

FoSteX

Model **8338**

D-90 SCSI card

Owner's Manual

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Introduction

Thank you for purchasing the Fostex Model 8338, the optional SCSI card designed especially for the D-90 digital multitrack recorder.

Installing this SCSI card in the D-90 will allow you to connect the D-90 to an external SCSI device to save and load D-90 data to and from a connected SCSI drive for backup.

<Precautions>

- An authorized Fostex technical service representative will install the SCSI card in your D-90. Please do not try to install the card yourself. Contact the nearest Fostex sales office after you purchase the card. Please refer to the following section "Installing the Model 8338" for contact information.
- When our technical service representative installs the card in your D-90, the hard disk will be reformatted and any data on the disk will be erased permanently. Be sure to back up your hard disk data before you hand the D-90 to the technical service representative.
- Before you connect a SCSI device to a D-90 with an installed SCSI card, be sure to read the section "Connecting a SCSI device" in this manual to learn the proper operation.
- SCSI devices are composed of precision parts. Handle them with care. Please read the instruction manual that comes with your SCSI device for handling precautions.

1. Installing the Model 8338

An authorized Fostex technical service representative will install the SCSI card in your D-90. Please do not try to install the card yourself. Contact the nearest Fostex sales office after you purchase the card. In case you have already used the D-90, when our technical service representative installs the card in your D-90, the hard disk will be reformatted and the data on the disk will be erased permanently. Be sure to backup your hard disk data to an external device, such as a DAT machine, before you hand the D-90 to the technical service representative.

2. Function available on the D-90 with a SCSI device connected

You can use the following functions if you connect a SCSI device to the D-90.

1. You can save and load data to and from a connected fixed hard disk or removable disk. This function expands the original save/load function that uses a connected DAT or adat, and allows you to save and load data using a SCSI drive. Furthermore, saving and loading data to/from the SCSI drive is much faster than using a DAT machine. Saving or loading requires time closer to the real-time duration of the song you are saving or loading. (It takes about four times the actual length of the song to do the same thing with the DAT.)
2. You can switch between the internal hard disk in the D-90 and the external drive. You can record and play back data using the SCSI drive in the same way as with an internal hard disk. (Caution: Real time recording and playback is

logically possible on the SCSI drive, but its reliability may not be 100% and you may hear some sound skipping.) For more information, refer to "Notes on real time recording and playback" on page 9.

When the SCSI card is installed, the internal hard disk of the D-90 will be reformatted. This reformatting will add the following new functions.

3. New functions

When the SCSI card is installed, the internal hard disk of the D-90 will be reformatted. This reformatting will add the following new functions that will be available later when you use the internal hard disk as well as the SCSI drive.

1. **The Current Drive Setting menu has been added in Setup mode.**
The "Current Drive Setting" menu has been added to switch between the internal drive and the SCSI drive so that you can operate them individually. (This function is automatically added when the SCSI card is installed.)

<Note>

Since the new functions are added with the SCSI card installed, the operation of the internal hard disk will be slightly different from what is described in the D-90's User's Guide. Please refer to this manual when you perform the following operations:

- 1 When you format the internal hard disk
- 2 When you use the Program Change function
- 3 When you save or load data using a DAT or adat machine, and
- 4 Executing the "FORMAT" menu in Setup mode.

4. SCSI devices you can use

Along with the SCSI card, please use the following SCSI devices that have already been performance tested.

Fostex will not guarantee the operation of non-recommended SCSI devices.

SCSI devices that have been tested for operation (as of January '97)

<MO> :230MB	LF-3200 (Matsushita) MOS331 (Olympus) M2512A (Fujitsu)
<MO> :540MB	OMD-7060 (Konica) /540MB only
Removable hard disk	zip 100 (IOMEGA)/100MB jaz (IOMEGA)/1GB ezflyer (SyQuest)/230MB EZ135 (SyQuest)/135MB SyJet (SyQuest)/1.5GB
<PD>	LF-1000 (Matsushita)/640MB
Fixed hard disk	FireBall 1080S (Quantum)/1.08GB

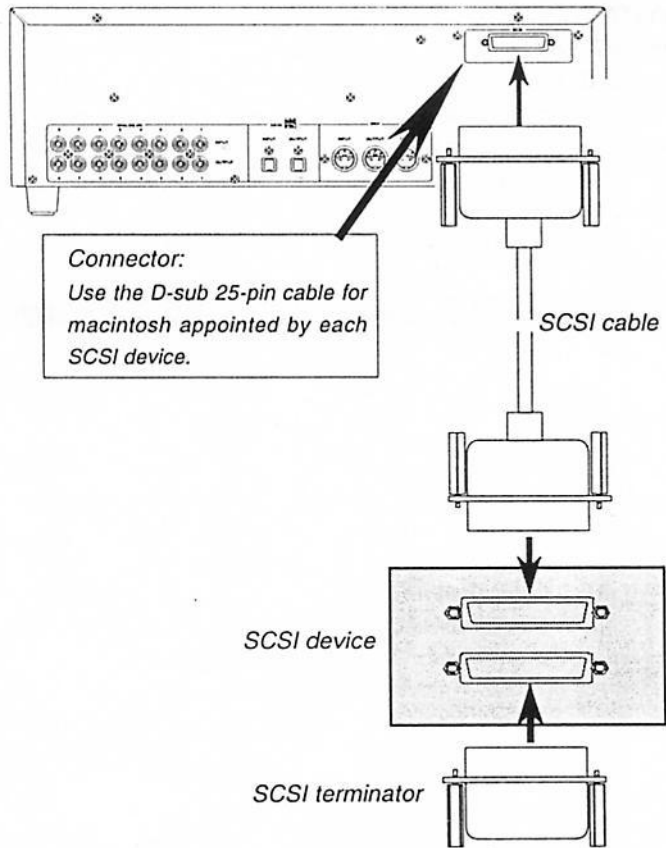
* Either disk should have SCSI-2 specifications.



These SCSI devices have already been tested for performance at Fostex. However, any product lot includes variances in quality.

The test at Fostex does not include inspection for such variance. When you use external SCSI devices, check the operation carefully. Fostex is not liable for any damage (data loss or damage) caused by using the D-90 or the external SCSI devices.

5. Connecting a SCSI device



Refer to the diagram to connect a SCSI device to a D-90 with a SCSI card. Follow the cautions below when you connect the device.



First, turn off the power to all the devices before you connect them.



Connect only one SCSI device to the D-90. You cannot chain SCSI devices. Install a SCSI terminator on the other connector. (If the SCSI device has a termination switch, be sure to turn the switch ON to terminate the device.)



The D-90 will detect the SCSI ID number set on the connected device, and show it on the display. (Refer to the SCSI device manual for setting the ID number.)



You must format the SCSI disk after you connect it to the D-90. Refer to the "Formatting" section on the next page for the formatting procedure.

6. Operation after you turn on the power

After you connect the SCSI device, turn on the power to the SCSI drive and the D-90. The operation differs depending on whether or not the internal hard disk has been formatted.

Choose one of the following steps according to the status of the internal hard disk.

① If the internal hard disk has been already formatted:

The D-90 will boot up using the internal hard disk as the current drive, and the LCD panel will display "InitiL. wAit", then "wAit", and change to ABS 0 for Program 1 (P1).

If you have turned on the power to the SCSI drive first, the "wAit" indication will be followed by a display that indicates that the SCSI drive has been recognized. Then the LCD panel will display the ABS 0 indication.

Now, you can format the SCSI disk (fixed or removable).

Use the "FORMAT" menu in Setup mode. Please refer to the following "Formatting" section for the formatting procedure.

② If the internal hard disk has not been formatted:

If you turn on the power to a D-90 that contains an unformatted disk, the D-90 LCD panel will display "InitiL. wAit". Then the unit will recognize that the hard disk has not been formatted, display "unForMat", and automatically proceed to the "FORMAT" menu in Setup mode.

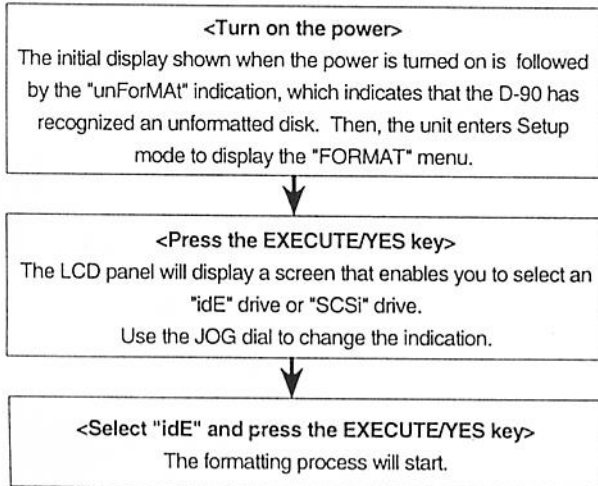
Now, format the disk following the steps below: then format the SCSI disk in the same way.

7. Formatting the internal hard disk

Use the "FORMAT" menu in Setup mode to format the internal hard disk. The details are also explained in the D-90's Owner's Manual. However, after the SCSI card is installed in the D-90, part of the display indication will be different. Please check this manual.

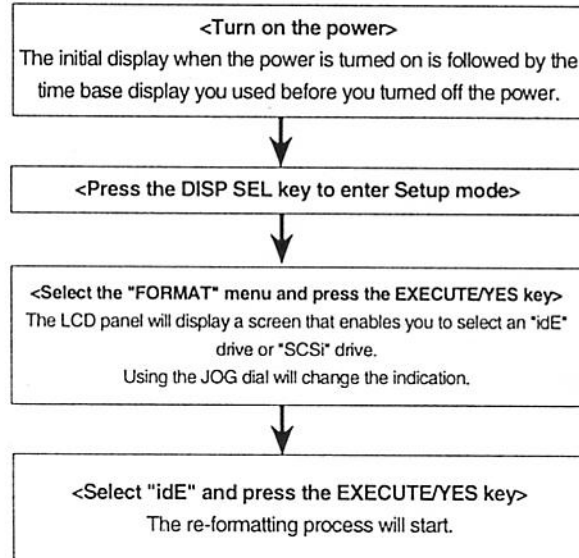
7-1. Formatting an un-formatted internal hard disk

If you have installed a new hard disk in the D-90 after the SCSI card has been installed, turning on the power to the D-90 will cause the unit to display the "FORMAT" menu in Setup mode. The display will change as follows. Also, refer to the Owner's Manual of the D-90.



7-2. Re-formatting the internal hard disk

Follow the steps below to format the internal hard disk again after the SCSI card has been installed.



8. Formatting the SCSI disk

Use the "FORMAT" menu in Setup mode to format a SCSI disk.

As part of the formatting process, the D-90 will check the performance of the connected SCSI device, and select and display the most suitable formatting type (TYPE 0 - TYPE 2) from four available formatting types. (Users can select only those types.) Default setting is TYPE 2. You can also check on the display to see which type was used to format the disk. Refer to the next section for more information about the format types and the formatting procedure.

When you format a SCSI disk, the D-90 will automatically measure the capacity of the SCSI device to see whether it is greater or less than 300MB, and determine whether the disk should be formatted with "One-song format" or "nine-song format." (You cannot change this selection. Refer to "8. Information about "One-song format" and "Nine-song format" for more details.)

8-1. Formatting Types

TYPE	Available recording time	SAVE/LOAD It takes the same time to save and load data using TYPEs 0-3 on the same drive.	Real time recording You need to select the SCSI drive as the current drive.	Real time playback You need to select the SCSI drive as the current drive.	Remarks
TYPE 0	<Short> Depends on the disk.	<Possible>	<Possible> However, Fostex will not guarantee the operation. Refer to "Notes on real time recording/playback" for more information.	<Possible> However, Fostex will not guarantee the operation. Refer to "Notes on real time recording/playback" for more information.	You cannot specify TYPE 0. The measuring function of the D-90 will select this option.
TYPE 1	<Normal> Depends on the disk.	<Possible>	<Not possible> The D-90 will reject any attempt to set it in recording mode.	<Possible> However, Fostex will not guarantee the operation. Refer to "Notes on real time recording/playback" for more information.	If the D-90 selects TYPE 0 or 1 using the measuring function, you can specify TYPE 1 for formatting. (You cannot use TYPE 1 when the D-90 selects TYPE 2.)
TYPE 2	<Long> Depends on the disk.	<Possible>	<Not possible> The D-90 will reject any attempt to set it in recording mode.	<Possible but the sound will skip>	We recommended that you use TYPE 2 format if you are using a SCSI drive only to save and load data.
TYPE 3	<Longest> Depends on the disk.	<p><Possible> TYPE 3 is used to perform simple formatting. Read the notes below before proceeding with the operation..</p> <p><Notes> TYPE 3 format will format the disk, assuming that the entire area in the disk is available, and will not be able to identify the area actually available. Bad blocks in the disk cannot be selected. This may later cause the sound to skip.</p>	<Not possible> The D-90 will reject any attempt to set it in recording mode.	<p>The degree of sound skipping will depend on the result of automatic measurement with TYPE 0-2.</p> <p>TYPE 0: Skip -> less TYPE 1: Skip -> normal TYPE 2: Skip -> frequent</p>	<p>The merit of TYPE 3 is that a shorter formatting time is required, compared to TYPEs 0-2.</p> <p>For example, if you are using an MO disk that has already been formatted for DOS or MAC, usually there are no bad blocks on the disk. Using TYPE 3 format will be quicker than TYPEs 0-2.</p> <p>The D-90 will not select this type using the measuring function. Only users can specify this type.</p>

Although the following chart presents the SCSI disk formatting time in accordance to each format type (measured by Fostex), please refer to this, as necessary, only for an approximate formatting time.

	Formatting Time	
	TYPE 0, 1, 2	TYPE 3
SyJet (1.5GB)	Approx. 20 minutes	Approx. 5 seconds
FireBall (1GB)	Approx. 16 minutes	Approx. 5 seconds
PD (640MB)	Approx. 50 minutes	Approx. 22 seconds
MO (230MB)	Approx. 12~15 minutes	Approx. 27 seconds
MO (540MB)	Approx. 14~17 minutes	Approx. 22 seconds
EZ135 (135MB)	Approx. 3 minutes	Approx. 4 seconds
ezflyer (230MB)	Approx. 6 minutes	Approx. 5 seconds
zip (100MB)	Approx. 4 minutes	Approx. 8 seconds
Jaz (1GB)	Approx. 15 minutes	Approx. 5 seconds

<Notes on real time recording and playback>

Logically, you can perform real time recording/playback if your case is described under the <Possible> category in the table shown on the left. However, the sound might skip, depending on the condition of the connected SCSI drive disk.

The D-90 performs experimental reading and writing at two points on the disk to measure the performance of the connected SCSI device, and based on the results, such as the response time of the disk, it will determine the format type (TYPE 0-2). Therefore, for parts of the disk other than the two measured points, you do not know if the disk will maintain adequate speed to realize real time recording/playback.

It might be possible that the sound skips during real time recording or playback within the untested parts.

Measuring two points for performance can indicate tell whether or not the disk is reliable, but this is only an "index." Fostex will not guarantee the operation of the SCSI disk.

8-2. "One-song format" and "Nine-song format"

This section explains "One-song format" and "Nine-song format" for the save/load operation.

As shown below, the D-90 will select "One-song format" or "Nine-song format" depending on the capacity of the SCSI drive disk.

<One-song format>

This format applies to disks with a capacity less than 300MB (e.g., zip drive, EZ135drive, 230MB MO drive, etc.). The disk will be formatted using the "One-song format": that is, you can save one song per disk set. (Refer to the following explanation.)

<Nine-song format>

This format applies to disks with a capacity of 300MB or more (e.g., Jaz drive, SyJet drive, fixed hard disk, etc.). The disk will be formatted using the "Nine-song format": that is, you can save nine songs per one disk set. (Refer to the explanation on page 12.)

As explained above, you can save one song per "One-song format" disk. This is called "Backup" and is differentiated from "Program" in the internal hard disk.

<Example-1> Saving a 220MB song (PGM 1) in the 230MB MO disk:

D-90

Saving P1 →

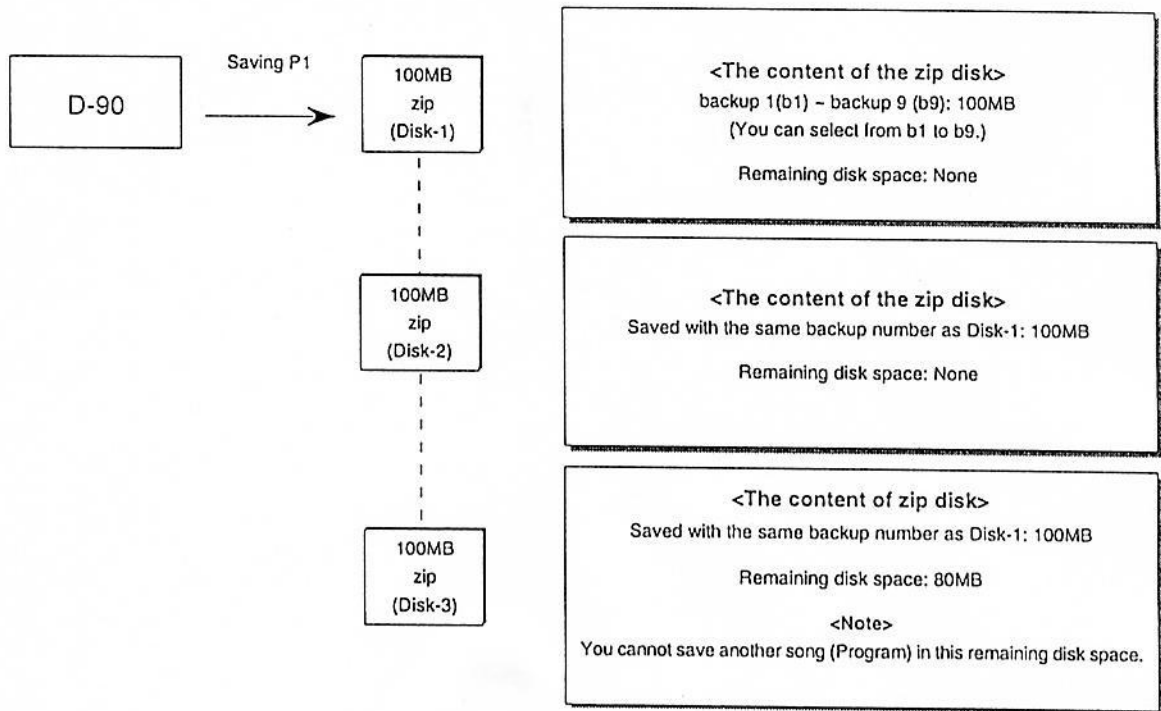
230MB
MO

<The content of the MO disk>

backup 1(b1) - backup(b9): 220MB
(You can select from b1 to b9.)

Remaining disk space: 10MB
You cannot save another song (Program)
in this remaining disk space.

<Example-2> Saving a 220MB song (PGM 1) in the 100MB zip disk:



<Note>

You cannot use the "ALL SAVE" function with a "One-song format" disk. Only the One-song saving operation is available.

On the other hand, you can save up to nine songs on a single "Nine-song format" disk.

A song saved on this type of the disk is called a "Song" on the D-90, and is differentiated from "Program" and "Backup." However, if the song data is so large that you need multiple "Nine-song format" disks to accommodate it (up to nine disks can be used as one disk set), the song will be treated as "backup" in the same way as shown in <Example-2> of the One-song format.

If the connected SCSI drive is a fixed disk, you cannot save the data of song if it exceeds the disk capacity. (You cannot use multiple disks in this case.)

<Example-1> Saving Programs 1-8 (each 100MB) in 1GB Jaz disk

D-90

Saving P1-P8

1GB
Jaz

The disk has nine partitions; Songs 1-9, and all Programs can be saved into the song numbers in any order.

* "ㄱ" indicates a lower case "S."

<The content of Jaz disk>

Song-1 (ㄱ 1): 100MB

Song-2 (ㄱ 2): 100MB

.

.

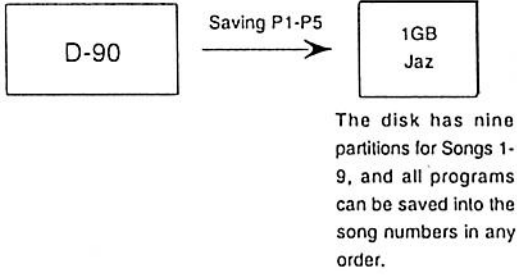
Song-8 (ㄱ 8): 100MB

Song-9 (ㄱ 9): remaining 200MB

<Note>

You can add other Programs (such as P9) into the remaining space of 200MB. However, if the size of the Program exceeds 200MB, you cannot add it to that source. You will need a second disk.

<Example-2> Saving Programs 1-4 (each 200MB) and Program 5 (300MB) in a 1GB Jaz disk



<The content of Jaz disk>

- Song-1 (≡ 1): 200MB
- Song-2 (≡ 2): 200MB
- Song-3 (≡ 3): 200MB
- Song-4 (≡ 4): 200MB
- Song-5 (≡ 5)
- Song-6 (≡ 6)
- Song-7 (≡ 7)
- Song-8 (≡ 8)
- Song-9 (≡ 9)

Since the remaining disk space is 200MB, P5 cannot be saved in the same disk. You need a second disk. (If the size of P5 is smaller than 200MB, you can select a Song on the disk and save P5 into it.)

<Example-3> Saving all Programs 1-9 (total 540MB) in a 1GB Jaz disk



<The content of Jaz disk>

Song-1 (≡1): P1 will be automatically saved. (You cannot select the Song number.)
Song-2 (≡2): P2 will be automatically saved. (You cannot select the Song number.)
.
.
Song-1 (≡9): P9 will be automatically saved. (You cannot select the Song number.)

Total: 540MB

<Note>

The disk has 480MB of available space, but you cannot add any other Program since all Songs 1-9 have already been used up.

9. Formatting a new SCSI disk

There are two methods of formatting a new SCSI disk. One is to use the "FORMAT" menu in Setup mode directly. The other is to switch the drive from "id E" to "SC Si" for the "Current Drive Setting" (as explained later) to automatically go to the "FORMAT" menu in Setup mode.

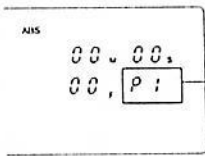
This section explains how to format the disk by directly entering Setup mode. Refer to the section "Current Drive Setting" for information on another formatting method.)

<Note>

The internal hard disk and the SCSI disk are made of precision parts. Use caution when you handle these devices. Do not place these devices near strong magnetic field or in a location subject to high humidity or excessive dust. Do not allow strong impact.

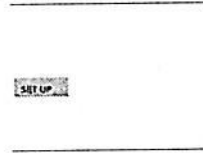
<Procedure>

1. Turn on the power on to the D-90 and the connected SCSI device.
The D-90 will start using the internal hard disk ("id E") as a drive, and the LCD panel will display the following indication.

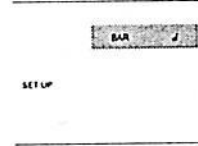


This indication shows the Program 1 that exists on the internal hard disk ("id E").

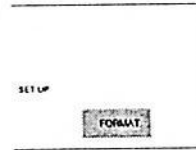
2. Press the DISP SEL key to switch the display to the Setup mode indication. "SETUP" will flash on the display.



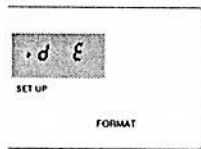
3. Press the EXECUTE/YES key to enter Setup mode.
The LCD panel will display the Setup menu that was shown before you turned off the power. (The following example shows the "BAR" menu.)



4. Rotate the JOG dial to select the "FORMAT" menu.
"FORMAT" will flash on the display.

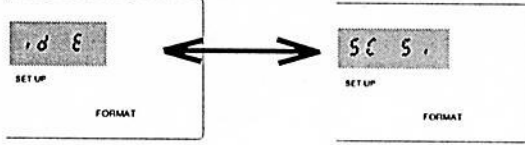


5. Press the EXECUTE/YES key again.
As shown below, "id E" will flash on the display.
This means that the internal hard disk is the currently selected drive. At this time, you can select a drive (the internal hard disk or SCSI drive).



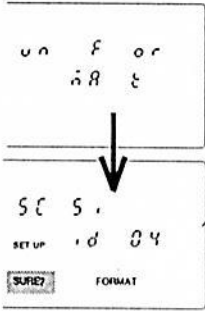
6. Turn the JOG dial clockwise to display "SC Si."

Turning the JOG dial clockwise and counterclockwise will toggle between "id E" and "SC Si."



7. Press the EXECUTE/YES key.

The LCD panel will display "unForMat" (unformatted), then ask if you wish to format the SCSI disk.



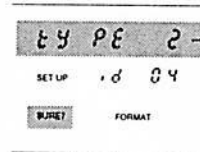
The D-90 will automatically detect the SCSI ID number of the external SCSI device (in this example, the ID number is 04), and the display will ask if you wish to format the disk.

8. Press the EXECUTE/YES key again.

"SURE?" will flash, and performance of the connected SCSI device will be measured. The display will blink in TYPE 2 as shown below.

Usually, we recommended that you proceed to the next procedure without changing this result.

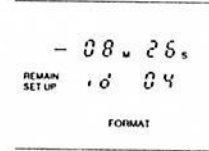
At this stage, should you wish to change the type, you can select the format type by rotating the JOG dial.



You can select only the type which is possible in operation from the type number selected by the automatic measuring function.

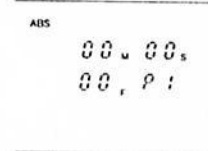
9. Select a format type and press the EXECUTE/YES key.

The formatting process will start, and the display will count down the time remaining for the unformatted area.



10. When the formatting process is complete, the LCD panel will display "COMPLETED!". Press the STOP button or EXIT/NO key to exit Setup mode.

The display will return to the "id E" "ABS 0" indication. If you wish to use the SCSI drive, switch the drive to "SC Si" for the "Current Drive Setting" (explained later).



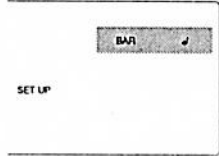
2. Press the DISP SEL key to change to the Setup mode display.

"SETUP" will flash on the display.



3. Press the EXECUTE/YES key to enter Setup mode.

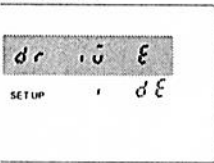
The LCD panel will display the Setup menu that was shown before you turned off the power. (The following example shows the "BAR" menu.)



4. Rotate the JOG dial to select the "drIVE" menu.

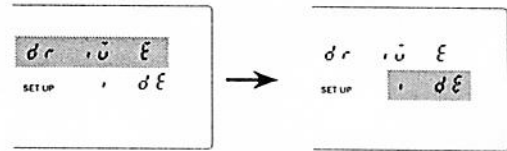
Since the "drIVE" menu has been added just before the "BAR" menu, turn the JOG dial counterclockwise to show this menu.

The display indicates that the internal ("id E") hard disk has been selected as the current drive.



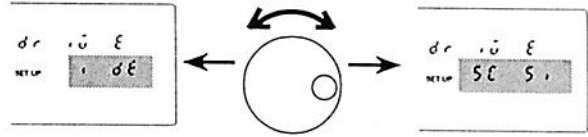
5. Press the EXECUTE/YES key again.

The flashing "drIVE" will change to a flashing "id E." At this point you can change the current drive now.



6. Turn the JOG dial to select "SC Si."

If you turn the JOG dial clockwise, "SC Si" will appear; if you turn it counterclockwise, "id E" will appear.

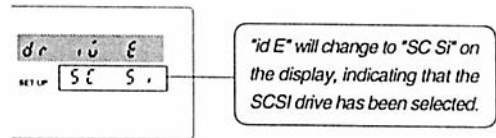


7. Press the EXECUTE/YES key again.

When "SC Si" is selected as the current drive, "drIVE" will flash on the display. If the SCSI disk has already been formatted, the display will change and the current drive setting will be completed.

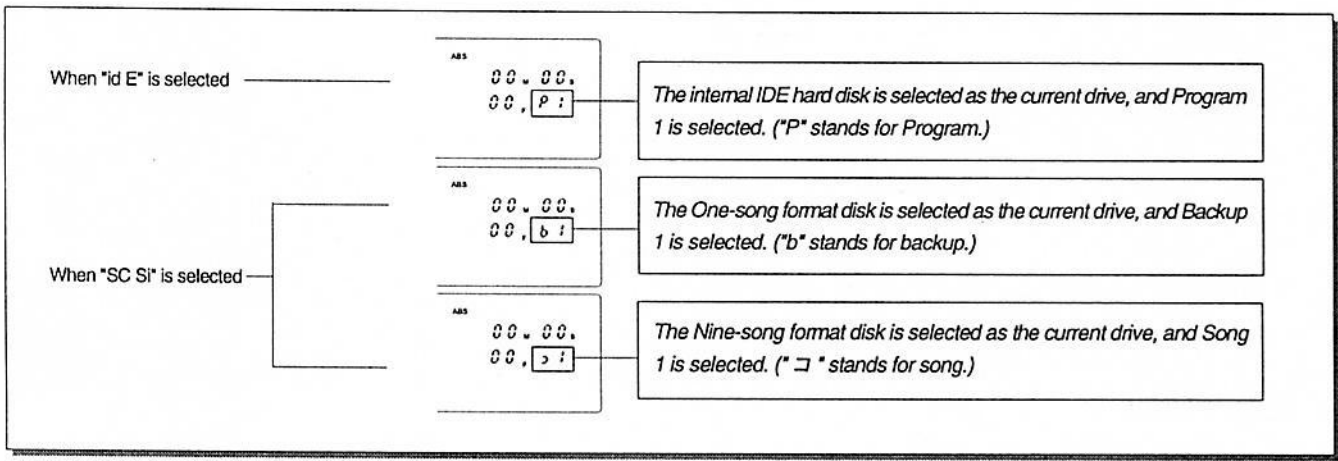
If the SCSI disk has not been formatted, "unForMat" will appear when you press the EXECUTE/YES key.

You need to go to Step 6 in "9. Formatting a new SCSI disk."



8. When the setting is completed, press the STOP button or EXIT/NO key to exit setup mode.

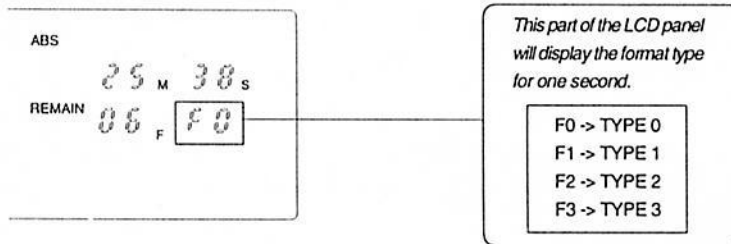
Refer to the indication in the lower right corner of the display to check the current drive setting (as explained on the next page).



Checking the format type

You can check the format type of formatted disks on the display.

Select "SC Si" for the current drive, exit Setup mode, press the DISP SEL key to switch to the "REMAIN" display, then press the EXIT/NO key. (The format type will appear for about one second.)



12. Program Change function

You can select a Program when "id E" or "SC Si" is selected as the current drive and when you are using a Nine-song format disk.

To use the Program Change function, press the STORE key while holding down the HOLD/> key (or press the HOLD/> key while holding down the STORE key). (For more information on the Program Change function, refer to the D-90's Owner's Manual.)

When you press the STORE key while holding down the HOLD/> key:

-> P1 -> P2 -> P3 -> -> P9

When you press the HOLD/> key while holding down the STORE key:

<- P1 <- P2 <- P3 <- <- P9

<Notes on the Program Change function>

You cannot use the Program Change function if the write protection tab on the SCSI disk is set to ON.

13. Save and load using SCSI

While the current drive is set to "id E", you can save the currently selected Program (audio data + Setup data) or all Programs 1-9 to the external SCSI device. You can also load the data (that was saved in this way) to the internal IDE hard disk.

Compared to a DAT machine, saving/loading on the SCSI device will take only a short time and will make it easier to backup your data. There are slight differences in the save/load function between the One-song format disk and the Nine-song format disk. Refer to "8-2. One-song format and Nine-song format."

<Before starting backup>

The example explained here assumes that the D-90 has a 1.3GB IDE hard disk installed (available recording time: 30 minutes) and that you have recorded the following songs.

Recordings in the internal hard disk - (e.g.) available recording time of a 1.3GB disk: 30 minutes

Program 1	3 minutes (one song)
Program 2	5 minutes (one song)
Program 3	4 minutes (one song)
Program 4	6 minutes (one song)
Program 5	
~	0 minutes (remaining: 12 minutes)
Program 9	

For the SCSI drive, use the disk formatted according to the procedure described in "8. Formatting a SCSI disk."

13-1. Saving data to a One-song format disk

This section explains how to save One-song data to a removable disk (formatted in the One-song format) of less than 300MB. (That is, the disk has enough space to accommodate one song. We will use Example-1 on page 10 as reference.)

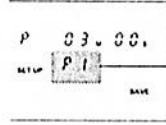
Set the current drive to "id E." If the current drive is "SC Si," switch it to "id E" in the "Current Drive Setting."
In this example, we are going to save Program P1 (3 minutes), which was recorded on the internal IDE hard disk.

1. Press the DISP SEL key while the LCD panel displays the ABS indication for Program 1 (P1) to enter Setup mode ("SETUP" will flash). Then press the EXECUTE/YES key.
2. Rotate the JOG dial to select the flashing "SAVE" (SAVE menu) and press the EXECUTE/YES key.
The LCD panel will flash "SC Si." At this time, you can select the external device to which to save data (SCSI, DAT or adat). Rotating the JOG dial will toggle between "SC Si", "Adat" and "dAt." Select "SC Si".

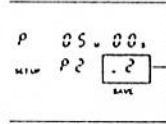


3. Select the flashing "SC Si", then press the EXECUTE/YES key.
The display will change and the LCD panel will show the Program number in the internal hard disk and the duration of the song recorded in this program. (This example indicates that Program P1 has a recording with a duration of three minutes.)

At this time, rotating the JOG dial will allow you to select a Program (P1-P9, or ALL SAVE) to save, but "ALL SAVE" does not function in this example. If you have selected a Program that will not be accommodate in one disk, the number of disks required to save this Program will appear on the right of the Program Number on the display. If this number appears, read the explanation from page 22 again to save data to multiple disks.

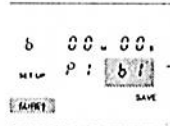


The Program number to save and duration of the recording will appear here. (This example indicates that Program P1 has a recording of three minutes.)



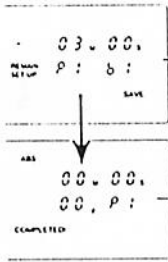
This example shows that you selected Program 2 (P2) and you will need two disks to save the data.

4. Select a desirable Program (P1 in this example), and press the EXECUTE/YES key.
The display will change as follows, showing the backup number on the SCSI disk and the duration of the recording in this backup. (The display in this example is showing "b1 (backup 1)", indicating that nothing has been recorded in this backup.) Turn the JOG dial to select a desirable backup number (b1-b9). (Select "b1" here.)



Turn the JOG dial to select a desirable backup number. "b" means "backup."

- After you select "b1," press the EXECUTE/YES key.
The backup operation will start. The "P1" data on the internal hard disk will be saved as backup "b1" on the SCSI disk.



The LCD panel will display the time length of the data, and its number will count down as the saving operation progresses.

When the saving operation is complete, "COMPLETED!" will appear, and the LCD panel will return to the ABS display for Program 1 (P1).

Press the STOP button or EXIT/NO key to turn off the "COMPLETED!" message.

<Note>
You cannot save another song even if some space remains on the disk.

13-2. Loading data from a One-song format disk

This section explains how to load the backup data (b1) from the One-song format disk into a Program on the internal hard disk. (In this example, we will load the data into Program 5 on the internal hard disk.)

Set the current drive to "id E."

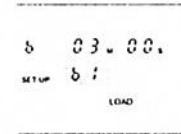
- Turn on the power to the D-90 and the SCSI device, and insert the backup disk into the SCSI drive.

- While the LCD panel displays the ABS indication, press the DISP SEL key to enter Setup mode ("SETUP" will flash). Then press the EXECUTE/YES key.

- Use the JOG dial to select the flashing "LOAD" (LOAD menu), and press the EXECUTE/YES key again.
The display will change to the flashing "SC Si" indication. At this time, you can select an external device from which to load data (SCSI, DAT or adat). Select "SC Si."



- Select the flashing "SC Si" and press the EXECUTE/YES key.
The display will change as follows, and the backup number on the SCSI disk and the duration of the data will appear. (The example shows that the backup number is "b1" and the duration of the recording is three minutes.)



- Press the EXECUTE/YES key again.
The currently-selected Program number on the internal hard disk and the duration of the recording in the Program will appear. (The example shows that the Program number is "P1" and the duration of the recording is three minutes.)

This display uses the status of the D-90 obtained before it entered Setup mode. That is, if the LCD panel displayed Program 3 (P3) before it entered Setup mode, the Program number P3 will appear here instead of P1. Now, you can select the destination Program using the JOG dial.

P 03 00,
 MULT b : P1
 EXEC LOAD

This display is asking you if you wish to load the b1 (backup 1) data into P1 (Program 1) on the internal hard disk.

If data has already been recorded in P1-P9 (as explain in the example on page 19), selecting any Program other than P8 and P9 will cause the display to change as follows:

P 05 00,
 MULT b : P2
 EXEC LOAD

When you select P2, the duration of the recording in P2 (5 minutes) will appear.

P 00 00,
 MULT b : P8
 EXEC LOAD

When you select P8, the display indicates no data has been recorded (0 minute).

CAUTION: If you load data into a Program that already contains data, the data being loaded will overwrite the existing data.

6. Select "P5" and press the EXECUTE/YES key.

The loading operation from the SCSI disk into Program 5 (P5) in the hard disk will start. When the operation is complete, the LCD panel will show "COMPLETED!" and return to the ABS display. Press the STOP button or the EXIT/NO key to turn off the "COMPLETED!" message.

13-3. Saving data into multiple One-song format disks

This section explains how to save one song to multiple removable disks (One-song format) of less than 300MB. (That is, the size of the song data is larger than the capacity of one disk, and you need multiple disks to save it. Refer to <Example-2> on page 11.)

Set the current drive to "id E." If the current drive is "SC Si," switch it to "id E" in the "Current Drive Setting."
 In this example, we are going to save Program P2 (5 minutes) recorded on the internal IDE hard disk.

1. Insert the first disk into the SCSI drive.

2. Follow steps 1-3 on page 20.

3. Use the JOG dial to select "P2."

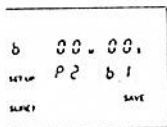
The display will indicate the number of disks required to save Program 2.

P 05 00,
 MULT P2 2
 EXEC

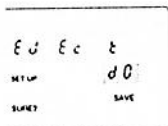
This example shows that you selected Program 2 (P2) and you will need two disks to save the data.

4. Press the EXECUTE/YES key.

The display will change as follows, showing the backup number on the SCSI disk and the duration of the recording in this backup. (The display in this example is showing "b1 (backup 1)", indicating that nothing has been recorded in this backup.) Turn the JOG dial to select a desirable backup number (b1-b9), or "EJECT", which will cause the disk to be ejected.



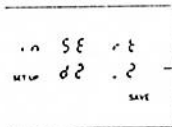
You can select a desirable backup number (b1-b9) or the eject display shown on the right.



This is the eject display. To eject the disk, select so that this display will appear and press the EXECUTE/YES key.

5. After you select a desirable backup number, press the EXECUTE/YES key. (In this example, select "b1.")

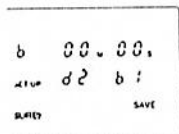
The saving operation will start, and the display will count down the time. When the first disk becomes full, the operation is temporarily stopped and the drive will automatically eject the disk. The display will change as follow.



This means "Please insert the second disk."

6. Insert the second disk into the SCSI drive.

The LCD panel will show the "wait" indication, then the content of the second disk. The backup number "b1" cannot be changed. However, you can select "Eject" using the JOG dial to eject the disk. If you wish to eject the disk, select "Eject" and press the EXECUTE/YES key.



7. Press the EXECUTE/YES key.

The save operation will resume on the second disk.

After the operation is complete, the LCD panel will display the "COMPLETED!" message, then return to the ABS display for Program 2 (P2).

Press the STOP button or the EXIT/NO key to turn off the "COMPLETED!" message.

This is the end of the saving operation that involves multiple One-song format disks. Make sure that you label the disks correctly so you can find data easily.

13-4. Loading data from multiple One-song format disks

This section explains how to load the backup data (b1) from multiple disks (One-song format) to a Program on the internal hard disk.

Set the current drive to "id E."

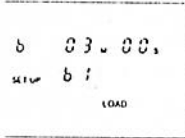
In this example, we are going to load the song (5 minutes) that we have saved onto two disks using the procedure in the previous section.

Assume that the first disk contains three minutes of data, and the second disk contains two minutes of data.

1. Turn on the power to the D-90 and the SCSI device, and insert the first backup disk (e.g. DISK-1) into the SCSI drive.
2. Follow steps 1-3 of "Loading data from a One-song format disk" on page 21.

4. Select the flashing "SCSi" and press the EXECUTE/YES key.

The display will change as follows and the duration of the data on the first disk and the name of the backup will appear. (The following display indicates that the first disk has a three minute song under the name "b1.")



5. Press the EXECUTE/YES key again.

The LCD will display the duration of the backup data and flash the Program number currently selected from the internal IDE hard disk. Use the JOG dial to select a desirable destination Program (P1-P9).

6. Select a desirable Program number and press the EXECUTE/YES key. (Select "P5" here.)

The loading operation will start. When the data from the first disk is completely loaded, the drive will automatically eject the disk.

The LCD panel will display the message "InSErt d2 (Insert the second disk!)"

7. Insert the second disk and press the EXECUTE/YES key.

The loading operation will resume. When the operation is complete, the LCD panel will display "COMPLETED!" the return to the ABS indication for Program 5 (P5). Press the STOP button or the EXIT/NO key to turn off the "COMPLETED!" message.

CAUTION: If the destination Program already contains the song, loading the backup data into that Program will erase the existing song data.

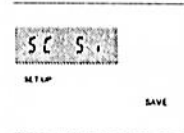
13-5. Saving one Program at a time to a Nine-song format disk

This section explains how to assign the song number to each of four song Programs and save them in a Nine-song format disk (300MB or larger). (That is, we assume that the disk space is large enough to accommodate four songs. We will use <Example-2> on page 13 as reference.)

Set the current drive to "id E."

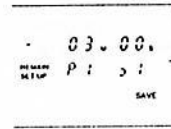
If the current drive is "SC Si," switch it to "id E" in the "Current Drive Setting." In this example, we are going to save Programs P1 (3 minutes), P2 (5 minutes), P3 (4 minutes), and P4 (6 minutes), which were record on the internal IDE hard disk to the SCSI disk one by one.

1. Press the DISP SEL key while the LCD panel displays the ABS indication for Program 1 (P1) to enter Setup mode ("SETUP" will flash), then press the EXECUTE/YES key.
2. Rotate the JOG dial to select the flashing "SAVE" (SAVE menu) and press the EXECUTE/YES key.
The LCD panel will flash "SCSi." At this time, you can select an external device to which to save data (SCSI, DAT or adat). Rotating the JOG dial will toggle between "SCSi", "dAt" and "Adat." Select "SC Si."

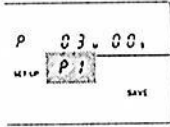


3. Select the flashing "SC Si," then press the EXECUTE/YES key.

The LCD panel will indicate the source Program number and the duration of the data recorded in this program. (This example indicates that Program P1 has a recording of three minutes duration.) At this time, rotating the JOG dial will allow you to select a Program (P1-P9, or ALL SAVE) to save; however, we do not use the "ALL SAVE" function at this point because we wish to save the programs one by one. (Refer to the following section "ALL SAVE to the Nine-song format disk" for information about the "ALL SAVE" function.)



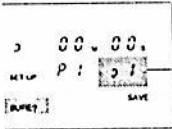
The LCD panel will display the time length of the data. This number will count down as the saving operation progresses.



Use the JOG dial to select from P1 through P9.

4. Select a desirable Program (P1 in this example), and press the EXECUTE/YES key.

The display will change as follows, indicating the song number on the SCSI disk and the duration of the data in this song. (The display in this example is showing "s1", indicating that nothing has been recorded in this song.) Turn the JOG dial to select the desired destination song number (s1-s9). (Select "s1" here.)



"s" means "song."

5. After you select "s1," press the EXECUTE/YES key.

The saving operation will start. The "P1" data on the internal hard disk will be saved as Song "s1" on the SCSI disk.

When the saving of one Program is complete, the LCD panel will display "COMPLETED!". To save the next Program, press the DISP SEL key, and repeat the steps in this section from the beginning. In the same manner as for Program 1, specify the song number to each of Programs 2-4 to save.

Assume that the four Programs have been assigned the following song numbers and saved.

Program 1 (P1)	→	Song number "s1"
Program 2 (P2)	→	Song number "s2"
Program 3 (P3)	→	Song number "s3"
Program 4 (P4)	→	Song number "s4"

CAUTION:

If you save the Program to a song number that has already been used, the existing data in that song number will be overwritten.

<Note>

If the SCSI disk still has free space after you have saved Programs P1-P4, you may save another song with a new song number to the disk if the space is large enough to accommodate the new song. If the size of the new song is larger than the free space on the disk, you will not be able to add the song. You will need a second disk.

13-6. Loading each Program from a Nine-song format disk

This section explains how to assign a Program number to the songs saved in a Nine-song format disk and load them into the internal IDE hard disk.

Set the current drive to "id E."

1. Press the DISP SEL key while the LCD panel displays the ABS indication to enter Setup mode ("SETUP" will flash). Then press the EXECUTE/YES key.

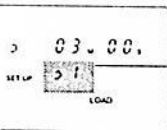
2. Rotate the JOG dial to select the flashing "LOAD" (LOAD menu) and press the EXECUTE/YES key.

The LCD panel will flash "SC Si." At this time, you can select an external device from which to load data (SCSI, DAT or adat). Rotating the JOG dial will toggle between "SC Si", "dAt" and "Adat." Select "SC Si" here.

3. Select the flashing "SC Si", then press the EXECUTE/YES key.

The LCD panel will indicate the source Song number and the duration of the corresponding song data. (This example indicates that Song "s1" has a recording of three minutes.)

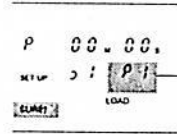
At this time, rotating the JOG dial will allow you to select the song number (s1-s9, or ALL) you wish to load. However, we do not use the "ALL" at this point.



You can select the desired song number (s1-s9, or ALL).

4. Select a desirable Program (s1 in this example), and press the EXECUTE/YES key.

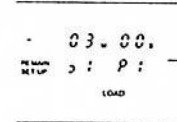
The display will change as follows, indicating the Program number on the destination (internal IDE hard disk) and the duration of the data in this Program. (The display in this example is showing "P1", indicating that nothing has been recorded in this Program.) Turn the JOG dial to select a desirable destination Program number (P1-P9). (Select "P1" here.)



Use the JOG dial to select a desirable destination Program number.

5. After you select "P1," press the EXECUTE/YES key.

The loading operation will start. The "s1" data on the SCSI disk will be loaded to Program P1 on the internal hard disk.



The LCD panel will display the time (in negative value) required to load the data, and its number will count down as the loading operation progresses.

6. When the loading of one song is complete, the LCD panel will display "COMPLETED!" then return to the ABS indication for "P1."

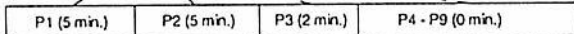
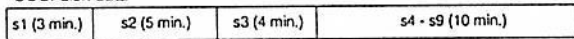
Repeat this procedure to load the data for other song.

13-7. ALL SAVE to the Nine-song format disk

<Notes on loading each Program one by one>

If the internal IDE hard disk already has data (in this example, 12 minutes), you will be able to load the data from the SCSI disk into only some of the Programs on the hard disk. Make sure that the internal hard disk has enough free memory space to accommodate the data to be loaded.

SCSI disk data

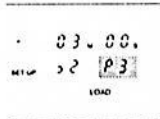


The memory status of the internal hard disk.

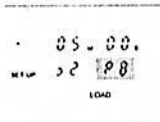
Total recording time: 12 minutes

As shown above, if you try to load the "s2" song data (5 minutes) from a SCSI disk to the internal disk, you will be able to load the data to Programs P1 and P2, but you will be unable to load the data into Programs P3-P9. That is, P1 and P2 are large enough to have the existing data overwritten by new data of the same duration, but other Programs are not large enough. In this case, the LCD will display how many more minutes are required.

Trying to load Song "s2" into Program P3:
Three more minutes are required to load a five-minute song.



Trying to load Song "s2" from any Program from P4-P9 (in this case, P8):
Five more minutes are required to load a five-minute song.

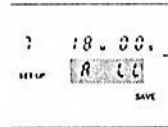


This section explains how to save all Programs (a total of 18 minutes of data for P1-P9) in the internal disk into the Nine-song format SCSI disk of 300MB or more. (That is, we assume that the disk space is large enough to accommodate all Program songs (P1-P9). We will use <Example-3> on page 13 as a reference.)

Set the current drive to "id E."

1. Press the DISP SEL key while the LCD panel displays the ABS indication to enter Setup mode ("SETUP" will flash), then press the EXECUTE/YES key.
2. Rotate the JOG dial to select the flashing "SAVE" (SAVE menu) and press the EXECUTE/YES key.
The LCD panel will flash "SC Si."

3. Select the flashing "SC Si", then press the EXECUTE/YES key.
The LCD panel will indicate the source Program number and the duration of the data recorded in this program. Rotate the JOG dial to select "ALL."



The total time of all the Programs on the internal hard disk will appear. (In this example, 18 minutes)

4. Select "ALL" and press the EXECUTE/YES key.
The display will change as follows, asking if you wish to erase all the data on the SCSI disk.



If you proceed with the operation, the data on the SCSI disk will be erased, then the save operation will start.
To cancel the save operation, press the STOP button or the EXIT/NO key now.

- To excuse the save operation, press the EXECUTE/YES key.
The "wait" indication is followed by the Program numbers in the following order: P1 -> P2 -> P3 -> P4 ->.....-> P9.
You cannot assign song numbers to Programs during the ALL SAVE operation. Program 1 (P1) data will be saved to Song number 1 (s1), Program 2 (P2) data will be saved to Song number 2 (s2), and so on.

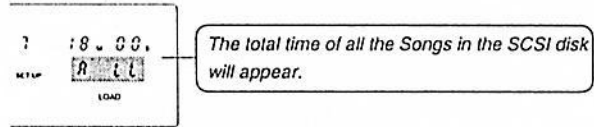
13-8. ALL LOAD from the Nine-song format disk

This section explains how to load all the song data that was previously saved using the ALL SAVE function onto the internal hard disk.

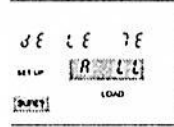
Set the current drive to "Id E."

- Press the DISP SEL key while the LCD panel displays the ABS indication to enter Setup mode ("SETUP" will flash), then press the EXECUTE/YES key.

- Rotate the JOG dial to select the flashing "LOAD" (LOAD menu) and press the EXECUTE/YES key.
The LCD panel will flash "SC Si."
- Select the flashing "SC Si", then press the EXECUTE/YES key.
The LCD panel will indicate the source Song number and the duration of the data recorded in this song. Rotate the JOG dial to select "ALL."



- Select "ALL" and press the EXECUTE/YES key.
The display will change as follows, asking if you wish to erase all the data on the internal IDE hard disk. To cancel the load operation, press the STOP button or the EXIT/NO key now.



- To execute the load operation, press the EXECUTE/YES key.
The "wait" indication is followed by the Song numbers in the following order: s1 -> s2 -> s3 -> s4.....->s9. (The data on the SCSI disk will be erased first, then the save operation will start.)
You cannot assign Program numbers to Song numbers during the ALL LOAD operation. Song 1 (s1) data will be saved to Program number 1 (P1), Song 2 (s2) data will be saved to Program number 2 (P2), and so on.
When the loading operation is complete, the LCD panel will display "COMPLETED!", then return to the "Loading each Program" display.
Press the STOP button or the EXIT/NO key to return to the ABS display.

14. Alarm messages

The following alarm messages will appear when the operation you attempt is not appropriate, the input data is incorrect, or an error occurs. In this case, refer to the <Action> to correct the situation. If the situation does not improve after you take the action, contact the nearest Fostex Service Station or distributor.

no SC Si	When you change the Current Drive Setting from "id E" to "SC Si", the D-90 does not recognize the SCSI drive.
	<Action> Check to see that the SCSI cable is connected correctly, and that the power is turned on to the SCSI drive.

no d. S E	The disk has not been inserted in the SCSI drive, or the drive ejected the disk.
	<Action> Insert the disk correctly.

d: S E no E r r	You have inserted the wrong disk into the SCSI drive to load the data that had been saved in multiple disks. For example, you have inserted DISK-1 instead of DISK-2.
	<Action> Insert the correct disk.

W E d. U n L o c E	The write-protect tab is set to ON on the disk.
	<Action> Set the write-protect tab to OFF.

P G n no E r r	While you were loading data from multiple removable disks, you inserted a disk that has a different Program name.
	<Action> Use disks with the same Program name.

H d F U L L	There is not enough disk space to execute the operation.
	<Action> Erase unnecessary data to clear more space (CUT or ERASE), or re-format the disk.

U o . d E n d	The operation you have executed is not supported by the D-90.
------------------	---

d r . U E E r r	An error occurred on the SCSI drive.
	<Action> Turn the power off, then turn it on again.

E r r o r
 3 0
 The error occurred while the data was being read during the save or load operation.
 <Action>
 Try the save or load operation again.

E r r o r
 3 1
 The error occurred while data was being written during the save operation.
 <Action>
 Try the save operation from the beginning again.

E r r o r
 3 2
 The error occurred while data was being written during the load operation.
 <Action>
 Try the load operation from the beginning again.

E r r o r
 3 3
 There is an error related to the SCSI drive.
 <Action>
 Turn off the power to the SCSI drive, then turn it on again.

E r r o r
 3 4
 There was a data error during real time recording or playback.
 More precisely, the sound was skipped once or more during playback, or defective data was detected once or more during recording.

E o 2 o o o
 5 o - -
 This is displayed when data transmission failed in between at executing ALL SAVE or ALL LOAD of nine-song format disk, and indicates which program number (or song number) was correctly executed or which was not. "0" indicates the program number (or song number) which was correctly executed and if a number as 1-9 is shown, it indicates that the respective number was not correctly executed. Also, "-" indicates that the capacity for save or load is insufficient and that this number could not be executed. The example at left shows that numbers 1, 3, 4, 5 and 7 was correctly executed but 2 and 6 failed, and 8, 9 had not been executed.
 Numbers 1-9 are positioned in the display as shown below.

15. Specifications

- Connector : D-SUB 25-pin
- Protocol : SCSI-2, Unbalanced transfer method
- Transfer type : Asynchronous
- The number of units for connection: One
- SCSI-ID : Recognized automatically
- Power supply : +5V DC (Supplied from D-90)
- Current consumption : Approx. 100mA

Declaration of EC Directive

This equipment is compatible with the EMC Directive (89/336/EEC) - Directive on approximation of member nation's ordinance concerning the electromagnetic compatibility. This equipment is compatible only when connected to Fostex specified product.

The Affect of Immunity on This Equipment

Please comply to the precautions below to make this equipment compatible with European Specification EN50082-1 (coexistence of electromagnetic waves - common immunity specification).

<NOTE>

Cap is installed on the D-SUB 25 pin connector.

The purpose of this cap is to prevent static electricity from affecting this quipment.

Do not remove this cap except when using the D-SUB 25 pin connector.

<AUSTRIA>

NAME: ATEC Audio-u. Videogeräte
VertriebsgesmbH.
 ADD: Im Winkel 5, A-2325 Velm, Austria
 TEL: (+43) 2234-74004, FAX: (+43) 2234-74074

<BELGIUM>

NAME: EML N.V.
 ADD: Bijvenestraat 1A, B3500 Hasselt, Belgium
 TEL: (+32) 11-232355, FAX: (+32) 11-232172

<DENMARK>

NAME: SC Sound ApS
 ADD: Malervej 2, DK-2630 Taastrup, Denmark
 TEL: (+45) 4399-8877, FAX: (+45) 4399-8077

<FINLAND>

NAME: Noretron Audio
 ADD: Tonttumorinkuja 4, FIN-02200 Espoo, Finland
 TEL: (+358) 0-5259330, FAX: (+358) 0-52593352

<FRANCE>

NAME: Musikengro
 ADD: ZAC de Folliouses, B. P. 609, 01706 Les
 Echets, France
 TEL: (+33) 72 26 27 00, FAX: (+33) 72 26 27 01

<GERMANY>

NAME: Studiosound & Music GmbH
 ADD: Scheppe Gewissegasse 8, D-35039 Marburg,
 Germany
 TEL: (+49) 6421-12071, FAX: (+49) 6421-15522

<GREECE>

NAME: Bon Studio S. A.
 ADD: 6 Zaimi Street, Exarchia, 106.83 Athens,
 Greece
 TEL: (+30) 1-3809605-8, 3302059
 FAX: (+30) 1-3845755

<ICELAND>

NAME: I. D. elrf. electronic Ltd.
 ADD: ARMULA 38 108 REYKJAVIK ICELAND
 TEL: (+354) 588 5010, FAX: (+354) 588 5011

<ITALY>

NAME: Recoton Italia Srl.
 ADD: V. 1 Maggio, N 18, 40050 Quarto Inferiore,
 (BO) Italy
 TEL: (+39) 51-768576, FAX: (+39) 51-768336

<THE NETHERLANDS>

NAME: JEMKE ROOS AUDIO B.V.
 ADD: Kuiperweg 20, 1101 AG Amsterdam, The
 Netherlands
 TEL: (+31) 20-697-2121, FAX: (+31) 20-697-4201

<NORWAY>

NAME: Siv. Ing. Renum A/S
 ADD: P. O. Box 145 Vinderen, 0319 Oslo 3, Norway
 TEL: (+47) 22-139900, FAX: (+47) 22-148259

<PORTUGAL>

NAME: Catus - Tecnologias Audio e Musica, Lda.
 ADD: Rua de Santa Catarina, 131 4000 Porto,
 Portugal
 TEL: (+351) 2-2084456/325400
 FAX: (+351) 2-314760

<SPAIN>

NAME: Multitracker S. A.
 ADD: C/Garcilaso No.9, Madrid 28010, Spain
 TEL: (+34) 1-4470700, 1-4470898
 FAX: (+34) 1-5930716

<SWEDEN>

NAME: TTS Tal & Ton Studioteknik AB
 ADD: Gelbgjutarevagen 4, S-171 48 Solna, Sweden
 TEL: (+46) 8-7340750, FAX: (+46) 8-824476

<SWITZERLAND>

NAME: Audio Bauer Pro AG
 ADD: Bernerstrasse-Nord 182, CH-8064 Zurich,
 Switzerland
 TEL: (+41) 1-4323230, FAX: (+41) 1-4326558

<UK>

NAME: SCV London
 ADD: 3A 6-24 Southgate Road, London N1 3JJ,
 England, UK
 TEL: (+44) 171-923-1892
 FAX: (+44) 171-241-3644

Fostex

FOSTEX CORPORATION

3-2-35, Musashino, Akishima-shi, Tokyo 196-0021, Japan

FOSTEX CORPORATION OF AMERICA

15431, Blackburn Ave., Norwalk, CA 90650, U.S.A.

フォステクス株式会社

東京営業所 ☎ 101-0004 東京都千代田区猿楽町 2-8-16

☎ 03-3291-1946 FAX. 03-3293-8452

大阪営業所 ☎ 556-0004 大阪市浪速区日本橋西 1-1-13

☎ 06-631-7366 FAX. 06-631-7313

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