IDENTIFICATION

Product Code:	MAINDEC 9A-D4GB-D
Product Name:	TC59 RANDOM EXERCISER
Date Created:	May 17, 1968
Maintainer:	Diagnostic Group
Author:	Keith R. Nelson

PDP-9
LIBRARY

1. ABSTRACT

The TC59 Random Exerciser Test is a test program designed to simulate tape system usage. Any configuration of 1 to 8 TU20 (or similar) seven and/or nine track drives may be concurrently tested.

2. REQUIREMENTS

2.1 EQUIPMENT

PDP-9
TC59 Magnetic Tape Control
1 to 8 TU20 - 7 or 9 track
or similar Magnetic Tape Transports

2.3 Preliminary Programs

The TC59 Control Test and Drive Function Timer programs should run in their entirety before attempting to run the TC59 Random Exerciser.

3. LOADING PROCEDURE

Place the ABS Binary Tape for the TC59 Random Exerciser Executive Routine in the Reader (MAINDEC-9A-D4FA-B)
Set ADDRESS to 17720
Press I/O RESET
Press READ IN
Place the ABS Binary Tape for the TC59 Random Exerciser in the Paper Tape Reader (MAINDEC 9A-D4GA-B)
Press I/O RESET
Press READ IN

4. STARTING PROCEDURE

4.1 Control Switch Settings

(NONE).

4.2 Starting Address

The TC59 Random Exerciser
Executive Routine starts at Address 00200.

4.3 Program and/or operator action

Set ADDRESS to 00200
Press I/O RESET
Press START

Load system parameters via TTY
KBD per paragraph 4.3.1 of MAINDEC-9A-D4FA

After system parameters have been entered, the following message will be typed:

```
SELECT  DRIVES
 DRV     TRK
```

4.3.1 Drive Selection Procedure

Any configuration of 1 to 8 7 and/or 9 track drives may be selected to be run.

After the "SELECT DRIVES" typeout, the program will wait for keyboard input. Any key 0 to 7 may be typed. (Any other key, except carriage return, will cause a question mark (?) to be typed and that key will be ignored)

After a valid drive number has been typed, the program will space 3 places on the TTY and wait for a TRACK parameter. At this point, type in a "7" if the drive is a seven track drive, or, a "9" if the drive is a nine track drive. (Any other key is invalid, will cause a question mark to be typed, and the program will return to waiting for a drive selection. The drive number will be ignored.).

Typing in the same drive number twice, will cause the typeout. "DELETED" and that drive selection will be removed drom the parameter table.

4.3.1 (Continued)

After all drives have been selected, type in a CARRIAGE RETURN instead of a drive number to end parameter selection.

4.3.2 Drive Selection Examples

```
SELECT          DRIVES
DRV             TRK
?
```

(a carriage return was typed with no drives selected).

```
SELECT          DRIVES
DRV             TRK
 1               7
 1            DELETED
 1               9
↵
```

(Drive 1 was selected as a 7-track drive, deleted, and then re-selected as a 9-track drive)

```
SELECT          DRIVES
DRV             TRK
 1               9
 0               7
 A?
 7               6?
 7               7
↵
```

(Drive 1 was selected as a 9-track drive.
Drive 0 was selected as a 7-track drive.
The first drive 7 was ignored "6" is an invalid key for track selection.
Drive 7 was selected as a 7-track drive.
The "A" was ignored, only 0 to 7 are valid for drive numbers.)

5. OPERATING PROCEDURE

5.1 Operation Switch Settings

Normally, the program will randomly select parity and density. A specific parity and density selection may be fixed by utilizing switches 6, 7 and 8 as follows:

SWS 6,7,8	SELECT			
0	RANDOM			
1	200	BPI	EVEN	PARITY
2	556	BPI	EVEN	PARITY
3	800	BPI	EVEN	PARITY
4	200	BPI	EVEN	PARITY
5	200	BPI	ODD	PARITY
6	556	BPI	ODD	PARITY
7	800	BPI	ODD	PARITY

6. ERRORS

All errors detected by the TC59 Random Exerciser result in an error typeout. An occasional write status error may be expected and can probably be ignored when analyzing tape operation.

6.1 Error Typeout Header

Most error typeouts will be headed by the following:

```
DRIVE   X

 COMD   STATUS     FILE       RECORD

XXXX00  YYYY00    AAAAAA      0000BB
```

By examining the number "COMD" parity, density and tape function can be determined. (i.e., 744600 indicates Drive7, odd parity, wirte at 888 BPI, interrupts enabled.)

STATUS should indicate the type of error. (i.e., 420100 indicates a parity error.)

FILE and RECORD are typed to indicate relative tape position. (See paragraphs 9.2, 9.3 for descriptions of the file structure used by this program.)

6.2 Catastrophic Drive Errors

Certain types of errors encountered by the program are considered catastrophic failures since there is no one programming procedure that would allow recovery. The COMD STATUS typeout is generated and then followed by a statement of the type of error. These statements include:

```
BAD      TAPE
NO     EOF      EXPECTED
EOF     EXPECTED
BOT    SHOULD   = 1
```

Bad tape is included as a catstrophic failure. Since tape may or may not actually be stopped within an interrecord gap, there is no single program procedure to allow recovery from a BAD TAPE status.

The EOF errors indicate that control of tape position has been lost. Since the program can no longer determine where tape is positioned, the only recovery procedure that can be guaranteed is to rewind the load point.

6.3 System or Control Failures

The TC59 Random Exerciser attempts to detect and recover from system or control unit failures by restarting all drives from BOT. The following errors are considred system errors:

```
UNEXPECTED  MAG  TAPE  INTERRUPT
```

An interrupt was received from the tape system when none was expected. This typeout is followed by a typeout of the last operation completed:

```
TAPE  CONTROL  HUNG
```

The tape control (TC59)became ready while the program was waiting for an interrupt from Magtape. This typeout is then followed by a typeout of the last tape operation initiated:

```
MTLC  FAILED
```

The command register in the TC59 failed tc load properly. COMD typed is the data read from the TC59 and STATUS indicates the command loaded:

```
DEVICE  TEST  HUNG
```

This typeout is generated by the executive routine and indicates that the TC59 Random Exerciser has not received an interrupt for at least one minute.

6.4 Data Errors

Data errors detected by the TC59 Random Exerciser will be typed as they occur. Only the first four data errors in each record will be typed.

If a combined status and data error occurs, two typeouts will be generated, but the error should only be counted as a single error. The COMD STATUS FILE and RECORD typeout.

A read status error may not be followed by a data error typeout, since the parity track or LPCC could fail by themselves. However, data errors should always be preceded by a status-error typeout. A data error not preceded by a status error, would indicate a SYSTEM FAILURE of some sort. (i.e., Parity Error detection failed).

DATA ERROR EXAMPLE

```
DRIVE   7

COMD        STATUS       FILE          RECORD
742600      420100       000003        000031
DATA        ERROR
DATA        ADRS
764532      034076
764432      016076

770156      034103
770056      016103
```

Data errors are typed in pairs of words. The first word of each pair indicates the data word that should have been read. The second data word typed in each pair indicates the actual word read from tape.

Address typeouts are included to indicate the buffer areas being utilized. If extended memory is available, (as indicated by the ADDRS 034076) it would be possible for the data to be written from one bank, read into another bank and then the pattern regenerated into a third bank for compare purposes.

6.5 ERROR RECOVERY PROCEDURES

6.5.1 Write Error Recovery

For write status errors, the recovery procedure utilized is to backspace and write with extended inter-record gap. The program will attempt to rewrite with extended gap a total of four times. If the error still occurs on the fourth write with extended gap, the drive selected will be rewound to load point and restarted. Each write status error is typed as it occurs.

6.5.2 Read Error Recovery

For read status errors, the recovery procedure utilized is to backspace and reread. The program will attempt to reread the record twice, and assuming a combined status and data error a total of six error typeouts could occur. If the error still occurs after the second reread, the program considers the error non-recoverable, rewinds the drive to load point and restarts selections.

If the record is successfully read in either of the two rereads, the drive is still rewound to eliminate the possibility of reading the same error record later by random selection.

9. DESCRIPTION

The TC59 Random Exerciser Program operates the tape system in a random fashion designed to simulate system usage. Drive, pattern, parity density, record and file length and sequence of operations are all generated by random selection.

9.1 Drive Control Tables

A table of 16 locations are utilized for each drive to keep track of tape position, pattern and other selections. The mnemonic for each location and its purpose are as follows:

MNEMONIC	USAGE
DRACTV	If equal to 0, the particular drive is inactive and open to random selection of operation. If not 0, this location will indicate the starting address of the test routine that controls the operation currently selected for that drive.
FILPOS	This location contains the file number that the tape is positioned at.
RECPOS	This location contains the tape's record position within the current file.
FILWRT	This location contains the number of files currently recorded on a particular drive.
RECLEN	This location contains the current record length.
FILETH	This location contains the number of records within the files being operated on.
FRSFIL	This location contains the number of the first file on tape with the current pattern, record length, parity, density and file length.

MNEMONIC	USAGE
PARDEN	This location contains the current parity and density selection. Or, in the case of 9-track drives, whether or not the mode is CORE DUMP.
FILEK	This location is utilized only by the write routine and initially indicates the number of times to repeat a specific file selection.
PATTBL	This and the next 6 locations contain the seven words used to generate the current data pattern.

9.2 File Structure

The TC59 Random Exerciser operates a "FILE STRUCTURED" tape. Each file generated consists of a series of 6 to 63 identical records and a single END of FILE mark. The number of records within a file is randomly selected.

Once the structure of the file has been selected, the program randomly selects a number of times to repeat the file. The same file may appear just once on tape or be repeated as many as two to seven times in a row.

Each file has its own position number. The first file on tape (from load point to the first EOF) is FILE 0. The second file on tape (from the first EOF to the second EOF) is FILE 1, the third file is FILE 2, etc.

9.3 Record Structure

All records within each file are identical in length and pattern. Record length is randomly selected and may be as short as nine PDP-9 words or as long as 1023 words.

The pattern within the record is generated from seven random words. These seven words are repeated for the length of the record.

Each record within a file has a unique number. The first record in each file is RECORD 0, the second is RECORD 1, etc. When combined with the file number, the record number indicates the relative tape position.

File 0 record position 0 would indicate that tape is positioned either at BOT or between BOT and the first record on tape. File 1, record position 3 would indicate that tape is positioned after the first file mark on tape and between the third and fourth records in the file.

If the third file on tape is 17 records long, file 2 record position 17 would indicate tape to be positioned between the last record of the file and the END OF FILE mark on tape.

9.4 Write Sequence Selection

Write is a valid random selection only when tape is positioned at BOT with no records written, or when at a record position 0 and FILPOS is equal to LASFIL. (This indicates that tape is positioned past the last EOF written on tape.)

If FILEK does not equal 0, the program leaves the pattern, parity density and file structure selections as is and randomly selects to either write the file NONSTOP or START/STOP. If the write mode selected is NONSTOP, the entire file, including the END or FILE is written in that mode without allowing drive selection to change. If the write mode selected is START/STOP, the program will write one record on the selected transport and then release the test so that another drive may be selected. Every time that the drive is selected, until the file has been completed, one record will be written START/STOP. After all records in the file have been written, the END OF FILE mark will be written START/STOP.

After the END OF FILE is written, DRACTV is cleared to 0 and the next operation selected for that drive may be either BACK SPACE or WRITE.

If WRITE is a valid selection and FILEK does equal 0, the program proceeds to randomly select a new pattern, parity, density and file structure.

The first selection made is parity and density. This selection is either made by AC switches 6, 7 and 8, (see paragraph 5.1) or by random selection. Or, if the drive is a nine-track transport, the selection made is to either use core dump mode or the compatable nine-track mode. This program always operates nine-track drives at ODD Parity.

The next selection made is pattern. Seven words are generated and saved in the drive PATTBL. If the parity selected was EVEN, all words with "00" codes are discarded.

If the drive is nine-track, and the mode selected was the compatable mode, only the lower 16-bits of the words are saved as random data. The correct odd parity bits for each character are placed in bits 0 and 1.

After pattern selection, the program selects the number of records for the file. Six to sixty three records may be selected for the file length.

Once file length is selected, the program selects record length. Record length selection may be as short as nine PDP-9 words or as long as 1023 PDP-9 words.

When record length has been selected, the program selects a number of times to repeat the file. The same file may be repeated as many as seven times.

The program then returns to the point where it selects write mode and continues to either writing the first file NONSTOP or START/STOP.

9.5 Backspace Sequence Selection

Backspace is a valid random selection except when tape is at record position 0 of the first file containing the current file structure.

Backspace may be either performed START/STOP or NONSTOP. If the selection is START/STOP, tape will be backspaced one record at a time until either backspace is no longer valid, or until a second random selection indicates backspacing should cease. If the backspace selection is

NONSTOP, tape will bebackspaced to record position 0 of the current file utilizing the word count to specify the number of records. The backspace nonstop selection remains then, until either backspace is no longer valid, or it is ceased by a separate random selection.

9.6 Read Sequence Selection

Read is a valid random selection anytime that Write is not a valid selection.

The Read operation may be selected to be operated either START/STOP or NONSTOP.

With the Read mode selected START/STOP, one of the following operations is initiated:

A. One record is read START/STOP and the data read compared against data written.

B. One record is Read Compared START/STOP.

C. A space reverse 1 record is executed, changed to Read going NONSTOP, one record is read and the data read compared against the data written.

D. One record is read, the function changed to space reverse and the same record is backspaced over NONSTOP. The data read is then compared against the data written.

The read START/STOP mode remains selected until either an END OF FILE is read, or until it is deleted by random selection.

With the read mode selected NONSTOP, oneof the following operations is initiated.

A. The program initiates a read operation and then continues reading NONSTOP until either an EOF is encountered, or the next record will cause the read buffer to overflow. The data read is then compared against what should have been written.

B. A Read Compare function is initiated, and then continued NONSTOP until an EOF is encountered.

Read NONSTOP remains selected until either an EOF is encountered during the read operation, or tape is positioned valid for write during the Read Compare.

```
                                  .TITLE MAGREX
                                  .ABS
                        /TC59 RANDOM EXERCISER TAPE 1
                        /ASSEMBLE AS FIRST TAPE OF EXERCISER
                        /MAGTAPE IOT INSTRUCTIONS
        7Ø7352          MTRS=7Ø7352
        7Ø7312          MTRC=7Ø7312
        7Ø7341          MTSF=7Ø7341
        7Ø7321          MTCR=7Ø7321
        7Ø73Ø1          MTTR=7Ø73Ø1
        7Ø7326          MTLC=7Ø7326
        7Ø73Ø4          MTGO=7Ø73Ø4
        7Ø7322          MTAF=7Ø7322
        7Ø7324          LCM=7Ø7324
                        /CA AND WC DEFINITIONS
        ØØØØ32          WCLOC=32
        ØØØØ33          CALOC=WCLOC+1
                        /BUFFER AREA DEFINITIONS
        Ø14ØØØ          WRBUFR=14ØØØ
        Ø16ØØØ          RDBUFR=WRBUFR+2ØØØ
                        /DRIVE CONTROL TABLE DEFINITIONS
        ØØØØ12          TABLEK=12
        Ø134ØØ          DRTABL=134ØØ
        Ø13777          FAKECA=WRBUFR-1
        ØØØØ45          APIADR=45
                        /
                                  .EJECT
```

```
                                /DEFINITIONS FOR EXECUTIVE ROUTINE
              ØØØ1ØØ            TYPTEX=1ØØ
              ØØØ1Ø1            TYPCON=1Ø1
              ØØØ1Ø2            TYOCT2=1Ø2
              ØØØ1Ø3            TYOCT1=1Ø3
              ØØØ1Ø4            TYASC1=1Ø4
              ØØØ1Ø5            TDECIM=1Ø5
              ØØØ1Ø6            NKYBD=1Ø6
              ØØØ1Ø7            PANNUM=1Ø7
              ØØØ11Ø            CYCLEK=11Ø
              ØØØ111            UPCORE=111
              ØØØ112            APIENA=112
              ØØØ113            DEVTES=113
              ØØØ114            DEVFLG=114
              ØØØ115            GETDEV=115
              ØØØ126            TTYFLG=126
              ØØØ13Ø            TTYDIS=13Ø
              ØØØ131            KBDDIS=131
              ØØØ132            LSTKEY=132
              ØØØ133            DEVINT=133
              ØØØ142            UNKNWN=142
              ØØØ143            DEVSTR=143
              ØØ5ØØØ            MTEXER=5ØØØ
                                /TO STORE ADDRESSES INTO EXEC AT LOAD TIME
    ØØ113                               .LOC DEVTES
    ØØ113     ØØ5ØØØ                    MTEXER
    ØØ114     ØØ7332                    MTACTV
    ØØ115     ØØ5544                    GPARAM
    ØØ143                               .LOC DEVSTR
    ØØ143     ØØ5Ø44                    SDEXIT
    ØØ144     ØØØØØØ            DEVHNG      Ø
                                /
                                        .EJECT
```

```
     05000                              .LOC MTEXER
                              /TC59 RANDOM EXERCISER
                              /TEST ACTIVE AND WAITING NOT WAITING
                              /AND TEST INACTIVE
                              /MTACTV=LAW-1 IS WAITING=0 IS INACTIVE ANY OTHER IS NOT WAIT
     05000     405000         MTAREX    XCT .
     05001     207332                   LAC MTACTV          /GET TEST ACTIVE
     05002     740001                   CMA
     05003     741201                   SNA!CMA             /WAITING FOR INTERRUPT
     05004     605011                   JMP TESHNG
     05005     741200                   SNA
     05006     605051                   JMP TSXTRA
     05007     140144                   DZM DEVHNG
     05010     627332                   JMP* MTACTV         /NO START OPERATION
     05011     700002         TESHNG    IOF                 /DISABLE INT
     05012     220126                   LAC* TTYFLG                   /GET TELETYPE BUSY
     05013     700042                   ION                 /ENABLE INT
     05014     707321                   MTCR                /IS CONTROL RDY
     05015     625000                   JMP* MTAREX                   /NO WAITING OK
     05016     740200                   SZA                 /IF COUNTROL READY
     05017     625000                   JMP* MTAREX                   /TTY BUSY OK
     05020     207375                   LAC HNGCTR
     05021     740200                   SZA
     05022     605025                   JMP .+3
     05023     777760                   LAW -20
     05024     047375                   DAC HNGCTR
     05025     447375                   ISZ HNGCTR
     05026     625000                   JMP* MTAREX
     05027     207750                   LAC (MTACTV+1       /TO JUST CLR
     05030     047364                   DAC MTAPRO          /IN CASE INTR
     05031     777777                   LAW -1              /TAPE CHANNEL
     05032     060126                   DAC* TTYFLG                   /MUST BE HUNG
     05033     047332                   DAC MTACTV
     05034     206053                   LAC HNGTEX
     05035     120100         HNGTYP    JMS* TYPTEX                   /TYPE CONTROL HUNG
     05036     625000                   JMP* MTAREX                   /EXIT FIRST CHAR GOING OUT
     05037     205042                   LAC .+3
     05040     047332                   DAC MTACTV
     05041     620130                   JMP* TTYDIS
     05042     005043                   .+1
     05043     107400                   JMS TYPDRV                    /TYPE DRIVE ETC
     05044     207751         SDEXIT    LAC (REWALL
     05045     047332                   DAC MTACTV
     05046     160126                   DZM* TTYFLG
     05047     105712                   JMS RSFDRV
     05050     620130                   JMP* TTYDIS
                              /
                                        .EJECT
```

```
    Ø5Ø51       447343          TSYTRA     ISZ UNEXPC                              /TEST UNEXPECTED TAPE FLAG
    Ø5Ø52       6Ø5Ø7Ø                     JMP MTASFL-3          /NONE RECD OK
    Ø5Ø53       22Ø126                     LAC* TTYFLG                             /GET IT ACTY
    Ø5Ø54       7412ØØ                     SNA                   /IS IT
    Ø5Ø55       6Ø5Ø61                     JMP .+4               /NO START TYPEOUT
    Ø5Ø56       777777                     LAW -1
    Ø5Ø57       Ø47343                     DAC UNEXPC                              /RESET UNEXPECTED INT
    Ø5Ø6Ø       625ØØØ                     JMP* MTAREX                             /EXIT WAIT TYPEOUT DONE
    Ø5Ø61       777777                     LAW -1
    Ø5Ø62       Ø47332                     DAC MTACTV                              /SET  APE AND TELETYPE ACTV
    Ø5Ø63       Ø6Ø126                     DAC* TTYFLG
    Ø5Ø64       207342                     LAC XTRAFL                              /GET EXTRA STATUS
    Ø5Ø65       Ø47444                     DAC MTSTAT                              /FOR TYPEOUT
    Ø5Ø66       2Ø6Ø66                     LAC UNXTEX
    Ø5Ø67       6Ø5Ø35                     JMP HNGTYP
    Ø5Ø7Ø       147343                     DZM UNFXPC
    Ø5Ø71       147375                     DZM HNGCTR
    Ø5Ø72       14Ø144                     DZM DEVHNG
                                /
                                           .EJECT
```

```
                              /TC59 RANDOM EXERCISER MAGTAPE TEST
                              /RANDOM SELECT DRIVE ROUTINE
                              /
   05073    020107            MTASEL    CAL* RANNUM         /GET RANDOM NUMBER
   05074    507752                      AND (7              /MASK DRIVE SELECTION
   05075    045711                      DAC RDRIVE          /SAVE RANDOM DRIVE
   05076    105712                      JMS RSEDRV          /RESET SELECT TO LOWEST
   05077    205706                      LAC CDRIVE
   05100    545711                      SAD RDRIVE          /DOES DRIVE EXIST
   05101    605105                      JMP .+4             /YES
   05102    105732                      JMS CHGDRV          /GET NEXT DRIVE SELECT
   05103    605077                      JMP MTASEL+4        /SEE IF IT = RANDOM
   05104    605073                      JMP MTASEL          /DRIVE DOESNT EXIST TRY NEW
   05105    105662                      JMS MVOR10
   05106    107120                      JMS DRVSET          /SET UP DRIVE PTRS
   05107    227143                      LAC* DRACTV         /GET DRIVE ACTIVE
   05110    046427                      DAC ACTVJM
   05111    740200                      SZA                 /ALREADY DOING SOMETHING
   05112    626427                      JMP* ACTVJM         /YES TRY TO FINISH
   05113    205127            SEQSEL    LAC SEQTBL
   05114    040010                      DAC 10              /SET UP FOR EXECUTE
   05115    000107                      CAL RANNUM                 /GET RAN NUMBER
   05116    507753                      AND (7777           /MAKE IT +
   05117    347754                      TAD (-144           /-100 UNTIL - NUMBER
   05120    740100                      SMA
   05121    605117                      JMP .-2
   05122    347755                      TAD (12             /+10
   05123    740100                      SMA                 /NUM GO + YET
   05124    420010                      XCT* 10             /YES TEST VALID SELECT
   05125    440010                      ISZ 10
   05126    605122                      JMP .-4
                              /5 OUT OF 10 ARE WRITE SELECTIONS
   05127    005127            SEQTBL    SEQTBL              /THE OTHER 5 BECOME
   05130    605234                      JMP WRTVAL                 /BACKSPACE SELECT IF READ NOT
   05131    605361                      JMP REDVAL                 /AFTER BACKSPACE
   05132    606317                      JMP BK1VAL                 /HAS BEEN PERFORMED
   05133    605234                      JMP WRTVAL                 /THE 5 WRITE SELECTIONS
   05134    605234                      JMP WRTVAL                 /BECOME READ SELECTS
   05135    606317                      JMP BK1VAL
   05136    605234                      JMP WRTVAL
   05137    605361                      JMP REDVAL
   05140    605234                      JMP WRTVAL
   05141    606317                      JMP BK1VAL
                              /
                                        .EJECT
```

```
                                   /REWIND ALL DRIVES START OF TEST ROUTINE
      Ø5142      1Ø712Ø            REWALL    JMS DRVSET             /SET UP DRIVE TABLES
      Ø5143      2Ø7756                      LAC (1ØØØ              /REWIND
      Ø5144      34571Ø                      TAD FDRIVE             /+ DRIVE NUMBER
      Ø5145      7Ø7321                      MTCR
      Ø5146      6Ø5145                      JMP .-1
      Ø5147      7Ø7326                      MTLC
      Ø515Ø      7Ø73Ø4                      MTGO                   /START REWIND
      Ø5151      20516Ø                      LAC REWRET             /TO TEST REWIND DONE
      Ø5152      Ø67143                      DAC* DRACTV            /SET DRIVE IS ACTIVE
      Ø5153      1Ø5222                      JMS REWCLR
      Ø5154      1Ø5732                      JMS CHGDRV             /ANY MORE DRIVES
      Ø5155      625ØØØ                      JMP* MTAREX            /YES DO NEXT AT ENTER
      Ø5156      147332                      DZM MTACTV             /DONE ALL CLR PROG ACTIVE
      Ø5157      625ØØØ                      JMP* MTAREX            /EXIT
                                   /DRIVE HAS BEEN RANDOMLY SELECTED SEE IF REWOUND
      Ø516Ø      ØØ5161            REWRET    .+1
      Ø5161      7Ø7321                      MTCR                   /WAIT CONTROL
      Ø5162      6Ø5161                      JMP .-1
      Ø5163      2Ø571Ø                      LAC FDRIVE
      Ø5164      7Ø7326                      MTLC                   /LOAD DRIVE NUMBER
      Ø5165      74ØØØØ                      NOP
      Ø5166      7Ø73Ø1                      MTTR                   /TAPE READY IS REWOUND
      Ø5167      625ØØØ                      JMP* MTAREX            /NOT READY EXIT
      Ø517Ø      7Ø7352                      MTRS                   /GET STAT
      Ø5171      5Ø7757                      AND (1ØØØØØ                      /MASK BOT
      Ø5172      7412ØØ                      SNA                              /SHD=1
      Ø5173      6Ø52ØØ                      JMP .+5                          /BUT DOESNT
      Ø5174      2Ø776Ø                      LAC (WRTVAL
      Ø5175      Ø67143                      DAC* DRACTV
      Ø5176      1Ø5222                      JMS REWCLR
      Ø5177      625ØØØ                      JMP* MTAREX
                                   /
                                             .EJECT
```

```
                                           /DRIVE SHD BE AT BOT BUT ISNT
     Ø52ØØ      2Ø52Ø3                     REWERR     LAC .+3
     Ø52Ø1      Ø47332                                DAC MTACTV           /SET NON INT RETU
     Ø52Ø2      741ØØØ                                SKP                  /IF TYPEOUT IS ACTV
     Ø52Ø3      ØØ52Ø4                                .+1
     Ø52Ø4      22Ø126                                LAC* TTYFLG
     Ø52Ø5      74Ø2ØØ                                SZA                  /TTY BUSY
     Ø52Ø6      625ØØØ                                JMP* MTAREX          /YES EXIT
     Ø52Ø7      777777                                LAW -1
     Ø521Ø      Ø47332                                DAC MTACTV           /SET TAPE ACTIVE
     Ø5211      Ø6Ø126                                DAC* TTYFLG          /AND TTY ACTIVE
     Ø5212      1Ø74ØØ                                JMS TYPDRV
     Ø5213      2Ø7516                                LAC BOTTEX
     Ø5214      12Ø1ØØ                                JMS* TYPTEX          /TYPE BOT SJD=1
     Ø5215      62Ø13Ø                                JMP* TTYDIS
     Ø5216      2Ø7761                                LAC (ERRREW          /REWIND DRIVE
     Ø5217      Ø47332                                DAC MTACTV
     Ø522Ø      16Ø126                                DZM* TTYFLG
     Ø5221      62Ø13Ø                                JMP* TTYDIS
                                           /CLEAR RECORD AND POSITION TABLES
     Ø5222      4Ø5222                     REWCLR     XCT .
     Ø5223      777767                                LAW -TABLEK+1                 /GET COUNT
     Ø5224      Ø4ØØ1Ø                                DAC 1Ø
     Ø5225      2Ø7762                                LAC (DZM* FILPOS)    /GET CLR INST
     Ø5226      Ø45227                                DAC .+1                       /FOR EXT
     Ø5227      167144                                DZM* FILPOS                   /CLR 1 LOCATION
     Ø523Ø      445227                                ISZ .-1                       /STEP TO DO NEXT
     Ø5231      44ØØ1Ø                                ISZ 1Ø                        /DONE ALL
     Ø5232      6Ø5227                                JMP .-3                       /NO
     Ø5233      625222                                JMP* REWCLR                   /YES EXIT CLR
                                           /
                                                      .EJECT
```

```
                                   /RANDOM NUMBER SAID WRITE
                                   /SEE IF TAPE IS IN VALID POSITION
      Ø5234      227145            WRTVAL     LAC* RECPOS
      Ø5235      74Ø2ØØ                       SZA                  /AT A RECORD Ø
      Ø5236      6Ø5361                       JMP REDVAL                    /NO NOT IN WRITE POSITION
      Ø5237      227146                       LAC* FILWRT
      Ø524Ø      7412ØØ                       SNA                  /AT FILE Ø
      Ø5241      6Ø526Ø                       JMP WRTNEW           /DRV NEVER WRITTEN ON
      Ø5242      567144                       SAD* FILPOS          /POSITION SAME AS LAST
      Ø5243      741ØØØ                       SKP                  /YES OK TO WRITE
      Ø5244      6Ø5361                       JMP REDVAL           /NOT WRITE POSITION SELECT OTHER
      Ø5245      227153                       LAC* FILFK
      Ø5246      7412ØØ                       SNA
      Ø5247      6Ø526Ø                       JMP WRTNEW           /SELECT NEW FILE SEQUENCE
      Ø525Ø      12Ø1Ø7                       JMS* RANNUM
                                   /
      Ø5251      5Ø7763            SELMOD     AND (6ØØØ            /AC=Ø NOW IS NONSTOP
      Ø5252      74Ø2ØØ                       SZA                  /WRITE NONSTOP
      Ø5253      2Ø5374                       LAC WRSSTP           /START STOP SELECTED
      Ø5254      7412ØØ                       SNA
      Ø5255      2Ø5416                       LAC WRNSTP           /NONSTOP SELECTED
      Ø5256      Ø67143                       DAC* DRACTV          /SET INTO DRIVE ACTIVE
      Ø5257      625ØØØ                       JMP* MTAREX          /EXIT START OR NEXT SELECT
      Ø526Ø      12Ø1Ø7            WRTNEW     JMS* RANNUM          /GET RANDOM
      Ø5261      5Ø7764                       AND (4Ø3ØØ           /MASK PARITY AND DENSITY
      Ø5262      Ø67152                       DAC* PARDEN          /SAVE SELECTION
      Ø5263      5Ø7765                       AND (3ØØ             /MASK DENSITY
      Ø5264      547765                       SAD (3ØØ             /8ØØ BPI NINE TRK
      Ø5265      6Ø5467                       JMP NINTRK           /YES SEE IF DRIVE IS
      Ø5266      2Ø57Ø7                       LAC CDRVBT
      Ø5267      5Ø57Ø5                       AND MSBITS
      Ø527Ø      2457Ø7                       XOR CDRVBT
      Ø5271      7412ØØ                       SNA
      Ø5272      6Ø5467                       JMP NINTRK
      Ø5273      75ØØØ4                       LAS                  /GET SWS
      Ø5274      5Ø7766                       AND (7ØØØ            /MASK PAR DEN SELECT
      Ø5275      74Ø2ØØ                       SZA                  /FORCE SELECTED
      Ø5276      1Ø5446                       JMS SWSPAR           /YES CONVERT SWS TO PAR DEN
                                   /
                                              .EJECT
```

```
                                /
                                /GENERATE 7 WORDS OF PATTERN
                                /FOR 7 CHANNEL TAPE OR 9 CHAN CORE DUMP
        05277   777771          CDPATR  LAW -7
        05300   040010                  DAC 10
        05301   777777                  LAW -1
        05302   347154                  TAD PATTBL
        05303   040011                  DAC 11
        05304   227152                  LAC* PARDEN
        05305   507767                  AND (40000
        05306   740200                  SZA
        05307   207770                  LAC (NOP
        05310   741200                  SNA
        05311   207771                  LAC (SKP
        05312   045315                  DAC EVNCHK
        05313   020107          GTPWRD  CAL* RANNUM
        05314   040012                  DAC 12
        05315   741000          EVNCHK  SKP!NOP             /SKP EVEN PAR NOP FOR ODD
        05316   605333                  JMP KEEPIT          /ODD PARITY ALL VALID
        05317   507772                  AND (770000         /EVEN PARITY 00 INVALID
        05320   741200                  SNA
        05321   605313                  JMP GTPWRD          /DONT KEEP A00XXXX
        05322   200012                  LAC 12
        05323   507773                  AND (7700
        05324   741200                  SNA
        05325   605313                  JMP GTPWRD          /DONT KEEP XX00XX
        05326   200012                  LAC 12
        05327   507774                  AND (77
        05330   741200                  SNA
        05331   605313                  JMP GTPWRD          /DONT KEEP XXXX00
        05332   200012                  LAC 12
        05333   060011          KEEPIT  DAC* 11             /PATERN WORD VALID KEEP IT
        05334   440010                  ISZ 10              /GOT 7
        05335   605313                  JMP GTPWRD          /NO GET NEXT
                                /
                                /HAVE PARITY DENSITY AND PATTERN
                                /NOW SELECT FILE LENGHT
        05336   120107          FILSEL  JMS* RANNUM
        05337   507774                  AND (77             /6 TO
        05340   067150                  DAC* FILFTH         /63 RECORDS
        05341   347775                  TAD (-6             /PER FILE
        05342   741100                  SPA                 /GRTR THAN 6
        05343   605336                  JMP FILSFL          /NO TRY AGAIN
        05344   227146                  LAC* FILWRT
                                /
                                        .EJECT
                                /NOW SELECT RECORD LENGTH
                                /24 CHAR TO 2000 WORDS
   05345     067151                     DAC* FRSFIL          /INDICATE FIRST FILE THIS SEQ
   05346     000107                     CAL RANNUM
   05347     507776                     AND (1777
   05350     067147                     DAC* RECLEN
   05351     347777                     TAD (-11
   05352     741100                     SPA
   05353     605346                     JMP .-5
   05354     120107                     JMS* RANNUM
   05355     507752                     AND (7
   05356     067153                     DAC* FILEK                      /SELECT 1 TO 6 FILES
   05357     020107                     CAL* RANNUM
   05360     605251                     JMP SELMOD
                                /
                                /RANDOM NUMBER SAID READ
                                /SEE IF TAPE IS IN VALID READ POSITION
   05361     227144             REDVAL  LAC* FILPOS
   05362     567146                     SAD* FILWRT          /FILE POSITION AT END
   05363     606317                     JMP BK1VAL           /YES READ NOT VALID SELECT
   05364     120107                     JMS* RANNUM
   05365     510000                     AND (3
   05366     740200                     SZA                  /START STOP MODE
   05367     206105                     LAC RDSSTP           /YES
   05370     741200                     SNA                  /OR NONSTOP
   05371     206153                     LAC RDNSTP           /YES NONSTOP
   05372     067143                     DAC* DRACTV
   05373     625000                     JMP* MTAREX
                                /
                                /WRITE RECORDS START STOP ROUTINE
   05374     005375             WRSSTP  .+1
   05375     227145                     LAC* RECPOS
   05376     567150                     SAD* FILETH          /FILE OF RECORDS COMPLETE
   05377     606446                     JMP WRTEOF           /YES WRITE AN EOF
   05400     777773                     LAW -5
   05401     046611                     DAC WRITEK
   05402     107651                     JMS GENPAT           /NO GENERATE DATA PATTERN
   05403     227147                     LAC* RECLEN
   05404     045410                     DAC WSSWRD           /SET RECORD LENGTH
   05405     207115                     LAC WRTXTN
   05406     107166                     JMS GOASSM           /ASSEMBLE COMMAND
   05407     004400                     4400                 /WRITE + PAR DENS DRIVE
   05410     000000             WSSWRD  0                    /NUM WORDS
   05411     014000                     WRBUFR               /STARTING HERE
   05412     106505                     JMS TESEOT.     .    /RETU FF=1 SEE IF EOF
   05413     467145                     ISZ* RECPOS          /+1 RECORD POSITION
   05414     147332                     DZM MTACTV
   05415     607333                     JMP MTACTV+1
                                /
                                        .EJECT
                                        /WRITE RECORDS NON STOP ROUTINE
    Ø5416       ØØ5417                  WRNSTP      .+1
    Ø5417       1Ø7651                              JMS GENPAT          /GENERATE PATTERN
    Ø542Ø       227147                              LAC* RECLEN
    Ø5421       Ø4543Ø                              DAC WNSWD1          /FOR WORD COUNT LOC
    Ø5422       Ø45442                              DAC WNSWD2          /AND SAME TAPE STARTED
    Ø5423       777773                              LAW -5
    Ø5424       Ø46611                              DAC WRITEK
    Ø5425       2Ø7115                              LAC WRTXTN
    Ø5426       1Ø7166                              JMS GOASSM          /ASSEMBLE COMMAND START
    Ø5427       ØØ44ØØ                              44ØØ
    Ø543Ø       ØØØØØØ                  WNSWD1      Ø
    Ø5431       Ø14ØØØ                              WRBUFR
    Ø5432       1Ø65Ø5                              JMS TESEOT          /EF=1 TEST EOT
    Ø5433       467145                              ISZ* RECPOS         /+1 RECORD POSITION
    Ø5434       227145                              LAC* RECPOS
    Ø5435       56715Ø                              SAD* FILETH         /WRITE FILE COMPLETE
    Ø5436       6Ø6476                              JMP WREOF1          /YES WRITE EOF NONSTP
    Ø5437       2Ø7115                              LAC WRTXTN
    Ø544Ø       1Ø7272                              JMS GONSTP          /LCM AND GO NONSTP
    Ø5441       ØØ4ØØØ                              4ØØØ
    Ø5442       ØØØØØØ                  WNSWD2      Ø
    Ø5443       Ø14ØØØ                              WRBUFR
    Ø5444       1Ø65Ø5                              JMS TESEOT          /EF=1 SEE IF EOT
    Ø5445       6Ø5433                              JMP WNSWD1+3        /TEST FOR LAST RECORD
                                        /
                                                    .EJECT
                                        /SWITCHES 6-7 AND 8 INDICATE FORCE PARITY AND DENSITY
    Ø5446      6Ø5446                   SWSPAR      JMP  .
    Ø5447      547756                               SAD  (1ØØØ             /2ØØ BPI EVEN
    Ø5450      75ØØØØ                               CLA                    /YES
    Ø5451      55ØØØ1                               SAD  (2ØØØ             /556 BRI EVEN
    Ø5452      21ØØØ2                               LAC  (1ØØ              /YES
    Ø5453      55ØØØ3                               SAD  (3ØØØ             /8ØØ BPI EVEN
    Ø5454      21ØØØ4                               LAC  (2ØØ              /YES
    Ø5455      55ØØØ5                               SAD  (4ØØØ             /2ØØ BPI EVEN
    Ø5456      75ØØØØ                               CLA                    /YES
    Ø5457      55ØØØ6                               SAD  (5ØØØ             /2ØØ BPI ODD
    Ø546Ø      2Ø7767                               LAC  (4ØØØØ                    /YES
    Ø5461      547763                               SAD  (6ØØØ             /556 BPI ODD
    Ø5462      21ØØØ7                               LAC  (4Ø1ØØ            /YES
    Ø5463      547766                               SAD  (7ØØØ             /8ØØ BPI ODD
    Ø5464      21ØØ1Ø                               LAC  (4Ø2ØØ            /YES
    Ø5465      Ø67152                               DAC* PARDEN            /STORE SW SEL PAR AND DEN
    Ø5466      625446                               JMP* SWSPAR            /EXIT
                                        /
                                                    .EJECT
```

```
                                    /SET UP NINE TRACK NEW PATTERN SELECTION
     05467      205707              NINTRK    LAC CDRVRT             /GET THIS OR SELECT BITS
     05470      505705                        AND MSBITS             /CLEAR WITH MASTER SELECT
     05471      245707                        XOR CDRVRT             /XOR SEL BIT AND 9 TRK BIT
     05472      740200                        SZA                    /IF AC=0 DRV IS 9 TRK
     05473      605260                        JMP WRTNEW             /7 TRACK DRV TRY NEW PAR DN
     05474      000107                        CAL RANNUM             /GET RANDOM
     05475      510011                        AND (20000             /MASK CORD DUMP BIT
     05476      347764                        TAD (40300             /+ ODD PAR 800 BPI 9 TRK
     05477      067152                        DAC* PARDEN            /TO PARDEN CONTROL
     05500      510011                        AND (20000
     05501      740200                        SZA                    /CORE DUMP MODE SELECTED
     05502      605277                        JMP CDPATR             /YES DO A 7 TRK PATTERN
     05503      777771                        LAW -7
     05504      040010                        DAC 10
     05505      777777                        LAW -1
     05506      347154                        TAD PATTBL
     05507      040011                        DAC 11
     05510      020107              NEW9WD    CAL* RANNUM            /GET RANDOM DATA
     05511      510012                        AND (177777            /16 BITS=2 CHAR
     05512      040012                        DAC 12                 /SAVE TO GET PARITY
     05513      510013                        AND (377               /MASK LOWER 8
     05514      105530                        JMS LINKPB             /GET LINK=PARITY
     05515      742020                        RTR                    /1 IS CHAR EVEN 0 IS CHAR ODD
     05516      340012                        TAD 12                 /+ DATA BITS
     05517      040012                        DAC 12                 /SAVE GOT 1 PARITY
     05520      510014                        AND (177400            /MASK 2ND 8 BIT CHAR
     05521      105530                        JMS LINKPB             /GET PAR IN LINK
     05522      740020                        RAR                    /LINK=1 IS CHAR EVEN 0 IS ODD
     05523      340012                        TAD 12                 /+ DATA AND FIRST PARITY
     05524      060011                        DAC* 11                /STORE 1 9 TRK PAT WRD
     05525      440010                        ISZ 10                 /GOT 7
     05526      605510                        JMP NEW9WD             /NO GO GET 1 MORE
     05527      605336                        JMP FILSEL             /SELECT FILE AND RECRD LENGTH
                                    /
                                              .EJECT
```

```
                                 /CALCULATE CHARACTER PARITY SURROUTINE
    Ø5530      6Ø553Ø            LINKPB     JMP .
    Ø5531      145543                       DZM NINPAR               /CLR BIT COUNT
    Ø5532      744Ø2Ø                       RCR                      /MOVE 1 BIT INTO LINK
    Ø5533      7414ØØ                       SZL                      /=Ø
    Ø5534      445543                       ISZ NINPAR               /NO +1 NUMBER BITS
    Ø5535      74Ø2ØØ                       SZA                      /DONE ALL BITS
    Ø5536      6Ø5532                       JMP LINKPB+2             /NO AT LEAST 1 LEFT
    Ø5537      2Ø5543                       LAC NINPAR               /GET NUMBER BITS
    Ø554Ø      74ØØ2Ø                       RAR                      /L=1 ODD L=Ø EVEN BITS
    Ø5541      75ØØØ2                       CML!CLA                  /LINK=PAR BIT AC=Ø
    Ø5542      62553Ø                       JMP* LINKPB              /EXIT
    Ø5543      ØØØØØØ            NINPAR     Ø
                                 /TAPE 2 MAGREX
                                 /TC59 RANDOM EXERCISER
                                 /PARAMETER LOAD ROUTINE
    Ø5544      4Ø5544            GPARAM     XCT .
    Ø5545      22Ø126                       LAC* TTYFLG
    Ø5546      74Ø2ØØ                       SZA                      /TELETYPE BUSY
    Ø5547      6Ø5545                       JMP .-2                  /WAIT
    Ø555Ø      777777                       LAW -1
    Ø5551      Ø6Ø126                       DAC* TTYFLG              /SET TELETYPE BUSY
    Ø5552      Ø47332                       DAC MTACTV               /AND TAPE TEST ACTIVE
    Ø5553      1457Ø5                       DZM MSBITS               /CLR PREVIOUS SELECTIONS
    Ø5554      2Ø5755                       LAC SELTEX
    Ø5555      12Ø1ØØ                       JMS* TYPTEX              /TYPE SELECT TEXT
    Ø5556      625544                       JMP* GPARAM              /EXIT FIRST CHAR STARTED OUT
    Ø5557      12Ø1Ø6            GTFRSD     JMS* WKYBD               /TEXT DONE WAIT INPUT
    Ø556Ø      62Ø13Ø                       JMP* TTYDIS              /DISMISS PRTR FLG
    Ø5561      Ø457Ø6                       DAC CDRIVE               /SAVE CHARACTER
    Ø5562      51ØØ15                       AND (37Ø
    Ø5563      55ØØ16                       SAD (26Ø                 /CHARACTER=Ø TO 7
    Ø5564      6Ø562Ø                       JMP VLDDRV               /YES IS DRIVE NUMBER
    Ø5565      2Ø57Ø6                       LAC CDRIVE               /IN NOT NUMBER MUST=CR
    Ø5566      55ØØ17                       SAD (215                 /CAR RET
    Ø5567      6Ø5574                       JMP .+5                  /YES END OF SELECT
    Ø557Ø      2Ø5772            QUESTN     LAC TYQUES               /IVALID CHARACTER OR TRK
    Ø5571      12Ø1ØØ                       JMS* TYPTEX              /OR CAR RET NO DRIVES
    Ø5572      62Ø132                       JMP* LSTKEY              /DISMISS KYBD
    Ø5573      6Ø5557                       JMP GTFRSD               /WAIT NEXT CHARACTER
    Ø5574      2Ø57Ø5                       LAC MSBITS               /CHARACTER WAS CAR RET
    Ø5575      7412ØØ                       SNA                      /ANY DRVS SELECTED
    Ø5576      6Ø557Ø                       JMP .-6                  /NO TYPE A QUESTION
    Ø5577      16Ø126                       DZM* TTYFLG                        /END OF SELECTION
    Ø56ØØ      207751                       LAC (REWALL              /CLR PTR ACTIVE
    Ø56Ø1      Ø47332                       DAC MTACTV               /SET MAG TAPE INACTIVE
    Ø56Ø2      1Ø5712                       JMS RSFDRV               /TO REWIND ALL
    Ø56Ø3      2Ø7344                       LAC MTAINT
    Ø56Ø4      Ø6Ø133                       DAC* DFVINT
    Ø56Ø5      2ØØ112                       LAC APIENA               /IS API ON
    Ø56Ø6      74Ø1ØØ                       SMA
    Ø56Ø7      6Ø5615                       JMP .+6                  /NO API
    Ø561Ø      2Ø777Ø                       LAC (NOP
    Ø5611      Ø47345                       DAC MTAINT+1             /NOP MAGTAPE SKIP
    Ø5612      21ØØ21                       LAC (JMS MTAPI
      05613    040045                       DAC APIADR        /SET UP API INTERRUPT
      05614    620132                       JMP* LSTKEY       /DISMISS CAR RETU
      05615    210022                       LAC (MTSF /NO API SO
      05616    047345                       DAC MTAINT+1      /SET UP MTSF FOR PIC
      05617    620132                       JMP* LSTKEY
                              /
                                            .EJECT
```

```
                        /CHARACTER INPUT WAS A DRIVE NUMBER Ø TO 7
    Ø562Ø   2Ø57Ø6      VLDDRV    LAC CDRIVE
    Ø5621   5Ø7752                AND (7              /MASK DRIVE NUMBER
    Ø5622   Ø457Ø6                DAC CDRIVE          /AND SAVE IT
    Ø5623   74ØØØ1                CMA                 /MAKE -
    Ø5624   Ø4571Ø                DAC FDRIVE
    Ø5625   21ØØ23                LAC (4ØØØØØ         /BIT FOR DRIVE Ø
    Ø5626   44571Ø                ISZ FDRIVE          /BIT POSITIONED
    Ø5627   741ØØØ                SKP                 /NO MOVE IT 1 PLACE
    Ø563Ø   6Ø5633                JMP .+3             /BIT IN POSITION
    Ø5631   744Ø2Ø                RCR                 /POSITION FOR NEXT DRV
    Ø5632   6Ø5626                JMP .-4             /COUNT NUMBER AGAIN
    Ø5633   Ø457Ø7                DAC CDRVBT          /SAVE POSITIONED BIT
    Ø5634   5Ø57Ø5                AND MSBITS          /MASK SELECT BITS
    Ø5635   7402ØØ                SZA                 /DRIVE ALREADY SELECTED
    Ø5636   6Ø5675                JMP DRDELE          /YES DELETE IT
    Ø5637   2Ø6ØØ7                LAC SP3TEX
    Ø564Ø   12Ø1ØØ                JMS* TYPTEX         /SPACE OVER 3
    Ø5641   62Ø132                JMP* LSTKEY         /DISMISS KBD FLAG
    Ø5642   12Ø1Ø6      SELTRK    JMS* WKYBD          /WAIT FOR TRACK SELECT
    Ø5643   62Ø13Ø                JMP* TTYDIS         /DISSMISS 3RD SPACE
    Ø5644   Ø4571Ø                DAC FDRIVE          /SAVE TRACK SELECT
    Ø5645   55ØØ24                SAD (267            /SEVEN
    Ø5646   6Ø5653                JMP SVNTRK          /YES JUST DRIVE BIT
    Ø5647   55ØØ25                SAD (271            /NINE
    Ø565Ø   741ØØØ                SKP                 /YES
    Ø5651   6Ø557Ø                JMP QUESTN          /NOT 7 OR 9 TYPE QUESTION
    Ø5652   1Ø5662                JMS MVOR1Ø          /GET DRIVE SELECT
    Ø5653   2Ø57Ø5      SVNTRK    LAC MSBITS          /GET MASTER SELECT
    Ø5654   2457Ø7                XOR CDRVBT          /COMBINE WITHDRV SELECT
    Ø5655   Ø457Ø5                DAC MSBITS          /STORE COMBINED
    Ø5656   2Ø5775                LAC NEXTEX
    Ø5657   12Ø1ØØ                JMS* TYPTEX         /CAR RET LF SPACE
    Ø566Ø   62Ø131                JMP* KBDDIS         /DISMISS KBD FLAG
    Ø5661   6Ø5557                JMP GTFRSD          /WAIT NEXT DRIVE NUM
    Ø5662   6Ø5662      MVOR1Ø    JMP .
    Ø5663   2Ø57Ø7                LAC CDRVBT          /MOVE DRIVE COMPARE
    Ø5664   744Ø2Ø                RCR;      RTR;      RTR       /MOVE 1Ø PLACES
    Ø5665   742Ø2Ø
    Ø5666   742Ø2Ø
    Ø5667   742Ø2Ø                RTR;      RTR;      RAR       /TO GET TRACK SELECT
    Ø567Ø   742Ø2Ø
    Ø5671   74ØØ2Ø
    Ø5672   2457Ø7                XOR CDRVBT          /COMBINE BITS
    Ø5673   Ø457Ø7                DAC CDRVBT          /SAVE THEM
    Ø5674   625662                JMP* MVOR1Ø         /EXIT
                        /
                                  .EJECT
```

```
     Ø5675     1Ø5662        DRDELE    JMS MVDR1Ø          /COMBINE DRV AND TRACK
     Ø5676     74ØØØ1                  CMA                 /MAKE 1'S COMP
     Ø5677     5Ø57Ø5                  AND MSBITS          /MSK OUT THIS DRIVE
     Ø57ØØ     Ø457Ø5                  DAC MSBITS          /SAVE OTHE SELECTIONS
     Ø57Ø1     2Ø6ØØØ                  LAC TYDELE
     Ø57Ø2     12Ø1ØØ                  JMS* TYPTEX         /TYPE DELETED
     Ø57Ø3     62Ø132                  JMP* LSTKEY         /DISMISS KBD FLAG
     Ø57Ø4     6Ø5557                  JMP GTFRSD          /GET NEXT DRIVE
     Ø57Ø5     ØØØØØØ        MSBITS        Ø
     Ø57Ø6     ØØØØØØ        CDRIVE        Ø
     Ø57Ø7     ØØØØØØ        CDRVBT        Ø
     Ø571Ø     ØØØØØØ        FDRIVE        Ø
     Ø5711     ØØØØØØ        RDRIVE    Ø
                             /
                                       .EJECT
```

```
                                /
                                /RESET DRIVE SELECTION TO LOWEST DRIVE NUMBER
     05712      605712          RSFDRV    JMP .
     05713      145706                    DZM CDRIVE            /START WITH 0
     05714      210023                    LAC (400000           /BIT FOR 0
     05715      045707                    DAC CDRVBT            /SAVE IT
     05716      505705                    AND MSBITS            /MASK WITH DRVS SELECTED
     05717      744200                    SZA!CLL               /DRIVE EXIST
     05720      605725                    JMP .+5               /YES
     05721      445706                    ISZ CDRIVE            /+1 DRV NUMBER
     05722      205707                    LAC CDRVBT
     05723      744020                    RCR                   /MOVE BIT OVER 1
     05724      605715                    JMP RSFDRV+3          /TRY AGAIN
     05725      205706                    LAC CDRIVE            /GET DRIVE NUMBER
     05726      742020                    RTR                   /POSITION IN
     05727      742020                    RTR                   /SELECT SLOT FOR
     05730      045710                    DAC FDRIVE            /MAGTAPE FUNCTIONS
     05731      625712                    JMP* RSFDRV
                                /
                                /SELECT NEXT DRIVE IN SEQUENCE
                                /+1 EXIT ADDRESS IF LAST DRIVE TESTED
     05732      605732          CHGDRV    JMP .
     05733      205707                    LAC CDRVBT            /GET MASK BIT
     05734      744020                    RCR                   /MOVE OVER 1
     05735      445706                    ISZ CDRIVE            /+1 DRIVE NUMBER
     05736      510026                    AND (776000           /MASK OF 8 BITS
     05737      740200                    SZA                   /END OF 8 DRIVES
     05740      605744                    JMP .+4               /NO SEE  IF DRV EXISTS
     05741      105712                    JMS RSFDRV            /RESET TO FIRST SELECTED
     05742      445732                    ISZ CHGDRV            /+1 EXIT END OF DRIVES
     05743      625732                    JMP* CHGDRV           /EXIT
     05744      045707                    DAC CDRVBT            /SAVE CUR BIT
     05745      505705                    AND MSBITS            /MASK DRIVES SELECTED
     05746      745200                    SNA!CLL               /DRIVE EXIST
     05747      605733                    JMP CHGDRV+1          /NO SEE IF NEXT EXISTS
     05750      205706                    LAC CDRIVE            /DRIVE NUMBER
     05751      742020                    RTR                   /POSITION NUMBER
     05752      742020                    RTR                   /TO SELECT POSITION
     05753      045710                    DAC FDRIVE            /FOR MAGTAPE FUNCTIONS
     05754      625732                    JMP* CHGDRV           /EXIT WITHOUT SKIP
                                /
                                          .EJECT
```

```
  Ø5755     ØØ5756          SELTEX        .+1
  Ø5756     Ø64241                   .ASCII <15><12><12>'SELECT DRIVES'<15><12>'DR'
  Ø5757     251612
  Ø5760     462130
  Ø5761     3521ØØ
  Ø5762     422451
  Ø5763     153212
  Ø5764     514321
  Ø5765     242244
  Ø5766     531Ø12                   .ASCII 'V TRK'<15><12><4Ø><177>
  Ø5767     451226
  Ø5770     Ø64244
  Ø5771     Ø774ØØ
  Ø5772     ØØ5773          TYQUES        .+1
  Ø5773     374321                   .ASCII <77><15><12><4Ø><177>
  Ø5774     22Ø376
  Ø5775     ØØ5776          NEXTEX        .+1
  Ø5776     Ø64244                   .ASCII <15><12><4Ø><177>
  Ø5777     Ø774ØØ
  Ø6ØØØ     ØØ6ØØ1          TYDELE        .+1
  Ø6ØØ1     2Ø211Ø                   .ASCII ' DELETED'<15><12><4Ø><177>
  Ø6ØØ2     546212
  Ø6ØØ3     52213Ø
  Ø6ØØ4     4Ø6424
  Ø6ØØ5     2Ø376Ø
  Ø6ØØ6     ØØØØØØ
  Ø6ØØ7     ØØ6Ø1Ø          SP3TEX        .+1
  Ø6Ø1Ø     2Ø1ØØ4                   .ASCII '   '<177>
  Ø6Ø11     Ø774ØØ
                            /
                                     .EJECT
```

```
06012     006013          CRLFLF    .+1
06013     064241                    .ASCII <15><12><12><177>
06014     277400
06015     006016          CRLFTX    .+1
06016     064257                    .ASCII <15><12><177>
06017     700000
06020     006021          SPA2TX    .+1
06021     201017                    .ASCII '  '<177>
06022     700000
06023     006024          EOFTEX    .+1
06024     064250                    .ASCII <15><12>'END OF FILE EXPECTED'<177>
06025     547210
06026     202370
06027     620214
06030     446310
06031     520212
06032     542410
06033     541650
06034     426117
06035     700000
06036     006037          NOEOFX    .+1
06037     064250                    .ASCII <15><12>'END OF FILE NOT EXPECTED'<177>
06040     547210
06041     202370
06042     620214
06043     446310
06044     520234
06045     476504
06046     042660
06047     502130
06050     352212
06051     423760
06052     000000
                          /
                                    .EJECT
```

```
    Ø6Ø53      ØØ6Ø54        HNGTEX        .+1
    Ø6Ø54      Ø64241               .ASCII <15><12><12>'TAPE CONTROL HUNG'<177>
    Ø6Ø55      2522Ø2
    Ø6Ø56      5Ø2124
    Ø6Ø57      Ø41636
    Ø6Ø6Ø      472512
    Ø6Ø61      24763Ø
    Ø6Ø62      2Ø2212
    Ø6Ø63      547216
    Ø6Ø64      774ØØØ
    Ø6Ø65      ØØØØØØ
    Ø6Ø66      ØØ6Ø67        UNXTEX        .+1
    Ø6Ø67      Ø64241               .ASCII <15><12><12>'UNEXPECTED MAG TAPE INTERRUPT'<177>
    Ø6Ø7Ø      252634
    Ø6Ø71      426612
    Ø6Ø72      Ø426Ø6
    Ø6Ø73      52213Ø
    Ø6Ø74      42Ø232
    Ø6Ø75      4Ø6164
    Ø6Ø76      Ø522Ø2
    Ø6Ø77      5Ø2124
    Ø61ØØ      Ø44634
    Ø61Ø1      522132
    Ø61Ø2      251252
    Ø61Ø3      5Ø2517
    Ø61Ø4      7ØØØØØ
                             /
                             /TC59 READ AND BACKSPACE ROUTINES
                             /FOR RANDOM EXERCISER
                             /TAPE 3
                             /READ 1 RECORD START STOP ON DRIVE SELECTED
    Ø61Ø5      ØØ61Ø6        RDSSTP        .+1
    Ø61Ø6      1Ø7Ø73               JMS GTXTND                    /SELECT EXTN
    Ø61Ø7      Ø47116               DAC RDXTND                    /MEM
    Ø611Ø      12Ø1Ø7               JMS* RANNUM
    Ø6111      51ØØ27               AND (14Ø            /IF BOTH
    Ø6112      7412ØØ               SNA                           /BITS=Ø
    Ø6113      6Ø6737               JMP RDCSTP                    /READ COMPARE
    Ø6114      12Ø1Ø7               JMS* RANNUM
    Ø6115      51ØØ3Ø               AND (7Ø             /IF ALL3=Ø
    Ø6116      7412ØØ               SNA
    Ø6117      6Ø7Ø31               JMP BKREAD                    /BACKSPACE RD
    Ø612Ø      51ØØ31               AND (5Ø                       /IF THESE 2
    Ø6121      7412ØØ               SNA                 /=Ø
    Ø6122      6Ø7Ø43               JMP READBK                    /READ BACKSPACE
    Ø6123      227147               LAC* RECLEN
    Ø6124      14643Ø               DZM BLKSRD          /Ø TO NUMBER BLKS RD
    Ø6125      Ø46131               DAC RDWRD /RECORD LENGTH
    Ø6126      2Ø7116               LAC RDXTND
    Ø6127      1Ø7166               JMS GOASSM          /ASSEMBL AND START READ
    Ø613Ø      ØØ24ØØ                   24ØØ
    Ø6131      ØØØØØØ        RDWRD      Ø
    Ø6132      Ø16ØØØ                   RDBUFR
    Ø6133      1Ø6612               JMS RDEOF           /RETU EF=1 TEST EOF=1
    Ø6134      227145               LAC* RECPOS
    Ø6135      56715Ø                       SAD* FILETH         /WAS TAPE AT EOF
    Ø6136      6Ø6263                       JMP RDEOFX          /YES SHD HAVE EF=1
    Ø6137      44643Ø                       ISZ BLKSRD          /1 BLOCK READ
    Ø614Ø      1Ø7332                       JMS MTACTV          /DATA COMPARE NOT IN I MODE
    Ø6141      1Ø7651                       JMS GENPAT          /GENERATE DRIVE PATTERN
    Ø6142      1Ø7525                       JMS CODATA          /COMPARE AGAINST
    Ø6143      Ø16ØØØ                           RDBUFR          /RECORD IN READ BUFFER
    Ø6144      467145                       ISZ* RECPOS         /+1 RECORD POSITION
    Ø6145      147332                       DZM MTACTV          /CLR TAPE PROG ACTIVE
    Ø6146      12Ø1Ø7                       JMS* RANNUM         /GET RAN NUMBER
    Ø6147      5Ø7752                       AND (7              /MASK Ø TO 7
    Ø615Ø      7412ØØ                       SNA                 /KEEP READ STOP SELECT
    Ø6151      167143                       DZM* DRACTV         /NO CLR DRIVE ACTIVE
    Ø6152      625ØØØ                       JMP* MTEXER         /EXIT TAPE TEST
                                /
                                            .EJECT
```

```
                                          /DRIVE SELECTION IS READ NON STOP
     Ø6153      ØØ6154                    RDNSTP        .+1
     Ø6154      1Ø7Ø73                             JMS GTXTND                    /SELECT XTN
     Ø6155      Ø47116                             DAC RDXTND                    /SAVE BANK
     Ø6156      12Ø1Ø7                             JMS* RANNUM
     Ø6157      51ØØ27                             AND (14Ø            /IF BOTH=Ø
     Ø616Ø      7412ØØ                             SNA
     Ø6161      6Ø6756                             JMP RDCNST                    /READ COMPARE
     Ø6162      227147                             LAC* RECLEN
     Ø6163      14643Ø                             DZM BLKSRD          /CLR BLKS READ TO Ø
     Ø6164      Ø46171                             DAC RNSWD1          /SET RECORD LENGTH
     Ø6165      Ø46214                             DAC RNSWD2
     Ø6166      2Ø7116                             LAC RDXTND
     Ø6167      1Ø7166                             JMS GOASSM          /ASSEMBLE READ COMAND GO
     Ø617Ø      ØØ24ØØ                                 24ØØ
     Ø6171      ØØØØØØ                    RNSWD1       Ø
     Ø6172      Ø16ØØØ                                 RDBUFR
     Ø6173      1Ø6612                             JMS RDFOF           /RETURN EF=1 SEE IF EOF
     Ø6174      227145                             LAC* RECPOS
     Ø6175      34643Ø                             TAD BLKSRD
     Ø6176      56715Ø                             SAD* FILETH         /WAS TAPE AT EOF
     Ø6177      6Ø6263                             JMP RDFOFX          /YES SHOULD HAVE EF=1
     Ø62ØØ      44643Ø                             ISZ BLKSRD          /+1 BLOCKS READ
     Ø62Ø1      2ØØØ33                             LAC CALOC
     Ø62Ø2      51ØØ32                             AND (17777                    /MASK FOR END OF BANK
     Ø62Ø3      35ØØ33                             TAD (1              /TO READ NEXT BLOCK
     Ø62Ø4      Ø46215                             DAC RNSWD2+1
     Ø62Ø5      346171                             TAD RNSWD1          /+ RECORD LENGTH
     Ø62Ø6      35ØØ34                             TAD (-2ØØØØ         /-8K
     Ø62Ø7      74Ø1ØØ                             SMA                 /WILL RECORD EXCEED BANK
     Ø621Ø      6Ø622Ø                             JMP RNSALL          /YES STOP NONSTOP READ
     Ø6211      2Ø7116                             LAC RDXTND
                                          /
     Ø6212      1Ø7272                             JMS GONSTP          /MOVE TAPE NEXT BLOCK
     Ø6213      ØØ2ØØØ                                 2ØØØ
     Ø6214      ØØØØØØ                    RNSWD2       Ø
     Ø6215      Ø16ØØØ                                 RDBUFR
     Ø6216      1Ø6612                             JMS RDFOF           /RETURN EF=1 TEST EOF
     Ø6217      6Ø6174                             JMP RNSWD1+3        /NO EF TRY RD NEXT BLOCK
     Ø622Ø      1Ø7332                    RNSALL   JMS MTACTV          /COMPARE NOT IN INRUPT
     Ø6221      1Ø7651                             JMS GENPAT          /RETURN MAGTAPE SELECTED
     Ø6222      21ØØ35                             LAC (RDBUFR
     Ø6223      Ø46225                             DAC RNSCOM          /SET UP COMPARE FIRST RECORD
     Ø6224      1Ø7525                             JMS CODATA          /COMPARE 1 RECORD
                                          /
                                                   .EJECT
```

```
    Ø6225      Ø16ØØØ        RNSCOM        RDBUFR
    Ø6226      467145                    ISZ* RECPOS         /+1 RECORD POSITION
    Ø6227      777777                    LAW -1
    Ø623Ø      34643Ø                    TAD BLKSRD          /BLKSRD -1
    Ø6231      Ø4643Ø                    DAC BLKSRD
    Ø6232      7412ØØ                    SNA                 /COMPARED ALL READ
    Ø6233      6Ø624Ø                    JMP .+5             /YES
    Ø6234      2Ø6225                    LAC RNSCOM
    Ø6235      367147                    TAD* RECLEN         /START LST BLK + LENGTH
    Ø6236      Ø46225                    DAC RNSCOM          /IS START NEXT BLOCK
    Ø6237      6Ø6224                    JMP RNSCOM-1        /COMPARE NEXT BLOCK
    Ø624Ø      147332                    DZM MTACTV          /CLR TEST ACTIVE
    Ø6241      227145                    LAC* RECPOS
    Ø6242      56715Ø                    SAD* FILETH         /PAST LAST BLK
    Ø6243      6Ø6251                    JMP .+6             /YES
    Ø6244      12Ø1Ø7                    JMS* RANNUM         /GET RNDOM
    Ø6245      5Ø7752                    AND (7              /MASK Ø TO 7
    Ø6246      7412ØØ                    SNA                 /KEEP READ SELECT
    Ø6247      167143                    DZM* DRACTV         /NO CLR DRV ACTIVE
    Ø625Ø      625ØØØ                    JMP* MTEXER         /EXIT TAPE TEST
    Ø6251      2Ø7444                    LAC MTSTAT
    Ø6252      51ØØ36                    AND (1ØØØØ
    Ø6253      7412ØØ                    SNA                 /LAST READ OVER EOF
    Ø6254      6Ø6244                    JMP .-1Ø            /NO
    Ø6255      167145                    DZM* RECPOS         /CLR
    Ø6256      467144                    ISZ* FILPOS         /RECORD + 1 FILE
    Ø6257      227144                    LAC* FILPOS
    Ø626Ø      567146                    SAD* FILWRT
    Ø6261      167143                    DZM* DRACTV         /AND DRV ACTIVE
    Ø6262      625ØØØ                    JMP* MTEXER         /EXIT TAPE TEST
                             /
                                         .EJECT
```

```
      Ø6263     1Ø7332          RDEOFX    JMS MTACTV
      Ø6264     22Ø126                    LAC* TTYFLG
      Ø6265     74Ø2ØØ                    SZA
      Ø6266     625ØØØ                    JMP* MTEXER
      Ø6267     777777                    LAW -1
      Ø627Ø     Ø47332                    DAC MTACTV
      Ø6271     Ø6Ø126                    DAC* TTYFLG
      Ø6272     1Ø74ØØ                    JMS TYPDRV
      Ø6273     2Ø6Ø23                    LAC EOFTEX
      Ø6274     12Ø1ØØ                    JMS* TYPTEX
      Ø6275     62Ø13Ø                    JMP* TTYDIS
      Ø6276     16Ø126                    DZM* TTYFLG
      Ø6277     21ØØ37                    LAC (ERRREW
      Ø63ØØ     Ø47332                    DAC MTACTV
      Ø63Ø1     62Ø13Ø                    JMP* TTYDIS
      Ø63Ø2     7Ø7321          ERRREW    MTCR
      Ø63Ø3     6Ø63Ø2                    JMP .-1
      Ø63Ø4     2Ø571Ø                    LAC EDRIVE
      Ø63Ø5     7Ø7326                    MTLC
      Ø63Ø6     7Ø73Ø1                    MTTR
      Ø63Ø7     6Ø63Ø6                    JMP .-1
      Ø631Ø     2Ø7756                    LAC (1ØØØ
      Ø6311     7Ø7324                    LCM
      Ø6312     7Ø73Ø4                    MTGO
      Ø6313     147332                    DZM MTACTV
      Ø6314     2Ø516Ø                    LAC REWRET
      Ø6315     Ø67143                    DAC* DRACTV
      Ø6316     625ØØØ                    JMP* MTEXER
      Ø6317     227145          BK1VAL    LAC* RECPOS         /GET RECORD POSITION
      Ø632Ø     74Ø2ØØ                    SZA                 /AT A BLOCK Ø
      Ø6321     6Ø6325                    JMP .+4             /NO BACKSPACE IS VALID
      Ø6322     227144                    LAC* FILPOS         /TAPE POSITION
      Ø6323     567151                    SAD* FRSFIL         /AT START OF FIRST FILE
      Ø6324     6Ø5361                    JMP REDVAL          /YES BACKSPACE NOT VALID TRY READ
      Ø6325     2Ø5711                    LAC RDRIVE          /GET RANDOM SELECT
      Ø6326     51ØØØØ                    AND (3              /IF
      Ø6327     74Ø2ØØ                    SZA                 /AC=Ø GO NONSTOP
      Ø633Ø     2Ø6335                    LAC BKSSTP          /GO START STOP
      Ø6331     7412ØØ                    SNA
      Ø6332     2Ø64Ø7                    LAC BKNSTP          /BACKSPACE NONSTOP
      Ø6333     Ø67143                    DAC* DRACTV         /INDICATES DRIVE ACTIVE
      Ø6334     625ØØØ                    JMP* MTEXER         /EXIT TAPE TEST
                                /
                                          .EJECT
```

```
                                  /SFLFCTION WAS TO RACKSPACE START STOP
    Ø6335      ØØ6336             RKSSTP          .+1
    Ø6336      227145                     LAC* RFCPOS
    Ø6337      74Ø2ØØ                     SZA                     /TAPE AT A BLOCK Ø
    Ø634Ø      6Ø6344                     JMP .+4                 /NO
    Ø6341      227144                     LAC* FILPOS
    Ø6342      567151                     SAD* FPSFIL             /AT FIRST FILE
    Ø6343      741ØØØ                     SKP                     /YES
    Ø6344      6Ø6347                     JMP .+3                 /NO
    Ø6345      167143                     DZM* DPACTV
    Ø6346      625ØØØ                     JMP* MTEXER
    Ø6347      12Ø1Ø7                     JMS* RANNUM             /GET RNDM
    Ø635Ø      51ØØ4Ø                     AND (17                 /Ø TO 17
    Ø6351      7412ØØ                     SNA                     /IF = Ø
    Ø6352      6Ø6345                     JMP .-5                 /STOP RACKSP
    Ø6353      75ØØØØ                     CLA
    Ø6354      1Ø7166                     JMS GOASSM
    Ø6355      ØØ74ØØ                         74ØØ                /BACKSPACE
    Ø6356      ØØØØØ1                         1                   /1 RFCORD
    Ø6357      Ø13777                         FAKECA
    Ø636Ø      6Ø6372                     JMP RKFOFX              /SEE IF SHD=FOF
    Ø6361      741ØØØ                     SKP
    Ø6362      1Ø7617                     JMS TBADTP
    Ø6363      777777                     LAW -1
    Ø6364      367145                     TAD* RFCPOS
    Ø6365      7411ØØ                     SPA                     /NEW POSITION
    Ø6366      6Ø6263                     JMP RDFOFX              /SHD HAVE REEN EOF
    Ø6367      Ø67145                     DAC* RFCPOS
    Ø637Ø      147332                     DZM MTACTV              /CLR TEST ACTIVE
    Ø6371      6Ø7333                     JMP MTACTV+1            /EXIT
    Ø6372      51ØØ36             RKFOFX  AND (1ØØØØ
    Ø6373      7412ØØ                     SNA                     /EOF = 1
    Ø6374      6Ø6362                     JMP RKFOFX-1Ø           /NO SEE IF BAD TAPE
    Ø6375      227145                     LAC* RFCPOS
    Ø6376      74Ø2ØØ                     SZA                     /FROM A RLOCK Ø
    Ø6377      6Ø6431                     JMP EOFNTX              /NO SHD NOT RE EOF
    Ø64ØØ      22715Ø                     LAC* FILFTH
    Ø64Ø1      Ø67145                     DAC* RFCPOS             /SET NEW RECORD POSITION
    Ø64Ø2      777777                     LAW -1
    Ø64Ø3      367144                     TAD* FILPOS             /FILF POSITION -1
    Ø64Ø4      Ø67144                     DAC* FILPOS             /IS NEW FILE POS
    Ø64Ø5      147332                     DZM MTACTV              /CLR TAPF TEST ACTIVF
    Ø64Ø6      6Ø7333                     JMP MTACTV+1            /EXIT DISMISS
                                  /
                                          .EJECT
```

```
                                   /SELECTION WAS TO BACKSPACE NONSTOP
      Ø6407      ØØ641Ø            BKNSTP        .+1
      Ø641Ø      227145                    LAC* RECPOS
      Ø6411      7412ØØ                    SNA                     /AT A BLOCK Ø
      Ø6412      6Ø6336                    JMP BKSSTP+1            /YES GO OVER END OF FILE
      Ø6413      227145                    LAC* RECPOS
      Ø6414      Ø4642Ø                    DAC BNSWRD              /BLOCKS TO BACK UP
      Ø6415      75ØØØØ                    CLA
      Ø6416      1Ø7166                    JMS GOASSM
      Ø6417      ØØ74ØØ                        74ØØ                /START BACKSPACE
      Ø642Ø      ØØØØØØ            BNSWRD        Ø
      Ø6421      Ø13777                        FAKECA
      Ø6422      1Ø7617                    JMS TRADTP                      /ERROR STATUS SEE IF BAD TAPE
      Ø6423      167143                    DZM* DRACTV
      Ø6424      167145                    DZM* RECPOS             /MUST BE AT A BLK Ø
      Ø6425      147332                    DZM MTACTV              /CLR TEST ACTIVE
      Ø6426      6Ø7333                    JMP MTACTV+1            /DISMISS MTF
      Ø6427      ØØØØØØ            ACTVJM        Ø
      Ø643Ø      ØØØØØØ            BLKSRD        Ø
                                   /
                                           .EJECT
```

```
                                  /END OF FILE RECEIVED AND NOT EXPECTED ERROR
    Ø6431      1Ø7332             EOFNTX    JMS MTACTV                       /WAIT FOR TEST
    Ø6432      22Ø126                       LAC* TTYFLG                      /RE ENTER
    Ø6433      74Ø2ØØ                       SZA                              /TTY BUSY
    Ø6434      625ØØØ                       JMP* MTEXER                      /YESAIT TILL IT ISNT
    Ø6435      1Ø74ØØ                       JMS TYPDRV                       /START TYPFOUT
    Ø6436      2Ø6Ø36                       LAC NOEOFX
    Ø6437      12Ø1ØØ                       JMS* TYPTEX                      /TYPE NO EOF TEXT
    Ø644Ø      62Ø13Ø                       JMP* TTYDIS
    Ø6441      2Ø7761                       LAC (ERRREW
    Ø6442      Ø47332                       DAC MTACTV                       /SO DRIVE WI L BE
    Ø6443      16Ø126                       DZM* TTYFLG
    Ø6444      62Ø13Ø                       JMP* TTYDIS                      /REWOUND AT NEXT ENTER
    Ø6445      75ØØØØ                       CLA
                                  /WRITE END OF FILE MARK START STOP
    Ø6446      1Ø7166             WRTEOF    JMS GOASSM                       /ASSFBLE AND GO
    Ø6447      ØØ54ØØ                           54ØØ            /WRITE END OF FILE
    Ø645Ø      ØØØØØØ                           Ø
    Ø6451      Ø13777                           FAKECA
    Ø6452      741ØØØ                       SKP                              /MUST HAVE E R
    Ø6453      6Ø6263                       JMP RDEOFX
    Ø6454      51ØØ36                       AND (1ØØØØ
    Ø6455      7412ØØ                       SNA                              /EOF=1
    Ø6456      6Ø6263                       JMP RDEOFX                       /NO MUST=1
    Ø6457      167145                       DZM* RECPOS                      /BACK TO A BLOCK Ø
    Ø646Ø      467146                       ISZ* FILWRT                      /1 MORE FILE WRITTEN
    Ø6461      467144                       ISZ* FILPOS                      /AND NEW FILE POSITION
    Ø6462      147332                       DZM MTACTV                       /CLEAR TEST ACTIVE
    Ø6463      777777                       LAW -1
    Ø6464      367153                       TAD* FILEK
    Ø6465      74Ø1ØØ                       SMA
    Ø6466      Ø67153                       DAC* FILEK
    Ø6467      167143                       DZM* DRACTV                      /SET DRIVE INACTIVE
    Ø647Ø      227151                       LAC* FRSFIL                      /FIRST FILEØ
    Ø6471      74Ø2ØØ                       SZA                              /IF YES REWIND
    Ø6472      6Ø7333                       JMP MTACTV+1                     /NO JUST EXIT
    Ø6473      2Ø6527                       LAC FRSREW
    Ø6474      Ø67143                       DAC* DRACTV                      /REWIND
    Ø6475      6Ø7333                       JMP MTACTV+1                     /DISMISS EOF
                                  /WRITE END OF FILE NONSTOP
    Ø6476      75ØØØØ             WREOF1    CLA
    Ø6477      1Ø7272                       JMS GONSTP
    Ø65ØØ      ØØ5ØØØ                           5ØØØ
    Ø65Ø1      ØØØØØØ                           Ø
    Ø65Ø2      Ø13777                           FAKECA
    Ø65Ø3      6Ø6452                       JMP WRTEOF+4                     /TEST EOF BIT
    Ø65Ø4      6Ø6263                       JMP RDEOFX                       /EF MUST=1
                                  /
                                            .EJECT
```

```
                                /WRITE ERR FLAG=1 SEE IF ITS EOT
      Ø65Ø5     4Ø65Ø5          TESEOT    XCT      .
      Ø65Ø6     2Ø7444                    LAC MTSTAT
      Ø65Ø7     51ØØ42                    AND (3736ØØ
      Ø651Ø     74Ø2ØØ                    SZA                          /JUST EOT=1
      Ø6511     6Ø6515                    JMP .+4
      Ø6512     2Ø7761                    LAC (ERRREW
      Ø6513     Ø47332                    DAC MTACTV
      Ø6514     6Ø7333                    JMP MTACTV+1
      Ø6515     1Ø7617                    JMS TBADTP                   /SEE IF BAD TAPE STATUS
      Ø6516     1Ø7332                    JMS MTACTV                   /WAIT RE ENTER TO TYPE
      Ø6517     22Ø126                    LAC* TTYFLG
      Ø652Ø     74Ø2ØØ                    SZA                          /TTY BUSY
      Ø6521     625ØØØ                    JMP* MTEXER                  /YES JUST GET OUT
      Ø6522     1Ø74ØØ                    JMS TYPDRV
      Ø6523     2Ø6563                    LAC WRTBAK
      Ø6524     Ø47332                    DAC MTACTV
      Ø6525     16Ø126                    DZM* TTYFLG
      Ø6526     62Ø13Ø                    JMP* TTYDIS
                                /FIRST FILE IN SERIES IS FILE Ø START RDS FROM BOT
      Ø6527     ØØ653Ø          FRSREW    .+1
      Ø653Ø     7Ø7321                    MTCR
      Ø6531     625ØØØ                    JMP* MTAREX                  /CU NOT RDY EXIT
      Ø6532     2Ø571Ø                    LAC FDRIVE                   /GET DRV NUMBER
      Ø6533     7Ø7326                    MTLC
      Ø6534     7Ø73Ø1                    MTTR                         /DRV RDY YET
      Ø6535     625ØØØ                    JMP* MTAREX                  /NO EXIT
      Ø6536     2Ø7756                    LAC (12ØØ
      Ø6537     7Ø7324                    LCM                          /CHNG TO REWIND
      Ø654Ø     7Ø73Ø4                    MTGO                         /START REW
      Ø6541     2Ø6544                    LAC WTFREW
      Ø6542     Ø67143                    DAC* DRACTV                  /SET UP TO WAIT REW DRIVE
      Ø6543     625ØØØ                    JMP* MTAREX                  /EXIT
      Ø6544     ØØ6545          WTFREW    .+1
      Ø6545     7Ø7321                    MTCR
      Ø6546     625ØØØ                    JMP* MTAREX                  /CU NOT RDY EXIT
      Ø6547     2Ø571Ø                    LAC FDRIVE
      Ø655Ø     7Ø7326                    MTLC                         /LOAD DRIV NUMBER
      Ø6551     7Ø73Ø1                    MTTR                         /DRV RDY
      Ø6552     625ØØØ                    JMP* MTAREX                  /NO EXIT
      Ø6553     7Ø7352                    MTRS
      Ø6554     5Ø7757                    AND (1ØØØØØ                  /IF=1 SHD BE
      Ø6555     7412ØØ                    SNA                          /BOT
      Ø6556     6Ø52ØØ                    JMP REWERR                   /BOT NOT=1 E RO
      Ø6557     167144                    DZM* FILPOS                  /AT FILEØ
      Ø656Ø     167145                    DZM* RECPOS                  /RECORD Ø
      Ø6561     167143                    DZM* DRACTV                  /INACTIVE
      Ø6562     625ØØØ                    JMP* MTAREX                  /EXIT TEST
                                /
                                          .EJECT
      06563     006564        WRTBAK       .+1
      06564     446611                 ISZ WRITEK                   /TRIED 4 TIMES
      06565     741000                 SKP                          /NO
      06566     606302                 JMP ERPREW                   /YES REWIND IT
      06567     750000                 CLA
      06570     107166                 JMS GOASSM
      06571     007400                     7400
      06572     000001                     1
      06573     013777                     FAKECA
      06574     107617                 JMS TBADTP
      06575     107332                 JMS MTACTV                   /WAIT FOR NOT INTR ENTER
      06576     227147                 LAC* RECLEN
      06577     046603                 DAC .+4
      06600     207115                 LAC WRTXTN
      06601     107166                 JMS GOASSM
      06602     014400                     14400
      06603     000000                     0
      06604     014000                     WRBUFR
      06605     606506                 JMP TESEOT+1
      06606     777773                 LAW -5
      06607     046611                 DAC WRITEK
      06610     626505                 JMP* TESEOT
      06611     000000        WRITEK   0                  /TO COUNT REWRITE PASSES
                              /
                                       .EJECT
```

```
                                  /READ STATUS=EF TEST FOR EOF STATUS=1
      Ø6612      4Ø6612           RDEOF     XCT         .
      Ø6613      777775                     LAW -3
      Ø6614      Ø47117                     DAC RDERRK
      Ø6615      2Ø7444                     LAC MTSTAT
      Ø6616      51ØØ36                     AND (13ØØØ
      Ø6617      7412ØØ                     SNA                         /EOF=1
      Ø662Ø      6Ø664Ø                     JMP RDEOT           /NO TEST EOT
      Ø6621      227145                     LAC* RECPOS                 /RECORD POSITION
      Ø6622      34643Ø                     TAD BLKSRD                  /+ BLOCKS READ
      Ø6623      56715Ø                     SAD* FILETH                 /SHOULD TAPE BE AT EOF
      Ø6624      741ØØØ                     SKP                         /YES WOF OK
      Ø6625      6Ø6431                     JMP EOFNTX                  /EOF NOT EXPECTED
      Ø6626      2Ø643Ø                     LAC BLKSRD
      Ø6627      7402ØØ                     SZA                         /READ ANY RECORDS
      Ø663Ø      6Ø622Ø                     JMP RNSALL                  /YES VERIFY THEM
      Ø6631      167145                     DZM* RECPOS                 /AT A RECORD Ø
      Ø6632      467144                     ISZ* FILPOS                 /NEW FILE POSITION
      Ø6633      147332                     DZM MTACTV                  /TAPE TEST INACTIVE
      Ø6634      227146                     LAC* FILWRT
      Ø6635      567144                     SAD* FILPOS                 /AT LAST FILE
      Ø6636      167143                     DZM* DRACTV                 /DRIVE INACTIVE
      Ø6637      6Ø7333                     JMP MTACTV+1                /DISMISS EOF
                                  /WASNT EOF TRY EOT
      Ø664Ø      2Ø7444           RDEOT     LAC MTSTAT
      Ø6641      51ØØ42                     AND (3736ØØ                 /EOT ONLY
      Ø6642      7412ØØ                     SNA                         /ALL OTHRS Ø
      Ø6643      626612                     JMP* RDEOF                  /YES NO ERROR
      Ø6644      1Ø7617                     JMS TBADTP
      Ø6645      1Ø7332                     JMS MTACTV                  /WAIT TEST RE ENTER
      Ø6646      22Ø126                     LAC* TTYFLG
      Ø6647      7402ØØ                     SZA
      Ø665Ø      625ØØØ                     JMP* MTEXER
      Ø6651      2Ø7761                     LAC (ERRREW
      Ø6652      Ø67143                     DAC* DRACTV
      Ø6653      1Ø74ØØ                     JMS TYPDRV                  /TYPE DRV CO MAND
      Ø6654      2Ø7446                     LAC FWORDR          /GET LAST COM
      Ø6655      51ØØØ3                     AND (3ØØØ /MASK FUNC
      Ø6656      25ØØØ1                     XOR (2ØØØ /AC=Ø IF RD
      Ø6657      7402ØØ                     SZA                 /NO SKIP IS RDC
      Ø666Ø      21ØØ43                     LAC (1Ø             /RDC BY PASS COMPARE
      Ø6661      346665                     TAD RDRECV          /+1 RD REOVR ADR
      Ø6662      Ø47332                     DAC MTACTV
      Ø6663      16Ø126                     DZM* TTYFLG                 /CLRTT BUSY
      Ø6664      62Ø13Ø                     JMP* TTYDIS         .
                                  /
                                            .EJECT
      Ø6665      ØØ6666         RDRECV    .+1
      Ø6666      1Ø7651                   JMS GENPAT
      Ø6667      21ØØ35                   LAC (RDBUFR
      Ø667Ø      Ø46672                   DAC .+2
      Ø6671      1Ø7525                   JMS CODATA                /COMPARE 1 READ
      Ø6672      Ø16ØØØ                       RDBUFR
      Ø6673      2Ø6672                   LAC .-1
      Ø6674      367147                   TAD* RECLEN               /CHANGE COMPARE IN CASE MORE
      Ø6675      Ø46672                   DAC .-3
      Ø6676      467145                   ISZ* RECPOS               /+1 POSITION
      Ø6677      2Ø643Ø                   LAC BLKSRD
      Ø67ØØ      7412ØØ                   SNA                       /VERIFIED ALL READ
      Ø67Ø1      6Ø67Ø5                   JMP .+4                   /YES BACK UP READ
      Ø67Ø2      35ØØ44                   TAD (-1
      Ø67Ø3      Ø4643Ø                   DAC BLKSRD                /-1 BLOCK COMPARED
      Ø67Ø4      6Ø6671                   JMP RDRECV+4              /DO NEXT
      Ø67Ø5      447117                   ISZ RDERRK
      Ø67Ø6      741ØØØ                   SKP
      Ø67Ø7      6Ø63Ø2                   JMP ERRREW
      Ø671Ø      75ØØØØ                   CLA
      Ø6711      1Ø7166         BACKRD    JMS GOASSM                /BACKSPACE 1 RECORD
      Ø6712      ØØ74ØØ                   74ØØ
      Ø6713      ØØØØØ1                   1
      Ø6714      Ø13777                   FAKECA
      Ø6715      1Ø7617                   JMS TBADTP
      Ø6716      777777                   LAW -1
      Ø6717      367145                   TAD* RECPOS
      Ø672Ø      Ø67145                   DAC* RECPOS
      Ø6721      227147                   LAC* RECLEN
      Ø6722      Ø46727                   DAC .+5
      Ø6723      147116                   DZM RDXTND
      Ø6724      75ØØØØ                   CLA
      Ø6725      1Ø7272                   JMS GONSTP                /READ NONSTOP
      Ø6726      ØØ2ØØØ                       2ØØØ
      Ø6727      ØØØØØØ                       Ø
      Ø673Ø      Ø16ØØØ                       RDBUFR
      Ø6731      6Ø664Ø                   JMP RDEOT        /EF=1 TRY AGAIN
      Ø6732      2Ø6612                   LAC RDEOF
      Ø6733      547Ø41                   SAD BKROVR                /FORCED NOT ERROR
      Ø6734      626612                   JMP* RDEOF                /YES
      Ø6735      1Ø7332                   JMS MTACTV                /CLR FLGS
      Ø6736      6Ø6666                   JMP RDRECV+1              /COMPARE DO AGN
                                /
                                          .EJECT
                                /READ COMPARE DATA START STOP ROUTINE
                                /JUST GOES 1 RECORD THEN BACK TO STRAIGHT READ
        06737     107003        RDCSTP     JMS RDCPAT           /GENERATE CORRECT PATTERN
        06740     046745                   DAC RDCWD1           /STORE WC
        06741     146430                   DZM BLKSRD           /NO BLOCKS READ
        06742     207115                   LAC WRTXTN
        06743     107166                   JMS GOASSM           /START TAPE
        06744     003400                   3400                 /READ COMPARE
        06745     000000        RDCWD1     0                    /WC
        06746     014000                   WRBUFR               /CA AFTER -1
        06747     106612                   JMS RDEOF            /ERR RET SEE IF EOF
        06750     227150                   LAC* FILETH          /GET FILE LENGTH
        06751     567145                   SAD* RECPOS          /AT LAST RECORD ALRDY
        06752     606263                   JMP RDEOFX           /SHD HAVE GOT EOF
        06753     467145                   ISZ* RECPOS          /+1 RECORD POSITION
        06754     147332                   DZM MTACTV           /CLR TAPE TEST ACTV
        06755     607333                   JMP MTACTV+1         /DISMISS TAPE FLAG
                                /
                                /READ COMPARE DATA NONSTOP ROUTINE
                                /GOES UNTIL FIRST END OF FILE
                                /
        06756     107003        RDCNST     JMS RDCPAT           /SET UP READ COMPARE PAT
        06757     046765                   DAC RDCWD2           /STORE WC START
        06760     046777                   DAC RDCWD3           /WC FOR NONSTOP
        06761     146430                   DZM BLKSRD           /NO BLOCKS READ
        06762     207115                   LAC WRTXTN
        06763     107166                   JMS GOASSM           /START TAPE
        06764     003400                   3400                 /READ COMPARE
        06765     000000        RDCWD2     0                    /WC
        06766     014000                   WRBUFR               /CA START AFTER-1
        06767     106612                   JMS RDEOF            /EF=1 TEST END OF FILE
        06770     227145                   LAC* RECPOS
        06771     567150                   SAD* FILETH          /TAPE AT LAST RECORD
        06772     606263                   JMP RDEOFX           /SHD HAVE END OF TILE
        06773     467145                   ISZ* RECPOS          /+1 REC POSITION
        06774     207115                  LAC WRTXTN
        06775     107272                   JMS GONSTP           /GO AGAIN
        06776     003400                   3400                 /READ COMPARE
        06777     000000        RDCWD3     0                    /WC
        07000     014000                   WRBUFR               /CA
        07001     106612                   JMS RDEOF            /ERR FLAG TRY EOF
        07002     606770                   JMP RDCWD2+3         /CHECK MTF NO EF OK
                                /
                                           .EJECT
```

```
                                   /SET UP READ COMPARE PATTERN IN WRITE BUFFER
     Ø7ØØ3     6Ø7ØØ3              RDCPAT    JMP .
     Ø7ØØ4     1Ø7651                        JMS GENPAT          /GENERATE ORIG PAT
     Ø7ØØ5     227152                        LAC* PARDEN         /GET PARITY DEN (OR DUMP
     Ø7ØØ6     51ØØ45                        AND (2Ø3ØØ          /MASK CORE DUMP AND DEN
     Ø7ØØ7     247765                        XOR (3ØØ            /COMPLEMENT DENSITY
     Ø7Ø1Ø     74Ø2ØØ                        SZA                 /9 TRK NOT COREDUMP IS SKP
     Ø7Ø11     6Ø7Ø27                        JMP RDCPND          /SOMETHING ELSE
     Ø7Ø12     777777                        LAW -1
     Ø7Ø13     367147                        TAD* RECLEN         /2 COMP RECORD LENTH
     Ø7Ø14     74ØØØ1                        CMA                 /TO COUNT WORDS
     Ø7Ø15     Ø4ØØ1Ø                        DAC 1Ø
     Ø7Ø16     21ØØ46                        LAC (WRBUFR-1
     Ø7Ø17     347115                        TAD WRTXTN
     Ø7Ø2Ø     Ø4ØØ11                        DAC 11              /TO GET
     Ø7Ø21     Ø4ØØ12                        DAC 12              /TO RESTORE
     Ø7Ø22     22ØØ11                        LAC* 11             /GET WORD
     Ø7Ø23     51ØØ12                        AND (177777         /CLR TWO PARITY BITS
     Ø7Ø24     Ø6ØØ12                        DAC* 12             /BACK TO BUFFER
     Ø7Ø25     44ØØ1Ø                        ISZ 1Ø              /DONE ALL
     Ø7Ø26     6Ø7Ø22                        JMP .-4             /NO GET NEXT
     Ø7Ø27     227147              RDCPND    LAC* RECLEN         /GET RECORD LENGTH
     Ø7Ø3Ø     627ØØ3                        JMP* RDCPAT         /EXIT
                                             .EJECT
```

```
                                /BACKSPACE THEN READ NONSTOP
    Ø7Ø31     227145            BKREAD  LAC* RECPOS      /GET RECORD POSITION
    Ø7Ø32     7412ØØ                    SNA              /AT A RECORD Ø
    Ø7Ø33     6Ø6154                    JMP RDNSTP+1     /YES FORGET BACK READ
    Ø7Ø34     2Ø7Ø41                    LAC BKROVR
    Ø7Ø35     Ø46612                    DAC RDEOF               /TO GET BACK
    Ø7Ø36     777774                    LAW -4           /AFTER READ
    Ø7Ø37     Ø47117                    DAC RDERRK       /IN CASE ERR OR TRY AG 3
    Ø7Ø4Ø     6Ø6711                    JMP BACKRD       /START OPERATION
    Ø7Ø41     ØØ7Ø42            BKROVR  .+1
    Ø7Ø42     6Ø6134                    JMP RDWRD+3
                                /
                                /READ THEN BACKSPACE NONSTOP
    Ø7Ø43     227147            READBK  LAC* RECLEN      /GET RECORD LENGTH
    Ø7Ø44     Ø47Ø51                    DAC .+5          /FOR GOASSEM
    Ø7Ø45     14643Ø                    DZM BLKSRD       /CLR BLOCKS READ
    Ø7Ø46     2Ø7116                    LAC RDXTND
    Ø7Ø47     1Ø7166                    JMS GOASSM       /START TAPE
    Ø7Ø5Ø     ØØ24ØØ                    24ØØ             /READ COMMAND
    Ø7Ø51     ØØØØØØ                    Ø                /WC
    Ø7Ø52     Ø16ØØØ                    RDBUFR           /CA AFTER-1
    Ø7Ø53     1Ø6612                    JMS RDEOF               /EF = 1 SEF IF EOF
    Ø7Ø54     22715Ø                    LAC* FILETH      /GET FILE LENGTH
    Ø7Ø55     567145                    SAD* RECPOS      /TAPE AT LAST RECORD
    Ø7Ø56     6Ø6263                    JMP RDEOFX       /YES SHD HAVE EOF
    Ø7Ø57     75ØØØØ                    CLA
    Ø7Ø6Ø     1Ø7272                    JMS GONSTP       /CHNG TO BACKSPACE
    Ø7Ø61     ØØ7ØØØ                    7ØØØ             /1 RECORD
    Ø7Ø62     ØØØØØ1                    1
    Ø7Ø63     Ø13777                    FAKECA
    Ø7Ø64     74ØØØØ                    NOP
    Ø7Ø65     1Ø7332                    JMS MTACTV
    Ø7Ø66     1Ø7651                    JMS GENPAT
    Ø7Ø67     1Ø7525                    JMS CODATA
    Ø7Ø7Ø     Ø16ØØØ                    RDBUFR
    Ø7Ø71     147332                    DZM MTACTV
    Ø7Ø72     625ØØØ                    JMP* MTAREX
                                /
                                        .EJECT
```

```
                                  /SELECT AN EXTENDED MEMORY BANK IF ONE EXISTS
                                  /
   Ø7Ø73       4Ø7Ø73             GTXTND  XCT .
   Ø7Ø74       2ØØ111                     LAC UPCORE       /GET UPPER CORE BOUNDARY
   Ø7Ø75       51ØØ47                     AND (6ØØØØ
   Ø7Ø76       7412ØØ                     SNA              /HAVE XTNDED MEM
   Ø7Ø77       627Ø73                     JMP* GTXTND      /NO EXIT AC=Ø
   Ø71ØØ       12Ø1Ø7                     JMS* RANNUM /GET RANNUM
   Ø71Ø1       51ØØ47                       AND (6ØØØØ            /MASK XTN BITS
   Ø71Ø2       7412ØØ                       SNA                   /SELECT XTND BANK
   Ø71Ø3       627Ø73                       JMP* GTXTND           /NO EXIT AC=Ø
   Ø71Ø4       Ø47114                       DAC SVXTND            /SAVE BANK BITS
   Ø71Ø5       2ØØ111                       LAC UPCORE            /GET UPPER LIMIT
   Ø71Ø6       74ØØØ1                       CMA                   /MAKE -
   Ø71Ø7       347114                       TAD SVXTND            /+ SELECTED
   Ø711Ø       74Ø1ØØ                       SMA                   /AC - IS BANK EXISTS
   Ø7111       6Ø71ØØ                       JMP GTXTND+5
   Ø7112       2Ø7114                       LAC SVXTND
   Ø7113       627Ø73                       JMP* GTXTND
                                  /
   Ø7114       ØØØØØØ             SVXTND    Ø                     /SAVE XTND SELECTION
   Ø7115       ØØØØØØ             WRTXTN    Ø                     /WRITE BANK SELECTED
   Ø7116       ØØØØØØ             RDXTND    Ø                     /READ BANK SELECTED
   Ø7117       ØØØØØØ             RDERRK    Ø
                                  /
                                  /TC59 RANDOM EXERCISER TAPE 4
                                  /SET UP POINTERS FOR DRIVE CURRENTLY SELECTED
   Ø712Ø       4Ø712Ø             DRVSET    XCT .
   Ø7121       2Ø57Ø6                       LAC CDRIVE            /DRIVE NUMBER
   Ø7122       347155                       TAD DRVADR            /+ TABLE ADDRES
   Ø7123       Ø47143                       DAC DRACTV
   Ø7124       227143                       LAC* DRACTV           /GET DRIVE ADRS
   Ø7125       Ø47143                       DAC DRACTV
   Ø7126       777766                       LAW -TABLEK           /TO COUNT TO END OF TABLE
   Ø7127       Ø47141                       DAC DRVDEX
   Ø713Ø       21ØØ5Ø                       LAC (DRACTV
   Ø7131       Ø47142                       DAC DRVDEX+1          /TO STORE EACH +1
   Ø7132       2Ø7143                       LAC DRACTV            /GET ADDRS AG
   Ø7133       Ø67142                       DAC* DRVDEX+1         /STORE NEX
   Ø7134       35ØØ33                       TAD (1
   Ø7135       447142                       ISZ DRVDEX+1
   Ø7136       447141                       ISZ DRVDEX            /STORED ALL
   Ø7137       6Ø7133                       JMP .-4               /NO
   Ø714Ø       62712Ø                       JMP* DRVSET           /LAST ADRS POINTS TO PATTERN
   Ø7141       ØØØØØØ             DRVDEX    Ø
   Ø7142       ØØØØØØ                       Ø
   Ø7143       ØØØØØØ             DRACTV    Ø                     /TO GET DRIVE ACTIVE INDICATOR
   Ø7144       ØØØØØØ             FILPOS    Ø                     /TO GET FILE POSITION
   Ø7145       ØØØØØØ             RECPOS    Ø                     /TO GET RECORD POSITION WITHIN FILE
   Ø7146       ØØØØØØ             FILWRT    Ø                     /TO GET HOW MANY FILES WRITTEN
   Ø7147       ØØØØØØ             RECLEN    Ø                     /CURRENT RECORD LENGTH
   Ø715Ø       ØØØØØØ             FILETH    Ø                     /CURRENT FILE LENGTH
   Ø7151       ØØØØØØ             FRSFIL    Ø                     /FIRST FILE ON TAPE WITH THIS PATTERN
   Ø7152       ØØØØØØ             PARDEN    Ø                     /PARITY AND DENSITY SELECTION
   Ø7153       ØØØØØØ             FILEK     Ø
```

```
    Ø7154      ØØØØØØ          PATTBL     Ø                        /TO GET 7 PATTERN WORDS
                               /TABLE OF STARTING ADDRESES OF DRIVE TABLES
    Ø7155      ØØ7156          DRVADR     .+1
    Ø7156      Ø134ØØ                     DRØTAB
    Ø7157      Ø13421                     DR1TAB
    Ø716Ø      Ø13442                     DR2TAB
    Ø7161      Ø13463                     DR3TAB
    Ø7162      Ø135Ø4                     DR4TAB
    Ø7163      Ø13525                     DR5TAB
    Ø7164      Ø13546                     DR6TAB
    Ø7165      Ø13567                     DR7TAB
                               /
                                          .EJECT
```

```
                            /DEFINE DRIVE TABLE ADDRESSES
                013400      DR0TAB=DRTABL
                013421      DR1TAB=DR0TAB+TABLEK+7
                013442      DR2TAB=DR1TAB+TABLEK+7
                013463      DR3TAB=DR2TAB+TABLEK+7
                013504      DR4TAB=DR3TAB+TABLEK+7
                013525      DR5TAB=DR4TAB+TABLEK+7
                013546      DR6TAB=DR5TAB+TABLEK+7
                013567      DR7TAB=DR6TAB+TABLEK+7
                            /ASSEMBLE TAPE COMMAND AND GO
     07166      407166      GOASSM     XCT .
     07167      047114                 DAC SVXTND                    /SAVE XTND BITS
     07170      227166                 LAC* GOASSM         /GET FUNCTION
     07171      047445                 DAC FWORDM          /SAVE IT
     07172      447166                 ISZ GOASSM          /+1 FOR WC
     07173      777777                 LAW -1
     07174      367166                 TAD* GOASSM         /2 COMP
     07175      740001                 CMA                 /WORD COUNT
     07176      040032                 DAC WCLOC
     07177      447166                 ISZ GOASSM          /+1 FOR ADDRS
     07200      777777                 LAW -1
     07201      367166                 TAD* GOASSM         /ADDRS-1
     07202      347114                 TAD SVXTND                    /+ XTND MEM
     07203      040033                 DAC CALOC           /TO CA
     07204      447166                 ISZ GOASSM          /+1 FOR EXIT
     07205      707321                 MTCR                /WAIT CONTROL READY
     07206      607205                 JMP .-1
     07207      205710                 LAC FDRIVE
     07210      707326                 MTLC
     07211      707301                 MTTR                /WAIT DRIVE READY
     07212      607211                 JMP .-1
     07213      347445                 TAD FWORDM          /DRV + COMMAND
     07214      367152                 TAD* PARDEN         /+ PARITY AND DENSITY
     07215      707326                 MTLC                /LOAD COMMAND
     07216      047447                 DAC FWORDA
     07217      707312                 MTRC                /READ IT BACK
     07220      047446                 DAC FWORDR
     07221      547447                 SAD FWORDA          /LOADED PROPER
     07222      607254                 JMP COMDOK          /YES GO
     07223      207447                 LAC FWORDA
     07224      047444                 DAC MTSTAT
     07225      207230                 LAC LOADWR
     07226      047332                 DAC MTACTV          /IN CASE PRTR ACTV
     07227      741000                 SKP
                            /
                                       .EJECT
```

```
    Ø723Ø      ØØ7231          LOADWR     .+1
    Ø7231      22Ø126                     LAC* TTYFLG          /PRTR FLAG
    Ø7232      74Ø2ØØ                     SZA                  /ACTIVE
    Ø7233      625ØØØ                     JMP* MTEXER          /YES TRY LATER
    Ø7234      1Ø74ØØ                     JMS TYPDRV           /TYPE ERROR
    Ø7235      2Ø7245                     LAC MTLCTX
    Ø7236      12Ø1ØØ                     JMS* TYPTEX          /TYPE MESSG
    Ø7237      62Ø13Ø                     JMP* TTYDIS          /DISMISS LST FLG
    Ø724Ø      16Ø126                     DZM* TTYFLG          /CLR TELETYPE BUSY
    Ø7241      2Ø7751                     LAC (REWALL
    Ø7242      Ø47332                     DAC MTACTV           /REWIND ALL DRIVES
    Ø7243      1Ø5712                     JMS RSFDRV           /SYSTEM CONTROL FAILED
    Ø7244      62Ø13Ø                     JMP* TTYDIS
    Ø7245      ØØ7246          MTLCTX      .+1
    Ø7246      Ø64251                     .ASCII    <15><12>'MTLC FAILED'<177>
    Ø7247      55223Ø
    Ø725Ø      415Ø1Ø
    Ø7251      64Ø622
    Ø7252      46213Ø
    Ø7253      4774ØØ
                               /
                                          .EJECT
```

```
                                /COMMAND GOT THERE AND BACK OK
    Ø7254       2Ø7262          COMDOK      LAC STPRET
    Ø7255       Ø47364                      DAC MTAPRO          /STOPPED INT RETURN
    Ø7256       777777                      LAW -1
    Ø7257       Ø47332                      DAC MTACTV          /SET TAPE ACTIVE
    Ø726Ø       7Ø73Ø4                      MTGO                /START OPERATION
    Ø7261       625ØØØ                      JMP* MTEXER         /EXIT
    Ø7262       ØØ7263          STPRET      .+1
    Ø7263       7Ø7352                      MTRS                /RD STATUS
    Ø7264       Ø47444                      DAC MTSTAT          /SAVE IT
    Ø7265       7412ØØ                      SNA                 /FLAGS SET
    Ø7266       627166                      JMP* GOASSM         /NO ERROR EXIT
    Ø7267       7401ØØ                      SMA                 /ERR FLAG=1
    Ø727Ø       447166                      ISZ GOASSM          /NO SKIP EXIT
    Ø7271       627166                      JMP* GOASSM
                                /MAKE TAPE GO NONSTOP
    Ø7272       4Ø7272          GONSTP      XCT .
    Ø7273       Ø47114                      DAC SVXTND                   /XTND BITS
    Ø7274       227272                      LAC* GONSTP         /GET COMMAND
    Ø7275       Ø47445                      DAC FWORDM          /SAVE IT
    Ø7276       447272                      ISZ GONSTP
    Ø7277       777777                      LAW -1
    Ø73ØØ       367272                      TAD* GONSTP         /GET WC-1
    Ø73Ø1       74ØØØ1                      CMA                 /FOR 2 COMP
    Ø73Ø2       Ø4ØØ32                      DAC WCLOC
    Ø73Ø3       447272                      ISZ GONSTP
    Ø73Ø4       777777                      LAW -1
    Ø73Ø5       367272                      TAD* GONSTP         /CA -1
    Ø73Ø6       447272                      ISZ GONSTP          /FOR CURRENT ADDRS
    Ø73Ø7       347114                      TAD SVXTND                   /+MEM BNK
    Ø731Ø       Ø4ØØ33                      DAC CALOC
    Ø7311       2Ø7445                      LAC FWORDM
    Ø7312       7Ø7324                      LCM                 /CHANGE COMMAND
    Ø7313       7Ø7312                      MTRC                /READ IT BACK
    Ø7314       Ø47446                      DAC FWORDR          /SAVE IT
    Ø7315       2Ø7322                      LAC NSRETU
    Ø7316       Ø47364                      DAC MTAPRO          /NONSTOP INT RETURN
    Ø7317       7Ø7322                      MTAF                /CLR FLAGS
    Ø732Ø       7Ø73Ø4                      MTGO                /GO
    Ø7321       6Ø7365                      JMP MTAPRO+1        /RESTORE AND ENABLE
                                /RETURN FROM NONSTOP MAGTAPE FLG
    Ø7322       ØØ7323          NSRETU      .+1
    Ø7323       7Ø7352                      MTRS
    Ø7324       Ø47444                      DAC MTSTAT          /SAVE TAPE STATUS
    Ø7325       7412ØØ                      SNA
    Ø7326       627272                      JMP* GONSTP
    Ø7327       7401ØØ                      SMA
    Ø733Ø       447272                      ISZ GONSTP
    Ø7331       627272                      JMP* GONSTP
                                /
                                            .EJECT
    Ø7332     ØØØØØØ         MTACTV    Ø
    Ø7333     7Ø7322                   MTAF
    Ø7334     1Ø7364                   JMS MTAPRO
    Ø7335     7Ø7352                   MTRS
                              /INTERRUPT RECEIVED NOT EXPECTING ONE
    Ø7336     Ø47342                   DAC XTRAFL                       /SAVE STATUS
    Ø7337     777777                   LAW -1
    Ø734Ø     Ø47343                   DAC UNEXPC                       /SET UNXPECTD INT
    Ø7341     6Ø7333                   JMP MTACTV+1                     /DISMISS
    Ø7342     ØØØØØØ         XTRAFL    Ø
    Ø7343     ØØØØØØ         UNEXPC    Ø
    Ø7344     ØØ7345         MTAINT    .+1
    Ø7345     7Ø7341                   MTSF                   /TAPE FLAG=1
    Ø7346     62Ø142                   JMP* UNKNWN            /NO UNKNOWN INT
    Ø7347     Ø47362                   DAC MTASAC             /SAVE THE AC
    Ø735Ø     2ØØØØØ                   LAC Ø                  /GET ADDRS Ø FOR -1
    Ø7351     Ø47376                   DAC INTSAV
    Ø7352     6Ø7356                   JMP .+4
    Ø7353     4Ø7353         MTAPI     XCT .                  /ENTERED HERE BY API
    Ø7354     Ø47362                   DAC MTASAC             /SAVE AC
    Ø7355     75ØØØØ                   CLA                    /SO IT =-1
    Ø7356     35ØØ44                   TAD (-1                /(Ø)-1 OR AC =-1
    Ø7357     Ø47363                   DAC MTASPC             /SAVE PC
    Ø736Ø     Ø47377                   DAC IM1SAV
    Ø7361     627364                   JMP* MTAPRO            /PROCESS INT
    Ø7362     ØØØØØØ         MTASAC    Ø                      /SAVE ACCUMULATOR
    Ø7363     4Ø7363         MTASPC    XCT .                  /SAVE PC=777777 IS API
    Ø7364     4Ø7364         MTAPRO    XCT .                  /PROCESS ADDRESS
    Ø7365     2Ø7362                   LAC MTASAC             /SET INT AC
    Ø7366     447363                   ISZ MTASPC             /API OR PIC
    Ø7367     6Ø7372                   JMP .+3                /PIC
    Ø737Ø     7Ø3344                   DBR                    /API DO NOT ION
    Ø7371     627353                   JMP* MTAPI             /DISSMISS API
    Ø7372     7ØØØ42                   ION
    Ø7373     7Ø3344                   DBR
    Ø7374     627363                   JMP* MTASPC            /DISSMISS PIC
    Ø7375     ØØØØØØ         HNGCTR    Ø
    Ø7376     ØØØØØØ         INTSAV    Ø
    Ø7377     ØØØØØØ         IM1SAV    Ø
                             /
                                       .EJECT
```

```
                                        /INITILIZE ERROR TYPEOUTS
                                        /TYPE DRIVE COMMAND AND STATUS
                                        /WAIT FOR TTYFLG =0 OUTSIDE THIS ROUTINE
    07400      407400                   TYPDRV     XCT .
    07401      777777                              LAW -1
    07402      047332                              DAC MTACTV           /SET TEST
    07403      060126                              DAC* TTYFLG          /AND TTY ACTIVE
    07404      207450                              LAC DRVTEX
    07405      120100                              JMS* TYPTEX          /TYPE DRIVE
    07406      625002                              JMP* MTEXER
    07407      205706                              LAC CDRIVE
    07410      120103                              JMS* TYOCT1          /AND NUMBER
    07411      620130                              JMP* TTYDIS
    07412      207455                              LAC CSTEXT           /COMB STATUS FILE RECORD
    07413      120100                              JMS* TYPTEX
    07414      620130                              JMP* TTYDIS
    07415      207446                              LAC FWORDR           /TYPE COMAND MTRC
    07416      120101                              JMS* TYPCON
    07417      620130                              JMP* TTYDIS
    07420      207474                              LAC SPA2TEX
    07421      120100                              JMS* TYPTEX
    07422      620130                              JMP* TTYDIS
    07423      207444                              LAC MTSTAT
    07424      120101                              JMS* TYPCON          /TYPE STATUS
    07425      620130                              JMP* TTYDIS
    07426      207474                              LAC SPA2TEX
    07427      120100                              JMS* TYPTEX
    07430      620130                              JMP* TTYDIS
    07431      227144                              LAC* FILPOS
    07432      120101                              JMS* TYPCON
    07433      620130                              JMP* TTYDIS
    07434      207474                              LAC SPA2TEX
    07435      120100                              JMS* TYPTEX
    07436      620130                              JMP* TTYDIS
    07437      227145                              LAC* RECPOS
    07440      346430                              TAD BLKSRD
    07441      120101                              JMS* TYPCON
    07442      620130                              JMP* TTYDIS
    07443      627400                              JMP* TYPDRV          /DO REST OF TYPEOUT
                                        /
                                                   .EJECT
    Ø7444     ØØØØØØ         MTSTAT    Ø
    Ø7445     ØØØØØØ         FWORDM    Ø
    Ø7446     ØØØØØØ         FWORDR    Ø
    Ø7447     ØØØØØØ         FWORDA    Ø
    Ø745Ø     ØØ7451         DRVTEX    .+1
    Ø7451     Ø64241                   .ASCII    <15><12><12>'DRIVE '<177>
    Ø7452     242244
    Ø7453     44655Ø
    Ø7454     52Ø376
    Ø7455     ØØ7456         CSTEXT    .+1
    Ø7456     Ø64244                   .ASCII    <15><12>' COMD   STATUS  FILE  RECORD'<15><12><177>
    Ø7457     Ø41636
    Ø746Ø     4661Ø4
    Ø7461     Ø201ØØ
    Ø7462     51651Ø
    Ø7463     152252
    Ø7464     515ØØ4
    Ø7465     Ø43222
    Ø7466     462124
    Ø7467     Ø2Ø244
    Ø747Ø     426Ø71
    Ø7471     75121Ø
    Ø7472     Ø64257
    Ø7473     7ØØØØØ
    Ø7474     ØØ7475         SPA2TEX   .+1
    Ø7475     2Ø1Ø17                   .ASCII    '  '<177>
    Ø7476     7ØØØØØ
    Ø7477     ØØ75ØØ         DTATEX    .+1
    Ø75ØØ     Ø6425Ø                   .ASCII    <15><12>'DATA ERROR'<15><12>
    Ø75Ø1     44Ø65Ø
    Ø75Ø2     4Ø5Ø1Ø
    Ø75Ø3     551244
    Ø75Ø4     476441
    Ø75Ø5     5Ø5ØØØ
    Ø75Ø6     2Ø211Ø                   .ASCII    ' DATA    ADRS'<15><12><177>
    Ø75Ø7     1522Ø2
    Ø751Ø     2Ø1ØØ4
    Ø7511     Ø2Ø2Ø2
    Ø7512     422452
    Ø7513     3Ø6424
    Ø7514     774ØØØ
    Ø7515     ØØØØØØ
    Ø7516     ØØ7517         BOTTEX    .+1
    Ø7517     Ø6425Ø                   .ASCII    <15><12>'BOT SHOULD=1'<177>
    Ø752Ø     24765Ø
    Ø7521     2Ø2471
    Ø7522     Ø47652
    Ø7523     462107
    Ø7524     53Ø776
                             /
                                       .EJECT
```

```
                                /COMPARE DATA SUBROUTINE
                                /JMS +1=START OF INPUT DATA
  Ø7525      4Ø7525             CODATA     XCT .
  Ø7526      777777                        LAW -1
  Ø7527      367525                        TAD* CODATA          /ADR-1
  Ø753Ø      347116                        TAD RDXTND
  Ø7531      447525                        ISZ CODATA
  Ø7532      Ø4ØØ1Ø                        DAC 1Ø               /FOR INDIRECTS
  Ø7533      777777                        LAW -1               /RECORD LENGTH
  Ø7534      367147                        TAD* RECLEN          /-1
  Ø7535      74ØØØ1                        CMA
  Ø7536      Ø4ØØ11                        DAC 11               /MAKE 2 COMP
  Ø7537      21ØØ46                        LAC (WRBUFR-1
  Ø754Ø      347115                        TAD WRTXTN
  Ø7541      Ø4ØØ12                        DAC 12               /TO GET WORDS WRITTEN
  Ø7542      777773                        LAW -5
  Ø7543      Ø47736                        DAC ERINDX           /TO COUNT 4 ERROR SAVED
  Ø7544      21ØØ51                        LAC (ERINDX
  Ø7545      Ø4ØØ13                        DAC 13               /TO STOR ERROR ADRSES
  Ø7546      22ØØ1Ø             COLOOP     LAC* 1Ø              /GET DATA READ
  Ø7547      56ØØ12                        SAD* 12              /=DATA WRITTEN
  Ø755Ø      741ØØØ                        SKP                  /OK
  Ø7551      1077ØØ                        JMS COERRO           /SAVE ERROR INFO
  Ø7552      44ØØ11                        ISZ 11               /DONE TO END OF RECORD
  Ø7553      6Ø7546                        JMP COLOOP           /NO
  Ø7554      777773                        LAW -5               /ANY ERRORS
  Ø7555      547736                        SAD ERINDX
  Ø7556      627525             COFXIT     JMP* CODATA          /NO JUST EXIT
  Ø7557      2Ø7562                        LAC COERRT
  Ø756Ø      Ø47332                        DAC MTACTV           /IN CASE TTY BUSY
  Ø7561      741ØØØ                        SKP
                                /
                                           .EJECT
```

```
    Ø7562     ØØ7563          COERRT    .+1                   /TO GET RACK AT REENTER
    Ø7563     22Ø126                    LAC* TTYFLG
    Ø7564     74Ø2ØØ                    SZA                   /TTY BUSY
    Ø7565     625ØØØ                    JMP* MTEXEP           /YES WAIT FOR NOT RUSY
    Ø7566     1Ø74ØØ                    JMS TYPDRV            /TYPF DRV STATUS ETC
    Ø7567     2Ø7477                    LAC DTATEX
    Ø757Ø     12Ø1ØØ                    JMS* TYPTEX           /DATA ADR TEST
    Ø7571     62Ø13Ø                    JMP* TTYDIS
    Ø7572     777773                    LAW -5
    Ø7573     Ø47735                    DAC FRTYDX
    Ø7574     21ØØ52                    LAC (LAC* FRINDX+1)   /TO GET DATA
    Ø7575     Ø47715                    DAC GTCDAT
    Ø7576     21ØØ53                    LAC (LAC ERINDX+1)    /TO GET ADDRESS
    Ø7577     Ø47723                    DAC GTADDR
    Ø76ØØ     1Ø7714          COTYLP    JMS TYDADR            /TYPE DATA AND ADDRS
                                                              /WRITTFN
    Ø76Ø1     1Ø7714                    JMS TYDADR            /DATA AND ADRS READ
    Ø76Ø2     2Ø6Ø15                    LAC CRLFTX
    Ø76Ø3     12Ø1ØØ                    JMS* TYPTEX           /LNE FEET TWX PAIRS
    Ø76Ø4     62Ø13Ø                    JMP* TTYDIS
    Ø76Ø5     447735                    ISZ FRTYDX            /+1 FRRORS TYPED
    Ø76Ø6     2Ø7735                    LAC ERTYDX
    Ø76Ø7     547736                    SAD ERINDX            /DONE ALL ACCUMULATED
    Ø761Ø     741ØØØ                    SKP                   /YES
    Ø7611     6Ø76ØØ                    JMP COTYLP            /TYPE NEXT ERROR
    Ø7612     16Ø126                    DZM* TTYFLG           /CLR TTY ACTIVE
    Ø7613     2Ø7616                    LAC .+3
    Ø7614     Ø47332                    DAC MTACTV            /TO EXIT CODATA AT RE-ENTER
    Ø7615     62Ø13Ø                    JMP* TTYDIS           /DISMISS LAST TTY FLAG
    Ø7616     ØØ7556                    COEXIT
                              /
                                        .EJECT
```

```
                                   /SEE IF ERROR STATUS WAS BAD TAPE
   07617      407617               TBADTP    XCT .
   07620      207444                         LAC MTSTAT                     /GET STATUS
   07621      510004                         AND (20           /MASK BAD TAPE BIT
   07622      740200                         SZA                            /IF =1 NONRECOVERABLE
   07623      607626                         JMP .+3           /IT IS
   07624      207444                         LAC MTSTAT                     /GET STATUS
   07625      627617                         JMP* TBADTP                    /EXIT
   07626      107332                         JMS MTACTV                     /WAIT FOR NOT INT ENTER
   07627      220126                         LAC* TTYFLG                    /TTY BUSY
   07630      740200                         SZA                            /SKP IS NO
   07631      625000                         JMP* MTAREX                    /WAIT FOR TELETYPE
   07632      107400                         JMS TYPDRV                     /DRIVE STATUS ETC
   07633      207642                         LAC BADTEX                     /TYPE BAD TAPE
   07634      120100                         JMS* TYPTEX
   07635      620130                         JMP* TTYDIS
   07636      160126                         DZM* TTYFLG
   07637      207761                         LAC (ERRREW
   07640      047332                         DAC MTACTV                     /TTY ACTV CLR REWIND
   07641      620130                         JMP* TTYDIS                    /DISMISS TTY INT
   07642      007643               BADTEX    .+1
   07643      064250                         .ASCII <15><12>'BAD TAPE'<177>
   07644      240610
   07645      202510
   07646      150212
   07647      774000
   07650      000000

                                   /
                                             .EJECT
```

```
     07651     407651        GENPAT     XCT .
     07652     107073                   JMS GTXTND
     07653     047115                   DAC WRTXTN
     07654     350054                   TAD (WRBUFR
     07655     047735                   DAC ERTYDX                   /WRITE BUFFR ADDR
     07656     777777                   LAW -1
     07657     367147                   TAD* RECLEN                  /NUM WORDS TO GEN
     07660     740001                   CMA                  /IN 2 COMP
     07661     047734                   DAC CTOTAL                   /TO COUNT WORDS STORED
     07662     207154                   LAC PATTBL
     07663     047736                   DAC ERINDX                   /TO GET PAT WORDS
     07664     777771                   LAW -7
     07665     047737                   DAC ERINDX+1         /7 OF THEM
     07666     227736        GNLOOP     LAC* ERINDX                  /GET PATTERN WORD
     07667     067735                   DAC* ERTYDX                  /TO WRITE BU FER
     07670     447736                   ISZ ERINDX                   /+1 ADDRESS PATT
     07671     447735                   ISZ ERTYDX                   /+1 ADRS BUFR
     07672     447734                   ISZ CTOTAL                   /DONE ALL
     07673     741000                   SKP                  /NO
     07674     627651                   JMP* GENPAT                  /EXIT
     07675     447737                   ISZ ERINDX+1         /DONE 7 WORDS
     07676     607666                   JMP GNLOOP                   /NO
     07677     607662                   JMP GNLOOP-4         /EVERY 7 WORDS RESET ERINDX
                             /
                                        .EJECT
```

```
                                 /SAVE 4 DATA ERRORS
    Ø77ØØ     4Ø77ØØ             COERRO    XCT .
    Ø77Ø1     447736                       ISZ ERINDX           /DONE 4 YET
    Ø77Ø2     6Ø77Ø7                       JMP .+5              /NO
    Ø77Ø3     447734                       ISZ CTOTAL           /+1 TOTAL ERR OVER 4
    Ø77Ø4     777777                       LAW -1
    Ø77Ø5     Ø47736                       DAC ERINDX           /SET ERR CNT TO SKP
    Ø77Ø6     6277ØØ                       JMP* COERRO          /EXIT
    Ø77Ø7     2ØØØ12                       LAC 12
    Ø771Ø     Ø6ØØ13                       DAC* 13              /SAVE DATA WRT ADDRS
    Ø7711     2ØØØ1Ø                       LAC 1Ø
    Ø7712     Ø6ØØ13                       DAC* 13              /SAVE DATA RD ADDRS
    Ø7713     6277ØØ                       JMP* COERRO          /EXIT
                                 /
                                 /TYPE DATA SPACE 2 TYPE ADRS CR LF
    Ø7714     4Ø7714             TYDADR    XCT .
    Ø7715     227737             GTCDAT    LAC* ERINDX+1        /GET DATA
    Ø7716     12Ø1Ø1                       JMS* TYPCON          /TYPE IT
    Ø7717     62Ø13Ø                       JMP* TTYDIS
    Ø772Ø     2Ø6Ø2Ø                       LAC SPA2TX
    Ø7721     12Ø1ØØ                       JMS* TYPTEX          /SPACE 2
    Ø7722     62Ø13Ø                       JMP* TTYDIS
    Ø7723     2Ø7737             GTADDR    LAC ERINDX+1         /GET ADRS
    Ø7724     12Ø1Ø1                       JMS* TYPCON          /TYPE IT
    Ø7725     62Ø13Ø                       JMP* TTYDIS
    Ø7726     2Ø6Ø15                       LAC CRLFTX           /CAR RET
    Ø7727     12Ø1ØØ                       JMS* TYPTEX          /LINE FEED
    Ø773Ø     62Ø13Ø                       JMP* TTYDIS
    Ø7731     447715                       ISZ GTCDAT           /+1 DATA LAC ADR
    Ø7732     447723                       ISZ GTADDR           /+1 ADR LAC ADR
    Ø7733     627714                       JMP* TYDADR          /EXIT
                                 /
    Ø7734     ØØØØØØ             CTOTAL    Ø
    Ø7735     ØØØØØØ             ERTYDX    Ø
    Ø7736     ØØØØØØ             ERINDX    Ø
    Ø775Ø                                  .LOC ERINDX+12
              ØØØØØØ                       .END
    Ø775Ø     ØØ7333      *LIT
    Ø7751     ØØ5142      *LIT
    Ø7752     ØØØØØ7      *LIT
    Ø7753     ØØ7777      *LIT
    Ø7754     777634      *LIT
    Ø7755     ØØØØ12      *LIT
    Ø7756     ØØ1ØØØ      *LIT
    Ø7757     1ØØØØØ      *LIT
    Ø776Ø     ØØ5234      *LIT
    Ø7761     ØØ63Ø2      *LIT
    Ø7762     167144      *LIT
    Ø7763     ØØ6ØØØ      *LIT
    Ø7764     Ø4Ø3ØØ      *LIT
    Ø7765     ØØØ3ØØ      *LIT
    Ø7766     ØØ7ØØØ      *LIT
    Ø7767     Ø4ØØØØ      *LIT
    Ø777Ø     74ØØØØ      *LIT
    Ø7771     741ØØØ      *LIT
```

```
        07772       770000      *LIT
        07773       007700      *LIT
        07774       000077      *LIT
        07775       777772      *LIT
        07776       001777      *LIT
        07777       777767      *LIT
        10000       000003      *LIT
        10001       002000      *LIT
        10002       000100      *LIT
        10003       003000      *LIT
        10004       000200      *LIT
        10005       004000      *LIT
        10006       005000      *LIT
        10007       040100      *LIT
        10010       040200      *LIT
        10011       020000      *LIT
        10012       177777      *LIT
        10013       000377      *LIT
        10014       177400      *LIT
        10015       000370      *LIT
        10016       000260      *LIT
        10017       000215      *LIT
        10020       005142      *LIT
        10021       107353      *LIT
        10022       707341      *LIT
        10023       400000      *LIT
        10024       000267      *LIT
        10025       000271      *LIT
        10026       776000      *LIT
        10027       000140      *LIT
        10030       000070      *LIT
        10031       000050      *LIT
        10032       017777      *LIT
        10033       000001      *LIT
        10034       760000      *LIT
        10035       016000      *LIT
        10036       010000      *LIT
        10037       006302      *LIT
        10040       000017      *LIT
        10041       006302      *LIT
        10042       373600      *LIT
        10043       000010      *LIT
        10044       777777      *LIT
        10045       020300      *LIT
        10046       013777      *LIT
        10047       060000      *LIT
        10050       007143      *LIT
        10051       007736      *LIT
        10052       227737      *LIT
        10053       207737      *LIT
        10054       014000      *LIT
                                                NO ERROR LINES
```

```
MAGREX      PAGE  5Ø

ACTVJM       Ø6427
APIADR      ØØØØ45
APIENA      ØØØ112
BACKRD       Ø6711
BADTEX       Ø7642
BKEOFX       Ø6372
BKNSTP       Ø64Ø7
BKREAD       Ø7Ø31
BKROVR       Ø7Ø41
BKSSTP       Ø6335
BK1VAL       Ø6317
BLKSRD       Ø643Ø
BNSWRD       Ø642Ø
BOTTEX       Ø7516
CALOC       ØØØØ33
CDPATR       Ø5277
CDRIVE       Ø57Ø6
CDRVRT       Ø57Ø7
CHGDRV       Ø5732
CLOF        7ØØØØ4
CLON        7ØØØ44
CLSF        7ØØØØ1
CODATA       Ø7525
COERRO       Ø77ØØ
COERRT       Ø7562
COEXIT       Ø7556
COLOOP       Ø7546
COMDOK       Ø7254
COTYIP       Ø76ØØ
CRLFIF       Ø6Ø12
CRLFTX       Ø6Ø15
CSTEXT       Ø7455
CTOTAL       Ø7734
CYCLFK      ØØØ11Ø
DEVFLG      ØØØ114
DEVHNG       ØØ144
DEVINT      ØØØ133
DEVSTR      ØØØ143
DEVTFS      ØØØ113
DRACTV       Ø7143
DRDELE       Ø5675
DRTABL      Ø134ØØ
DRVADR       Ø7155
DRVDFX       Ø7141
DRVSFT       Ø712Ø
DRVTEX       Ø745Ø
DRØTAB      Ø134ØØ
DR1TAB      Ø13421
DR2TAB      Ø13442
DR3TAB      Ø13463
DR4TAB      Ø135Ø4
DR5TAB      Ø13525
DR6TAB      Ø13546
DR7TAB      Ø13567
DTATEX       Ø7477
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EOFNTX      Ø6431
EOFTFX      Ø6Ø23
ERINDX      Ø7736
ERRRFW      Ø63Ø2
ERTYDX      Ø7735
EVNCHK      Ø5315
FAKECA     Ø13777
FDRIVE      Ø571Ø
FILEK       Ø7153
FILETH      Ø715Ø
FILPOS      Ø7144
FILSFL      Ø5336
FILWRT      Ø7146
FRSFIL      Ø7151
FRSRFW      Ø6527
FWORDA      Ø7447
FWORDM      Ø7445
FWORDR      Ø7446
GENPAT      Ø7651
GETOFV     ØØØ115
GNLOOP      Ø7666
GOASSM      Ø7166
GONSTP      Ø7272
GPARAM      Ø5544
GTADDR      Ø7723
GTCDAT      Ø7715
GTFRSD      Ø5557
GTPWRD      Ø5313
GTXTND      Ø7Ø73
HNGCTR      Ø7375
HNGTFX      Ø6Ø53
HNGTYP      Ø5Ø35
IM1SAV      Ø7377
INTSAV      Ø7376
KBDDIS     ØØØ131
KEEPIT      Ø5333
KRB        7ØØ312
KSF        7ØØ3Ø1
LCM        7Ø7324
LINKPB      Ø553Ø
LOADWR      Ø723Ø
LSTKFY     ØØØ132
MSBITS      Ø57Ø5
MTACTV      Ø7332
MTAF       7Ø7322
MTAINT      Ø7344
MTAPI       Ø7353
MTAPRO      Ø7364
MTARFX      Ø5ØØØ
MTASAC      Ø7362
MTASFL      Ø5Ø73
MTASPC      Ø7363
MTCR       7Ø7321
MTEXFR     ØØ5ØØØ
MTGO       7Ø73Ø4
```

```
MTLC       707326
MTLCTX      Ø7245
MTRC       707312
MTRS       707352
MTSF       707341
MTSTAT      Ø7444
MTTR       707301
MVOR1Ø      Ø5662
NEW9WD      Ø551Ø
NEXTFX      Ø5775
NINPAR      Ø5543
NINTRK      Ø5467
NOFOFX      Ø6Ø36
NSRETU      Ø7322
PARDFN      Ø7152
PATTRL      Ø7154
PCF        7ØØ2Ø2
PSA        7ØØ2Ø4
PSB        7ØØ244
PSF        7ØØ2Ø1
QUESTN      Ø557Ø
RANNUM     ØØØ1Ø7
RCF        7ØØ1Ø2
RDBUFR     Ø16ØØØ
RDCNST      Ø6756
RDCPAT      Ø7ØØ3
RDCPND      Ø7Ø27
RDCSTP      Ø6737
RDCWD1      Ø6745
RDCWD2      Ø6765
RDCWD3      Ø6777
RDEOF       Ø6612
RDEOFX      Ø6263
RDEOT       Ø664Ø
RDERRK      Ø7117
RDNSTP      Ø6153
RDRECV      Ø6665
RDRIVE      Ø5711
RDSSTP      Ø61Ø5
RDWRD       Ø6131
RDXTND      Ø7116
READRK      Ø7Ø43
RECLEN      Ø7147
RECPOS      Ø7145
REQVAL      Ø5361
REWAIL      Ø5142
REWCIR      Ø5222
REWERR      Ø52ØØ
REWRFT      Ø516Ø
RNSAIL      Ø622Ø
RNSCOM      Ø6225
RNSWD1      Ø6171
RNSWD2      Ø6214
RRB        7ØØ112
RSA        7ØØ1Ø4
```

```
RSR         700144
RSF         700101
RSFDRV       05712
SDEXIT       05044
SELMOD       05251
SELTFX       05755
SELTRK       05642
SEQSFL       05113
SECTRL       05127
SPA2TE       07474
SPA2TX       06020
SP3TFX       06007
STPRFT       07262
SVNTRK       05653
SVXTND       07114
SWSPAR       05446
TABLFK      000012
TBADTP       07617
TCF         700402
TDFCTM      000105
TESEDT       06505
TESHNG       05011
TLS         700406
TSF         700401
TSXTRA       05051
TTYDTS      000130
TTYFLG      000126
TYASC1      000104
TYDADR       07714
TYDELE       06000
TYOCT1      000103
TYOCT2      000102
TYPCON      000101
TYPDRV       07400
TYPTFX      000100
TYQUFS       05772
UNFXPC       07343
UNKNWN      000142
UNXTFX       06066
UPCORE      000111
VLDDRV       05620
WCLOC       000032
WKYBD       000106
WNSWD1       05430
WNSWD2       05442
WRBUFR      014000
WREOF1       06476
WRITFK       06611
WRNSTP       05416
WRSSTP       05374
WRTBAK       06563
WRTEOF       06446
WRTNEW       05260
WRTVAL       05234
WRTXTN       07115
```

```
NSSWPD       Ø541Ø
WTFRFW       Ø6544
XTRAFL       Ø7342
```

```
TABLEK      000012
ACLOC       000032
CALOC       000033
APIADR      000045
TYPTEX      000100
TYPCON      000101
TYOCT2      000102
TYOCT1      000103
TYASC1      000104
TDECIM      000105
AKYBD       000106
RANNUM      000107
CYCLEK      000110
UPCORE      000111
APIENA      000112
DEVTES      000113
DEVFLG      000114
GETDEV      000115
TTYFLG      000126
TTYDIS      000130
KBDDIS      000131
LSTKEY      000132
DEVINT      000133
UNKNWN      000142
DEVSTR      000143
DEVHNG        00144
MTAREX        05000
MTEXER      005000
TESHNG        05011
HNGTYP        05035
SDEXIT        05044
TSXTRA        05051
MTASFL        05073
SEQSFL        05113
SEQTRL        05127
REWAIL        05142
REWRET        05160
REWERR        05200
REWCLR        05222
WRTVAL        05234
SELMOD        05251
WRTNEW        05260
CDPATR        05277
GTPWRD        05313
EVNCHK        05315
KEEPIT        05333
FILSEL        05336
REDVAL        05361
WRSSTP        05374
WSSWRD        05410
WRNSTP        05416
WNSWD1        05430
WNSWD2        05442
SWSPAR        05446
NINTPK        05467
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```
NEW9WD      Ø551Ø
LINKPB      Ø553Ø
NINPAR      Ø5543
GPARAM      Ø5544
GTFRSD      Ø5557
QUFSTN      Ø557Ø
VLDDRV      Ø562Ø
SELTRK      Ø5642
SVNTRK      Ø5653
MVOR1Ø      Ø5662
ORDELE      Ø5675
MSBITS      Ø57Ø5
CDRIVE      Ø57Ø6
CDRVRT      Ø57Ø7
FDRIVE      Ø571Ø
RDRIVE      Ø5711
RSFDRV      Ø5712
CHGDRV      Ø5732
SELTFX      Ø5755
TYQUFS      Ø5772
NEXTFX      Ø5775
TYDELE      Ø6ØØØ
SP3TFX      Ø6ØØ7
CRLFIF      Ø6Ø12
CRLFTX      Ø6Ø15
SPA2TX      Ø6Ø2Ø
EOFTFX      Ø6Ø23
NOEOFX      Ø6Ø36
HNGTFX      Ø6Ø53
UNXTFX      Ø6Ø66
RDSSTP      Ø61Ø5
RDWRD       Ø6131
RDNSTP      Ø6153
RNSWD1      Ø6171
RNSWD2      Ø6214
RNSAIL      Ø622Ø
RNSCOM      Ø6225
RDEOFX      Ø6263
ERRRFW      Ø63Ø2
BK1VAL      Ø6317
BKSSTP      Ø6335
BKEOFX      Ø6372
BKNSTP      Ø64Ø7
BNSWRD      Ø642Ø
ACTVJM      Ø6427
BLKSRD      Ø643Ø
EOFNTX      Ø6431
WRTEOF      Ø6446
WRFOF1      Ø6476
TESEOT      Ø65Ø5
FRSRFW      Ø6527
WTFRFW      Ø6544
WRTBAK      Ø6563
WRITFK      Ø6611
RDFOF       Ø6612
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RDFOT       Ø664Ø
RDRECV      Ø6665
BACKRD      Ø6711
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RDCWD1      Ø6745
RDCNST      Ø6756
RDCWD2      Ø6765
RDCWD3      Ø6777
RDCPAT      Ø7ØØ3
RDCPND      Ø7Ø27
BKREAD      Ø7Ø31
BKROVR      Ø7Ø41
READBK      Ø7Ø43
GTXTND      Ø7Ø73
SVXTND      Ø7114
WRTXTN      Ø7115
RDXTND      Ø7116
RDERBK      Ø7117
BRVSFT      Ø712Ø
BRVDFX      Ø7141
BRACTV      Ø7143
FILPOS      Ø7144
RECPOS      Ø7145
FILWRT      Ø7146
RECLFN      Ø7147
FILETH      Ø715Ø
FRSFIL      Ø7151
PARDFN      Ø7152
FILEK       Ø7153
PATTBL      Ø7154
BRVADR      Ø7155
GOASSM      Ø7166
LOADWR      Ø723Ø
MTLCTX      Ø7245
COMDDK      Ø7254
STPRFT      Ø7262
GONSTP      Ø7272
NSRETU      Ø7322
MTACTV      Ø7332
XTRAFL      Ø7342
UNEXPC      Ø7343
MTAINT      Ø7344
MTAPI       Ø7353
MTASAC      Ø7362
MTASPC      Ø7363
MTAPRO      Ø7364
HNGCTR      Ø7375
INTSAV      Ø7376
IM1SAV      Ø7377
TYPDRV      Ø74ØØ
MTSTAT      Ø7444
FWORDM      Ø7445
FWORDR      Ø7446
FWORDA      Ø7447
BRVTFX      Ø745Ø
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CSTEXT     Ø7455
SPA2TE     Ø7474
DTATEX     Ø7477
BOTTEX     Ø7516
CODATA     Ø7525
COLOOP     Ø7546
COEXIT     Ø7556
COERRT     Ø7562
COTYLP     Ø76ØØ
TBADTP     Ø7617
BADTEX     Ø7642
GENPAT     Ø7651
GNLOOP     Ø7666
COERRO     Ø77ØØ
TYDADR     Ø7714
GTCDAT     Ø7715
GTADDR     Ø7723
CTOTAL     Ø7734
ERTYDX     Ø7735
ERINDX     Ø7736
DRTABL    Ø134ØØ
DRØTAB    Ø134ØØ
DR1TAB    Ø13421
DR2TAB    Ø13442
DR3TAB    Ø13463
DR4TAB    Ø135Ø4
DR5TAB    Ø13525
DR6TAB    Ø13546
DR7TAB    Ø13567
FAKECA    Ø13777
WRBUFR    Ø14ØØØ
RDBUFR    Ø16ØØØ
CLSF      7ØØØØ1
CLOF      7ØØØØ4
CLON      7ØØØ44
RSF       7ØØ1Ø1
RCF       7ØØ1Ø2
RSA       7ØØ1Ø4
RRB       7ØØ112
RSB       7ØØ144
PSF       7ØØ2Ø1
PCF       7ØØ2Ø2
PSA       7ØØ2Ø4
PSB       7ØØ244
KSF       7ØØ3Ø1
KRB       7ØØ312
TSF       7ØØ4Ø1
TCF       7ØØ4Ø2
TLS       7ØØ4Ø6
MTTR      7Ø73Ø1
MTGO      7Ø73Ø4
MTRC      7Ø7312
MTCR      7Ø7321
MTAF      7Ø7322
LCM       7Ø7324
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MTLC        707326
MTSF        707341
MTRS        707352
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