

Chapter 16 Using Hard Drives

This chapter explains basic concepts, internal structure, and basic operation regarding using hard drives with the VS-1680. Read this chapter thoroughly to gain a better understanding of how the VS-1680 operates.

I. General Information regarding Hard Drives

A. Drive Partitioning

The VS-1680 saves all data such as performance data, mixer settings, system data, etc., on the hard drive. It cannot operate without either having an internal drive or being connected to an external drive such as a Zip Drive via the SCSI connector. Furthermore, **the hard drive or external drive used by the VS-1680 cannot be used by another device.** The VS-1680 is able to manage 500MB, 1000 MB, or 2000MB amounts of drive space at once. If you use a drive with a capacity that is larger than this, you will need to divide it into different sections. Each of these sections is referred to as a **partition**. You can create up to 8 partitions per drive. With larger drives, we suggest you create 2000MB partitions.

Ex. 1: When the drive is 810 MB, and the partition size is 1000 MB.

graphic page 20 left column top

Ex. 2: When the drive is 1.4 GB, and the partition size is 1000 MB.

graphic page 20 left column middle

Ex. 3: When the drive is 1.4 GB, and the partition size is 2000 MB.

graphic page 20 left column bottom

Ex. 4: When the drive is 8.2 GB, and the partition size is 1000 MB.

graphic page 20 right column top

Ex. 3: When the drive is 8.2 GB, and the partition size is 2000 MB.

graphic page 20 right column bottom

Each partition on the VS-1680's drive is treated as an independent drive, and each partition automatically given its own partition number (0-7). When a single hard drive has multiple partitions, you can specify which partition of which drive will be used. (p.xx) The drive partition currently used is referred to as the **current drive**.

** If you wish to use removable disks or song data on both the VS-1680 and the VS-880, because of factors such as differing partition sizes and numbers of tracks, there will be limitations as to what you can do. For more detailed information, refer to "Compatibility" (p. xx).*

** The VS-1680 accepts installation of Roland HDP88 series hard drives. For simultaneous recording or playback on a number of tracks, for getting more out of the available hard drive space, and in order to get the fullest performance in general from the VS-1680, **we recommend using the HDP88-2.***

B. Recording Times vs. Sample Rate / Recording Modes

The available recording time for a hard drive depends on a number of factors, including the size of the drive, the Sample Rate, the Recording Mode, and the total number of tracks recorded. Both the Recording Mode and the Sample Rate can be selected on a song by song basis. Recording time in track minutes for 2.1 GB hard drive is shown below.

? Track Minutes (Appendices p. 65)

Recording Mode	Sample Rate		
	48 kHz	44.1 kHz	32 kHz
MTP	742 mins.	808 mins.	1114 mins.
MAS	370 mins.	404 mins.	556 mins.
MT1	742 mins.	808 mins.	1114 mins.
MT2	990 mins	1078 mins.	1484 mins
LIV1	1188 mins.	1292 mins.	1782 mins.
LIV2	1484 mins.	1616 mins.	2228 mins.

(All times approximate)

* The above chart is a general yardstick for estimating record times. Actual times may be somewhat shorter depending on your hard drive's specifications or the number of songs created.

C. Checking Remaining Space

The amount of free drive space available for recording in the current song is displayed under "Remain" in the upper part of the Playlist display when Song Information is shown. You can select the units of measurement for this value.

* "Remain" does not appear while the level meter is displayed. (p. xx)

graphic p 183 left column top

1. Hold [SHIFT] and press [F5(SYSTEM)]. The System menu icon is displayed. If the System menu icon does not appear, press [F6(EXIT)].
2. Press [F1(SYSPM)]. If "SYSPM" does not appear above [F1], first press [PAGE] until "SYSPM" appears, and then press [F1(SYSPM)].
3. Use [←], [→], [↑], and [↓] to move the cursor to "Remain Display". If "Remain Display" is not displayed, press [F1(Prm1)].
4. Use the TIME / VALUE dial to change the setting for Remain Display.

Remain Display (Remaining Display)

This selects the units of measurements for the remaining drive space.

- Time:** The remaining time for recording is shown in minutes and seconds.
- CapaMB:** The remaining time for recording is shown in available megabytes of drive space.
- Capa %:** The remaining time for recording is shown as a percentage of total drive space.
- Event:** This shows the remaining number Events available during for recording and mixing.

5. Press [PLAY(DISPLAY)] to return to the Playlist display.

II. Recovering Drive Space

There may be times when the Remaining Time becomes low. You may want to recover drive space without initializing (formatting) the hard drive.

A. Song Optimize

When operations such as overdubbing and Punch-In recording are repeated, the old data will remain on the drive. In some cases, significant amounts of memory can be used by this unnecessary data, decreasing the available space on the current drive, and shortening the length of time available for recording. You can free up significant amounts of drive space by erasing this unnecessary data from the drive. Deleting unnecessary data and freeing up available space on the drive is referred to as **Song Optimize**. This operation cannot be undone with the Undo function.

The optimize operation searches all V-tracks on the target song, and when playing back those V-tracks, erases the phrases that cannot be heard. If you record on a track, and then rewind and record over again on the same track without selecting a different V-track, the first recording will reside on the hard drive even though it cannot be heard during playback. Song Optimize permanently removes these recordings which are "covered up" by other recordings. This does not include any audio on V-tracks which are not currently selected. If you execute the Optimize with the V-track 1 of Track 1 selected, the phrases that are heard when V-tracks 2 - 16 are selected for playback are not deleted.

graphic p 167 left column top

1. Select the song you want to optimize as the current song.
2. Hold [SHIFT] and press [F1(SONG)]. The song menu icon appears in the display.
3. Press [F5(OPTIM)]. If "OPTIM" does not appear in the display above [F5], press [PAGE] until "OPTIM" appears, and then press [F5(OPTIM)].
3. "Song Optimize, Execute ?" appears in the display. Press [F4(EXEC)]. Or, if you wish to cancel Song Optimize, press [F6(EXIT)].
4. "Optimize Sure ?" appears in the display. Press [YES]. Or, if you wish to cancel the procedure, press [NO].
5. When Song Optimize is finished, the screen returns to the Playlist display.

** It may take some time for the Song Optimize operation to complete. This is not a malfunction. Do not turn the power off until the Optimize operation is completed.*

B. Song Erase

After you have made a data backup of a song, use Song Erase to delete all song data from the current drive. This operation cannot be undone with the Undo function.

1. Select the drive which contains the song you want to erase as the current drive.
2. Hold [SHIFT] and press [F1(SONG)]. The song menu icon appears in the display.
3. Press [F6(Erase)]. If "Erase" does not appear in the display above [F6], press [PAGE] until "Erase" appears, and then press [F6(Erase)].
4. Use the TIME / VALUE dial to move the cursor to the song you want to erase, then press [F3(MARK)]. A mark is placed next to the song. Pressing [F3(MARK)] alternately places or deletes the mark. When [F2(ALL)] is pressed, you can place or remove marks from all songs simultaneously.

graphic p 167 right column bottom

5. Press [F4(Exec)]. Or, if you want to cancel the Song Erase operation, press [F6(EXIT)].
6. A Song Erase confirmation message appears in the display. Press [YES]. Or, if you wish to cancel Song Erase, press [NO].
7. "Song Erase: Are you really sure ?" appears in the display. Press [YES]. Or, if you wish to cancel the procedure, press [NO].

8. If the song you are erasing is not the current song, "STORE Current ?" appears in the display.
9. If you wish to save the current song, press [YES]. Otherwise, press [NO]. If the current song is a demo song, then press [NO].
10. When the Song Erase process is finished, the screen returns to the Playlist display.

III. Using External Hard Drives

External SCSI drives can be connected to the SCSI connector on the VS-1680. This section will explain using external (both fixed and removable) drives with the VS-1680. For more information about SCSI drives, see "About SCSI" (Appendices p. 5).

A. Selecting an External Hard Drive

Most SCSI hard drives that adhere to "AV" specifications will work with the VS-1680. Keep in mind, drives that do not meet "AV" specs, though not recommended for recording and playback, are often still reliable for data storage. The VS-1680 can format a compatible drive in either 1 GB or 2 GB partitions and can also access up to eight partitions. Therefore, up to 16 gigabyte drives can be fully utilized by the VS-1680.

Suggested specifications for recordable hard drives:

- 13 ms Access Time
- No or Intelligent Recalibration
- Active Termination
- 1:1 Interleave
- Slip Sectoring
- Macintosh Compatible

B. Connecting a Fixed External Hard Drive

Use the following procedure to connect an external drive to the VS-1680.

graphic p 111 left column

** Once the connections have been completed, turn on power to your various devices in the order specified. You can cause malfunction and or damage to your speakers and other devices if you turn on devices in the wrong order.*

** Always make sure to have the volume level turned down before switching on power. Even with the volume all the way down, you may still hear some sound when the power is switched on, but this is normal, and does not indicate a malfunction.*

1. Turn on the power of the external drive.
2. Turn on the power of the VS-1680 with the POWER switch on the rear panel.
3. Turn on the power of connected audio equipment.
4. Raise the volume of the audio devices to appropriate levels.

C. Connecting a Removable External Hard Drive

It possible to connect a removable external hard drive, such as a Zip drive, to the SCSI connector on the VS-1680. Use the following procedure to connect an external removable drive to the VS-1680.

graphic p 111 left column

** Once the connections have been completed, turn on power to your various devices in the order specified. You can cause malfunction and or damage to your speakers and other devices if you turn on devices in the wrong order.*

** Always make sure to have the volume level turned down before switching on power. Even with the volume all the way down, you may still hear some sound when the power is switched on, but this is normal, and does not indicate a malfunction.*

1. Turn on the power of the external drive.
2. Turn on the power of the VS-1680 with the POWER switch on the rear panel.
3. Turn on the power of connected audio equipment.
4. Raise the volume of the audio devices to appropriate levels.

D. Initializing (Formatting) the Drive

A new drive just purchased at a computer store, or a drive that was used by another device **cannot be used on the VS-1680 as is**. You must initialize the drive so it can be used by the VS-1680. When a drive is initialized, **the entire contents are irretrievably lost**. Check any such drive you plan to initialize to make sure it does not contain anything you don't want deleted. **Drives used with the VS-1680 cannot be used on other devices (such as personal computers).**

** If you accidentally delete data that you need, that data cannot be restore to its previous condition. Roland Corporation assumes no liability concerning such loss of data.*

If you are using a drive or disk that has been partitioned, you will not be able to choose a particular partition to initialize. When you initialize a drive, the whole drive and all its partitions will be initialized at the same time.

To initialize a new drive:

1. Confirm that power of the drive and the VS-1680 is turned on.
2. Insert a disk into the drive, if you are using a removable type drive.
3. Press [PLAY(DISPLAY)].
4. Hold [SHIFT] and press [F6(UTILITY)]. The Utility menu icon appears in the display.
5. Press [F6(DrIni)]. If "DrIni" does not appear in the display above [F6], first press [PAGE] until "DrIni" is displayed, and then press [F6(DrIni)].
6. Use [←], [→], [↑], and [↓] to move the cursor, and use the TIME / VALUE dial to set each value.

graphic p 112 left column top

Init Drive (Initialize Drive)

Select the drive (IDE, SCSI0 - SCSI7). "IDE" indicates the internal hard drive, and "SCSI" indicates external SCSI drives. For example, use "SCSI5" to select a Zip Drive.

Partition

Select the partition size (500 MB, 1000 MB, 2000 MB). In most cases, select "2000 MB".

Physical Format

Select whether or not to use physical formatting. For new drives, or drives that have been used by another device, this must be set to "On".

Surface Scan

This confirms that the read and write functions in all of the drive's partitions are operating correctly when the drive is initialized. In normal circumstances,

set this to "Off". When you specifically want to conduct a test of the read/write functions, then set this to "On" (p. xx).

The function buttons work as shown.

[F1(SelDr)]:	Displays a directory of the currently connected drives. Use [←], [→], [↑], and [↓] to move the cursor to the drive you want to initialize.
[F3(Info)]:	Displays the drive information.
[F4(Exec)]:	Executes initialization of the selected drive.
[F6(EXIT)]:	Exits the screen.

graphic p 112 right column top

7. When the settings are made, press [F4(Exec)]. "Initialize *** OK ?" appears in the display. "****" refers to the selected drive's SCSI number. For example, "SCSI5" indicates an external drive which is set to SCSI ID #5.
8. Press [YES]. (Or, to cancel the operation, press [NO].) "Initialize ****, Sure?" appears in the display.
9. Press [YES]. "STORE Current ?" appears in the display. Press [YES] to store the current song; otherwise press [NO].
10. After the initialization is completed, the VS-1680 restarts automatically, and returns to the Playlist display.

** Be aware initializing a drive requires some time. This is not a malfunction. For example, when physical format is turned "On", the time required to format a 100MB Zip disk is approximately 10 minutes. The progress of initialization will be shown in the display. **Be sure not to turn the power off until initialization is complete.***

E. Saving a Song to an External Drive

You can save a song created on the VS-1680 to an external drive, such as a Zip drive. This is a good way to have the song backed up in the event of possible drive problems, or to get back drive space when little space on the internal IDE remains. Since Zip disks are easy to handle and manage, you can use this format to share songs with friends who also use the VS-1680, or if you use two different VS-1680s in different locations. We recommend keeping copies of important song data on multiple disks.

** Incorrectly using the Song Copy procedure may result in loss of data. Roland Corporation assumes no liability concerning such loss of data. Furthermore, Roland does not warrant any copied data, regardless of the performance or condition of the external drive.*

There are two ways to use Song Copy. These are referred to as **Song Copy Playable** and **Song Copy Archives**. Select the method depending on the amount of free space on the destination disk (for example, 100 MB for Zip disks). The size of the current song is shown in the display.

Use **Song Copy Playable** when the total size of the song is less than the total size of available space on the removable disk drive. For example, use Song Copy Playable to copy a 93MB song onto a 100MB disk.

graphic p 114 left column top

Use **Song Copy Archives** when the total size of the song is more than the total size of available space on the removable disk drive. For example, use Song Copy Archives to copy a 247MB song onto three 100MB disks. The song data is converted into a data format specifically for saving it across multiple disks (archives format). The song is copied across multiple disks according to the available space on each disk. This means it is not possible to directly playback song data from one disk. To playback song data copied using the Song

Copy Archives format, it must first be copied back onto the VS-1680's hard drive using the correct procedure (Extract). If song data is copied onto disks that already have song data on them, the existing data will be automatically erased.

graphic p 114 left column bottom

Before copying a song to an external removable drive, you may want to use Optimize (See "Song Optimize", p. xx) to reduce the memory required to hold the song.

1. Song Copy Playable

Use the following procedure to copy a song from the VS-1680's internal hard drive to a removable disk drive (such as a Zip drive) which is set to SCSI ID 5.

1. Select the drive containing the source song you want to copy as the current drive.
2. Press [PLAY(DISPLAY)].
3. Hold [SHIFT] and press [F1(SONG)]. The Song menu icon is displayed.
4. Press [F1(CP PL)]. If "CP PL" does not appear above [F1], press [PAGE] until "CP PL" appears above [F1], and then press [F1(CP PL)].

graphic p 114 right column bottom

5. Use [⇐] and [⇒] to move the cursor to "Source Song".
6. Use the TIME / VALUE dial to move the cursor to the song you want to copy and press [F3(MARK)]. By pressing [F2(ALL)], you can place and remove Marks from all songs. Press [F1(SelSg)] to view a directory of songs. From here, after you have placed a Mark at the song(s) you want to copy, press [F1(Back)].

graphic p115 left column top

7. Press [⇒] to move the cursor to "Destination Drive".
8. Use the TIME / VALUE dial to select the destination drive and partition. Press [F5(SelDr)] to view a directory of drives. Then use [⇐], [⇒], [↑], and [↓] to select the destination drive, and use the TIME / VALUE dial to select the partition. Once you have selected the destination drive, press [F1(Back)].

graphic here p 115 left column bottom

9. If the source and the destination drives are different, press [↓]. Move the cursor to "Erase All Songs" and use the TIME / VALUE dial to set the value.

Erase All Songs

When this is set to "On", the destination drive is initialized before the copy procedure is performed. If you want to perform the Song Copy procedure without erasing any songs currently on the destination drive, leave this setting "Off".

10. Press [F4(Exec)]. A confirmation message appears in the display.
11. Press [YES]. "STORE Current ?" appears in the display. Press [YES] if you want to save changes made to the current song, otherwise press [NO].
12. When the Song Copy Playable procedure is finished, the screen returns to the Playlist display.

If "Disk Memory Full" Appears in the Display

This indicates the destination drive does not have enough free space, or the number of songs on the destination drive exceeds the maximum number (200 songs) that can be stored on the drive. If this message appears, the Song Copy procedure was canceled.

1. Song Copy Archives

Use the following procedure to copy a song which cannot fit on a single disk.

1. Select the drive containing the source song you want to copy as the current drive.
2. Press [PLAY(DISPLAY)].
3. Hold [SHIFT] and press [F1(SONG)]. The Song menu icon is displayed.
4. Press [F2(AcStr)]. If "AcStr" does not appear above [F2], press [PAGE] until "AcStr" appears above [F2], and then press [F2(AcStr)].

graphic p 117 right column bottom

5. Press [↵] to move the cursor to "Source Song".
6. Use the TIME / VALUE dial to move the cursor to the song you want to copy and press [F3(MARK)]. By pressing [F2(ALL)], you can place and remove Marks from all songs. Press [F1(SelSg)] to view a directory of songs. From here, after you have placed a Mark at the song(s) you want to copy, press [F1(Back)].

graphic p118 left column top

7. Press [⇒] to move the cursor to "Destination Drive".
8. Use the TIME / VALUE dial to select the destination drive and partition. Press [F5(SelDr)] to view a directory of drives. Then use [↵], [⇒], [⇧], and [⇩] to select the destination drive, and use the TIME / VALUE dial to select the partition. Once you have selected the destination drive, press [F1(Back)].

graphic here p 118 left column bottom

9. Press [F4(Exec)]. A confirmation message appears in the display.
10. Press [YES]. "STORE Current ?" appears in the display. Press [YES] if you want to save changes made to the current song, otherwise press [NO].

** All data saved on the removable disk will be deleted. Do not use any disks for Song Copy Archives that contain song data you want to save.*

11. When the first disk in the external drive (destination drive) is full, the disk is ejected and the message "Please Insert Disk" appears in the display. Insert the next disk and press [YES]. Be sure to write the disk numbers on the labels to remember what order the disks were used.
12. The message "Insert Disk # " will appear in the display. (# indicates the number in the order the disks were written). Insert each disk as requested in the matching order and press [YES].
13. When the Song Copy Archives procedure is finished, the screen returns to the Playlist display.

Handling Song Copy Archives Disks

When you save songs using the Song Copy Archives method, the destination disks are initialized automatically. This initialization differs from the usual Drive Initialize formatting (p. xx). Since disks are initialized automatically, you can use the Song Copy Archives procedure with newly purchased disks, disks which were used with another device, or other unformatted disks. However, any data saved to the disks is lost once the Archives procedure is performed. You cannot designate which contains archive song data as the current drive. If you try to do this, the disk is identified as a **uninitialized disk**.

F. Recovering a Song from an External Drive using Song Copy Playable

To copy songs from an external drive into the internal drive, first switch the current drive to the external drive's SCSI ID using Drive Select. Then use Song Copy Playable to copy the song from the external drive to the internal drive.

** If you copy a song from the external drive back to the internal drive without first erasing the original song from the internal drive, the original song is not overwritten. A new song is created with the same name as the original and is written to the lowest available song number.*

graphic p 116 left column

1. Confirm the power of the external drive and the VS-1680 is turned on.
2. Insert a disk into the drive, if you are using a removable type drive.
3. Press [PLAY(DISPLAY)].
4. Hold [SHIFT] and press [F6(UTILITY)]. The Utility menu icon appears in the display.
5. Press [F4(SelDr)]. If "SelDr" does not appear in the display above [F4], first press [PAGE] until "SelDr" is displayed, and then press [F4(SelDr)]. A list of currently connected drives appears in the display.
6. Use [←], [→], [↑], and [↓] to move the cursor. Select the drive you want to be the current drive. Use the TIME / VALUE dial to select the partition (if appropriate). For an external Zip drive, select "SCSI5".

The function buttons work as follows.

[F3(Info)]: Displays information about the drive.
[F4(Exec)]: Executes the Drive Select procedure.
[F6(Exit)]: Exits the screen without selecting the drive.

graphic p 117 left column top

7. After you have selected the drive and partition, press F4(Exec)].
8. A confirmation message appears in the display. Press [YES].
9. "STORE Current ?" appears in the display. Press [YES] if you want to save changes made to the current song, otherwise press [NO].
10. After the current drive changes to the one you selected, the screen returns to the Playlist display.
11. Follow the procedure described in "Song Copy Playable" (p. xx) to make a copy of the song from the external drive to the internal (IDE) drive.
12. After the Song Copy procedure is complete, repeat steps 3 - 10 to select the internal IDE drive as the current drive.

G. Recovering a Song from External Disks using Song Archive Extract

Use the following procedure to restore a song saved using Song Copy Archives.

1. Select the internal drive as the current drive.
2. Insert Disk #1 created from a Song Copy Archives into the external drive.
3. Press [PLAY(DISPLAY)].
4. Hold [SHIFT] and press [F1(SONG)]. The song menu icon appears in the display.
5. Press [F3(AcExt)]. If "AcExt" does not appear in the display above [F3], press [PAGE] until "AcExt" appears, and then press [F3(AcExt)].

graphic p 119 left column top

6. If several external drives are connected to the VS-1680, press [F1(SelDr)] to view a list of drives. Use CURSORS to select the drive which contains the Song Archive disk, and press [F1(Back)].

graphic p 119 left column bottom

7. Use [⇐] and [⇒] to move the cursor to "Source Song".
8. Use the TIME / VALUE dial to move the cursor to the song you want to extract and press [F3(MARK)]. By pressing [F2(ALL)], you can place and remove Marks from all songs. Press [F1(SelSg)] to view a directory of songs. From here, after you have placed a Mark at the song(s) you want to extract, press [F1(Back)].

graphic p 119 right column top

9. Press [⇒] to move the cursor to "Erase All Songs" and use the TIME / VALUE dial to set the value.

Erase All Songs

When this is set to "On", the destination drive is initialized before the Song Archive Extract procedure is performed. If you want to perform the extract procedure without erasing any songs on the destination drive, leave this "Off".

10. Press [F4(Exec)]. A confirmation message appears in the display.
11. Press [YES]. "STORE Current ?" appears in the display. Press [YES] if you want to save changes made to the current song, otherwise press [NO].
12. Execute the Song Archives Extract. "Insert Disk # " appears in the display. Insert the correct disk number and press [YES].
14. When the Song Archive Extract procedure is finished, the screen returns to the Playlist display.

IV. Hard Drive Maintenance

A. Drive Initialize with Physical Formatting

When you have used the same hard drive repeatedly, the data on the drive is recorded and erased repeatedly, the data may become fragmented on the hard drive. When this happens, the message "Error Drive Too Slow" may appear in the display during certain operations. In order to achieve maximum performance from the drive, perform the Drive Initialize process with the Physical Format setting "On".

When a drive is initialized, **the entire contents are irretrievably lost**. Make sure you make backups of any songs on the drive you plan to initialize before you use drive initialize.

** If you accidentally delete data that you need, that data cannot be restore to its previous condition. Roland Corporation assumes no liability concerning such loss of data.*

If you are using a drive or disk that has been partitioned, you will not be able to choose a particular partition that you wish to initialize. When you carry out drive initialization, the whole drive and all its partitions will be initialized at once.

To initialize a drive with Physical Format:

1. Confirm that power of the drive and the VS-1680 is turned on.
2. Insert a disk into the drive, if you are using a removable type drive.
3. Press [PLAY(DISPLAY)].
4. Hold [SHIFT] and press [F6(UTILITY)]. The Utility menu icon appears in the display.
5. Press [F6(DrIni)]. If "DrIni" does not appear in the display above [F6], first press [PAGE] until "DrIni" is displayed, and then press [F6(DrIni)].
6. Use [⇐], [⇒], [↑], and [↓] to move the cursor, and use the TIME / VALUE dial to set each value described below.

Init Drive (Initialize Drive)

Select the drive (IDE, SCSI0 - SCSI7). "IDE" indicates the internal hard drive, and "SCSI" indicates external SCSI drives. For example, use "SCSI5" to select a Zip Drive.

Partition

Select the partition size (500 MB, 1000 MB, 2000 MB). In most cases, select "2000 MB".

Physical Format

Select whether or not to use physical formatting. For new drives, or drives that have been used by another device, this must be set to "On". Set this to "On" to re-format a drive which has been used repeatedly.

Surface Scan

This confirms that the read and write functions in all of the drive's partitions are operating correctly when the drive is initialized. In normal circumstances, set this to "Off". When you particularly want to conduct a test of the read/write functions, then set this to "On" (p. xx).

The function buttons work as shown.

[F1(SeIDr)]:	This displays a directory of the currently connected drives. Use [←], [→], [↑], and [↓] to move the cursor to the drive you want to initialize.
[F3(Info)]:	Displays the drive information.
[F4(Exec)]:	Executes initialization of the selected drive.
[F6(EXIT)]:	Exits the screen.

graphic p 112 right column top

7. When the settings are made, press [F4(Exec)]. "Initialize *** OK ?" appears in the display. "****" refers to the selected drive's SCSI number. For example, "SCSI5" indicates an external drive which is set to SCSI ID #5.
8. Press [YES]. (Or, to cancel the operation, press [NO].) "Initialize ****, Sure?" appears in the display.
9. Press [YES]. "STORE Current ?" appears in the display. Press [YES] to store the current song; otherwise press [NO].
10. After the initialization is completed, the VS-1680 restarts automatically, and returns to the Playlist display.

** Be aware initializing a drive requires some time. This is not a malfunction. For example, when physical format is turned "On", the time required to format a 100MB Zip disk is approximately 10 minutes. The progress of initialization will be shown in the display. **Be sure not to turn the power off until initialization is complete.***

B. Drive Check

You can check the drive you are using to make sure it can be read correctly. This is referred to as Drive Check. This provides a way to determine whether a failure during Song Copy (p. xx) or DAT Backup (p. xx) is due to a problem in the song itself that was saved on the drive, whether the problem is with the connections, or if there is a problem of some other kind. If data cannot be read correctly, the display will indicate the song in which the error occurred.

1. Hold [SHIFT] and press [F6(UTILITY)]. The Utility menu icon appears in the display.

2. Press [F5(DrChk)]. If "DrChk" does not appear in the display above [F5], first press [PAGE] until "DrChk" is displayed, and then press [F5(DrChk)]. A list of currently connected drives appears in the display.
3. Use [←], [→], [↑], and [↓] to move the cursor. Select the drive you wish to check.

The function buttons work as shown.

[F3(Info)]: Displays the drive information.
[F4(Exec)]: Executes Drive Check.
[F6(EXIT)]: Exits the screen.

graphic p 175 left column top

4. When you have selected the drive you wish to check, press [F4(Exec)]. "Drive Check ***?" appears in the display. "****" refers to the selected drive's ID number.
5. Press [YES]. (Or, to cancel the operation, press [NO].)
6. "STORE Current ?" appears in the display. Press [YES] to store the current song; otherwise press [NO].
7. During the Drive Check process, progress of the operation is shown in the display. **Do not turn off the power until the operation is completed.**

To Cancel Drive Check

You can use the following procedure to cancel the Drive Check.

1. Press [EXIT]. "Cancel ?" appears in the display.
2. Press [YES]. Drive Check is canceled.

C. Check Drive Reliability using Surface Scan

When initializing a hard drive, you can confirm the read and write functions in all the drive partitions are operating correctly. This is referred to as **Surface Scan**. If there are any places on the drive where the reading or writing of data cannot be performed, the VS-1680 **registers this as unusable memory**. Recording and playback then becomes unavailable at that location.

Performing this procedure deletes all contents saved on the drive. Conduct this check when initializing a newly purchased drive, or a drive which previously had been used with a personal computer or other device. Be sure to make a backup copy of any songs you are presently using on the VS-1680 before carrying out Surface Scan.

1. Follow the procedure described in "Initializing the Drive" (p. xx) and set "Surface Scan" to "On".
2. After the drive has been initialized, Surface Scan begins immediately.

** The Surface Scan procedure takes time. This is not a malfunction. For example, the time required to conduct Surface Scan on a 100 MB Zip disk is approximately 10 minutes. The time it will take to conduct Surface Scan on your drive should be based on the size (capacity) of the disk. The progress of the Surface Scan procedure is shown in the display.*

3. When Surface Scan is completed, one of the following messages appears in the display.

“ – Complete – “:

This drive is good to use. All memory areas were found to be usable.

“_____ Defect”:

The underlined portion will indicate the number of unusable memory locations in this drive. The larger this number, the lower the reliability of this drive.

“File System Err”:

A read or write failure has occurred in a location which stores basic data used by the VS-1680 for recording and playback. **This drive cannot be used by the VS-1680.**

D. Canceling Surface Scan

You may cancel Surface Scan by performing the following procedure.

1. Press [EXIT]. “Cancel ?” appears in the display.
2. Press [YES]. Surface Scan is now canceled. However, any unusable memory found up to that point is not registered.
3. The VS-1680 restarts automatically.

V. Back Up Options

There are several methods you can use to backup song data from the VS-1680. It is important to remember that simply backing up a song does not automatically remove it from the current drive. If wish to free up drive space, backup the song using one of the methods described below, and then use Song Erase to remove it from the current drive.

A. DAT Backup

Data backup to DAT tape is very economical, since tapes are somewhat inexpensive. However, the process can take a long time. One 60-minute DAT tape can hold approximately 330 MB of song data. Large amounts of song data will automatically be copied across multiple DAT tapes as necessary. DAT tapes are also reusable. For more detailed information regarding using a DAT recorder for data backup, see “Using a DAT Recorder” (p. xx).

B. External Removable Drive

You can copy songs from the current drive to an external removable hard disk such as a Zip disk using the Song Copy function. This is a great way to quickly backup a song to temporarily remove it from the current drive. This method is fast, however the cost per MB of storage is higher than it would be with DAT tape. One Zip Disk can hold approximately 100 MB of song data. Using the Song Copy Archives, large amounts of song data will automatically be copied across multiple Zip disks as necessary. Zip disks and other types of removable disks are also reusable. For more detailed information regarding using an external removable hard drive for data backup, see “Saving A Song To An External Drive” (p. xx).

C. CD-R Backup

Using an optional CD-R drive, you can backup song data to recordable CDs. This method is fast, reliable, and economical. One blank CD-R disc can hold approximately 650 MB of song data. Large amounts of song data will automatically be copied across multiple CD-R discs as necessary. Regular CD-R discs are not reusable. For more detailed information regarding using a CD-R drive for data backup, see “Using a CD-R Drive” (p. xx).