

DataFast D-101 Diagnostics Software

User's Guide



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Chapter 1

Introducing the D-101 Diagnostics

1-1 Introduction

The IDE Diagnostics Application is a powerful software program designed specifically to expand the capabilities of the Greystone D-101 Hand Held Duplicator to include hard drive diagnostic testing. By adding this diagnostic application, your D-101 will not only function as a hard disk duplicator, but also as a hard drive diagnostic center for IDE hard drives!

Since data integrity is directly related to the reliable operation of a hard drive, the ability to test the condition of drives before beginning any duplication process can be crucial for ensuring trouble-free operation. The diagnostics application provides the following tests:

Scan Disk – The Scan Disk utility is provided to confirm that every sector (or a range of sectors) on a disk is readable. This utility does not destroy any existing data on the disk.

SMART — The SMART utility enables the status of the internal failure prediction capability of a drive to be reported. SMART (Self-Monitoring, Analysis and Reporting Technology) is an industry-wide method by which IDE drives monitor internal parameters and warn of the increased potential of a drive failure. This utility enables you to determine whether or not a drive supports SMART. For those drives supporting SMART, you have the ability to activate or deactivate SMART. When SMART is activated you can determine if one or more “threshold conditions” in a drive have been exceeded, meaning that - even though the drive is presently operational - there is an increased likelihood of a drive failure.

Wipe Disk — The Wipe Disk utility performs either “sanitizing” or “clearing” a drive according to Department Of Defense standards for removable and non-removable rigid disks to obliterate previously recorded data. These methods are documented in Section 8-306 of the *National Industrial Security Program Operating Manual (NISPROM) [DOD 5220.22-M]*.

Seek — Seek tests are provided to confirm the ability of a drive to function properly with various seek conditions. Several tests perform large seeks after the read or write of every sector. Other tests perform a small incremental seek after every read or write.

Read/Write Data Integrity – The Read/Write utility enables you to verify that sectors on a disk are writeable and that data written on each sector may accurately be read and that each sector is uniquely addressable.

Remap Bad Clusters –The Remap Bad Clusters routine provides the ability to logically remove bad data from a file, making it possible to recover the remaining good data from a file that would otherwise be useless.

1-2 Specifications

- **For Remap Bad Clusters routine** —file systems supported: FAT16, FAT32

1-3 Configuration

The following items are provided with the Diagnostics Application:

- **Software diskette** — contains the D-101 application software as well as the D-101 diagnostic software. Upload this software into the D-101 using the procedure described in section 4-1.3 of the D-101 User's Manual.

Chapter 2

Operation

This chapter will guide you through the operation of the various diagnostic routines.

2-1 Startup – MAIN MENU

Perform the following steps to bring up the starting menu of the D-101 Diagnostics Software:

1. Apply power to the D-101 by plugging in the 12V power connection. A selection screen will appear prompting you to either select the **Copy/Verify** application or the **Diagnostic application**. Use the <up arrow> and <down arrow> keys to select the **Diagnostic application**. Then press <SEL> to load the Diagnostic application. (Alternatively you can select the normal copy application at this time.)
2. The Diagnostic application will be loaded. The following MAIN MENU will be displayed:

```
MAIN MENU
* DIAG MENU
  DRIVE = I n t e r n a l
SEL = SELECT
```

3. Use the <up arrow> and <down arrow> keys to move the cursor to the **DIAG MENU**, **DRIVE=int/ext**, or **EXIT TO DOS** options. *The cursor is shown on the screen as a “*” character in column one.*

4. Perform the following to display the menu which allows you to specify which diagnostic operation to run:
 - Use the <up arrow> and <down arrow> keys to move the cursor to the **DIAGS MENU** to select the STANDARD DIAGS MENU.
 - Press <SEL>.
5. The diagnostic program only works on a single drive at a time. This drive can either be the internal or external drive. To make the drive selection do the following:
 - Move the cursor to the **DRIVE= (*Internal/External*)** option.
 - Press <SEL> to toggle-select between internal and external drives
6. To EXIT the diagnostic application, move the cursor to the **EXIT TO DOS** option, then press <SEL>.

2-2 STANDARD DIAGS MENU

The **STANDARD DIAGS MENU** is used to select the diagnostic routine to be performed:

```
STANDARD  DIAGS  MENU
* SCAN   DISK
  SMART
SEL = S e l e c t   E S C = E x i t
```

1. Use the <up arrow> and <down arrow> to move the cursor. This allows you to choose between the various diagnostic routines. *The cursor position is represented by the “ * ” character before the second line of the display.* The available diagnostic routines are scrolled into view by moving the cursor between lines 2 and 3.

2. Once the cursor is placed on the desired diagnostic routine, press <SEL> to initiate the selected routine.
3. Pressing <ESC> will take you back to the MAIN MENU.

2-2-1 Scan Disk

The Scan Disk routine confirms that all of the sectors (or a range of sectors as specified) is readable. The Scan Disk routine only performs reading and does not alter the contents of any of the sectors on the disk.

Scan Disk – Identify Screen

After the drive spins up, the IDENTIFY SCREEN MENU will be displayed for several seconds:

```
S C A N   D I S K
I B M - D A Q A - 3 2 1 6 0
S i z e   o f   D i s k = x x x x M B
P I O = 4   R / M W u l t = 1 6
```

The second line in the IDENTIFY SCREEN MENU is the drive manufacturer and type.

The third line is the size of the disk in megabytes. A megabyte is defined as 2^{20} or 1,048,576 bytes.

The PIO mode, which is displayed on the fourth line, indicates the speed of allowable bus transactions to the drive. The R/WMult value indicates the number of sectors the drive can read or write with a single command.

Scan Disk – Specify Lower and Upper Megabyte Limits

The LOWER and UPPER MEGABYTE MENU will be displayed:

```
S C A N   D I S K
* L o w e r M B = 0
  U p p e r M B = x x x x
  A R R O W S - M o v e   c u r s o r
```

The purpose of this menu is to allow the operator to adjust the number of megabytes on the drive to be involved in the SCAN test. Accepting the default values by pressing the <ESC> key will allow the entire drive to be tested.

Use the following procedure to change either the lower and/or upper megabyte limits:

MOVE CURSOR MODE

When the bottom line displays “ARROWS-Move cursor”, you are in the MOVE CURSOR mode. The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to move the cursor to either the “LowerMB=” line or the “UpperMB=” line. *The current cursor location is shown as a “*” character before the first character of the selected line.*
- Use the <SEL> key to change to the SPECIFY MEGABYTE VALUE mode.
- Use the <ESC> key to begin the SCAN test.

SPECIFY MEGABYTE VALUE MODE

When the bottom line displays “**ARROWS-Change MB**”, you are in the SPECIFY MEGABYTE VALUE mode. This mode allows you to change the numerical value of either the lower or upper megabyte limits. The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to change the numerical value of the megabyte limit in increments of 100MB.
- Use the <SEL> key to change to the MOVE CURSOR mode.
- Use the <ESC> key to begin the SCAN test.

Scan Disk – Start

The START MENU will be displayed:

```
S C A N   D I S K
S T A R T = B e g i n
           d i a g n o s t i c
E S C = T e r m i n a t e
```

This menu is used to begin the test. The keys perform the following function:

- Use the <START> key to begin the SCAN test.
- Use the <ESC> key to power down the drive. After a few seconds the drive will spin down. Then press <ESC> again to return to the MAIN MENU.

Scan Disk – Test Running

The TEST RUNNING SCREEN is displayed while the test is in progress:

```
SCAN DISK
@@@
Pct Complete = xx . x %
STOP = Terminate
```

The second line of the display is a horizontal bar which gives a visual indication of the progress of the test in 5% increments.

The third line of the display shows percentage completed.

Pressing the <STOP> key terminates the test. Pressing other keys has no effect.

2-2-2 SMART

The SMART routine allows the internal SMART status of a drive to be investigated. The SMART routine does not do any writing to any sector on the disk.

SMART – SMART Status Screen

After the drive spins up, the SMART STATUS SCREEN will be displayed:

```
CAPAB ENABL THRESH
y n y n y n
ARROWS = SMART on / off
ESC = Terminate
```

The first two lines are a three-column table. The characters on the second line of this display, shown as “**yn**” in the sample display, will either be “YES” or “NO”. The meaning of the columns is as follows:

1. **CAPAB** – This column indicates whether the drive is SMART CAPABLE.
2. **ENABL** – This column indicates whether the drive has the SMART feature ENABLED. Only drives that are SMART CAPABLE can be ENABLED for SMART.
3. **THRESH** – This column indicates that the SMART feature is ENABLED and that a THRESHOLD condition has been detected by the drive’s internal SMART algorithms. A THRESHOLD condition happens when the drive determines that there is an increased likelihood of a future drive failure.

Use the <up arrow> and <down arrow> keys to enable or disable the SMART feature.

Pressing the <ESC> key will spin down the drive. After the drive has spun down, press the <ESC> again to return to the MAIN MENU.

When SMART is enabled on a drive in which it was previously disabled, it will be necessary to run the drive for a while to obtain a meaningful SMART status. This gives the drive an opportunity to collect its internal statistics on read/write/seek operations to determine whether or not any thresholds have been crossed that could be a predictor of increased failure likelihood. Greystone recommends running the SCAN routine on drives after turning SMART on. The SCAN routine subjects the drive to extensive reading and seek operations, which for typical drives takes several hours.

2-2-3 Wipe Disk

The Wipe Disk routine provides a method for removing existing data from a drive. The “Clear” method writes a specific pattern on all bytes of all sectors (or a range of sectors if a megabyte range is specified) on each drive.

The “Sanitize” method performs multiple passes. The function of each pass is as follows:

1. Write a particular pattern.
2. Write the compliment of the pattern written in step 1.
3. Write a “random” value.
4. Confirm the “random” value written in step 3 is readable.

Wipe Disk – Identify Screen

After the drive spins up, the IDENTIFY SCREEN will be displayed for several seconds:

```
W I P E   D I S K
I B M - D A Q A - 3 2 1 6 0
S i z e   o f   D i s k = x x x x M B
P I O = 4   R / W M u l t = 1 6
```

The second line in the IDENTIFY SCREEN is the drive manufacturer and type.

The third line is the size of the disk in megabytes. A megabytes is defined as 2^{20} or 1,048,578 bytes.

The PIO mode, which is displayed on the fourth line, indicates the speed of allowable bus transactions to the drive. The R/WMult value indicates the number of sectors the drive can read or write with a single command.

Wipe Disk – Specify Lower and Upper Megabyte Limits

The LOWER and UPPER MEGABYTE MENU will be displayed:

```
W I P E   D I S K
* L o w e r M B = 0
  U p p e r M B = x x x x
  A R R O W S - M o v e   c u r s o r
```

The purpose of this menu is to allow the operator to adjust the number of megabytes on the drive to be involved in the WIPE DISK utility. Accepting the default values by pressing the <ESC> key will allow the entire drive to be tested.

Use the following procedure to change either the lower and/or upper megabyte limits:

MOVE CURSOR MODE

When the bottom line displays “ARROWS-Move cursor”, you are in the MOVE CURSOR mode. The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to move the cursor to either the “LowerMB=” line or the “UpperMB=” line. *The current cursor location is shown as a “*” character before the first character of the selected line.*
- Use the <SEL> key to change to the SPECIFY MEGABYTE VALUE mode.
- Use the <ESC> key to begin the WIPE DISK utility.

SPECIFY MEGABYTE VALUE MODE

When the bottom line displays “ARROWS-Change MB”, you are in the SPECIFY MEGABYTE VALUE mode. This mode allows you to change the numerical value of either the lower or upper megabyte limits.

The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to change the numerical value of the megabyte limit in increments of 100MB.
- Use the <SEL> key to change to the MOVE CURSOR mode.
- Use the <ESC> key to begin the WIPE DISK utility.

Wipe Disk – Select Mode

The SELECT MODE MENU will be displayed:

```
W I P E   D I S K
M o d e = n n n n n
T o g g l e   w i t h   A R R O W S
S E L = A C C E P T   S e l e c t i o n
```

This menu is used to choose either the CLEAR or SANITIZE mode. The mode currently chosen is displayed on the right side of the second line of the display replacing the “nnnnn” characters.

The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to choose between the CLEAR and SANITIZE mode.
- Use the <SEL> key to select the mode currently chosen and continue to the next menu.

Wipe Disk – Start

The START MENU will be displayed:

```
W I P E   D I S K
S T A R T = B e g i n
           d i a g n o s t i c
E S C = T e r m i n a t e
```

This menu is used to begin the test.

The keys perform the following function:

- Use the <START> key to begin the WIPE DISK utility.
- Use the <ESC> key to power down the drive. After a few seconds the drive will spin down. Then press <ESC> again to return to the MAIN MENU.

Wipe Disk – Test Running

The TEST RUNNING SCREEN is displayed while the test is in progress:

```

W I P E   D I S K   n n n n
@ @ @
P c t   C o m p l e t e = x x . x %
S T O P = T e r m i n a t e
    
```

The second line of the display is a horizontal bar which gives a visual indication of the progress of the test in 5% increments.

When WIPE DISK is running in the CLEAR mode:

- A single write pass is used. The “nnnnn” displayed in the right side of line 1 will be “Clear”.
- The progress bar will be made up of the “C” character.

When WIPE DISK is running in the SANITIZE mode:

- Three Write passes followed by a Read/Verify pass are used. The passes are as follows:

Display in right side of line 1	Character making up progress bar
Sanitz 1	1
Sanitz 2	2
Sanitz 3	3
Verify	V

The third line shows the percentage completed for each pass.

Pressing the <STOP> key terminates the test. Pressing other keys has no effect.

2-2-4 Seek

The Seek routine provides several methods to exercise the actuator mechanism of a drive. The various Seek methods perform a similar sequence:

- A unique pattern is written on a given sector. This is repeated until all sectors involved in the test have been written.
- After the sectors are written, they are read back and compared byte-by-byte. This confirms that the same physical sector on the disk is accessed when a given logical block address (LBA) is used for the writing and the subsequent read.

There are four Seek test methods:

- **POSITIVE STEP** – The first LBA in the test is at the bottom of the address range of the test. The address range involved in the test is either the entire drive (default), or a starting and ending megabyte value based upon the entries made in the “LOWER AND UPPER MEGABYTES TO PROCESS” menu. The LBA of the next sector involved in the test is a fixed positive offset from the previous LBA.
- **NEGATIVE STEP** – The first LBA in the test is at the top of the address range of the test. The LBA of the next sector involved in the test is a fixed negative offset from the previous LBA.
- **RANDOM** – Addresses are chosen at random within the specified megabyte bounds.
- **CESCENDO** – The test starts with maximum address excursion within the megabyte bounds and takes successively smaller jumps around the middle address.

WARNING

Back up all data before running this test!

Seek – Identify Screen

After the drive spins up, the IDENTIFY SCREEN will be displayed for several seconds:

```
S E E K
I B M - D A Q A - 3 2 1 6 0
S i z e   o f   D i s k = x x x x M B
P I O = 4   R / W M u l t = 1 6
```

The second line in the IDENTIFY SCREEN is the drive manufacturer and type.

The third line is the size of the disk in megabytes. A megabyte is defined as 2^{20} or 1,048,578 bytes.

The PIO mode which is displayed on the fourth line indicates the speed of allowable bus transactions to the drive. The R/WMult value indicates the number of sectors the drive can read or write with a single command.

Seek – Specify Lower and Upper Megabyte Limits

The LOWER and UPPER MEGABYTE MENU will be displayed:

```
S E E K
* L o w e r M B = 0
U p p e r M B = x x x x
A R R O W S - M o v e   c u r s o r
```

The purpose of this menu is to allow the operator to adjust the number of megabytes on the drive to be involved in the SEEK test. Accepting the default values by pressing the <ESC> key will allow the entire drive to be tested.

Use the following procedure to change either the lower and/or upper megabyte limits:

MOVE CURSOR MODE

When the bottom line displays “**ARROWS-Move cursor**”, you are in the MOVE CURSOR mode. The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to move the cursor to either the “**LowerMB=**” line or the “**UpperMB=**” line. *The current cursor location is shown as a “*” character before the first character of the selected line.*
- Use the <SEL> key to change to the SPECIFY MEGABYTE VALUE mode.
- Use the <ESC> key to begin the SEEK test.

SPECIFY MEGABYTE VALUE MODE

When the bottom line displays “**ARROWS-Change MB**”, you are in the SPECIFY MEGABYTE VALUE mode. This mode allows you to change the numerical value of either the lower or upper megabyte limits. The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to change the numerical value of the megabyte limit in increments of 100MB.
- Use the <SEL> key to change to the MOVE CURSOR mode.
- Use the <ESC> key to begin the SEEK test.

Seek – Select Mode

The SELECT MODE MENU will be displayed:

```
S E E K
M o d e = n n n n n
T o g g l e   w i t h   A R R O W S
S E L = A C C E P T   S e l e c t i o n
```

This menu is used to choose which of the four Seek test methods to be used.

The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to choose between the POS STEP, NEG STEP, RANDOM and CRESC modes.
- Use the <SEL> key to select the mode currently chosen and continue to the next menu.

Seek – Start

The START MENU will be displayed:

```

S E E K   n n n n
S T A R T = B e g i n
           d i a g n o s t i c
E S C = T e r m i n a t e

```

This menu is used to begin the test. The Seek operation to be performed is displayed on the right side of the first line of the display, replacing the “nnnn” characters.

The keys perform the following function:

- Use the <START> key to begin the SCAN test.
- Use the <ESC> key to power down the drive. After a few seconds the drive will spin down. Then, press <ESC> again to return to the MAIN MENU.

Seek – Test Running

The TEST RUNNING SCREEN is displayed while the test is in progress:

```

S E E K   n n n n
@ @ @
P c t   C o m p l e t e = x x . x %
S T O P = T e r m i n a t e

```

The second line of the display is a horizontal bar which gives a visual indication of the progress of the test in 5% increments. The test has two passes.

- The first pass performs writing a unique pattern to each sector involved in the test. During this pass the progress bar is made up of “star” symbols.
- The second pass reads each sector to confirm that the data is correct. During this pass the progress bar is made up of “check mark” symbols.

The third line shows the percentage completed for each pass.

Pressing the <STOP> key terminates the test. Pressing other keys has no effect.

2-2-5 Read/Write Data

The Read/Write Data test has two passes. The first pass writes a unique prescribed pattern on each sector. For the second pass, each sector is read and a byte-by-byte verification is performed to confirm that the correct data was read from each sector. The Read/Write Data test does not preserve any programs or data that may have been on the disk prior to performing the test.

WARNING:
Back up all data before running this test!

Read/Write Data – Identify Screen

After the drive spins up, the IDENTIFY SCREEN will be displayed for several seconds:

```
READ / WRITE DATA
IBM - DAQA - 32160
Size of Disk = x x x x MB
PIO = 4 R / WMult = 16
```

The second line in the IDENTIFY SCREEN MENU is the drive manufacturer and type.

The third line is the size of the disk in megabytes. A megabyte is defined as 2^{20} or 1,048,578 bytes.

The PIO mode, which is displayed on the fourth line, indicates the speed of allowable bus transactions to the drive. The R/WMult value indicates the number of sectors the drive can read or write with a single command.

Read/Write Data – Specify Lower and Upper Megabyte Limits

The LOWER and UPPER MEGABYTE MENU will be displayed:

```

R E A D / W R I T E   D A T A
* L o w e r M B = 0
  U p p e r M B = x x x x
  A R R O W S - M o v e   c u r s o r

```

The purpose of this menu is to allow the operator to adjust the number of megabytes on the drive to be involved in the READ/WRITE DATA test. Accepting the default values by pressing the <ESC> key will allow the entire drive to be tested.

Use the following procedure to change either the lower and/or upper megabyte limits:

MOVE CURSOR MODE

When the bottom line displays “ARROWS-Move cursor”, you are in the MOVE CURSOR mode. The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to move the cursor to either the “LowerMB=” line or the “UpperMB=” line. *The current cursor location is shown as a “*” character before the first character of the selected line.*

- Use the <SEL> key to change to the SPECIFY MEGABYTE VALUE mode.
- Use the <ESC> key to begin the READ/WRITE DATA test.

SPECIFY MEGABYTE VALUE MODE

When the bottom line displays “ARROWS-Change MB”, you are in the SPECIFY MEGABYTE VALUE mode. This mode allows you to change the numerical value of either the lower or upper megabyte limits. The keys perform the following function:

- Use the <up arrow> and <down arrow> keys to change the numerical value of the megabyte limit in increments of 100MB.
- Use the <SEL> key to change to the MOVE CURSOR mode.
- Use the <ESC> key to begin the READ/WRITE DATA test.

Read/Write Data – Start

The START MENU will be displayed:

```
READ / WRITE DATA
START = B e g i n
      d i a g n o s t i c
ESC = T e r m i n a t e
```

This menu is used to begin the test. The keys perform the following function:

- Use the <START> key to begin the READ/WRITE DATA test.
- Use the <ESC> key to power down the drive. After a few seconds the drive will spin down. Then press <ESC> again to return to the MAIN MENU.

Read/Write Data – Test Running

The TEST RUNNING SCREEN is displayed while the test is in progress:

```
READ / WRITE DATA
@@@
Pct Complete = xx . x %
STOP = Terminate
```

The second line of the display is a horizontal bar which gives a visual indication of the progress of the test in 5% increments. The test has two passes.

- The first pass performs writing a unique pattern to each sector involved in the test. During this pass the progress bar is made up of “right-pointing arrow” symbols.
- The second pass reads each sector to confirm that the data is correct. During this pass the progress bar is made up of “check mark” symbols.

The third line shows the percentage completed for each pass.

Pressing the <STOP> key terminates the test. Pressing other keys has no effect.

2-2-6 Remap Bad Clusters

The Remap Bad Clusters routine provides a method to create a usable file when one or more sectors in the file are not readable. The operation performed by the remap routine is as follows:

1. Determine the type and size of each partition on the drive.
2. For partitions that are either FAT16 or FAT32, an investigation is made on every sector that is in the data area of that partition.
3. If every sector is readable, then there are no problems and a remap of one or more clusters is not necessary.

4. If there are bad sectors, then the following steps are performed to remap the failing sector.
 - Determine the cluster where the failing sector(s) resides
 - Establish a new cluster in a previously unused space on the disk
 - Move any good sectors within the failing cluster to the space in the new cluster
 - Data from bad sectors in the failing cluster is not moved – since it is not readable. Instead, zeros are written in the corresponding sectors in the remapped cluster.
 - Update the pointers in both FATs to “link in” the newly created cluster into the FAT chain.
 - Mark as “bad” the entry in both FATs for the old cluster.
 - If the remapped cluster was the first cluster for a given file, then also modify the directory or subdirectory entry to point to the remapped cluster.

The remap operation does not recover the data on the sector that was bad in the file. However, it does make it possible to access those portions of a file that did not reside on unreadable sectors, including the good sectors which are in the same cluster as the bad sectors. This allows you to perform Copy and Edit operations on a file that would otherwise not be possible.

Re-mapping a text file which previously had an unreadable sector would create a usable file, residing on all good sectors, and having valid directory and FAT entries. After performing the remap, it now becomes possible to edit the file to insert the data that was on the defective sector.

Remap Bad Clusters – Identify Screen

After the drive spins up, the IDENTIFY SCREEN will be displayed for several seconds:

```

R E M A P   B A D   C L U S T E R S
I B M - D A Q A - 3 2 1 6 0
S i z e   o f   D i s k = x x x x M B
P I O = 4   R / W M u l t = 1 6

```

The second line in the IDENTIFY SCREEN is the drive manufacturer and type.

The third line is the size of the disk in megabytes. A megabyte is defined as 2^{20} or 1,048,578 bytes.

The PIO mode which is displayed on the fourth line indicates the speed of allowable bus transactions to the drive. The R/WMult value indicates the number of sectors the drive can read or write with a single command.

Remap Clusters – Start

The START MENU will be displayed:

```

R E M A P   B A D   C L U S T E R S
S T A R T = B e g i n
           d i a g n o s t i c
E S C = T e r m i n a t e

```

This menu is used to begin the test. The keys perform the following function:

- Use the <START> key to begin the REMAP BAD CLUSTERS routine.
- Use the <ESC> key to power down the drive. After a few seconds the drive will spin down. Then press <ESC> again to return to the MAIN MENU.

Remap Bad Clusters – Test Running

The TEST RUNNING SCREEN is displayed while the test is in progress:

```
REMAP BAD CLUSTERS
@@@
Pct Complete = xx . x %
STOP = Terminate
```

The second line of the display is a horizontal bar which gives a visual indication of the progress of the test for each partition. The progress bar displays the progress in 5% increments. The character displayed making up the progress bar will either be “1”, “2”, “3”, etc. which is the number of the partition being processed.

The operation proceeds on a partition-by-partition basis. The first partition is scanned and re-mapping is performed on any defective clusters. Then, the operation proceeds to the next partition.

The speed of the REMAP operation for a given partition can vary from several minutes, to over an hour, depending upon the size of the partition currently being scanned.

The remap routine only processes areas on the disk which are part of FAT16 or FAT32 partitions. If there are no partitions defined on the disk, the test will terminate immediately.

The third line of the display shows the percentage completed for each pass.

Pressing the <STOP> key terminates the test. Pressing other keys has no effect.

Chapter 3

Questions & Answers

This chapter covers some questions that may arise during the operation of the IDE Disk Drive Diagnostics software.

Q: Why does the length of time required by the SEEK TEST stay about the same even, when testing disks of different sizes?

A: The Seek test does not do reading or writing to every sector on the disk. It uses a predetermined number of sector addresses, which are widely spaced on the disk, to guarantee that physical seeks occur between each read/write operation. The number of reads and writes used is constant for disks of all sizes. This number is chosen to exceed the number of *physical* cylinders that exist on IDE drives of various vintages, sizes, and manufacturers.

For large disks, the number of reads and writes is the same as for small disks, but the “spacing” of the sector addresses is larger.

Q: The message “Enter Security Key” appears in a window when attempting to perform a diagnostic operation. What do I do to make my software operational?

A: You have a menu which is as follows:

```

E n t e r   S e c u r i t y   K e y
D 1 0 1   S / N = n n n
H e x   K e y = 0 0 0 0 0 0 0 0
                *
```

The purpose of this menu is to activate your software for the serial number of the D101 your are using.

Documentation that was shipped with your D101 Diagnostic Software will indicate the unique eight-digit hexadecimal unlock code based upon the serial number of your unit.

You can enter the eight-digit number using the following key operations:

- <SEL> key moves the cursor from one hexadecimal digit to the next. The current cursor location is designated by the “ * ” character under the digit,
- <down arrow> and <up arrow> keys change the numerical value of a the hexadecimal digit currently selected by the cursor.
- Press <ESC> key to exit from the menu. The hexadecimal lock code you just entered is now in effect.

Q: How do I contact Greystone Peripherals?

A: For Technical Support call: (408) 871-4039

Monday - Friday

9:00 a.m. to 5:00 p.m. PST

For Sales, call toll free: **(800) 600-5710 or (408) 871-4000**

To order by Fax call: **(408) 871-4100**

Q: Does Greystone Peripherals, Inc. have a World Wide Web page?

A: Yes. Greystone Peripherals, Inc. can be found on the World Wide Web at:

<http://www.grystone.com> or

<http://www.greystoneperipherals.com>.

Check our Web site often for exciting new product announcements, information about our existing product lines and product upgrade information.

For Technical Support call: **(408) 871-4039**

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