,V0,V5,V0,V5
4616  033031  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4617  033034
4618  033034  074  050  074        C70     V7,V2,V7,V2,V7,V2
4619  033037  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4620  033042
4621  033042  040  064  040        C70     V0,V5,V0,V5,V0,V5
4622  033045  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4623  033050
4624  033050  074  050  074        C70     V7,V2,V7,V2,V7,V2
4625  033053  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4626  033056
4627  033056  040  064  040        C70     V0,V5,V0,V5,V0,V5
4628  033061  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4629  033064
4630  033064  074  050  074        C70     V7,V2,V7,V2,V7,V2
4631  033067  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4632  033072
4633  033072  040  064  040        C70     V0,V5,V0,V5,V0,V5
4634  033075  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4635  033100
4636  033100  074  050  074        C70     V7,V2,V7,V2,V7,V2
4637  033103  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4638  033106
4639  033106  040  064  040        C70     V0,V5,V0,V5,V0,V5
4640  033111  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4641  033114
4642  033114  074  050  074        C70     V7,V2,V7,V2,V7,V2
4643  033117  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4644  033122
4645  033122  040  064  040        C70     V0,V5,V0,V5,V0,V5
4646  033125  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4647  033130
4648  033130  074  050  074        C70     V7,V2,V7,V2,V7,V2
4649  033133  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4650  033136
4651  033141  040  064  040        C70     V0,V5,V0,V5,V0,V5
4652  033141  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4653  033144
4654  033144  074  050  074        C70     V7,V2,V7,V2,V7,V2
4655  033147  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4656  033152
4657  033152  040  064  040        C70     V0,V5,V0,V5,V0,V5
4658  033155  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
4659  033160
                                   C70     V7,V2,V7,V2,V7,V2
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 4660  033160  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4661  033163  010  034  010
 4662  033166                       C7D     V0,V5,V0,V5,V0,V5
 4663  033166  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4664  033171  024  000  024
 4665  033174                       C7D     V7,V2,V7,V2,V7,V2
 4666  033174  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4667  033177  010  034  010
 4668  033202                       C7D     V0,V5,V0,V5,V0,V5
 4669  033202  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4670  033205  024  000  024
 4671  033210                       C7D     V7,V2,V7,V2,V7,V2
 4672  033210  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4673  033213  010  034  010
 4674  033216                       C7D     V0,V5,V0,V5,V0,V5
 4675  033216  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4676  033221  024  000  024
 4677  033224                       C7D     V7,V2,V7,V2,V7,V2
 4678  033224  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4679  033227  010  034  010
 4680  033232                       C7D     V0,V5,V0,V5,V0,V5
 4681  033232  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4682  033235  024  000  024
 4683  033240                       C7D     V7,V2,V7,V2,V7,V2
 4684  033240  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4685  033243  010  034  010
 4686  033246                       C7D     V0,V5,V0,V5,V0,V5
 4687  033246  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4688  033251  024  000  024
 4689  033254                       C7D     V7,V2,V7,V2,V7,V2
 4690  033254  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4691  033257  010  034  010
 4692  033262                       C7D     V0,V5,V0,V5,V0,V5
 4693  033262  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4694  033265  024  000  024
 4695  033270                       C7D     V7,V2,V7,V2,V7,V2
 4696  033270  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4697  033273  010  034  010
 4698  033276                       C7D     V0,V5,V0,V5,V0,V5
 4699  033276  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4700  033301  024  000  024
 4701  033304                       C7D     V7,V2,V7,V2,V7,V2
 4702  033304  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4703  033307  010  034  010
 4704  033312                       C7D     V0,V5,V0,V5,V0,V5
 4705  033312  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4706  033315  024  000  024
 4707  033320                       C7D     V7,V2,V7,V2,V7,V2
 4708  033320  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4709  033323  010  034  010
 4710  033326                       C7D     V0,V5,V0,V5,V0,V5
 4711  033326  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 7D. DATA MARK.
 4712  033331  024  000  024
 4713  033334                       C7D     V7,V2,V7,V2,V7,V2
 4714  033334  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 7D. DATA MARK.
 4715  033337  010  034  010
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 4716  033342
 4717  033342  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4718  033345  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4719  033350
 4720  033350  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4721  033353  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4722  033356
 4723  033356  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4724  033361  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4725  033364
 4726  033364  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4727  033367  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4728  033372
 4729  033372  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4730  033375  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4731  033400
 4732  033400  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4733  033403  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4734  033406
 4735  033406  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4736  033411  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4737  033414
 4738  033414  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4739  033417  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4740  033422
 4741  033422  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4742  033425  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4743  033430
 4744  033430  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4745  033433  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4746  033436
 4747  033436  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4748  033441  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4749  033444
 4750  033444  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4751  033447  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4752  033452
 4753  033452  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4754  033455  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4755  033460
 4756  033460  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4757  033463  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4758  033466
 4759  033466  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4760  033471  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4761  033474
 4762  033474  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4763  033477  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4764  033502
 4765  033502  040   064   040     C70     V0,V5,V0,V5,V0,V5
 4766  033505  024   000   024     .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4767  033510
 4768  033510  074   050   074     C70     V7,V2,V7,V2,V7,V2
 4769  033513  010   034   010     .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4770  033516
 4771  033516  040   064   040     C70     V0,V5,V0,V5,V0,V5
                                   .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
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 4772  033521  024  000  024
 4773  033524
 4774  033524  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4775  033527  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4776  033532
 4777  033532  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4778  033535  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4779  033540
 4780  033540  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4781  033543  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4782  033546
 4783  033546  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4784  033551  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4785  033554
 4786  033554  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4787  033557  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4788  033562
 4789  033562  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4790  033565  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4791  033570
 4792  033570  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4793  033573  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4794  033576
 4795  033576  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4796  033601  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4797  033604
 4798  033604  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4799  033607  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4800  033612
 4801  033612  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4802  033615  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4803  033620
 4804  033620  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4805  033623  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4806  033626
 4807  033626  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4808  033631  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4809  033634
 4810  033634  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4811  033637  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4812  033642
 4813  033642  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4814  033645  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4815  033650
 4816  033650  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4817  033653  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4818  033656
 4819  033656  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4820  033661  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4821  033664
 4822  033664  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4823  033667  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 4824  033672
 4825  033672  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4826  033675  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 4827  033700
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C70     V7,V2,V7,V2,V7,V2
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 4828  033700  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4829  033703  010  034  010
 4830  033706                       C70     V0,V5,V0,V5,V0,V5
 4831  033706  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4832  033711  024  000  024
 4833  033714                       C70     V7,V2,V7,V2,V7,V2
 4834  033714  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4835  033717  010  034  010
 4836  033722                       C70     V0,V5,V0,V5,V0,V5
 4837  033722  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4838  033725  024  000  024
 4839  033730                       C70     V7,V2,V7,V2,V7,V2
 4840  033730  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4841  033733  010  034  010
 4842  033736                       C70     V0,V5,V0,V5,V0,V5
 4843  033736  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4844  033741  024  000  024
 4845  033744                       C70     V7,V2,V7,V2,V7,V2
 4846  033744  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4847  033747  010  034  010
 4848  033752                       C70     V0,V5,V0,V5,V0,V5
 4849  033752  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4850  033755  024  000  024
 4851  033760                       C70     V7,V2,V7,V2,V7,V2
 4852  033760  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4853  033763  010  034  010
 4854  033766                       C70     V0,V5,V0,V5,V0,V5
 4855  033766  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4856  033771  024  000  024
 4857  033774                       C70     V7,V2,V7,V2,V7,V2
 4858  033774  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4859  033777  010  034  010
 4860  034002                       C70     V0,V5,V0,V5,V0,V5
 4861  034002  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4862  034005  024  000  024
 4863  034010                       C70     V7,V2,V7,V2,V7,V2
 4864  034010  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4865  034013  010  034  010
 4866  034016                       C70     V0,V5,V0,V5,V0,V5
 4867  034016  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4868  034021  024  000  024
 4869  034024                       C70     V7,V2,V7,V2,V7,V2
 4870  034024  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4871  034027  010  034  010
 4872  034032                       C70     V0,V5,V0,V5,V0,V5
 4873  034032  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4874  034035  024  000  024
 4875  034040                       C70     V7,V2,V7,V2,V7,V2
 4876  034040  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4877  034043  010  034  010
 4878  034046                       C70     V0,V5,V0,V5,V0,V5
 4879  034046  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4880  034051  024  000  024
 4881  034054                       C70     V7,V2,V7,V2,V7,V2
 4882  034054  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4883  034057  010  034  010
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 4884  034062                                C70     V0,V5,V0,V5,V0,V5
 4885  034062  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4886  034065  024     000     024
 4887  034070                                C70     V7,V2,V7,V2,V7,V2
 4888  034070  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4889  034073  010     034     010
 4890  034076                                C70     V0,V5,V0,V5,V0,V5
 4891  034076  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4892  034101  024     000     024
 4893  034104                                C70     V7,V2,V7,V2,V7,V2
 4894  034104  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4895  034107  010     034     010
 4896  034112                                C70     V0,V5,V0,V5,V0,V5
 4897  034112  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4898  034115  024     000     024
 4899  034120                                C70     V7,V2,V7,V2,V7,V2
 4900  034120  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4901  034123  010     034     010
 4902  034126                                C70     V0,V5,V0,V5,V0,V5
 4903  034126  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4904  034131  024     000     024
 4905  034134                                C70     V7,V2,V7,V2,V7,V2
 4906  034134  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4907  034137  010     034     010
 4908  034142                                C70     V0,V5,V0,V5,V0,V5
 4909  034142  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4910  034145  024     000     024
 4911  034150                                C70     V7,V2,V7,V2,V7,V2
 4912  034150  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4913  034153  010     034     010
 4914  034156                                C70     V0,V5,V0,V5,V0,V5
 4915  034156  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4916  034161  024     000     024
 4917  034164                                C70     V7,V2,V7,V2,V7,V2
 4918  034164  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4919  034167  010     034     010
 4920  034172                                C70     V0,V5,V0,V5,V0,V5
 4921  034172  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4922  034175  024     000     024
 4923  034200                                C70     V7,V2,V7,V2,V7,V2
 4924  034200  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4925  034203  010     034     010
 4926  034206                                C70     V0,V5,V0,V5,V0,V5
 4927  034206  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4928  034211  024     000     024
 4929  034214                                C70     V7,V2,V7,V2,V7,V2
 4930  034214  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4931  034217  010     034     010
 4932  034222                                C70     V0,V5,V0,V5,V0,V5
 4933  034222  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4934  034225  024     000     024
 4935  034230                                C70     V7,V2,V7,V2,V7,V2
 4936  034230  074     050     074           .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4937  034233  010     034     010
 4938  034236                                C70     V0,V5,V0,V5,V0,V5
 4939  034236  040     064     040           .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
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 4940  034241  024  000  024
 4941  034244
 4942  034244  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4943  034247  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4944  034252
 4945  034252  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4946  034255  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4947  034260
 4948  034260  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4949  034263  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4950  034266
 4951  034266  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4952  034271  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4953  034274
 4954  034274  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4955  034277  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4956  034302
 4957  034302  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4958  034305  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4959  034310
 4960  034310  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4961  034313  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4962  034316
 4963  034316  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4964  034321  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4965  034324
 4966  034324  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4967  034327  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4968  034332
 4969  034332  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4970  034335  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4971  034340
 4972  034340  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4973  034343  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4974  034346
 4975  034346  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4976  034351  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4977  034354
 4978  034354  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4979  034357  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4980  034362
 4981  034362  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4982  034365  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4983  034370
 4984  034370  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4985  034373  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4986  034376
 4987  034376  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4988  034401  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4989  034404
 4990  034404  074  050  074        C70     V7,V2,V7,V2,V7,V2
 4991  034407  010  034  010        .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 4992  034412
 4993  034412  040  064  040        C70     V0,V5,V0,V5,V0,V5
 4994  034415  024  000  024        .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 4995  034420
                                    C70     V7,V2,V7,V2,V7,V2
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4996  034420  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
4997  034423  010  034  010
4998  034426                      C70     V0,V5,V0,V5,V0,V5
4999  034426  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5000  034431  024  000  024
5001  034434                      C70     V7,V2,V7,V2,V7,V2
5002  034434  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5003  034437  010  034  010
5004  034442                      C70     V0,V5,V0,V5,V0,V5
5005  034442  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5006  034445  024  000  024
5007  034450                      C70     V7,V2,V7,V2,V7,V2
5008  034450  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5009  034453  010  034  010
5010  034456                      C70     V0,V5,V0,V5,V0,V5
5011  034456  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,C!V5   ;MTK CODE 70. DATA MARK.
5012  034461  024  000  024
5013  034464                      C70     V7,V2,V7,V2,V7,V2
5014  034464  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5015  034467  010  034  010
5016  034472                      C70     V0,V5,V0,V5,V0,V5
5017  034472  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5018  034475  024  000  024
5019  034500                      C70     V7,V2,V7,V2,V7,V2
5020  034500  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5021  034503  010  034  010
5022  034506                      C70     V0,V5,V0,V5,V0,V5
5023  034506  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5024  034511  024  000  024
5025  034514                      C70     V7,V2,V7,V2,V7,V2
5026  034514  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5027  034517  010  034  010
5028  034522                      C70     V0,V5,V0,V5,V0,V5
5029  034522  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5030  034525  024  000  024
5031  034530                      C70     V7,V2,V7,V2,V7,V2
5032  034530  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5033  034533  010  034  010
5034  034536                      C70     V0,V5,V0,V5,V0,V5
5035  034536  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5036  034541  024  000  024
5037  034544                      C70     V7,V2,V7,V2,V7,V2
5038  034544  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5039  034547  010  034  010
5040  034552                      C70     V0,V5,V0,V5,V0,V5
5041  034552  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5042  034555  024  000  024
5043  034560                      C70     V7,V2,V7,V2,V7,V2
5044  034560  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5045  034563  010  034  010
5046  034566                      C70     V0,V5,V0,V5,V0,V5
5047  034566  040  064  040        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5048  034571  024  000  024
5049  034574                      C70     V7,V2,V7,V2,V7,V2
5050  034574  074  050  074        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5051  034577  010  034  010
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5052  034602                                    C70     V0,V5,V0,V5,V0,V5
5053  034602  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5054  034605  024     000     024
5055  034610                                    C70     V7,V2,V7,V2,V7,V2
5056  034610  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5057  034613  010     034     010
5058  034616                                    C70     V0,V5,V0,V5,V0,V5
5059  034616  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5060  034621  024     000     024
5061  034624                                    C70     V7,V2,V7,V2,V7,V2
5062  034624  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5063  034627  010     034     010
5064  034632                                    C70     V0,V5,V0,V5,V0,V5
5065  034632  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5066  034635  024     000     024
5067  034640                                    C70     V7,V2,V7,V2,V7,V2
5068  034640  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5069  034643  010     034     010
5070  034646                                    C70     V0,V5,V0,V5,V0,V5
5071  034646  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5072  034651  024     000     024
5073  034654                                    C70     V7,V2,V7,V2,V7,V2
5074  034654  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5075  034657  010     034     010
5076  034662                                    C70     V0,V5,V0,V5,V0,V5
5077  034662  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5078  034665  024     000     024
5079  034670                                    C70     V7,V2,V7,V2,V7,V2
5080  034670  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5081  034673  010     034     010
5082  034676                                    C70     V0,V5,V0,V5,V0,V5
5083  034676  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5084  034701  024     000     024
5085  034704                                    C70     V7,V2,V7,V2,V7,V2
5086  034704  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5087  034707  010     034     010
5088  034712                                    C70     V0,V5,V0,V5,V0,V5
5089  034712  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5090  034715  024     000     024
5091  034720                                    C70     V7,V2,V7,V2,V7,V2
5092  034720  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5093  034723  010     034     010
5094  034726                                    C70     V0,V5,V0,V5,V0,V5
5095  034726  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5096  034731  024     000     024
5097  034734                                    C70     V7,V2,V7,V2,V7,V2
5098  034734  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5099  034737  010     034     010
5100  034742                                    C70     V0,V5,V0,V5,V0,V5
5101  034742  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5102  034745  024     00C     024
5103  034750                                    C70     V7,V2,V7,V2,V7,V2
5104  034750  074     050     074               .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5105  034753  010     034     010
5106  034756                                    C70     V0,V5,V0,V5,V0,V5
5107  034756  040     064     040               .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
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5108  034761  024  000  024
5109  034764                    C70     V7,V2,V7,V2,V7,V2
5110  034764  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5111  034767  010  034  010
5112  034772                    C70     V0,V5,V0,V5,V0,V5
5113  034772  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5114  034775  024  000  024
5115  035000                    C70     V7,V2,V7,V2,V7,V2
5116  035000  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5117  035003  010  034  010
5118  035006                    C70     V0,V5,V0,V5,V0,V5
5119  035006  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5120  035011  024  000  024
5121  035014                    C70     V7,V2,V7,V2,V7,V2
5122  035014  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5123  035017  010  034  010
5124  035022                    C70     V0,V5,V0,V5,V0,V5
5125  035022  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5126  035025  024  000  024
5127  035030                    C70     V7,V2,V7,V2,V7,V2
5128  035030  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5129  035033  010  034  010
5130  035036                    C70     V0,V5,V0,V5,V0,V5
5131  035036  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5132  035041  024  000  024
5133  035044                    C70     V7,V2,V7,V2,V7,V2
5134  035044  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5135  035047  010  034  010
5136  035052                    C70     V0,V5,V0,V5,V0,V5
5137  035052  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5138  035055  024  000  024
5139  035060                    C70     V7,V2,V7,V2,V7,V2
5140  035060  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5141  035063  010  034  010
5142  035066                    C70     V0,V5,V0,V5,V0,V5
5143  035066  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5144  035071  024  000  024
5145  035074                    C70     V7,V2,V7,V2,V7,V2
5146  035074  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5147  035077  010  034  010
5148  035102                    C70     V0,V5,V0,V5,V0,V5
5149  035102  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5150  035105  024  000  024
5151  035110                    C70     V7,V2,V7,V2,V7,V2
5152  035110  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5153  035113  010  034  010
5154  035116                    C70     V0,V5,V0,V5,V0,V5
5155  035116  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5156  035121  024  000  024
5157  035124                    C70     V7,V2,V7,V2,V7,V2
5158  035124  074  050  074     .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5159  035127  010  034  010
5160  035132                    C70     V0,V5,V0,V5,V0,V5
5161  035132  040  064  040     .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5162  035135  024  000  024
5163  035140                    C70     V7,V2,V7,V2,V7,V2
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 5164  035140  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5165  035143  010  034  010
 5166  035146                       C70     V0,V5,V0,V5,V0,V5
 5167  035146  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5168  035151  024  000  024
 5169  035154                       C70     V7,V2,V7,V2,V7,V2
 5170  035154  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5171  035157  010  034  010
 5172  035162                       C70     V0,V5,V0,V5,V0,V5
 5173  035162  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5174  035165  024  000  024
 5175  035170                       C70     V7,V2,V7,V2,V7,V2
 5176  035170  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5177  035173  010  034  010
 5178  035176                       C70     V0,V5,V0,V5,V0,V5
 5179  035176  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5180  035201  024  000  024
 5181  035204                       C70     V7,V2,V7,V2,V7,V2
 5182  035204  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5183  035207  010  034  010
 5184  035212                       C70     V0,V5,V0,V5,V0,V5
 5185  035212  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5186  035215  024  000  024
 5187  035220                       C70     V7,V2,V7,V2,V7,V2
 5188  035220  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5189  035223  010  034  010
 5190  035226                       C70     V0,V5,V0,V5,V0,V5
 5191  035226  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5192  035231  024  000  024
 5193  035234                       C70     V7,V2,V7,V2,V7,V2
 5194  035234  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5195  035237  010  034  010
 5196  035242                       C70     V0,V5,V0,V5,V0,V5
 5197  035242  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5198  035245  024  000  024
 5199  035250                       C70     V7,V2,V7,V2,V7,V2
 5200  035250  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5201  035253  010  034  010
 5202  035256                       C70     V0,V5,V0,V5,V0,V5
 5203  035256  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5204  035261  024  000  024
 5205  035264                       C70     V7,V2,V7,V2,V7,V2
 5206  035264  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5207  035267  010  034  010
 5208  035272                       C70     V0,V5,V0,V5,V0,V5
 5209  035272  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5210  035275  024  000  024
 5211  035300                       C70     V7,V2,V7,V2,V7,V2
 5212  035300  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5213  035303  010  034  010
 5214  035306                       C70     V0,V5,V0,V5,V0,V5
 5215  035306  040  064  040          .BYTE   I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
 5216  035311  024  000  024
 5217  035314                       C70     V7,V2,V7,V2,V7,V2
 5218  035314  074  050  074          .BYTE   I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
 5219  035317  010  034  010
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5220  035322
5221  035322  040  064  040        C70   V0,V5,V0,V5,V0,V5
5222  035325  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5223  035330
5224  035330  074  050  074        C70   V7,V2,V7,V2,V7,V2
5225  035333  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5226  035336
5227  035336  040  064  040        C70   V0,V5,V0,V5,V0,V5
5228  035341  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5229  035344
5230  035344  074  050  074        C70   V7,V2,V7,V2,V7,V2
5231  035347  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5232  035352
5233  035352  040  064  040        C70   V0,V5,V0,V5,V0,V5
5234  035355  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5235  035360
5236  035360  074  050  074        C70   V7,V2,V7,V2,V7,V2
5237  035363  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5238  035366
5239  035366  040  064  040        C70   V0,V5,V0,V5,V0,V5
5240  035371  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5241  035374
5242  035374  074  050  074        C70   V7,V2,V7,V2,V7,V2
5243  035377  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5244  035402
5245  035402  040  064  040        C70   V0,V5,V0,V5,V0,V5
5246  035405  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5247  035410
5248  035410  074  050  074        C70   V7,V2,V7,V2,V7,V2
5249  035413  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5250  035416
5251  035416  040  064  040        C70   V0,V5,V0,V5,V0,V5
5252  035421  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5253  035424
5254  035424  074  050  074        C70   V7,V2,V7,V2,V7,V2
5255  035427  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5256  035432
5257  035432  040  064  040        C70   V0,V5,V0,V5,V0,V5
5258  035435  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5259  035440
5260  035440  074  050  074        C70   V7,V2,V7,V2,V7,V2
5261  035443  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5262  035446
5263  035446  040  064  040        C70   V0,V5,V0,V5,V0,V5
5264  035451  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5265  035454
5266  035454  074  050  074        C70   V7,V2,V7,V2,V7,V2
5267  035457  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5268  035462
5269  035462  040  064  040        C70   V0,V5,V0,V5,V0,V5
5270  035465  024  000  024        .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
5271  035470
5272  035470  074  050  074        C70   V7,V2,V7,V2,V7,V2
5273  035473  010  034  010        .BYTE I!V7,I!V2,I!V7,0!V2,0!V7,0!V2   ;MTK CODE 70. DATA MARK.
5274  035476
5275  035476  040  064  040        C70   V0,V5,V0,V5,V0,V5
                                   .BYTE I!V0,I!V5,I!V0,0!V5,0!V0,0!V5   ;MTK CODE 70. DATA MARK.
```

```
 5276  035501  024  000  024
 5277  035504
 5278  035504  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5279  035507  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5280  035512
 5281  035512  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5282  035515  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5283  035520
 5284  035520  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5285  035523  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5286  035526
 5287  035526  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5288  035531  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5289  035534
 5290  035534  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5291  035537  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5292  035542
 5293  035542  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5294  035545  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5295  035550
 5296  035550  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5297  035553  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5298  035556
 5299  035556  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5300  035561  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5301  035564
 5302  035564  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5303  035567  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5304  035572
 5305  035572  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5306  035575  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5307  035600
 5308  035600  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5309  035603  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5310  035606
 5311  035606  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5312  035611  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5313  035614
 5314  035614  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5315  035617  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5316  035622
 5317  035622  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5318  035625  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5319  035630
 5320  035630  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5321  035633  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5322  035636
 5323  035636  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5324  035641  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5325  035644
 5326  035644  074  050  074        C70     V7,V2,V7,V2,V7,V2
 5327  035647  010  034  010        .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
 5328  035652
 5329  035652  040  064  040        C70     V0,V5,V0,V5,V0,V5
 5330  035655  024  000  024        .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
 5331  035660
                                    C70     V7,V2,V7,V2,V7,V2
```

```
5332  035660  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5333  035663  010  034  010
5334  035666                       C70     V0,V5,V0,V5,V0,V5
5335  035666  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5336  035671  024  000  024
5337  035674                       C70     V7,V2,V7,V2,V7,V2
5338  035674  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5339  035677  010  034  010
5340  035702                       C70     V0,V5,V0,V5,V0,V5
5341  035702  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,O!V0,O!V5   ;MTK CODE 70. DATA MARK.
5342  035705  024  000  024
5343  035710                       C70     V7,V2,V7,V2,V7,V2
5344  035710  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,O!V7,O!V2   ;MTK CODE 70. DATA MARK.
5345  035713  010  034  010
5346  035716                       C73     V0,V5,V0,V5,V0,V5
5347  035716  040  064  040          .BYTE   I!V0,I!V5,I!V0,O!V5,I!V0,I!V5   ;MTK CODE 73. DATA MARK.
5348  035721  024  040  064
5349  035724                       C73     V7,V2,V7,V2,V7,V2
5350  035724  074  050  074          .BYTE   I!V7,I!V2,I!V7,O!V2,I!V7,I!V2   ;MTK CODE 73. DATA MARK.
5351  035727  010  074  050
5352  035732                FCKSM:
5353  035732                       C73     V0,V0,V0,V0,V0,V0
5354  035732  040  040  040          .BYTE   I!V0,I!V0,I!V0,O!V0,I!V0,I!V0   ;MTK CODE 73. DATA MARK.
5355  035735  000  040  040
5356  035740                       C73     V0,V0,V0,V0,V0,V0
5357  035740  040  040  040          .BYTE   I!V0,I!V0,I!V0,O!V0,I!V0,I!V0   ;MTK CODE 73. DATA MARK.
5358  035743  000  040  040
5359  035746                       C51     V0,V0,V0,V0,V0,V0
5360  035746  040  000  040          .BYTE   I!V0,O!V0,I!V0,O!V0,O!V0,I!V0   ;MTK CODE 51. FWD GUARD.
5361  035751  000  000  040
5362  035754                       C45     V0,V0,V0,V0,V0,V0
5363  035754  040  000  000          .BYTE   I!V0,O!V0,O!V0,I!V0,O!V0,I!V0   ;MTK CODE 45. REV BLOCK MARK.
5364  035757  040  000  040
5365  035762                       C25
5366  035762  000  040  000          .BYTE   0,I,0,I,0,I                     ;MTK CODE 25. EXTENSION MARK.
5367  035765  040  000  040
5368  035770                       CEND
5369  035770  377                  .BYTE   -1
5370  035771                GCKSM:
5371  035771                       C73     V7,V7,V0,V0,V0,V0
5372  035771  074  074  040          .BYTE   I!V7,I!V7,I!V0,O!V0,I!V0,I!V0   ;MTK CODE 73. DATA MARK.
5373  035774  000  040  040
5374  035777                BCKSM:
5375  035777                       C73     V0,V0,V0,V0,V0,V0
5376  035777  040  040  040          .BYTE   I!V0,I!V0,I!V0,O!V0,I!V0,I!V0   ;MTK CODE 73. DATA MARK.
5377  036002  000  040  040
5378          036006                 .EVEN
5379  036006  000000                OPEN
5380          036010                 RBUF=.
5381          040010                 .=RBUF+1024.
5382          000001                 .END
```

DZTC8C.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
A      = 100000            180#
AINCRT  015253            3103#
APGEND  015273            3106#
ASETSR  015213            3097#
A0001   002564             889     898#
A0002   002634             903     912#
A0003   002704             917     926#
A0004   002754             931     940#
A0005   003040             958     960#
A0006   003102             975     977#
A0007   003154             989     995#
A0010   003226            1012#   1018
A0011   003322            1028    1036#
A0012   003402            1056#   1064    1067
A0013   003472            1077    1080#
A0014   003616            1104    1106#
A0015   003672            1120    1122#
A0016   003744            1139    1142#
A0017   004060            1170    1173#
A0020   004172            1200    1203#
A0021   004272            1219    1226#
A0022   004364            1248    1251#
A0023   004464            1275    1278#
A0024   004602            1305    1311#
A0025   004670            1333    1336#
A0026   004764            1361    1364#
A0027   005064            1389    1392#
A0030   005160            1415    1418#
A0031   005252            1441    1444#
A0032   005514            1497    1500#
A0033   005772            1556    1560#
A0034   006166            1601    1604#
A0035   006372            1649    1652#
A0036   006576            1697    1700#
A0037   007000            1744    1747#
A0040   007146            1780    1783#
A0041   007466            1852    1854#
A0042   007744            1915    1918#
A0043   010126            1962    1965#
A0044   010354            2016    2019#
A0045   010530            2056    2059#
A0055   011260            2197    2200#
B      = 040000             181#
BOKSM   035777            2520    5374#
BELL   = 000007             174#
BIT0   = 000001             134#     213    1102    1103
BIT00  = 000001             124#     134
BIT01  = 000002             123#     133
BIT02  = 000004             122#     132
BIT03  = 000010             121#     131
BIT04  = 000020             120#     130
BIT05  = 000040             119#     129
BIT06  = 000100             118#     128
BIT07  = 000200             117#     127
BIT08  = 000400             116#     126
BIT09  = 001000             115#     125
```

```
BIT1   = 000002   133#   206   208   210   212  1116  1119
BIT10  = 002000   114#   200   201   202   203  1798  1802  1819
BIT11  = 004000   113#   193  2558
BIT12  = 010000   112#   192  1138  1147  1169  1178  1204
BIT13  = 020000   111#   182   191  1080  1085  1089  1101  1117  1332  2465
BIT14  = 040000   110#   181  1496  1555
BIT15  = 100000   109#   169   180  1203
BIT2   = 000004   132#   207   206   211   212
BIT3   = 000010   131#   209   210   211   212
BIT4   = 000020   130#
BIT5   = 000040   129#
BIT6   = 000100   128#   204   992  1010  1032  1053  1222
BIT7   = 000200   127#  1076  1081  1086
BIT8   = 000400   126#   197   199   201   203
BIT9   = 001000   125#   198   199   202   203  1914  1923
BMOVA    012506  2456#  2458
BMOVE    012474  1323   1351  1378  2355  2359  2363  2416  2423  2452#  2499  2503  2519
BPTVEC=  000014   141#
BTCTR    012664  2470*  2477*  2479  2493#
B0010    003240  1007   1016#
B0011    003324  1035   1037#
B0012    003414  1050   1060#
B0013    003514  1082   1085#
B0016    003756  1143   1146#
B0017    004072  1174   1177#
B0020    004212  1202   1205   1207#
B0021    004306  1227   1229#
B0022    004402  1250   1253   1255#
B0023    004474  1277   1279   1285#
B0025    004700  1335   1337   1339#
B0026    004774  1363   1365   1367#
B0027    005074  1391   1393   1395#
B0031    005264  1445   1448#
B0032    005520  1495   1502#
B0033    006012  1561   1565#
B0034    006212  1605   1610#
B0035    006416  1653   1658#
B0036    006622  1701   1705#
B0037    007012  1746   1751#
B0040    007206  1789   1793#
B0041    007510  1857   1860#
B0042    007756  1919   1922#
B0043    010200  1975   1978#
B0044    010426  2029   2032#
B0045    010606  2065   2072#
B0045A   010820  2073   2076#
B0055    011332  2210   2213#
C      = 020000   182#
CDCNT    012666  2464*  2466   2494#
CDCTR    012670  2466*  2486*  2495#
CDTCK    013066  2217   2530   2533   2538#
CDTCKA   013120  2543   2545#
CHLT     012130  2369#
CKDAT    013014  1614   1662   1709   1747   1866   1992   2032   2085   2524#
CKDTA    013034  2529#  2535
CKDTB    013060  2532   2536#
```

```
CKSELE  013142          2108    2120    2131    2142    2153    2164    2178    2553#
CKSELT  015030          2553*   2554*   2555    3076#
CLRBUF  012316          1431    1485    1546    1591    1639    1687    1734    1837    2415#   2498    2509
COOCRL  001262           442#   2462*   2481    2484    2496*
CRBUF   001262           446#   2533*   2542    3793
CRBUFA  001264           447#   2540*   2542    3793
CTRA    001266           448#   1851*   1888*   2063*   2077*
CTRLB   012776          2511*   2514*   2518#
CURTST  001260           445#
C0012   003430          1061    1063#
C0013   003534          1079    1084    1087    1089#
C0016   003776          1148    1151#
C0017   004112          1179    1182#
C0021   004322          1226    1233#
C0031   005306          1449    1450#
C0032   005532          1503    1506#
C0033   006034          1559    1564    1567    1570#
C0034   006226          1611    1614#
C0035   006432          1659    1662#
C0036   006634          1707    1709#
C0037   007020          1736    1754#
C0040   007312          1809    1813#
C0041   007524          1861    1864#
C0042   010000          1917    1921    1924    1927#
C0043   010212          1979    1992#
C0044   010440          2018    2031    2036#
C0045   010[illegible]  2078    2080#
C0055   011352          2217#   2219
DATADR  013136          2553*   2551#
DINH  = 010000           192#
DISPLA= 177570            66#   2628*   2669*
DLY     012222          2392#   2409
DLYA    012234          2395#   2399
DLYB    012240          2396#   2397
D0    = 000001           213#   1251    1269    1299    1327    1355    1383    1409    1435    1474    1489    1535    1550
                        1581    1595    1629    1643    1677    1691    1724    1738    1762    1774    1783    1796    1803
                        1841    1894    1909    1938    1940    1956    1968    2010    2022    2050    2066    2191    2203
                        2554
D0012   003434          1060    1065#
D0016   004006          1141    1145    1150    1152    1154#
D0017   004122          1172    1176    1181    1183    1185#
D0021   004324          1225    1232    1234#
D0030   005162          1407    1417    1419#
D0031   005332          1454    1459#
D0032   005554          1507    1511#
D0033   006042          1548    1573#
D0034   006240          1603    1609    1613    1618#
D0035   006444          1651    1657    1661    1666#
D0036   006646          1699    1705    1713#
D0040   007332          1814    1818#
D0041   007530          1855    1866#
D0041A  007556          1871    1874#
D0041B  007570          1875    1878#
D0042   010006          1907    1930#
D0043   010236          1983    1988#
D0044   010446          2025    2039#
```

DZTCBC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
D2045   010652          2081    2085#
D2055   011362          2199    2212    2220#
EH1     015705           480    3156#
EH10    017270           522    3313#
EH11    017444           528    3335#
EH12    017620           534    3357#
EH13    017774           540    3379#
EH14    020167           546    3404#
EH15    020334           552    3425#
EH16    020506           558    3447#
EH17    020666           564    3470#
EH2     016064           486    3179#
EH20    021046           570    3493#
EH21    021231           576    3517#
EH22    021400           582    3538#
EH23    021530           588    3557#
EH24    021703           594    3579#
EH25    022064           600    3602#
EH26    022217           606    3622#
EH27    022350           612    3642#
EH3     016225           492    3200#
EH30    022554           618    3668#
EH31    022744           624    3692#
EH32    023144           630    3718#
EH33    023312           636    3739#
EH34    023462           642     648    3761#
EH35    023613          3790#
EH36    024013           652    3804#
EH37    024116           658    3819#
EH4     016431           498    3226#
EH40    024240           664    3837#
EH41    024400           670    3857#
EH42    024532           676    3876#
EH43    024672           682    3896#
EH44    025060           688    3920#
EH45    025240           694    3943#
EH46    025401           700    3964#
EH47    025554           706    3986#
EH5     016557           504    3245#
EH50    025702           712    4005#
EH51    026065           718    4028#
EH52    026237           724    4052#
EH53    026417           730    4076#
EH54    026566           736    4099#
EH55    026733           742    4121#
EH56    027120           748    4146#
EH57    027305           754    4170#
EH6     016751           510    3270#
EH60    027472           760    4195#
EH61    027663           766    4220#
EH62    030042           772    4243#
EH63    030206           778    4264#
EH64    030356           784    4286#
EH65    030553           790    4312#
EH66    030747           796    4337#
EH67    031125           802    4360#
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EH7     017122              516    3292#
EH70    031277              808    4382#
EH71    031476              814    4408#
EH72    031644              820    4430#
EH73    032013              826    4452#
EH74    032163              830    4473#
EH75    032307              835    4491#
EH76    032433              840    4509#
EH77    032557              845    4527#
EMTVEC= 000030              144#    862*    863*
EMTX   = 000000              214#
EM1     015617              479    3146#
EM10    017216              521    3306#
EM11    017364              527    3327#
EM12    017540              533    3349#
EM13    017714              539    3371#
EM14    020070              545    3393#
EM15    020264              551    3418#
EM16    020430              557    3439#
EM17    020602              563    3461#
EM2     016002              485    3170#
EM20    020762              569    3484#
EM21    021142              575    3507#
EM22    021326              581    3531#
EM23    021474              587    3552#
EM24    021624              593    3571#
EM25    022000              599    3593#
EM26    022160              605    3616#
EM27    022306              611    3636#
EM3     016160              491    3193#
EM30    022444              617    3656#
EM31    022650              623    3682#
EM32    023066              629    3710#
EM33    023240              635    3732#
EM34    023406              641     647    3753#
EM35    023560             3775#
EM36    023736              651    3796#
EM37    024110              657    3818#
EM4     016322              497    3214#
EM40    024212              663    3833#
EM41    024334              669    3851#
EM42    024474              675    3871#
EM43    024626              681    3890#
EM44    025016              687    3914#
EM45    025204              693    3938#
EM46    025364              699    3961#
EM47    025476              705    3978#
EM5     016526              503    3240#
EM50    025650              711    4000#
EM51    026012              717    4022#
EM52    026200              723    4046#
EM53    026346              729    4069#
EM54    026526              735    4093#
EM55    026674              741    4115#
EM56    027042              747    4138#
EM57    027226              753    4162#
```

DZTCBC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
EM6       016654              509     3259#
EM60      027414              759     4187#
EM61      027600              765     4211#
EM62      030004              771     4238#
EM63      030150              777     4259#
EM64      030330              783     4282#
EM65      030464              789     4302#
EM66      030650              795     4326#
EM67      031044              801     4351#
EM7       017046              515     3284#
EM70      031222              807     4374#
EM71      031430              813     4401#
EM72      031604              819     4424#
EM73      031752              825     4446#
EM74      032110              829     4465#
EM75      032234              834     4483#
EM76      032360              839     4501#
EM77      032504              844     4519#
ERRVEC=   000004              137#    2590    2591*   2593*   2596*
ET1       015764              481     3165#
ET10      017346              523     3322#
ET11      017522              529     3344#
ET12      017676              535     3366#
ET13      020052              541     3388#
ET14      020246              547     3413#
ET15      020412              553     3434#
ET16      020564              559     3456#
ET17      020744              565     3479#
ET2       016142              487     3188#
ET20      021124              571     3502#
ET21      021310              577     3526#
ET22      021456              583     3547#
ET23      021606              589     3566#
ET24      021762              595     3588#
ET25      022142              601     3611#
ET26      022272              607     3631#
ET27      022426              613     3651#
ET3       016304              493     3209#
ET30      022632              619     3677#
ET31      023044              625     3704#
ET32      023222              631     3727#
ET33      023370              637     3748#
ET34      023542              643     649     3770#
ET35      023716              3793#
ET36      024072              653     3813#
ET37      024174              659     3828#
ET4       016510              499     3235#
ET40      024316              665     3846#
ET41      024456              671     3866#
ET42      024610              677     3885#
ET43      024774              683     3908#
ET44      025162              689     3932#
ET45      025342              695     3955#
ET46      025460              701     3973#
ET47      025632              707     3995#
ET5       016636              505     3254#
```

```
ET50    025772            713    4016#
ET51    026156            719    4040#
ET52    026326            725    4063#
ET53    026506            731    4087#
ET54    026654            737    4109#
ET55    027022            743    4132#
ET56    027206            749    4156#
ET57    027374            755    4181#
ET6     017030            511    3279#
ET60    027560            761    4205#
ET61    027762            767    4232#
ET62    030130            773    4253#
ET63    030310            779    4276#
ET64    030444            785    4296#
ET65    030632            791    4321#
ET66    031026            797    4346#
ET67    031204            803    4369#
ET7     017200            517    3301#
ET70    031406            809    4395#
ET71    031564            815    4418#
ET72    031732            821    4440#
ET73    032072            827    4461#
ET74    032222            831    4480#
ET75    032346            836    4498#
ET76    032472            841    4516#
ET77    032616            846    4534#
FCKSM   035732           2365    2521    5352#
FWD   = 000000            194#   1136    1167    1197    1229    1251    1269    1299    1327    1355    1383    1409    1435
                         1489    1550    1595    1643    1691    1774    1796    1841    1909    1956    2050    2191
F0031   005352           1443    1447    1452    1458    1460    1463#
F0032   005566           1512    1515#
F0034   006246           1593    1621#
F0035   006452           1641    1669#
F0036   006654           1689    1716#
F0037   007036           1755    1760#
F0040   007362           1782    1798    1812    1817    1820    1824#
F0041   007604           1839    1838#
F0043   010252           1989    1992#
F0045   010676           2090    2093#
F0055   011370           2206    2223#
GCKSM   035771           2364    5370#
GETRDY  002472            878     880#
GNS   = ****** U          159    3053    3058    3063    3068    3073
GTBIN   012374           2435#   2512
GTBINP  012434           2443#
G0031   005360           1433    1466#
G0032   005612           1516    1521#
G0033   006060           1574    1579#
G0041   007614           1849    1859    1863    1865    1873    1877    1879    1881    1885#
G0042   010024           1931    1936#
G0043   010264           1964    1977    1981    1987    1991    1996#
G0045   010710           2058    2075    2084    2092    2094    2096#
H0032   005624           1499    1501    1505    1510    1514    1520    1522    1524#
H0034   006264           1622    1627#
H0035   006470           1670    1675#
H0036   006672           1717    1722#
```

```
H0042   010042          1837    1940#
H0043   010272          1971    1993#
I     = 000040           178#    4539    4543    4547    4551    4555    4559    4562    4565    4568    4572    4576    4580
                        4584    4591    4594    4597    4600    4603    4606    4609    4612    4615    4618    4621    4624
                        4627    4630     633    4636    4639    4642    4645    4648    4651    4654    4657    4660    4663
                        4666    4669    4672    4675    4678    4681    4684    4687    4690    4693    4696    4699    4702
                        4705    4708    4711    4714    4717    4720    4723    4726    4729    4732    4735    4738    4741
                        4744    4747    4750    4753    4756    4759    4762    4765    4768    4771    4774    4777    4780
                        4783    4786    4789    4792    4795    4798    4801    4804    4807    4810    4813    4816    4819
                        4822    4825    4828    4831    4834    4837    4840    4843    4846    4849    4852    4855    4858
                        4861    4864    4867    4870    4873    4876    4879    4882    4885    4888    4891    4894    4897
                        4900    4903    4906    4909    4912    4915    4918    4921    4924    4927    4930    4933    4936
                        4939    4942    4945    4948    4951    4954    4957    4960    4963    4966    4969    4972    4975
                        4978    4981    4984    4987    4990    4993    4996    4999    5002    5005    5008    5011    5014
                        5017    5020    5023    5026    5029    5032    5035    5038    5041    5044    5047    5050    5053
                        5056    5059    5062    5065    5068    5071    5074    5077    5080    5083    5086    5089    5092
                        5095    5098    5101    5104    5107    5110    5113    5116    5119    5122    5125    5128    5131
                        5134    5137    5140    5143    5146    5149    5152    5155    5158    5161    5164    5167    5170
                        5173    5176    5179    5182    5185    5188    5191    5194    5197    5200    5203    5206    5209
                        5212    5215    5218    5221    5224    5227    5230    5233    5236    5239    5242    5245    5248
                        5251    5254    5257    5260    5263    5266    5269    5272    5275    5278    5281    5284    5287
                        5290    5293    5296    5299    5302    5305    5308    5311    5314    5317    5320    5323    5326
                        5329    5332    5335    5338    5341    5344    5347    5350    5354    5357    5360    5363    5366
                        5372    5376
IE    = 000100           204#    1409    1435    1489    1550    1595    1643    1691    1738    1841    1894    1909    1938
                        2066
INBIN   012336          2422#
IOTVEC= 000020           142#     860*    861*
I0031   005376          1467    1472#
I0032   005632          1487    1527#
I0041   007622          1883    1888#
I0045   010716          2069    2099#
K0032   005650          1528    1533#
LBBIND  012732          2189    2508#
LBDAT1  012700          1954    2008    2048    2498#
LBINDA  012754          2512#   2515
LMTCA   012562          2469#   2491
LMTCAA  012526          2463#   2497
LMTCB   012566          2470#   2490
LMTCC   012574          2471#   2480    2482    2485
LMTCD   012654          2487    2489#
LMTCE   012644          2478    2486#
LMTCOD  012522          1271    1301    1329    1357    1385    1411    1437    1491    1552    1597    1645    1693    1740
                        1776    1785    1798    1805    1843    1911    1958    2012    2052    2193    2462#
LMTCOE  012672          1970    2024    2068    2205    2496#
MAINT = 020000           191#    1136    1167    1197    1229    1251    1269    1299    1327    1355    1383    1409    1435
                        1489    1550    1595    1643    1691    1738    1774    1796    1841    1909    1956    2010    2050
                        2191
MANUAL= 100000           169#
MBCKSM  013000          1545    2519#
MLPC    013132          2545#   2549#
MTKADR  012662          2463#   2469    2492#
MTKC10  032630          2356    4537#
MTKEND  032644          13E2    4545#
MTKER   032636          1324    4541#
MTKVAR  032740          1325    2357    4582#
```

```
MTK5    032716          1353    1380    2070    2361    4570#
MTK5P   032660          2360    4553#
MTK5S   032652          1379    4549#
MTK7    032666          1272    1302    1330    1358    1386    1412    1438    1492    1553    1599    1646    1694    1741
                        1777    1799    1844    1912    1959    2013    2053    2194    4557#
MTK7A   032724          1786    1972    2026    2207    4574#
MTK7B   032732          1806    4578#
NOP   = 000240           167#   2304
NXTST   001256           444#
OPEN  = 000000           168#    442     443     444     445     446     447     448     457     458    2410    2413    2428
                        2429    2430    2431    2432    2433    2492    2493    2494    2495    2518    2550    2551    2552
                        3076    5379
PC    =%000007           78#    682*    883*    892*    906*    920*    934*    952*    969*    986*    988*   1004*   1006*
                        1025*   1027*   1047*   1049*   1074*   1090*   1099*   1106*   1115*   1122*   1134*   1154*   1165*
                        1185*   1195*   1207*   1216*   1218*   1245*   1255*   1266*   1296*   1321*   1349*   1376*   1404*
                        1406*   1429*   1431*   1432*   1483*   1485*   1486*   1543*   1545*   1546*   1547*   1589*   1591*
                        1592*   1637*   1639*   1640*   1685*   1687*   1688*   1732*   1734*   1735*   1769*   1823*   1835*
                        1837*   1838*   1892*   1904*   1906*   1926*   1936*   1952*   1954*   2006*   2008*   2046*   2048*
                        2064*   2106*   2118*   2129*   2140*   2151*   2162*   2176*   2187*   2189*   2217*   2245*   2248*
                        2258*   2275*   2298*   2316*   2318*   2327*   2339*   2341*   2345*   2346*   2354*   2367*   2369*
                        2373*   2374*   2388*   2392*   2400*   2401*   2404*   2405*   2409*   2411*   2412*   2420*   2427*
                        2442*   2450*   2452*   2459*   2484*   2498*   2507*   2508*   2509*   2512*   2516*   2517*   2523*
                        2524*   2530*   2533*   2536*   2544*   2545    2548*   2583*   2584*   2679*   2783*   2790*   2795*
                        2987*
PIND    012366          2431#   2445*
PIRQ  = 177772            64#
PIRQVE= 000240           148#
POPSP = 005726           172#
POPSP2= 022626           173#   1036    1065    1233
POWMES  015552          2716    3139#
POWPOP  001306           456#   2715
POWPUS  001304           455#   2714
PS    = 177776            61#     62
PSW   = 177776            62*    880*    991*   1008*   1030*   1031*   1052*   1221*   2394*
PTD     012362          2429#   2435    2440*
PTDP    012370          2432#   2443    2448*
PTI     012364          2430#   2435*   2436*   2439*   2440    2441
PTIP    012372          2433#   2443*   2444*   2447*   2448    2449
PUSH  = 005746           170#
PUSH2 = 024646           171#
PWRVEC= 000024           143#    866*    867*   2698*   2699*   2718*   2737*   2738*
RALL  = 000006           208#   1894    1938    1940
RBUF  = 036010          1448    1459    1473    1506    1511    1521    1534    1580    1610    1616    1628    1658    1664
                        1676    1706    1711    1723    1749    1761    1773    1795    1854    1856    1860    1868    1870
                        1878    1889    1891    1966    1967    1988    1994    2020    2021    2034    2060    2061    2062
                        2080    2087    2093    2201    2202    2213    2214   2415*   2417    2418    2501    2504    2505
                        2510    3908    3955    4016    4040    4232    4395   5380#   5381
RDATA = 000004           207#   1474    1535    1581    1629    1677    1724    1762    1783    1803
RESTAR  015473          3131#
RESVEC= 000010           138#
REV   = 004000           193#   1738    2010
RIND    012360          2422*   2424    2425    2428#   2437*
RNGEN   012150          2376#   2405
RNUM  = 000002           206#   1251    1269    1299    1327    1355    1383    1409    1435    1489    1550    1595    1643
                        1691    1738    1774    1796    1841    1909    1956    2010    2050    2191
RPI     012216          2376    2380*   2387    2389#
```

```
%P2      012220            2379    2383    2386*   2390#
RSTMTK   012070             883    2355#   2584
RSO4     011744            2320#   2459    2516    2536
RSO5     011774            2331#
RSO5S    011770            2329#   2345    2373    2400    2411
RTNNO    001254             443#    872*
RTSPC  = 000207             177#   2301    2307
R0     =%000000              69#    954*    971*   2256*   2258    2271*   2272*   2277    2314    2321*   2332*   2348    2349*
                           2350*   2351    2353*   2370*   2376*   2377*   2378*   2379*   2380    2381*   2382*   2383*   2384*
                           2385*   2386    2387*   2393*   2398*   2406*   2408    2441*   2469*   2489    2513    2704    2736*
                           2775    2776*   2777    2780*   2810    2820*   2824    2840    2841    2858*   2958    2959*   2960*
                           2968*   2969*   2970*   2971*   2972*   2973    2978    2983*   2985*   2989    2991    3008    3009*
                           3010    3011*   3012*   3013*
R0001    002546             894#
R0002    002616             908#
R0003    002666             922#
R0004    002736             936#
R0005    003022             954#
R0006    003062             971#
R0007    003124             988#
R0010    003176            1006#
R0011    003260            1027#
R0012    003352            1049#
R0013    003456            1076#
R0014    003570            1101#
R0015    003644            1117#
R0016    003720            1136#
R0017    004034            1167#
R0020    004150            1197#
R0021    004240            1218#
R0022    004352            1247#
R0023    004430            1268#
R0024    004516            1298#
R0025    004624            1323#
R0026    004722            1351#
R0027    005016            1378#
R0030    005116            1406#
R0031    005204            1431#
R0032    005436            1485#
R0033    005710            1545#
R0034    006120            1591#
R0035    006324            1639#
R0036    005530            1687#
R0037    006732            1734#
R0040    007076            1771#
R0040A   007142            1781#   1802
R0041    007404            1837#
R0041A   007440            1846#   1893
R0041B   007452            1847    1850#
R0042    007700            1906#
R0043    010066            1954#
R0044    010314            2008#
R0045    010470            2048#
R0046    010740            2108#
R0047    010772            2120#
R0050    011022            2131#
```

```
R0051   011052          2142#
R0052   011102          2153#
R0053   011132          2164#
R0054   011170          2178#
R1      =%000001          70#   2213*  2313   2322*  2333*  2342*  2395*  2396*  2449*  2453*  2467*  2526*  2538
                        2705    2735*  2811   2824*  2825   2829   2857*
R2      =%000002          71#   2215*  2218*  2312   2323*  2334*  2454*  2468*  2472   2475   2527*  2531*  2534*
                        2706    2734*  2812   2823*  2827*  2830   2837*  2838*  2839   2844*  2856*
R3      =%000003          72#   2061*  2214*  2311   2324*  2335*  2455*  2457*  2529*  2707   2733*  2813   2821*
                        2822*   2836*  2839*  2848*  2849*  2855*  2902   2911*  2917*  2918*  2921*  2926*  2927*
                        2928    2937*
R4      =%000004          73#   1889*  1967*  2021*  2062*  2202*  2310   2325*  2336*  2510*  2708   2732*  2903
                        2905*   2906*  2907*  2908   2909*  2923   2925*  2933*  2936*
R5      =%000005          74#   1271*  1301*  1323*  1329*  1351*  1357*  1373*  1385*  1411*  1437*  1491*  1552*
                        1597*   1614*  1645*  1662*  1693*  1709*  1740*  1747*  1776*  1785*  1798*  1805*  1843*
                        1866*   1911*  1958*  1970*  1992*  2012*  2024*  2032*  2052*  2068*  2085*  2108*  2120*
                        2131*   2142*  2153*  2164*  2178*  2193*  2205*  2309   2317*  2329   2337*  2355*  2359*
                        2363*   2370   2416*  2423*  2460*  2488*  2499*  2503*  2519*  2537*  2560*  2561*  2562*
                        2709    2731*  2814   2816*  2818*  2825*  2829*  2844   2854*  2904   2910*  2912*  2914*
                        2915*   2916*  2917   2935*
R6      =%000006          75#     77    855*   856*   857
R7      =%000007          76#     78
SAT     = 000000         205#
SBDAT   013134          2525*   2529   2550#
SBDAT1  001270           449#   1615   1663   1710   1867   1993   2086   2500
SBDAT2  001274           451#   1748
SBDAT3  001300           453#   2033
SP      =%000006          77#    859*   871*   881*   891*   894*   905*   908*   919*   922*   933*   936*   951*
                         961*   968*   978*   985*   996*  1003*  1014*  1024*  1039*  1046*  1058*  1061*  1073*
                        1092*  1098*  1108*  1114*  1124*  1133*  1156*  1164*  1187*  1194*  1209*  1215*  1227*
                        1236*  1244*  1257*  1265*  1286*  1295*  1312*  1320*  1340*  1348*  1368*  1375*  1396*
                        1403*  1420*  1428*  1464*  1470*  1482*  1525*  1531*  1542*  1571*  1577*  1588*  1619*
                        1625*  1636*  1667*  1673*  1684*  1714*  1720*  1731*  1752*  1758*  1768*  1825*  1834*
                        1886*  1903*  1928*  1934*  1951*  1997*  2005*  2037*  2045*  2097*  2105*  2112*  2117*
                        2124*  2128*  2135*  2139*  2146*  2150*  2157*  2161*  2171*  2175*  2182*  2186*  2221*
                        2253*  2271   2273*  2274*  2277*  2290   2291*  2315*  2320*  2331*  2582*  2590*  2593
                        2595   2596   2624   2625   2629*  2659   2661   2674   2686*  2689*  2704*  2705*  2706*
                        2707*  2708*  2709*  2714*  2715*  2716*  2717   2723*  2731   2732   2733   2734   2735
                        2736   2775*  2776   2777*  2779   2780   2781*  2784   2786*  2788*  2794   2810*  2811*
                        2812*  2813*  2814*  2815*  2816   2819*  2832   2834*  2836   2846   2848   2854   2855
                        2856   2857   2858   2860*  2861*  2894*  2895   2896   2897*  2902*  2903*  2904*  2910
                        2935   2936   2937   2938*  2939*  2958*  2964*  2985   2989*  3008*  3009
SPBOT = 001000           166#
SRSETT  012046           882   1090   1106   1122   1154   1185   1207   1255   1823   1926   2348#  2351*  2583
SST     = 000010         209#   2554
STACK = 001100            58#
STAL    012256          2404#
STALA   012304          2408*   2410#
STALB   012312          2407    2412#
START   002304           164     850*  2287
STARTX  002462           877#   2262
STKLMT= 177774            63#
STLMSK  012314          2406    2413#
STMES   015032           874    3077#
STTCV   012022           988   1006   1027   1049   1218   1406   1432   1486   1547   1592   1640   1688   1735
                        1838   1892   1906   1936   2064   2341#
```

DZTCBC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
SVO4     011656            2300#   2452    2508    2524
SVO5     011702            2307#
SVO5A    011710            2305    2308#
SVO5B    011716            2302    2310#
SVO5C    011734            2301*   2304*   2307*   2316#
SVO5S    011672            2304#   2341    2369    2392    2404
SWR    = 177570              65#     66    2585*   2599    2601    2607    2614    2670    2677    2681    2684
SW0    = 000001             106#
SW00   = 000001              96#    106
SW01   = 000002              95#    105
SW02   = 000004              94#    104
SW03   = 000010              93#    103
SW04   = 000020              92#    102
SW05   = 000040              91#    101
SW06   = 000100              90#    100
SW07   = 000200              89#     99
SW08   = 000400              88#     98    2572    2599
SW09   = 001000              87#     97     424     869    2571    2597    2600    2603    2605    2607    2625    2628    2631
                            2651   2684    2691
SW1    = 000002             105#
SW10   = 002000              86#    425    2650    2670    2691
SW11   = 004000              85#    423     869    2242    2570    2600    2603    2604    2605    2612    2613    2614    2628
                            2631
SW12   = 010000              84#    870    2236    2256    2263
SW13   = 020000              83#   2649    2677
SW14   = 040000              82#   2569    2585
SW15   = 100000              81#   2648    2681
SW2    = 000004             104#
SW3    = 000010             103#
SW4    = 000020             102#
SW5    = 000040             101#
SW6    = 000100             100#
SW7    = 000200              99#
SW8    = 000400              98#
SW9    = 001000              97#
TBITVE= 000014              139#
TCBA     001236            436#    937     938*   1459    1461    1473*   1521    1534*   1580*   1610    1628*   1658    1676*
                           1706   1723*   1761*   1773*   1795*   1878    1891*   1966*   1988    2020*   2060*   2093    2201*
                           2666
TCCM     001232            434#    895     896*    954     971     990*    992*   1009*   1010*   1012*   1029*   1032*   1037*
                           1051*  1053*   1056*   1080*   1085*   1089*   1101*   1117*   1136*   1142    1146*   1151    1167*
                           1173   1177*   1182    1197*   1199    1203*   1220*   1222*   1229*   1234*   1247    1251*   1252
                           1268*  1269*   1274    1278    1298*   1299*   1327*   1336    1355*   1364    1382*   1383*   1392
                           1408*  1409*   1414    1434*   1435*   1440    1444    1466    1474*   1488*   1489*   1494    1502
                           1527   1535*   1549*   1550*   1560    1565*   1566    1573    1581*   1594*   1595*   1600    1621
                           1629*  1642*   1643*   1648    1669    1677*   1690*   1691*   1696    1716    1724*   1737*   1738*
                           1743   1754    1762*   1771*   1774*   1779    1783*   1793*   1796*   1801    1803*   1813    1818*
                           1819   1840*   1841*   1846    1882    1894*   1908*   1909*   1918    1922*   1930    1938*   1940*
                           1955*  1956*   1961    1968*   1974    1978    2009*   2010*   2015    2022*   2028    2049*   2050*
                           2055   2066*   2072    2190*   2191*   2196    2203*   2209    2465*   2555*   2556    2581*   2664
TCCMT    001310            457#
TCDT     001240            437#   1304    1306    1308    1850    1999    2039    2076*   2099    2223
TCLVL    001244            439#   1008    1030    2344
TCST     001230            433#    909     910*   1076    1081    1086    1102*   1103    1118*   1119    1138    1147    1169
                           1178   1204    1332    1360    1388    1496    1555    1788    1808    1914    1923    2467    2558
                           2665
```

DZTCBC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
TCSTT   001312          458#
TCVTR   001242          438#   1060*   1226*   2342
TCWC    001234          435#    923     924*   1453   1455   1472*   1515   1517   1533*   1557   1562   1568   1579*
                       1604    1606    1627*   1652   1654   1675*   1700   1702   1722*   1760*   1772*   1790   1794*
                       1810    1815    1821    1874   1890*   1965*   1982   1984   2019*   2059*   2089   2200*   4253
                       4418
TKVEC = 000060          146#
TLAST = 177777          175#
TMESAD  011556         2268*   2270*   2276#
TORDER  011614          892     906     920     934     952     969     986   1004   1025   1047   1074   1099   1115
                       1134    1165    1195    1216    1245    1266    1296   1321   1349   1376   1404   1429   1483
                       1543    1589    1637    1685    1732    1769    1835   1904   1952   2006   2046   2106   2118
                       2129    2140    2151    2162    2176    2187    2290#
TPB     001250          441#
TPS     001246          440#
TPVEC = 000064          147#
TRAPVE= 000034          145#    864*    865*
TRAPX   011536         2269    2271#
TRAP10  011520          948    2268#
TRAP4   011530          947    2270#
TRC   = 000003          176#
TRPMES  015347         2280    3115#
TRPM10  015421         2268    3123#
TRPM4S  015277         2270    3108#
TRTVEC= 000014          140#
TRYAGN  011564         2279#   2297
TYPDS = 104410         2254    3073#
TYPE  = 104400          873     874    2251   2255   2279   2280   2672   2680   2739   2859   2929   2957   2975
                       2977    2980   2982   2986   2993   3053#
TYPOC = 104402         2278    2966   2990   3058#
TYPON = 104406         3068#
TYPOS = 104404         3063#
TORDER  011654         2293    2298#
T0001   002516          884     888#
T0002   002566          897     902#
T0003   002636          911     916#
T0004   002706          925     930#
T0005   002756          939     946#
T0006   003046          962     967#
T0007   003110          979     984#
T0010   003162          997    1002#
T0011   003244         1015    1023#
T0012   003336         1040    1045#
T0013   003442         1059    1072#
T0014   003554         1093    1097#
T0015   003630         1109    1113#
T0016   003704         1125    1132#
T0017   004020         1157    1163#
T0020   004134         1188    1193#
T0021   004224         1210    1214#
T0022   004336         1237    1243#
T0023   004414         1258    1264#
T0024   004502         1287    1294#
T0025   004610         1313    1319#
T0026   004706         1341    1347#
T0027   005002         1369    1374#
```

DZTCBC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
T0030   005102          1397    1402#
T0031   005170          1421    1427#
T0032   005422          1465    1471    1481#
T0033   005674          1526    1532    1541#
T0034   006104          1572    1578    1587#
T0035   006310          1620    1626    1635#
T0036   006514          1668    1674    1683#
T0037   006716          1715    1721    1730#
T0040   007062          1753    1759    1767#
T0041   007370          1826    1833#
T0042   007664          1887    1902#
T0043   010052          1929    1935    1950#
T0044   010300          1998    2004#
T0045   010454          2038    2044#
T0046   010724          2098    2104#
T0047   010756          2113    2116#
T0050   011006          2127#
T0051   011036          2138#
T0052   011066          2149#
T0053   011116          2160#
T0054   011154          2174#
T0055   011204          2185#
T0056   011376          2222    2227#
U0    = 000000           196#  1136    1167    1197    1229    1251    1269    1299    1327    1355    1383    1409    1435
                        1489    1550    1595    1643    1691    1738    1774    1796    1841    1909    1956    2010    2050
                        2191
U1    = 000400           197#  2109
U2    = 001000           198#  2121
U3    = 001400           199#  2132
U4    = 002000           200#  2143
U5    = 002400           201#  2154
U6    = 003000           202#  2165
U7    = 003400           203#  2179
V0    = 000000           183#  4555    4565    4568    4572    4576    4580    4591    4597    4603    4609    4615    4621
                        4627    4633    4639    4645    4651    4657    4663    4669    4675    4681    4687    4693    4699
                        4705    4711    4717    4723    4729    4735    4741    4747    4753    4759    4765    4771    4777
                        4783    4789    4795    4801    4807    4813    4819    4825    4831    4837    4843    4849    4855
                        4861    4867    4873    4879    4885    4891    4897    4903    4909    4915    4921    4927    4933
                        4939    4945    4951    4957    4963    4969    4975    4981    4987    4993    4999    5005    5011
                        5017    5023    5029    5035    5041    5047    5053    5059    5065    5071    5077    5083    5089
                        5095    5101    5107    5113    5119    5125    5131    5137    5143    5149    5155    5161    5167
                        5173    5179    5185    5191    5197    5203    5209    5215    5221    5227    5233    5239    5245
                        5251    5257    5263    5269    5275    5281    5287    5293    5299    5305    5311    5317    5323
                        5329    5335    5341    5347    5354    5357    5360    5363    5372    5376
V1    = 000004           184#
V2    = 000010           185#  4539    4565    4584    4594    4600    4606    4612    4618    4624    4630    4636    4642
                        4648    4654    4660    4666    4672    4678    4684    4690    4696    4702    4708    4714    4720
                        4726    4732    4738    4744    4750    4756    4762    4768    4774    4780    4786    4792    4798
                        4804    4810    4816    4822    4828    4834    4840    4846    4852    4858    4864    4870    4876
                        4882    4888    4894    4900    4906    4912    4918    4924    4930    4936    4942    4948    4954
                        4960    4966    4972    4978    4984    4990    4996    5002    5008    5014    5020    5026    5032
                        5038    5044    5050    5056    5062    5068    5074    5080    5086    5092    5098    5104    5110
                        5116    5122    5128    5134    5140    5146    5152    5158    5164    5170    5176    5182    5188
                        5194    5200    5206    5212    5218    5224    5230    5236    5242    5248    5254    5260    5266
                        5272    5278    5284    5290    5296    5302    5308    5314    5320    5326    5332    5338    5344
                        5350
```

```
V3      = 000014          186#
V4      = 000020          187#
V5      = 000024          188#  4565  4568  4580  4591  4597  4603  4609  4615  4621  4627  4633  4639
                          4645  4651  4657  4663  4669  4675  4681  4687  4693  4699  4705  4711  4717
                          4723  4729  4735  4741  4747  4753  4759  4765  4771  4777  4783  4789  4795
                          4801  4807  4813  4813  4825  4831  4837  4843  4849  4655  4861  4867  4873
                          4879  4885  4891  4897  4903  4909  4915  4921  4927  4933  4939  4945  4951
                          4957  4963  4969  4975  4981  4987  4993  4999  5005  5011  5017  5023  5029
                          5035  5041  5047  5053  5059  5065  5071  5077  5083  5089  5095  5101  5107
                          5113  5119  5125  5131  5137  5143  5149  5155  5161  5167  5173  5179  5185
                          5191  5197  5203  5209  5215  5221  5227  5233  5239  5245  5251  5257  5263
                          5269  5275  5281  5287  5293  5299  5305  5311  5317  5323  5329  5335  5341
                          5347
V6      = 000030          189#  4555  4572
V7      = 000034          190#  4539  4584  4594  4600  4606  4612  4618  4624  4630  4636  4642  4648
                          4654  4660  4666  4672  4678  4684  4690  4696  4702  4708  4714  4720  4726
                          4732  4738  4744  4750  4756  4762  4768  4774  4780  4786  4792  4798  4804
                          4810  4816  4822  4828  4834  4840  4846  4852  4853  4864  4870  4876  4882
                          4888  4894  4900  4906  4912  4918  4924  4930  4936  4942  4948  4954  4960
                          4966  4972  4978  4984  4990  4996  5002  5008  5014  5020  5026  5032  5038
                          5044  5050  5056  5062  5068  5074  5080  5086  5092  5098  5104  5110  5116
                          5122  5128  5134  5140  5146  5152  5158  5164  5170  5176  5182  5188  5194
                          5200  5206  5212  5218  5224  5230  5236  5242  5248  5254  5260  5266  5272
                          5278  5284  5290  5296  5302  5308  5314  5320  5326  5332  5338  5344  5350
                          5372
WALL    = 000016          212#  2066
WDATA   = 000014          211#  1968  2022  2203
WDCNT     013140         2216*  2528*  2541*  2552#
WRTM    = 000012          210#  1136  1167  1197  1229
X       = 177777          179#
$BDADR    001122          352#
$BDDAT    001126          354#
$BELL     001220          425#  2672  2691
$CMTAG    001100          340#   855   862   868   869
$CM1    = 000010          367#   371   373#  374   376#  377   379#  380   382#  383   385#  386   388#
                          389   391#  392   394#
$CM2    = 000020          367#   371   373#  374   376#  377   379#  380   382#  383   385#  386   388#
                          389   391#  392   394#
$CM3    = 000010          364#   365   368
$CM4    = 000010          395#   399   401#  402   404#  405   407#  408   410#  411   '3#  414   416#
                          417   419#  420   422#
$CRLF     001225          427#   873  2279  2680  2691  2957  2977  2982  2986
$DBLK     014404         2821  2859  2867#
$DOAGN    011474         2247  2257  2262#
$DTEL     014374         2824  2863#
$ENDAD    011464          336  2258#
$ENDCT    011434          868  2249#
$ENDMG    011500         2251  2263#
$ENULL    011515         2255  2266#
$EOP      011400         2239#
$EOPCT    011426          868*  2246#  2250
$ERFLG    001103          343#  2574  2603  2605  2611*  2632  2667*  2691
$ERMAX    001115          349#   869*  2605  2627*  2632
$ERROR    013476          862  2654#
$ERRPC    001116          350#  2674*  2675*  2676  2691  2964  3165  3188  3209  3235  3254  3279  3301
                         3322  3344  3366  3388  3413  3434  3456  3479  3502  3526  3547  3566  3588
```

DZTOBC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
                    3611    3631    3651    3677    3704    3727    3748    3770    3793    3813    3828    3846    3866
                    3885    3908    3932    3955    3973    3995    4016    4040    4063    4087    4109    4132    4156
                    4181    4205    4232    4253    4276    4296    4321    4346    4369    4395    4418    4440    4461
                    4480    4498    4516    4534
$ERRTB  001214       477#    2972
$ERRTY  014642      2679    2956#
$ERTTL  001112       347#    2673*   2691
$ESCAPE 001216       424#    2626*   2687    2689    2691
$FILLC  001150       362#    2784    2796
$FILLS  001147       361#    2796
$GOADR  001120       351#
$GODAT  001124       353#
$GET42  011456      2256#
$HD   = 000000        29
$ICNT   001104       344#    2618*   2619    2621*   2631
$ILLUP  014044      2698    2741#
$ITEMB  001114       349#    2676*   2691    2960
$LF     001226       428#    2691
$LPADR  001106       345#     870*   2609*   2624*   2629    2631
$LPERR  001110       346#    2609    2625*   2631    2686
$MXCNT  013474      2622    2631#
$NULL   001146       360#    2786    2796
$OCNT   014636      2901*   2930*   2943#
$OMODE  014640      2896*   2900*   2905    2908*   2919*   2945#
$OVER   013460      2586    2602    2610    2620    2628#
$PASS   001100       341#    2243*   2244*   2253    2263    2616    2632
$POWER  014052      2739    2744#
$PWRON  013706       866    2698#   2737
$PWRUP  013770      2718    2723#
$QUES   001224       426#    2691
$ROCHR= ****** U    3076
$RODEC= ****** U    3076
$ROLIN= ****** U    3076
$ROOCT= ****** U    3076
$REGAD  001152       365#
$REG0   001154       372#    1307*   1309*   1450*   1456*   1508*   1518*   1557*   1562*   1568*   1607*   1655*   1703*
                    1790*   1810*   1815*   1821*   1985*   2082*   2290*   2292    2294    2295*   3631    3704    3908
                    3932    4063    4087    4109    4132    4156    4181    4205    4232    4296    4395
$REG1   001156       375#    2294*   2665*   3165    3188    3209    3235    3254    3279    3301    3322    3344    3366
                    3388    3413    3434    3456    3479    3502    3526    3547    3566    3588    3611    3651    3677
                    3704    3727    3748    3770    3793    3813    3828    3846    3866    3885    3908    3932    3955
                    3973    3995    4016    4040    4063    4087    4109    4132    4156    4181    4205    4232    4253
                    4276    4296    4321    4346    4369    4395    4418    4440    4461
$REG2   001160       378#    2664*   3165    3188    3209    3235    3254    3279    3301    3322    3344    3366    3388
                    3413    3434    3456    3479    3502    3526    3547    3566    3588    3611    3651    3677    3704
                    3727    3748    3770    3793    3813    3828    3846    3866    3885    3908    3932    3955    3973
                    3995    4016    4040    4063    4087    4109    4132    4156    4181    4205    4232    4253    4276
                    4296    4321    4346    4369    4395    4418    4440    4461
$REG3   001162       381#    2666*   4040    4276    4440
$REG4   001164       384#    1306*   1308*   1455*   1461*   1517*   1606*   1654*   1702*   1984*   3704    3932    3955
$REG5   001166       387#    2662*   2663*   3165    3188    3209    3235    3254    3279    3301    3322    3344    3366
                    3388    3413    3434    3456    3479    3502    3526    3547    3566    3588    3611    3631    3651
                    3677    3704    3727    3748    3770    3793    3813    3828    3846    3866    3885    3908    3932
                    3955    3973    3995    4016    4040    4063    4087    4109    4132    4156    4181    4205    4232
                    4253    4276    4296    4321    4346    4369    4395    4418    4440    4461    4480    4498    4516
                    4534
```

DZTCBC.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

```
$REG6   001170          390#  2659*  2660*  3165  3188  3209  3235  3254  3279  3301  3322  3344  3366
                       3398  3413   3434   3456  3479  3502  3526  3547  3566  3588  3611  3631  3651
                       3677  3704   3727   3748  3770  3793  3813  3828  3846  3866  3885  3908  3932
                       3955  3973   3995   4016  4040  4063  4087  4109  4132  4156  4181  4205  4232
                       4253  4276   4296   4321  4346  4369  4395  4418  4440  4461  4480  4498  4516
                       4534
$REG7   001172          393#  2661*  3165  3188  3209  3235  3254  3279  3301  3322  3344  3366  3388
                       3413  3434   3456  3479  3502  3526  3547  3566  3588  3611  3631  3651  3677
                       3704  3727   3748  3770  3793  3813  3828  3846  3866  3885  3908  3932  3955
                       3973  3995   4016  4040  4063  4087  4109  4132  4156  4181  4205  4232  4253
                       4276  4296   4321  4346  4369  4395  4418  4440  4461  4480  4498  4516  4534
$SAVRE= ****** U        3076
$SAVR6  014050          2717*  2723   2724*  2725*  2743#
$SCOPE  013210           860   2576#
$SETUP= 000037            17#   849#   860    862    864    866    868    869    870   2241
$STUP  = 177777           17#   849#
$SVLAD  013432          2594   2623#
$SWR   = 157400            8#    29     35     36     37     38     39     40     41    423   424   425   869
                        870   2236   2242   2256   2263   2569   2570   2571   2572  2585  2597  2599  2600
                       2603   2604   2605   2612   2613   2614   2625   2628   2631  2648  2649  2650  2651
                       2670   2677   2681   2684   2691
$TIMES  001214          423#  2242*  2612*  2619   2622*  2631
$TKB    001140          357#
$TKS    001136          356#   857
$TMPO   001174          400#
$TMP1   001176          403#
$TMP2   001200          406#
$TMP3   001202          409#
$TMP4   001204          412#
$TMP5   001206          415#
$TMP6   001210          418#
$TMP7   001212          421#
$TN    = 000100            9#    29
$TPB    001144          359#  2794*  2796
$TPFLG  001151          363#  2771   2796
$TPS    001142          358#  2792   2796
$TRAP   014776          864   3008#
$TRP   = 000012         3041#  3043   3044   3055#  3057  3058  3060#  3062  3063  3065#  3067  3068  3070#
                        3072   3073   3075#
$TRPAD  015016          3012   3052#
$TSTNM  001102           342#  2241*  2292   2574   2601  2623*  2623  2632  2663  2669  2691
$TYPBN= ****** U        3076
$TYPOS  014170          2806#  3071   3074
$TYPE   014062          2275   2771#  3042   3054
$TYPOC  014140          2899#  3056   3059
$TYPOM  014154          2898   2901#  3069
$TYPOS  014414          2894#  3064
$XTSTR  013236          2588#
$OFILL  014537          2895*  2899*  2909   2944#
.      = 040010          155#   159    162#   309#   335#   338#   429   853   870  2263  2267  2438  2446
                       2557   2559   2631   2632   2591   2720   2742  2796  2867#  2996#  3164#  3208#  3234#
                       3253#  3278#  3412#  3525#  3587#  3630#  3769#  3792#  3812#  3931#  3954#  3972#  4062#
                       4086#  4131#  4180#  4231#  4320#  4345#  4368#  4394#  4460#  5378#  5380   5381#
```

DZTCBC.P11 CROSS REFERENCE TABLE -- MACRO NAMES

```
ADITAG    215*   432
CEND      279*  5368
COMMEN      1*   149*
C10       261*  4538  4554  4571  4575  4579  4583
C22       276*  4546
C25       252*  4558  4561  5365
C26       255*  4564
C32       258*  4567
C45       273*  5362
C51       270*  5359
C55       249*  4550
C70       264*  4590  4593  4596  4599  4602  4605  4608  4611  4614  4617  4620  4623  4626  4629
             4632  4635  4638  4641  4644  4647  4650  4653  4656  4659  4662  4665  4668  4671  4674
             4677  4680  4683  4686  4689  4692  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  4893  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
C73       267*  5346  5349  5353  5356  5371  5375
EMTDEF    296*
EMTE      282*  4542
ENDCOM      1*   149*
ERROR      59*   898   912   926   940   959   976   994  1016  1034  1055  1066  1078  1083  1088
           1105  1121  1140  1144  1149  1153  1171  1175  1180  1184  1201  1206  1224  1231  1249
           1254  1276  1280  1310  1334  1338  1362  1366  1390  1394  1416  1418  1442  1446  1451
           1457  1462  1468  1498  1500  1504  1509  1513  1519  1523  1529  1558  1563  1569  1575
           1602  1608  1612  1623  1650  1656  1660  1671  1698  1704  1708  1718  1745  1756  1781
           1791  1811  1816  1822  1848  1858  1862  1864  1872  1876  1880  1884  1916  1920  1925
           1932  1963  1976  1980  1986  1990  2017  2030  2057  2074  2083  2091  2095  2110  2122
           2133  2144  2155  2166  2180  2198  2211  2296  2547
ESCAPE      1*   149*
MTCOD     285*  1270  1300  1328  1356  1384  1410  1436  1490  1551  1596  1644  1692  1739  1775
           1784  1797  1804  1842  1910  1957  2011  2051  2192
MTCOE     290*  1969  2023  2067  2204
MULT        1*   149*
NEWTST      1*   149*
POP         1*   149*  2727  2850
PUSH        1*   149*  2700  2710  2806
SAVE      2632*  2658
SCOMAC    303*  2580
SCOPE      60*   888   902   916   930   946   967   984  1002  1023  1045  1072  1097  1113  1132
           1163  1193  1214  1243  1264  1294  1319  1347  1374  1402  1427  1481  1541  1587  1635
           1683  1730  1767  1833  1902  1950  2004  2044  2104  2116  2127  2138  2149  2160  2174
           2185  2227  2240
SETRAP    245*
SETTRA   3015*  3042  3056  3061  3066  3071
```

```
SETUP       1#    149#    854
SKIP        1#    149#
SLASH       1#    149#
SPACE     149#
STARS       1#     14#    149#    327     460    2229    2564    2643    2692    2748    2797    2869    2947    2998
TRMTRP   3038#
TYPBIN      1#    149#
TYPDEC      1#    149#   2252
TYPNUM      1#    149#
TYPOCS      1#    149#
TYPOCT      1#    149#   2963    2988
TYPTXT      1#    149#
$$CMRE    313#    371     374     377     380     383     386     389     392
$$CMTM    320#    399     402     405     408     411     414     417     420
$$ESCA      1#    149#
$$NEWT      1#    149#
$$SET     3021#   3043    3057    3062    3067    3072
$$SKIP      1#    149#
.EQUAT      1#     11#     53
.HERDE      1#     11#     18
.KT11       1#
.SETUP      1#     12#     16     848
.SWRHI      1#     12#     29
.SWRLO     12#     42#
.SCATC      1#     11#    151
.SCMTA      1#     15#    312
.SD82D      1#
.SD82O      1#
.SDIV       1#
.SEOP       1#     11#   2228
.SERRO      1#     14#   2642
.SERRT      1#     14#   2946
.SMULT      1#
.SPOWE      1#     13#   2691
.SRAND      1#
.SRDDE      1#
.SRDOC      1#
.SREAD      1#
.SSAVE      1#
.SSB2D      1#
.SSB2O      1#
.SSCOP      1#     12#   2563
.SSIZE      1#
.SSUPR      1#
.STRAP      1#     13#   2997
.STYPB      1#
.STYPD      1#     13#   2796
.STYPE      1#     14#   2747
.STYPO      1#     13#   2868
```

F10

DZTCBC.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

```
        1049  1074  1090  1099  1106  1115  1122  1134  1154  1165  1185  1195  1207  1216  1218
        1245  1255  1266  1271  1296  1301  1321  1323  1329  1349  1351  1357  1376  1378  1385
        1404  1406  1411  1429  1431  1432  1437  1483  1485  1486  1491  1543  1545  1546  1547
        1552  1589  1591  1592  1597  1614  1637  1639  1640  1645  1662  1685  1687  1688  1693
        1709  1732  1734  1735  1740  1747  1769  1776  1785  1798  1805  1823  1835  1837  1838
        1843  1866  1892  1904  1906  1911  1926  1936  1952  1954  1958  1970  1992  2006  2008
        2012  2024  2032  2046  2048  2052  2064  2068  2085  2106  2108  2118  2120  2129  2131
        2140  2142  2151  2153  2162  2164  2176  2178  2187  2189  2193  2205  2217  2258  2275
        2341  2345  2355  2359  2363  2369  2373  2392  2400  2404  2405  2409  2411  2416  2423
        2452  2459  2484  2498  2499  2503  2508  2509  2512  2516  2519  2524  2530  2533  2536
        2583  2584  2679  2783  2790
MOV      855   859   860   861   862   863   864   865   866   867   868   870   871   881   889
         890   891   894   903   904   905   908   917   918   919   922   931   932   933   936
         947   948   949   950   951   954   961   968   971   972   978   985   996  1003  1008
        1014  1024  1030  1039  1046  1058  1060  1061  1073  1092  1098  1108  1114  1124  1133
        1136  1156  1164  1167  1187  1194  1197  1209  1215  1226  1227  1236  1244  1251  1257
        1265  1269  1286  1295  1299  1306  1307  1308  1309  1312  1320  1327  1340  1348  1355
        1368  1375  1383  1396  1403  1409  1420  1428  1435  1450  1455  1461  1464  1470  1472
        1473  1482  1489  1508  1517  1525  1531  1533  1534  1542  1550  1557  1562  1568  1571
        1577  1579  1580  1588  1595  1606  1619  1625  1627  1628  1636  1643  1654  1667  1673
        1675  1676  1684  1691  1702  1714  1720  1722  1723  1731  1738  1752  1758  1760  1761
        1768  1772  1773  1774  1790  1794  1795  1796  1810  1815  1821  1825  1834  1841  1850
        1886  1888  1889  1891  1903  1909  1928  1934  1951  1956  1965  1966  1967  1984  1997
        1999  2005  2010  2019  2020  2021  2037  2039  2045  2050  2060  2061  2062  2063  2076
        2097  2099  2105  2112  2117  2124  2128  2135  2139  2146  2150  2157  2161  2171  2175
        2182  2186  2191  2200  2201  2202  2213  2214  2215  2221  2223  2248  2253  2256  2268
        2270  2271  2273  2277  2290  2294  2295  2300  2301  2304  2307  2308  2309  2310  2311
        2312  2313  2314  2317  2321  2322  2323  2324  2325  2326  2329  2332  2333  2334  2335
        2336  2337  2338  2342  2343  2344  2348  2349  2351  2353  2370  2376  2380  2386  2387
        2393  2395  2408  2422  2435  2440  2441  2443  2448  2449  2453  2454  2455  2463  2464
        2466  2467  2468  2469  2470  2496  2510  2511  2513  2525  2526  2527  2529  2538  2539
        2540  2545  2553  2555  2590  2591  2593  2596  2609  2621  2622  2624  2625  2628  2629
        2659  2661  2664  2665  2666  2669  2674  2686  2689  2698  2699  2704  2705  2706  2707
        2708  2709  2714  2715  2716  2717  2718  2723  2731  2732  2733  2734  2735  2736  2737
        2738  2775  2776  2780  2786  2810  2811  2812  2813  2814  2815  2816  2821  2824  2844
        2854  2855  2856  2857  2858  2860  2861  2894  2902  2903  2904  2910  2917  2935  2936
        2937  2938  2939  2958  2964  2973  2978  2983  2985  2989  3008  3009  3012
MOVB     869  1474  1535  1581  1629  1677  1724  1762  1783  1803  1894  1938  1940  1968  2022
        2066  2203  2456  2471  2473  2474  2476  2627  2663  2676  2777  2794  2819  2822  2836
        2839  2848  2895  2896  2899  2900  2901  2905  2908  2909  2928  3011
NEG     2818  2906
NOP      195   850   851   852   853   875   993  1011  1033  1054  1063  1137  1168  1198  1223
        1230  2167  2168  2169  2259  2260  2261  2281  2282  2283  2284  2285
RESET    879  2286  2352
ROL     2377  2378  2381  2382  2384  2385  2585  2912  2914  2915  2916  2918
RTI     1062  1228  1475  1536  1582  1630  1678  1725  1763  1853  1895  1939  1941  2000  2040
        2079  2100  2224  2630  2690  2740  2782  2862  2940
RTS     2298  2316  2318  2327  2339  2346  2354  2367  2374  2388  2401  2412  2420  2427  2442
        2450  2460  2488  2507  2517  2523  2537  2544  2548  2560  2562  2795  2987  3013
SUB     1031  2272  2315  2660  2675  2825
TRAP    3043  3057  3062  3067  3072
TST      877   895   909   923   937  1142  1151  1173  1182  1199  1274  1336  1360  1364  1388
        1392  1440  1453  1466  1494  1511  1515  1527  1560  1566  1573  1600  1604  1621  1648
        1652  1669  1696  1700  1716  1743  1754  1779  1801  1813  1846  1854  1874  1882  1918
        1930  1961  1974  1982  2015  2028  2055  2072  2080  2089  2196  2209  2371  2481  2592
        2616  2681  2687  2779  2830  2840  2923  2991  3010
```

DZTCBC.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

```
TSTB      957   974  1247  1252  1278  1414  1444  1502  1978  2489  2556  2603  2771  2792  2832
         2846
.ABS         4
.ASCII     426   427  3077  3081  3087
.ASCIZ     425   428  2263  2744  2995  3091  3097  3103  3107  3108  3115  3123  3131  3139  3146
          3156  3170  3179  3193  3200  3214  3226  3240  3245  3259  3270  3284  3292  3306  3313
          3327  3335  3349  3357  3371  3379  3393  3404  3418  3425  3439  3447  3461  3470  3484
          3493  3507  3517  3531  3538  3552  3557  3571  3579  3593  3602  3616  3622  3636  3642
          3656  3668  3682  3692  3710  3718  3732  3739  3753  3761  3775  3780  3796  3804  3818
          3819  3833  3837  3851  3857  3871  3876  3890  3896  3914  3920  3938  3943  3961  3964
          3978  3986  4000  4005  4022  4028  4046  4052  4069  4076  4093  4099  4115  4121  4138
          4146  4162  4170  4187  4195  4211  4220  4238  4243  4259  4264  4282  4286  4302  4312
          4326  4337  4351  4360  4374  4382  4401  4408  4424  4430  4446  4452  4465  4473  4483
          4491  4501  4509  4519  4527
.BLKW     2867
.BYTE      342   343   348   349   360   361   362   363  2266  2941  2942  2943  2944  3106  4539
          4543  4547  4551  4555  4559  4562  4565  4568  4572  4576  4580  4584  4591  4594  4597
          4600  4603  4606  4609  4612  4615  4618  4621  4624  4627  4630  4633  4636  4639  4642
          4645  4648  4651  4654  4657  4660  4663  4666  4669  4672  4675  4678  4681  4684  4687
          4690  4693  4696  4699  4702  4705  4708  4711  4714  4717  4720  4723  4726  4729  4732
          4735  4738  4741  4744  4747  4750  4753  4756  4759  4762  4765  4768  4771  4774  4777
          4780  4783  4786  4789  4792  4795  4798  4801  4804  4807  4810  4813  4816  4819  4822
          4825  4828  4831  4834  4837  4840  4843  4846  4849  4852  4855  4858  4861  4864  4867
          4870  4873  4876  4879  4882  4885  4888  4891  4894  4897  4900  4903  4906  4909  4912
          4915  4918  4921  4924  4927  4930  4933  4936  4939  4942  4945  4948  4951  4954  4957
          4960  4963  4966  4969  4972  4975  4973  4981  4984  4987  4990  4993  4996  4999  5002
          5005  5008  5011  5014  5017  5020  5023  5026  5029  5032  5035  5038  5041  5044  5047
          5050  5053  5056  5059  5062  5065  5068  5071  5074  5077  5080  5083  5086  5089  5092
          5095  5098  5101  5104  5107  5110  5113  5116  5119  5122  5125  5128  5131  5134  5137
          5140  5143  5146  5149  5152  5155  5158  5161  5164  5167  5170  5173  5176  5179  5182
          5185  5188  5191  5194  5197  5200  5203  5206  5209  5212  5215  5218  5221  5224  5227
          5230  5233  5236  5239  5242  5245  5248  5251  5254  5257  5260  5263  5266  5269  5272
          5275  5278  5281  5284  5287  5290  5293  5296  5299  5302  5305  5308  5311  5314  5317
          5320  5323  5326  5329  5332  5335  5338  5341  5344  5347  5350  5354  5357  5360  5363
          5366  5369  5372  5376
.ENABL       1     5    10
.END      5382
.ENDC       17    24    38    40    41    42    59   135   149   165   329   339   365   395   423
           424   425   426   459   462   849   859   860   862   864   866   868   869   870  2231
          2234  2235  2236  2238  2241  2247  2250  2251  2256  2263  2266  2267  2566  2575  2585
          2587  2598  2601  2603  2605  2607  2614  2618  2623  2628  2631  2632  2645  2653  2667
          2674  2680  2681  2691  2694  2717  2727  2740  2747  2750  2799  2871  2949  2968  2997
          3000  3009  3012  3053  3056  3058  3063  3068  3071  3073  3076
.EQUIV      59    60    62    77    78    97    98    99   100   101   102   103   104   105   106
           125   126   127   128   129   130   131   132   133   134
.EVEN     2746  2996  3164  3187  3208  3234  3253  3278  3300  3321  3343  3365  3387  3412  3433
          3455  3478  3501  3525  3546  3565  3587  3610  3630  3650  3676  3703  3726  3747  3769
          3792  3812  3827  3845  3865  3884  3907  3931  3954  3972  3994  4015  4039  4062  4086
          4108  4131  4155  4180  4204  4231  4252  4275  4295  4320  4345  4368  4394  4417  4439
          4460  4479  4497  4515  4533  5378
.IF          17    20    38    39    40    41    42    57   107   135   160   328   338   364   365
           395   423   424   425   429   461   849   855   859   860   862   864   866   868   869
           870  2230  2234  2235  2236  2237  2238  2240  2246  2249  2251  2256  2262  2263  2565
          2574  2577  2585  2597  2599  2600  2603  2604  2605  2614  2616  2625  2631  2632  2644
          2652  2655  2670  2677  2679  2680  2681  2684  2691  2693  2710  2727  2739  2740  2744
          2749  2798  2870  2948  2967  2983  2999  3008  3012  3042  3044  3056  3058  3063  3068
```

DZTCBC.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

```
            3071    3073    3076
.IFF          38      40      41      42      57     329     339     364     462     860    2231    2637    2241    2247    2250
            2263    2566    2598    2601    2605    2631    2645    2652    2670    2691    2694    2740    2750    2799    2871
            2949    2968    2997    3000    3009
.IFT        2613    2680
.IFTF       2611    2679
.IIF          19      24      29      35      36      37      38     159     429     860     862     868     869     870    2235
            2241    2242    2254    2263    2267    2569    2570    2571    2572    2612    2613    2628    2631    2632    2648
            2649    2650    2651    2691    2796    2965    2990    3053    3058    3063    3068    3073
.IRP          17     429     849    2577    2655    2701    2711    2728    2807    2851
.LIST          1       6      17     149     159     364     367     373     376     379     382     385     388     391     394
             395     401     404     407     410     413     416     419     422     849    3041    3053    3055    3058    3060
            3063    3065    3068    3070    3073    3075
.MACR        249     252     255     258     261     264     267     270     273     276     279     282     285     290     296
.MACRO         1      42     215     245     303     313     320    2632    3015    3021    3038
.MCALL        11      12      13      14      15     149
.NLIST         1       7      17     149     159     364     367     373     376     379     382     385     388     391     394
             395     401     404     407     410     413     416     419     422     849    3041    3053    3055    3058    3060
            3063    3065    3068    3070    3073    3075
.PAGE        326     459
.REPT        159     368     396    4586
.SBTTL        31      55     153     161     330     463     885     899     914     928     944     965     982    1000    1021
            1043    1070    1095    1111    1130    1161    1191    1212    1241    1262    1292    1317    1345    1372    1400
            1425    1479    1539    1585    1633    1681    1728    1765    1831    1900    1948    2002    2042    2102    2114
            2125    2136    2147    2158    2172    2183    2226    2232    2567    2646    2695    2751    2800    2872    2950
            3001    3045
.TITLE        19
.WORD        159     310     311     341     344     345     346     347     350     351     352     353     354     355     365
             372     375     378     381     384     387     390     393     400     403     406     409     412     415     418
             421     455     456    2246    2249    2976    2981
```

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

*DZTCBC,DZTCBC.SEQ/SOL/CRF/DS:ERFZ/EN:ABS=DSKM:SYSMAC.SML,DSKM:DZTCBC.P11
RUN-TIME: 41 51 10 SECONDS
RUN-TIME RATIO: 133/103=1.2
CORE USED: 23K (46 PAGES)

J10

Spooler runtime 19 Seconds, 80 KCS, 565 disk reads, 3 disk writes, 125 pages