**SYQUEST 306/312RD REMOVABLE CARTRIDGE DRIVE
OPERATOR'S GUIDE**

DOCUMENT: 49-529 ROO

JULY, 1985

TABLE OF CONTENTS

I. OVERVIEW

The Operator's Guide describes the usage and care of both the Syquest 306 (5 MByte) and 312RD (10MByte) removable cartridge Winchester drives. The two drives are very similar but have important differences.

Foremost, the cartridges are not interchangeable between the 306 and 312RD drives. The appropriate cartridge for each drive is color coded to the cartridge release latch on the corresponding drive. The 306 cartridge release latch is beige and therefore the 306 uses beige cartridges. The 312RD cartridge release latch is gray and uses gray cartridges.

Second, the red tab on a cartridge has a different connotation for each drive. The red tab on the 306 drive enables writing. In order to initialize or write onto a cartridge, the red tab must be inserted. Conversely, if the red tab is inserted on a 312RD drive, the drive is write protected. The tab must be removed in order to initialize or write data onto the cartridge.

Third, the operation of the front panel LED of the 306 drives is different from the 312RD drives. The different states of the 306 and 312RD LEDS will be discussed in the drive operation section of this manual.

II. CARTRIDGE INSERTION AND REMOVAL PROCEDURES

Inserting the Removable Cartridge

When the power is on and the STATUS display shows "20", insert the removable-disk cartridge. **Figure 1** shows disk insertion.
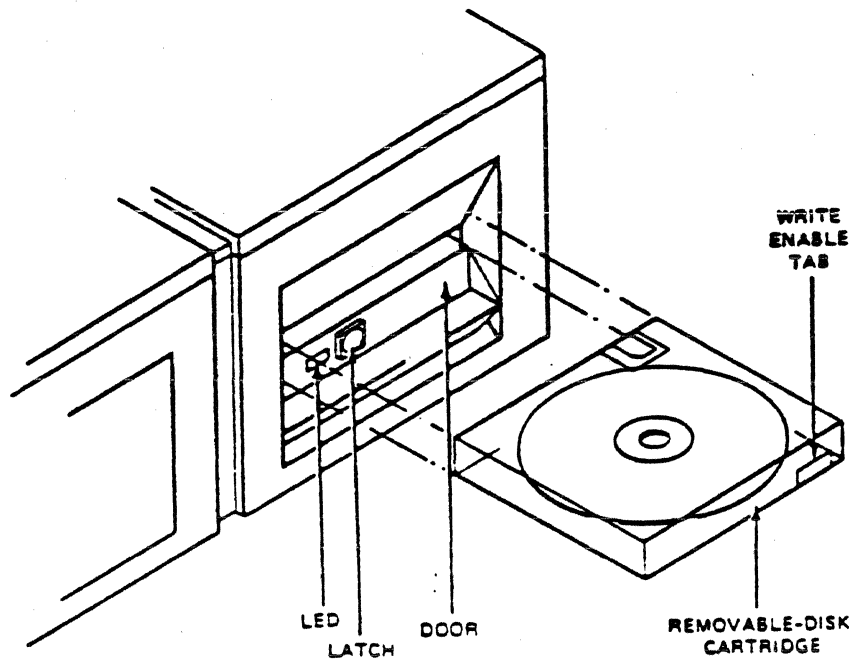

CAUTION

The disk drive door must be fully open and perpendicular to the front panel or the drive heads may be damaged when you insert a cartridge.

To avoid damage to the disk, do not open the drive door when the red LED is lighted or blinking. Do not turn off the power to the enclosure when a disk is inserted and the door is closed.

To insert the removable-disk cartridge, press the release latch on the front panel of the drive and open the door so it is perpendicular to the front panel. If you have not already done so, remove the cartridge case used to protect the drive heads during shipping.

Insert the removable-disk cartridge so the red rectangle is on the bottom right side. Push it into the drive until you hear a "click." Close the door. On a 306 drive, the red LED will light when the drive has become ready and is selected by the CPU. The 312RD drive LED lights red while the disk is powering up and changes to green when the drive is READY. The LED turns orange when the drive is ready and selected.

Figure 1. Inserting the Removable-Disk Cartridge

To remove the disk cartridge from the drive, press the release latch on the front panel of the drive. The red LED will blink for about 30 seconds (until the drive stops spinning). Do not open the drive door until the blinking stops, or you may damage the disk.

As you fully open the door, the disk will automatically eject from the drive; hold on to the disk during this process to prevent it from falling to the floor.

Be sure to store the removable-disk cartridge in a protected location.

III. DRIVE OPERATION

A. Syquest 306 Drive Operation

Only beige colored cartridges may be used in the 306 drive!

Cartridge Tab Function

The function of the red tab on 306 cartridges follows:

>   In - cartridge is write enabled
>
>   Out - cartridge is write protected

LED Operation

The front panel LED displays the status of the drive.
Status indications are described below:

1. RED:

    The drive LED flashes red momentarily when the drive
    is selected.

2. Slow Flashing Red:

    This indicates the drive is in the spin down sequence.
    This may be operator initiated if the release latch is
    pressed or drive initiated if the drive cannot read the
    reference track.

B. Syquest 312RD Drive Operation

Only gray cartridges may be used in 312RD drives!

The function of the red tab on the 312RD cartridges follows:

>   In - cartridge is write protected*
>
>   Out - cartridge is write enabled
>
>   *DO NOT attempt to initialize or write on
>   write protected cartridges!

LED Operation

The front panel LED provides operator information as to the drive status. The status of the LED is described below:

1. RED:

State 1 is red, this indicates that the drive in a power up initialization process.

2. GREEN:

State 2 is green, this indicates that the drive is READY and SEEK COMPLETE is true and ready to be selected.

3. ORANGE:

State 3 is orange, this indicates that the drive is ready and selected.

4. SLOW FLASHING RED:

State 4 is flashing red, this indicates that the drive is in a spin down sequence.

5. RAPIDLY FLASHING RED:

State 5 is rapidly flashing red, this indicates an excessive runout condition with the Q-PAK. Remove Q-PAK and reinsert.

IV. CARTRIDGE INITIALIZATION

A. SYQUEST 306 - 5 M By t

1. Insert a blank cartridge into the removable media drive.

2. Perform a MIVolume (MegaFrame Initialize Volume Command to format the cartridge. (Using Workstations)

MIVolume   RETURN

Device Name   d0
Device Password   d0
Volume Name   MegaDiag
[Volume Password]
[System Image]   512
[Log file)   2
[Crash file]   512
[Max. directories]
[max. files on volume]
[Primary file headers only?]
[Max. files in Sys directory?]
[Sys. Directory Password]
[Write protect Sys Directory]
[Suppress format of medium]
[Surface tests]   3,2 o-l
[Debug?]
[Log file]
[Device type]   Syquest6
[Bad Spots]

Then press the GO key to execute.

Use default entries for those items not specified.

Note: If bad spots are indicated on the cartridge defect map (on the cartridge exterior), they must be entered in the format: t/h/#sector or t/h/d/1. If the number of entries is too large for a line then create a text file and reference it as @filename.

For example:

22/0/#16 indicates track 22, head 0, sector 16
or 22/0/9787/1 indicates track 22, head 0, displacement in bytes is 9787 and length of the bad spot in bytes is 1. (See the MegaFrame CTOS Administrators Manual for further information).

2.   Perform MIVolume using Command Line Interpreter (CLI) $
RUN MIVolume.run,dO,dO,megadiag,,512,,512(cont'd next line)
,,,,,,,,3,,,syquest6, (CYL/HD/BYTE DISPLACEMENT/1,& <Press
RETURN Key> CYL/HD/BYTE DISPMT/1,CYL/HD/BYTE DISPM/1)

End every line except the last with an ampersand (&), the
CLI prompts for the continuation line with an ampersand
instead of a dollar sign ($). Do not enter an ampersand at
the beginning of a continuation line.

B.   SYQUEST 312RD   — 10 M Byte

1.   Insert a blank cartridge into the removable media drive.

2.   Perform an MIVolume (MegaFrame Initialize Volume Command
      to format the cartridge. (Using Workstations)

MIVolume   RETURN

Device Name   dO
Device Password   dO
Volume Name   MegaDiag
[Volume Password]
[System Image]   512
[Log file)   2
[Crash file]   512
[Max. directories]
[max. files on volume]
[Primary file headers only?]
[Max. files in Sys directory?]
[Sys. Directory Password]
[Write protect Sys Directory]
[Suppress format·of medium]
[Surface tests] ·   32 or 1
[Debug?]
[Log file]
[Device type]   .   Syquest 12
[Bad Spots]

Then press the GO key to execute.

Use default entries for those items not specified.

Note: If bad spots are indicated on the cartridge defect
map (on the cartridge exterior), they must be entered in the
format: t/h/#sector or t/h/d/1. If the number of entries is
too large for a line then create a text file and reference
it as @filename.

For example:

22/0/#16 indicates track 22, head 0, sector 16
or 22/0/9787/1 indicates track 22, head 0, displacement in
bytes is 9787 and length of the bad spot in bytes is 1.
(See the MegaFrame CTOS Administrators Manual for further
information).

2. Perform MIVolume using Command Line Interpreter (CLI) $
RUN MIVolume.run,d0,d0,megadiag,,512,,512(cont'd next line)
,,,,,,,,3,,,syquest12, (CYL/HD/BYTE DISPLACEMENT/1,& <Press
RETURN Key> CYL/HD/BYTE DISPMT/1,CYL/HD/BYTE DISPM/1)

End every line except the last with an ampersand (&), the
CLI prompts for the continuation line with an ampersand
instead of a dollar sign ($). Do not enter an ampersand at
the beginning of a continuation line.

V. CORRECT HANDLING AND USAGE OF SYQUEST CARTRIDGES (Q-PAK)

A. When handling cartridges, every effort must be made to keep them free from contamination and other modifications that might impair their operation on the Syquest Disk Drive. The following are operational procedures that MUST be observed:

1. When not in use, cartridges must be kept in the protective container they arrived in.

2. Labels should only be applied to the area provided on the top of the Cartridge. Under no circumstances should any labels or tape be applied to the spindle side of the Q-Pak; or if applied on the edge, it should be smaller than the width of the edge. (Only at the edge opposite the drive door).

3. The cartridge armature plate must be kept free of all contaminants and can be occasionally cleaned using a dry lint free cloth.

4. Except when Q-Paks are being loaded or removed, the door of the drive must be kept closed and latched.

5. If a Q-Pak has been dropped onto a hard surface from a height over 4 inches, it should be discarded. Use of a Q-Pak that has experienced such an impact could result in extensive damage to the drive and to Q-Paks subsequently used with that drive!

6. Do not expose the Q-Pak to a magnetic field, hot sun, rain, moisture, or dirty environments. The Q-Pak is not a floppy diskette! It is a precision rigid disk assembly!

7. Never open the sliding mechanism under any circumstances. The interior of the Q-Pak is a controlled environment. Lint, hair, or fingerprints will prove fatal to the cartridge.

8. Do not open the drive door or eject the cartridge from the drive while the LED light is blinking! Allow the drive motor to stop completely before removing the cartridge. Failure to follow this procedure could result in a "damaged head", causing damage to both the cartridge and the drive!

> The cartridge should be inserted parallel to the drive to the guide rails. A slanted insertion can damage the write protect switch. Remove the cartridge in a similar way. When ejecting cartridges from a drive, the door must be opened slowly to prevent the cartridges from ejecting too quickly.

Temperature Change

9. The cartridge should be allowed to stabilize at room temperature of the operating environment for a minimum of one hour to ensure cartridge interchangeability and data reliability.

10. The insertion of a " COLD " cartridge into a drive that has been running for hours (or a "hot" drive) may have a problem becoming " ready ". It may take up to two (2) minutes after a Q-Pak has been inserted (with drive motor on), then reinserted for the unit to come to a " drive ready" and initialized condition. Recommendation is to insert cartridge in the drive but "do not close the door" for about 2 minutes.

11. Following approximately every ten (10) insertions, and at least one daily, a Syquest Cleaning cartridge (C-Pak) is to be used to clean the spindle of contaminants. The frequency of cleaning may be higher and is dependent upon the environment and usage. (See Page 11 for ordering details).

12. Do not blow into the cartridge or drive.

13. Do not insert objects into the cartridge or drive.

14. Do not attempt to clean the disk surface or drive head other than C-Pak cleaning cartridge.

If a Cartridge fails to initialize on a Syquest Drive, proceed with the following:

1. Remove the cartridge and inspect armature plate on cartridge and inspect spindle on drive for contamination. Clean if necessary with a Syquest Cleaning Kit (C-Pak).

2. Reinsert the cartridge making sure that the door on the drive is securely fastened and the cartridge had a smooth insertion.

3. Retry again. Monitor the damper flag to listen, for the flag stepping sound, and that the drive has initialized, for this cartridge.

4. If the cartridge still will not initialize, remove the cartridge and reinsert it. If it will still not initialize, insert a new cartridge. If the problem still exists, call Customer Service.

5. After inserting the cartridge and powering up the drive, if a "rattling" type noise occurs dispensing from the cartridge, power down the drive and eject the cartridge immediately. DO NOT USE THIS CARTRIDGE AGAIN, AS IT IS DAMAGED. ISOLATE CARTRIDGE IMMEDIATELY! If unsure about type of noise generated, do not use the Drive or cartridge and call Customer Service.

6. After inserting the cartridge and powering up the drive, if a "grinding" noise occurs, as if in a sound made from metal to metal contact, power down the drive and eject the cartridge. DO NOT USE THIS DRIVE OR CARTRIDGE AGAIN. ISOLATE CARTRIDGE AND DRIVE IMMEDIATELY!

NOTE:

1. Never transport a drive with a cartridge installed!

2. Do not apply pressure on the plate assembly of the drive.

3. Do not make the chassis/frame of the drive common to earth ground; in systems with chassis noise it injects data errors!

4. Do not use cartridges identified by data code 442 through 449 marked on the spindle side. These cartridges have a potential for poor seating.

5. Isolate cartridges identified as defective.

B. PROCEDURE FOR ORDERING SYQUEST CLEANING KIT AND DESCRIPTION

1. The Syquest Cleaning Cartridge Kit is available from Syquest Technology, 47923 Warm Springs Blvd., Fremont, California 94538. Telephone: 415-490-7511, TWX: 910-381-7027, contains the following parts:

    Cleaning cartridge.

    10 each replaceable foam pads.

    Instructions.

    The instructions are duplicated here in case they are separated from the kit.

    In addition to the cleaning kit, you need either of the following solvents:

Freon - Mallincrodt #2857 (112 Trichloro - 122·
Trifluoroethane

Isopropyl Alcohol

The Cleaning Procedure follows:

1.   Apply a small amount of the solvent to the foam pad which is affixed to the center of the cleaning cartridge. (See Figure 5-1.) The pad should be moistened, but not soaked, each time you clean the drive.

2.   Insert the cleaning cartridge into the drive.

3.   Close the drive door and wait for 15 seconds.

4.   Push the drive door button and wait for the blinking light to stop.

5.   When the blinking light has stopped, remove the cleaning cartridge from the drive.

6.   Proceed with normal drive usage.

NOTE

If you use isopropyl alcohol, you must allow the drive to sit idle approximately five minutes after cleaning it, to insure that the motor flange is dry.
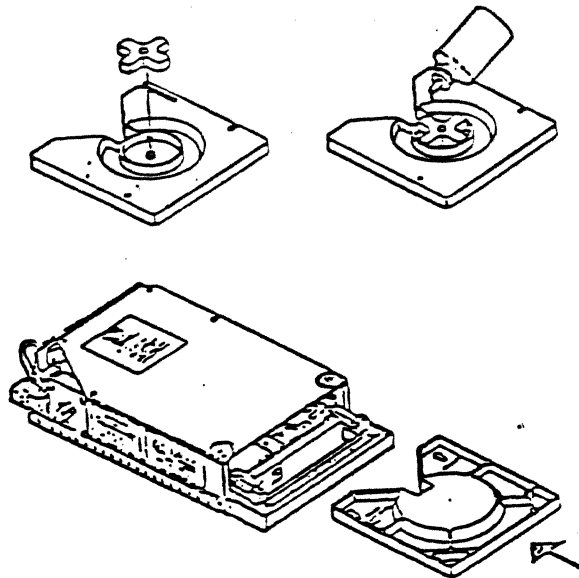

FIGURE 5-1   Cleaning the Syquest Drive

Approximately every 10 insertions of the cleaning cartridge, replace foam pad. Remove and discard the old pad. Obtain a new pad and remove the paper backing from it. Install the stickly side of the new pad onto the cartridge.