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References:

- 1) RSTS/E V06C System User's Guide      Order No.    AA-5133B-TC  
   Digital Equipment Corporation
- 2) RSTS/E V06C Programming Manual      Order No.    AA-2726C-TC  
   Digital Equipment Corporation
- 3) IO-MAGTAPE  
   Purdue University Computing Center
- 4) ZO-CNVRTAP  
   Purdue University Computing Center

The products listed in this document are intended for use only as described. The Computing Center cannot be responsible for the proper functioning of undescribed features or undefined parameters. In addition, reference 1) above describes features of the batch processor that are not supported by PUCC. Those features are clearly described in this document. The Computing Center cannot be responsible for the results occurring from the use of such features.

This document describes the usage of magnetic tapes on the PUCC PDP-11/70 computer system. Sections I and II give general background information necessary for the efficient use of the facilities provided. Sections III and IV describe how the programs are actually used. Information is also given that describes possible error messages and their causes.

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## I. Fundamental Information

### I.1 Introduction

This document describes the facilities available on the PUCC RSTS/E PDP-11/70 for processing user requests for use of removable-volume devices (such as magnetic tape drives, paper tape reader/punch, floppy disks, etc.) NOTE: The Purdue University Computing Center currently has only one device attached to the PDP-11/70 that is useable by the procedures described in this document. No commitment to provide additional such devices is either expressed or implied by this or any other PUCC document. This document is written as if more than one such device were available solely for the purpose of generalizability if such devices should be made available at some future date.

The facilities provided on the RSTS/E system are not intended to duplicate those of the CDC system. The primary use of these facilities is expected to be user-performed file backups. Complex tape operations will be difficult due to the fact that only one tape drive is available. Fancy operations (such as handling foreign-label types) must be handled by user-written procedures.

For information concerning the acquisition and slotting of magnetic tapes at PUCC, see the PUCC document IO-MAGTAPE, section II.2.

### I.2 Device Types

#### I.2.1 Magnetic Tape

##### I.2.1.1 Introduction

Magnetic Tape is an information storage medium with generally desirable properties. Among these are the ability to store large quantities of information, and their ability to be transferred from one computer system to another. For information concerning the physical characteristics of magnetic tape and how information is written on it, see the PUCC document IO-MAGTAPE, section I.2. Note however, that the tape drive on the PDP-11/70 reads and writes 9-track tapes, not 7-track. Tapes written on the CDC system cannot be read on the PDP system and vice-versa.

The tape drive available for use on the PUCC PDP-11/70 system is a DEC TU16 magnetic tape system. This drive reads and

writes information on nine parallel tracks in either of two formats:

- 1) 800 bpi NRZI odd parity
- 2) 1600 bpi Phase Encoded (PE) odd parity

The RSTS/E system is not capable of processing even parity tapes. The drive is capable of reading and writing tapes at speeds of up to 45 inches per second (ips).

#### I.2.1.2. Labeling Formats

Information can be stored on magnetic tape in many different formats. There are three formats available under RSTS/E: 1) unlabeled; 2) DOS Labeled; and 3) ANSI Labeled. Unlabeled format is essentially a binary dump of information to the tape. No information of any kind is stored on the tape regarding the characteristics of the file (e.g., filename, extension, size, recording conventions, etc). This method of storing information on magnetic tape is risky at best. Note, however, that tapes which are not labeled in one of the formats discussed below but nonetheless do have labels, must be processed as unlabeled tapes. In this case, it is up to the user-written program to interpret the labels and extract the data portion of the tape.

DOS labeled tapes are a Digital Equipment Corporation PDP-11 tape format standard. In addition to the actual information written to the tape, blocks of information in a standard format (called labels) precede the desired information on the tape. For the exact format of a tape written on DOS format, see the RSTS/E Programming Manual, Appendix A.

ANSI labeled tapes are an industry-wide tape format standard. As with the DOS format, the actual data to be written to the tape is preceded by blocks of information detailing the characteristics of the file they surround. ANSI format tapes also have label blocks following the actual information on the tape. For the exact format of a tape written in ANSI format, see the RSTS/E Programming Manual, Appendix A.

When creating a new tape one is faced with the decision of which format to use. The answer is obvious; If you are creating a tape to send to another PDP-11 installation use DOS format, otherwise use ANSI format. For more information about creating tapes to be used at another site, see the PUC document Z0-CNVRTAP.

The system can distinguish between the format types. The user must specify (either explicitly or by default) the format of the tape to be requested. If the user-specified format does not agree with the actual tape format the system will deny access to the tape. There are other reasons for using ANSI

format tapes. Of the three formats, only ANSI labels have an internal volume ID. This ID is assigned by the user when the tape is created. It serves to identify the tape in a machine-readable form.

The system cannot distinguish one DOS-Labeled tape from another but it can distinguish one ANSI-Labeled tape from another via the Internal volume ID. Thus, users who use ANSI-Labeled tapes, and keep the internal volume ID secret, protect themselves from having their tapes written over or read by unauthorized users whether through error or malicious intent.

#### 1.2.1.3 Tape Storage Capacity and Multi-Reel Files

There are times when one needs to know how much tape is required to store a given amount of information. For information concerning these computations, see the PUC document IO-MAGTAPE, section 1.4. Note however, that the inter-record gap on the PDP tape drive is 1/2 inch at 1600 bpi, 3/4 inch at 800 bpi, and that an end-of-file mark is essentially 2 consecutive inter-record gaps in length. Currently, files that will not fit onto one physical reel cannot be written with either DOS or ANSI Labels. Such files must be processed by user-written procedures. However, multi-reel files on ANSI format tapes is expected to be supported in the next release of the RSTS/E Operating System.

#### 1.2.1.4 Tape Blocking

The comments concerning tape blocking in the PUC document IO-MAGTAPE, section 1.5, apply equally to the PDP system. The Computing Center has no facilities for automatically handling blocked tapes on the PDP-11/70. All such procedures must be user-written. However, blocking of ANSI-format tapes is expected to be supported in a future release of the RSTS/E operating system.

#### 1.2.2. Other Devices

There are (currently) no other device types available for use on the PUC PDP-11/70 system.

## II. Batch Jobs

### II.1 General Information

#### II.1.1 Creating a Batch Job

Device requests are allowed only from batch jobs. RSTS/E batch jobs are essentially pre-planned terminal sessions. In order to have a batch job executed, the user must first create a file (default extension '.CTL') containing the commands he wishes to have executed. In addition to the commands available during a normal terminal session, the Batch Processor provides some macro commands which perform common operations. For more information about the Batch Processor and creating batch control files, see the "RSTS/E System User's Guide", chapter 22. See section III.2.1 for an example of a batch job control file.

#### II.1.2 Submitting Batch Jobs

In order to send a batch job control file to the Batch Processor for execution, the QUE program is used. For an example of a batch job submission, see the RSTS/E System User's Guide, chapter 22, page 20. Note that the QUE program recognizes 'BA:' as a pseudo-device. The CCL command QUEUE is defined on the PUCC RSTS/E system. In addition, the CCL command SUBMIT is also defined for the QUE program. When this CCL entry point is used, the default device type for the queuing operation is the BA: pseudo-device. Thus, at PUCC, the command

```
SUBMIT/Q BATJOB=FILE1,FILE2,FILE3.DAT
```

is equivalent to

```
QUE/Q BA:BATJOB=FILE1,FILE2,FILE3.DAT
```

#### II.1.3 Requesting Devices

WARNING: The RSTS/E System User's Guide describes Batch Processor Macro commands (Mount and Dismount) that are used at some RSTS/E installations to effect device requests. These commands may not be used at PUCC.

In order to issue device requests, the REQUEST processor is called via CCL command from the batch job. (For more information about REQUEST, see section III of this document.) Of the nine possible batch streams (BA: and BA0: thru BA7:) there are two in use at PUCC. BA1: is used for processing non-device requesting batch jobs. BA2: is used for processing batch jobs

that do require device requests. The user can exercise some control over which batch stream his job is executed in. A non-device requesting job can be queued to either batch stream but a job that makes device requests will always be queued to BA2: regardless of what is specified by the user.

## II.2 Bridge Burning Edits

Because of the way information is written on a magnetic tape, it is not possible to write or change anything on a tape without destroying all information stored farther down the tape. Note, however, that it is possible to append new information to the current logical end of the tape. For example, if a tape contains two logical files of information, changing the first logical file's contents also destroys the contents of the second logical file. Thus, if the information recorded farther down the tape is not saved some way, the information is destroyed and a bridge has been burned. Generally speaking, it is not possible to have two or more files on a tape with the same name. If one is not careful, it is easy to destroy information farther down the tape by inadvertently giving a new file the same name as an existing file. For more information concerning this problem, see the "RSTS/E Programming Manual, Chapter 2.

Some users have been known to attempt to make changes to the contents of a tape by reading and rewriting the tape in one run. Many bridges have been burned by this procedure when the job aborted for some reason while writing on the tape. Not only did the tape contain garbage, its previous contents were destroyed.

Any attempt to change the contents of a magnetic tape in a run without saving its previous contents is a "bridge burning edit". If the cost of recreating the previous contents of the tape is small, then one may burn his bridges behind him without fear. If the cost of recreating the information is quite large, or if it is impossible to recreate it, then it is foolish if not reckless to attempt a bridge-burning edit.

When making changes to the contents of a tape, write the changed information to another tape. Then, if something goes wrong while the job is running, the original information will not be destroyed.

Note that the above paragraph assumes that you have some way to copy one tape to another. Since there is only one magtape drive available on the RSTS/E System, it is necessary to copy the tape to disk, mount another tape, and then copy the disk file back to tape. This is an expensive, time-consuming procedure. The cost of backing up a tape to be written over must be weighed against the cost of recreating the tape if the

Job aborts.

### III. REQUEST

#### III.1 Introduction

In order to gain access to a removable-volume device (such as a magnetic tape drive) the user must use the "REQUEST" processor. This program is called by a CCL command.

Once REQUEST has determined that it was invoked by a valid user, it begins processing the command. If errors are detected in the command, REQUEST will issue the appropriate error message(s). If there are no errors detected in the command, REQUEST sends a message to the operator requesting that the user's volume be mounted. The operator responds by telling REQUEST which unit number he has assigned for use by the job. REQUEST then verifies that it has the type of access requested by the user (read, write, etc.). It then attempts to verify that the volume mounted is actually the volume requested by the user. It does this by checking the density, label type and (if applicable) the internal volume id. If REQUEST determines that the tape density, label type, internal volume id, etc. do not match what the user has specified, access to the tape is denied and the job is aborted.

#### III.2 Command Syntax

The REQUEST processor command syntax is as follows:

Action Device:External-Id/switches

where Action is the physical action desired,  
Device: is the device type desired,  
External-id is the external identification of the  
desired volume (slot number) and,  
/switches are the switches specifying optional  
parameters.

REQUEST may be entered only via a CCL command. In order to issue CCL commands from a batch job, it is necessary to include the '/CCL' switch on the '\$JOB' statement of the batch job. An example batch control file that requests the use of a tape and copies one of the files on the tape to a disk file is given below:

*800/1600*  
\$JOB/CCL  
\$REQUEST MOUNT MM:1234/VID:MYTAPE/LOGICAL:TAPE1  
\$REQUEST REWIND TAPE1:  
\$PIP SY:PROG3.PAS=TAPE1:PROG3.PAS  
\$REQUEST DISMOUNT TAPE1:  
\$EOJ  
*MT: 1600/1600*

There are several things that should be noted about the above request. First, note that no unit number is specified in the request. The user is asking for a particular device type (i.e., MM:, the 9-track tape drive) and doesn't care which of those units he is assigned. Second, since the user does not know which of the units he will be assigned for use, it is necessary that he use a logical name to reference that unit. The "/LOGICAL:TAPE1" switch tells the REQUEST processor to assign "TAPE1" as the logical name of the device. Note that this logical name is used in subsequent commands to reference the device. Third, the external volume id need not be specified for the REWIND and DISMOUNT actions. Fourth, the rewind command is not necessary in the above job. This is because the MOUNT command insures that the tape is left in a rewound state.

### III.2.11 Command Types

There are three command types (or actions) recognized by REQUEST. These are:

- |          |  |
|----------|--|
| MOUNT    | Requests that specified volume be mounted and assigned to the job                                    |
| DISMOUNT | Requests that specified device be taken off-line, deassigned from the job, and the volume dismantled |
| REWIND   | Requests that a sequential volume, e.g. magnetic tape, be positioned at its beginning                |

### III.2.2 Switches

There are many switches available for specifying optional parameters. They are classified according to the commands with which they may be specified. The name of any switch may be abbreviated to 2 characters not including any "NO" prefix. For example, "LOGICAL" may be specified as "LO" and "NOECHO" may be specified as "NOEC".

The following switch may be used with all commands:

NOECHO Suppresses the summary text generated by REQUEST

The following switches may be used with the MOUNT command:

LOGICAL:xxx Assign 'xxx' as logical name of device/volume. THIS SWITCH IS REQUIRED. 'xxx' may be from 1 to 6 characters in length.

VPK:xxx 'xxx' is the visual protect key of the volume. This is assigned by the user when the tape is assigned a slot number. It must be correctly specified in order for write or zero access to be granted. 'xxx' must be exactly 3 characters long.

ACCESS:READ Mount volume with read-only access (DEFAULT)  
MOUNT Mount volume with read-only access but do not assign the device to the job.<1>  
WRITE Mount volume with read/write access  
ZERO Mount volume with read/write access and ZERO (initialize) the volume at specified density with specified label type and internal volume id.

VID:xxx Internal volume id of volume is 'xxx'. If not specified, defaults to external volume id. 'xxx' may be from 1 to 6 characters in length.

The following switches may be used with the MOUNT command if the volume being mounted is a magnetic tape:

LABELS:DOS DOS labels are to be written (zero access) or exist (read, mount, or write access) on the tape  
ANSI ANSI labels are to be written (zero access) or exist (read, mount, or write access) on the tape (DEFAULT)  
NONSTANDARD No labels (or nonstandard labels) will

<1> For a device that requires privilege to assign, the MOUNT access can be used to provide the user with limited access to the mounted volume. In this case, the (nonprivileged) user will not be able to open the device/volume for I/O. Only a privileged user (or program) will be able to do this. Thus, the user can be restricted to the operations provided by the privileged utility program.

be used on the tape

DENSITY:nnnn Tape is to be recorded (write, zero access)  
or is recorded (read, mount access) at  
density 'nnnn' 'nnnn' is '800' or  
'1600'(DEFAULT).  
ANY Use existing tape density (read, mount, or  
write access)

There are no switches for exclusive use with the DISMOUNT  
and REWIND commands.

### III.3 Example Batch Jobs using REQUEST

The following examples show how REQUEST is used from a  
batch job for various tape operations.

#### Example 1.

Sam Student is graduating at the end of the semester. Sam  
has written many programs in his career at Purdue and he wants  
to take a machine-readable copy of his programs with him. Since  
he doesn't know yet where he is going, he wants to be very sure  
that he will be able to read the tapes wherever he goes. Thus,  
Sam submits the following batch job:

```
$JOB/CCL  
$REQUEST MOUNT MM:1234/AC:ZERO/LO:TAPE1/VPK:ABC/VID:SAM  
$PIP TAPE1:=*.*  
$PIP TAPE1:/DI  
$REQUEST DISMOUNT TAPE1:  
$EOJ
```

The tape is recorded at 1600 bpi with ANSI labels and  
internal volume-id = 'SAM'. Sam also obtains a directory  
listing of the names of the files stored on the tape.

#### Example 2.

Blaise Pascal has a library of programs (written in his  
favorite programming language) stored on magnetic tape. He  
keeps two tapes; one contains the source of his programs and the  
other contains the executable versions of those programs.  
Blaise has just written and debugged another program and he

wants to add it to his tape library. Thus, he submits the following batch job:

```
$JOB/CCL
$PASCAL NEWPRG=NEWPRG
$LINK NEWPRG=NEWPRG,$PASLIB
$REQUEST MOUNT MM:1111/LO:SOURCE/VID:SRCLIB/VP:BPL/AC:WRITE
$PIP SOURCE:NEWPRG.PAS=NEWPRG.PAS
$PIP SOURCE:/DI
$REQUEST DISMOUNT SOURCE:
$REQUEST MOUNT MM:2222/LO:BINLIB/VID:BINLIB/VP:BPL/AC:WRITE
$PIP BINARY:NEWPRG.SAV=NEWPRG.SAV
$PIP BINARY:/LI:S
$REQUEST DISMOUNT BINARY:
$PIP NEWPRG.* /WO
$EOJ
```

Blaise first compiles and links his new program. The source program is on file NEWPRG.PAS and the resulting executable file is NEWPRG.SAV. Next, he requests that his source library tape be mounted and he copies the source file to the tape. (Blaise's library is valuable to him, so he uses ANSI labelled tapes and never tells anyone his internal volume-id's or his visual protect keys.) Blaise always obtains a new directory of the contents of his tapes whenever he writes something on them. Blaise then dismounts his source library, mounts his "binary" library, copies the new program to the second tape, obtains the new directory listing and dismounts the second tape. Finally, Blaise deletes all of the files regarding his new program from his disk storage.

#### IV. Errors

##### IV.1 Request Errors

All errors issued by the REQUEST processor follow the RSTS/E convention for reporting error severity. See the RSTS/E System User's Guide, Appendix C, Table C-1, for information concerning this convention. See the RSTS/E System User's Guide, chapter 22, page 8 for information concerning the BATCH Processor's reaction to errors. The default error level for all batch streams at PUCC is "WARNING". The remainder of this section lists all possible error messages issued by REQUEST and their probable causes.

Errors from REQUEST are divided into 3 groups: 1) syntax errors, 2) usage errors, and 3) process errors. When REQUEST cannot correctly parse a command (i.e., it is syntactically incorrect) it reports a syntax error. Usage errors occur when a syntactically correct, but semantically incorrect command is detected. Process errors are reported when an error is detected during the processing of the command. All of the errors listed below are FATAL errors to the batch processor. Thus, they will cause the batch job to be aborted if the error severity level of the batch processor is set to 'NONE' or 'WARNING'. When using the device-requesting facility, the error severity level should not be set to 'FATAL' as this will allow a job to proceed even if fatal errors occur during a mount request and the job will surely abort on later errors.

### SYNTAX ERRORS

#### ILLEGAL ACCESS TYPE SPECIFICATION

The argument of an '/ACCESS' switch was not 'ZERO', 'WRITE', 'READ', or 'MOUNT'.

#### ILLEGAL COMMAND -- xxxxx

Command type was missing, misspelled, or was not delimited by blanks or tabs.

#### ILLEGAL DENSITY SPECIFICATION

The argument of a '/DENSITY' switch was not '800', '1600', or 'ANY'.

#### ILLEGAL LABEL TYPE SPECIFICATION

The argument of a '/LABEL' switch was not 'ANSI', 'DOS', or 'NONSTANDARD'.

#### ILLEGAL LOGICAL NAME SPECIFICATION

The argument of a '/LOGICAL' switch was not between 1 and 6 characters in length, inclusive.

#### ILLEGAL VISUAL PROTECT KEY SPECIFICATION

The argument of a '/VPK' switch was not exactly 3 characters long. The argument may not contain blanks, tabs, or control characters.

#### ILLEGAL VOLUME-ID SPECIFICATION

The argument of a '/VID' switch was not between 1 and 6 characters in length, inclusive.

#### INVALID SWITCH SPECIFIED -- /xxx

An undefined switch was given. Check spelling and insure that at least 2 characters (not including a 'NO' prefix) were specified.

MISSING ARGUMENTS (DEVICE, EXTERNAL-ID, ETC)

No arguments were specified following the command type or the command type was not delimited by blanks or tabs.

MISSING OR ILLEGAL EXTERNAL VOLUME ID

For a MOUNT command, the external volume id was not specified, or it contained '?', '\*', or '.' characters.

MULTIPLE ACCESS TYPE SPECIFICATIONS

The '/ACCESS' switch was specified more than once.

MULTIPLE DENSITY SPECIFICATIONS

The '/DENSITY' switch was specified more than once.

MULTIPLE LABEL TYPE SPECIFICATIONS

The '/LABEL' switch was specified more than once.

MULTIPLE LOGICAL NAME SPECIFICATIONS

The '/LOGICAL' switch was specified more than once.

MULTIPLE VISUAL PROTECT KEY SPECIFICATIONS

The '/VPK' switch was specified more than once.

MULTIPLE VOLUME-ID SPECIFICATIONS

The '/VID' switch was specified more than once.

NO DEVICE SPECIFIED

No device type was given. Check for missing ':'.  
.

NON-REQUESTABLE DEVICE SPECIFIED

A device type was specified that may not be REQUESTed.

UNRECOGNIZABLE COMMAND

A syntax error occurred in the command to the right of the command type specification.

UNRECOGNIZED DEVICE SPECIFIED

Device type specified is not configured on the system.

USAGE ERRORS

'/DENSITY:ANY' ILLEGAL WITH '/ACCESS:ZERO'

A specific density must be specified when zeroing a tape.

LOGICAL DEVICE NAME MUST BE USED FOR NON-MOUNT ACTIONS

A logical device name (the one specified in the corresponding mount) must be used as the requested device with REWIND and DISMOUNT commands.

'/LOGICAL' MUST BE SPECIFIED WITH MOUNT COMMAND

A logical name must be given when a volume is to be

mounted.

PHYSICAL DEVICE TYPE MUST BE SPECIFIED FOR MOUNT

A physical device name (or a logical name that maps into a physical device name) must be specified as the requested device for a mount command.

VOLUME-ID MUST NOT BE SPECIFIED FOR NON-ANSI TAPE

Since only ANSI tapes have an internal volume-id, the `/VID` switch may be used only when mounting an ANSI tape.

`/VPK:XXX` REQUIRED WITH `/ACCESS:WRITE` OR `/ACCESS:ZERO`

The visual protect key must be specified in order for write or zero access to be granted.

SYSTEM ERROR - OPERATOR AND BATCH IN REQUEST

This error should never occur. If it does, it should be reported to the PUCG PDP-11 staff via the GRIPE program.

PROCESS ERRORS

DSD IS OFF-LINE. CANNOT PROCESS REQUEST

This error should not occur. If it does, it should be reported to the PUCG PDP-11 staff via the GRIPE program.

ERROR DURING ASSIGNMENT OF LOGICAL NAME

Each user job is limited to a maximum of 4 simultaneous logical name assignments. If 4 logical name are assigned when a mount request is issued, and the current attempt is not a re-assignment of one of the existing names, the request for a new logical name assignment will fail.

ILLEGAL CHAIN ENTRY INTO `'REQUEST'`

Chain entry into `REQUEST` is not allowed.

ILLEGAL RUN ENTRY INTO `'REQUEST'`

Run entry into `REQUEST` is not allowed.

INSUFFICIENT AUTHORIZATION TO USE `'REQUEST'` FROM A TERMINAL

`REQUEST` may be invoked only from a batch job.

INVALID UNIT NUMBER RETURNED BY DSD

This error should not occur. If it does, it should be reported to the PUCG PDP-11 staff via the GRIPE program.

SPECIFIED DENSITY DOES NOT MATCH TAPE DENSITY

The user must correctly specify the density of a tape to be mounted with read, mount, or write access.

SPECIFIED LABEL TYPE DOES NOT MATCH TAPE LABEL

The user must correctly specify the type of labels existing

on a tape to be mounted with read, mount, or write access.

SPECIFIED VOLUME-ID DOESN'T MATCH VOLUME-ID ON ANSI TAPE

The user must correctly specify the internal volume-id existing on an ANSI labelled tape for read, mount, or write access.

SYSTEM ERROR - OPERATOR AND BATCH IN REQUEST

This error should never occur. If it does, it should be reported to the PUCC PDP-11 staff via the GRIPE program.

VOLUME REQUESTED FOR DISMOUNT IS OFF-LINE

The volume requested to be dismounted is off-line (i.e., it has already been DISMOUNTED).

VOLUME REQUESTED FOR REWIND IS OFF-LINE

The volume requested to be rewound is off-line (i.e., it has already been DISMOUNTED).

UNEXPECTED ERROR DURING DISMOUNT -- TAPE STATUS = xxx

An unknown error has occurred during a DISMOUNT operation.

UNEXPECTED ERROR DURING REWIND -- TAPE STATUS = xxx

An unknown error has occurred during a REWIND operation.

#### IV.2 RSTS/E Errors

The following discussion concerns RSTS/E errors that one might encounter when using magnetic tapes.

Error 1 (Bad directory for device) normally occurs when trying to process a tape with DOS labels as if it had ANSI labels or vice versa.

Error 13 (User data error on device) normally indicates unrecoverable parity errors (read or write).

Error 14 (Device hung or write locked) will occur when trying to do write operations on a tape that has been mounted with 'read' or 'mount' access.

Error 39 (Magtape select error) will occur when trying to do I/O operations on the magtape drive after the device/volume has been DISMOUNTED via REQUEST.

There are other errors that may occur when using magnetic tapes but the above list includes the most common ones. For more information about RSTS/E errors and magtapes, see the RSTS/E System User's Guide[1], Appendix C.

### IV.3 MAGTAPE Parity Errors

Users of the RSTS/E magnetic tape system will not normally need to worry about handling parity errors. The RSTS/E system provides excellent error handling for magtape read/write errors. However, if the system is unable to perform the requested operation after several tries, the user will receive RSTE/E error number 13 (User data error on device) which is a FATAL error.