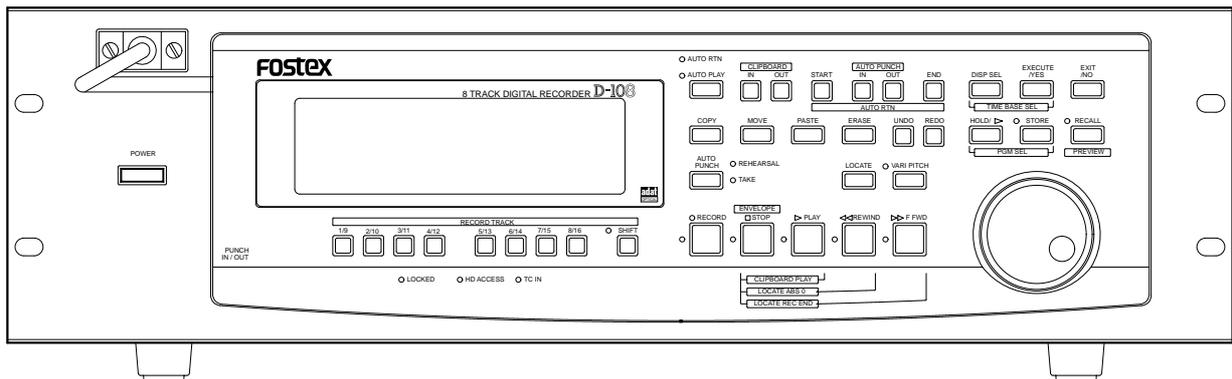


Owner's Manual

8288 421 000

Model D-108

8 Track Digital Recorder



Fostex®



"WARNING"

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

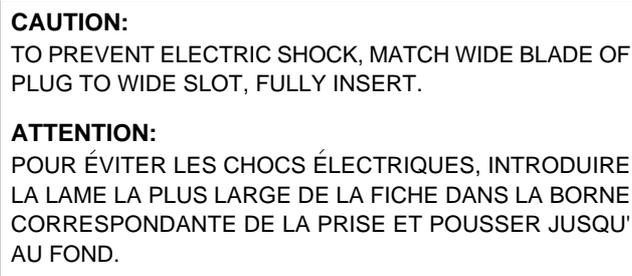
SAFETY INSTRUCTIONS

1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Water and Moisture - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.



An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization - The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. Cleaning - The appliance should be cleaned only as recommended by the manufacturer.
14. Nonuse Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
 - A. The power supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
17. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

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Introduction

Thank you for purchasing the Fostex Model D-108.

The D-108 is a 8-track digital multitrack recorder with sixteen additional tracks that employs a 3.5-inch E-IDE type removable hard disk, or external SCSI device (removable or fixed) as the recording media, instead of conventional type.

The D-108 achieve high-quality recording/playback with 16-bit linear quantization and a non-compression recording technique with "adat I/O" (switchable for S/P DIF), which enables 8-track simultaneous recording (6 analog, 2 digital or 8 digital) as well as 8-track simultaneous recording and 8-track simultaneous playback.

You can easily configure a fully digital recording system by combining the D-108 with various types of digital mixing consoles. You can backup recordings from the current disk to an adat machine, or to a DAT machine. Also, high speed backup is available via a standard SCSI terminal.

The D-108 features a +/-6% Vari-pitch function, and various non-destructive edit functions, such as copy, move & paste, erase, etc., that use three time bases.

Furthermore, it facilitates a complete MIDI environment by supporting MTC and MMC, output of MIDI clock and Song Position Pointer via an internal Tempo Map, and advanced controls by FEX (Fostex System Exclusive message).

Installing an optional 8345 TC/SYNC card enables the D-108 to support slave operation for the incoming LTC, and synchronization with video reference signals and Word Clock, as well as to output Word Clock signal to an external digital device. Installing an optional 5040 balanced 8-8 I/O card would add +4dBu analog, balanced I/Os.

Main features

The D-108's recorder section uses a recording format called FDMS-3 (Fostex Disk Management System-3). It uses an E-IDE hard disk, external SCSI device (stationary disk or removable disk) as the recording media.

- The D-108 features non-destructive audio editing (a great advantage of digital recording) such as Copy & Paste, Move & Paste, Erase, etc. You can choose Time Base (ABS or MTC) or MIDI bar/beat/clock as the unit.
- A "Preview function" allows for an intuitive fine-adjustment of an editing point (locate point).
- An "Undo/Redo function" enables you to easily correct recording and editing mistakes.
- A "Vari Pitch function" allows you to fine-tune the pitch.

- The D-108 has a "digital input track setup" function that enables you to input S/P DIF or adat digital signals and record them on any two tracks or all eight tracks.
- The D-108 has a "digital output track setup" function that enables you to output digital data as S/P DIF or adat digital signals and record them on an external digital device (DAT, MD, adat, etc.).
- You can also use the DATA IN/OUT jacks to an external DAT or adat, and to save and load song data (audio data and SETUP mode settings) to and from the DAT or adat.
- High-speed SCSI Save/Load is also an option by connecting a non-DAT or adat SCSI backup drive. WAV file Save/Load is possible by using a DOS formatted SCSI type disk.
- A maximum of 99 Locate Pointers can be programmed for a LOCATE only feature. Simply select the LOCATE number desired for swift location.
- MIDI clock and Song Position Pointer can be transmitted according to the internal programmable Tempo Map. You can set up a synchronization system with a sequencer or a rhythm machine without wasting a track.
- You can use the D-108 as a sync slave machine by sending MTC from a connected device.
- The D-108 supports MTC, MMC, and Fostex System Exclusive Message, which allows for advanced control and high-precision synchronization from external sequencing software. You can set the device number and MTC frame rate for MMC and Fostex System Exclusive Message. Also, "MTC Offset function" and "Offset Mode function" are useful for setting up a sync environment using an external sequencing software.
- Auto Punch In/Out and Manual Punch In/Out functions offer two modes: "Take" for a real recording, and "Rehearsal" for monitoring the part between the in and out points.
- The "Program Select function" enables you to select a song from up to 99 songs and name the songs.
- A "Bar/Beat Resolution function" is used to edit audio at the beginning of the beat (round up or round off to a beat).
- The "Metronome function" can be used as a rhythm guide for recording.
- Various edit functions using an edit point (locate point), such as Copy & Paste, Move & Paste, Erase, Auto Punch In/Out, Auto Locate, are available. You can also locate ABS 0 or REC END regardless of the edit point (locate point).
- You can set a preroll time of 0 to 10 seconds.
- A "Disk Remain Display function" offers a clear indication of available recording time and disk space (in mono track recording). You can choose the Time Base from ABS, MTC, and BAR/BEAT/CLK.

Precautions

- Be sure to connect the D-108 to the power supply specified in the Specifications section of this Owner's Manual. Do not use an AC outlet of any other voltage.
- Do not connect the D-108 to the same AC outlet to which devices that could generate noise (such as a large motor or dimmer), or the devices that consume a large amount of power (such as an air conditioning system or large electric heater) are connected.
- If you use the unit in an area with a different power voltage, first consult your dealer or the nearest FOSTEX service station. You can use the unit with a power frequency of 50Hz or 60Hz.
- It is very dangerous to use a power cord that is frayed or damaged. In such a case, stop using the unit immediately and ask your dealer to repair the cord.
- To avoid possible electric shock and damage to the D-108, avoid contact with water or other liquids, or do not handle the power plug while your hands are wet.
- To prevent possible electric shock and damage to the D-108, do not remove the main unit cover or reach the inside the unit.
- Do not let water or other liquid, or metal objects such as pins, accidentally enter the inside of the unit because this may lead to electric shock or damage. Should water enter the inside of the unit, remove the power plug from the AC outlet, and consult your dealer or the nearest FOSTEX service station.
- To prevent damage to the D-108, be sure to power on the connected devices first, then turn on the power to the D-108.
- Before turning the power off to the D-108, first quit Setup mode and make sure that the recorder section is stopped. Especially, never attempt to turn off the power to the unit while the hard disk is accessing data (the HD ACCESS LED is lit or flashing). Otherwise, not only will you lose recorded data, but you may damage to the unit. FOSTEX is not responsible for the data lost during operation of the unit.
- Before you change the location of the D-108, pack the unit in the shipping carton or an impact-resistant case. Make sure that the unit is kept free from external vibration or impact since the unit is very sensitive to vibration.
- Do not install the unit in locations subject to the following:
 - * Extremely high or low temperature, or significant changes in temperature.
 - * Excessive humidity or dust.
 - * Excessive changes in power supply voltage
 - * Unstable or significantly vibrating or shaking surfaces.
 - * Near a strong magnetic field (such as a TV or speaker).

- If you move the unit from a place with an excessively low temperature to a warm place, or if you use the unit in a room in which the temperature varies significantly during winter, condensation may occur on the hard disk or other parts. In such cases, leave the unit for about an hour in the new location before you turn on the power.

Note on repair

- This unit does not use any parts that users can repair easily. Contact your dealer or the nearest FOSTEX service station to ask about repairs.
- Use the packing carton designed for the D-108 when you transport the unit to the dealer for repair or return. If you have discarded the packing box, try to pack the unit completely using shock absorbing materials. Fostex is not responsible for malfunction or damage due to incomplete packaging or caused during transport.

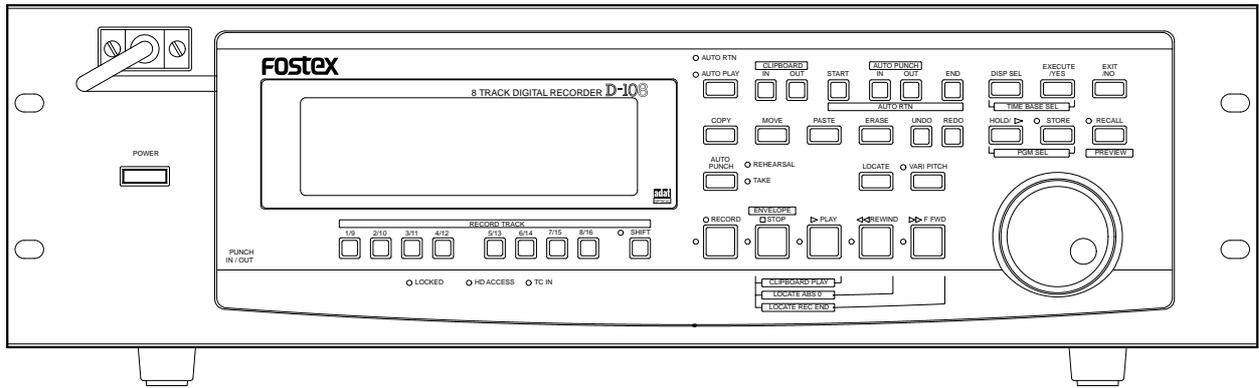
About copyrights

- It is prohibited by law to use any part of a CD recording or video images or audio data for which copyright is possessed by a third party for commercial purposes such as contents, broadcasts, sales, or distribution- any purpose other than for your personal pleasure.

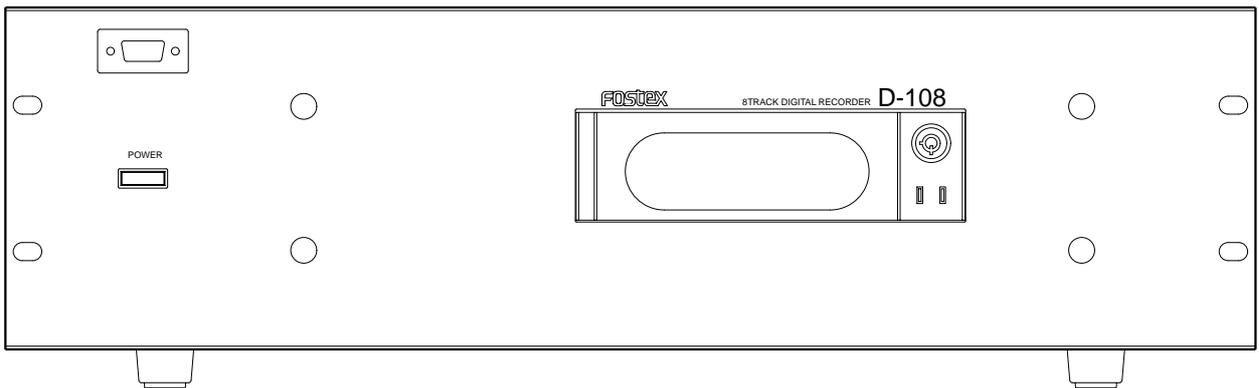
About damage

- FOSTEX is not responsible for any "direct damage" or "indirect damage" caused by using the D-108.

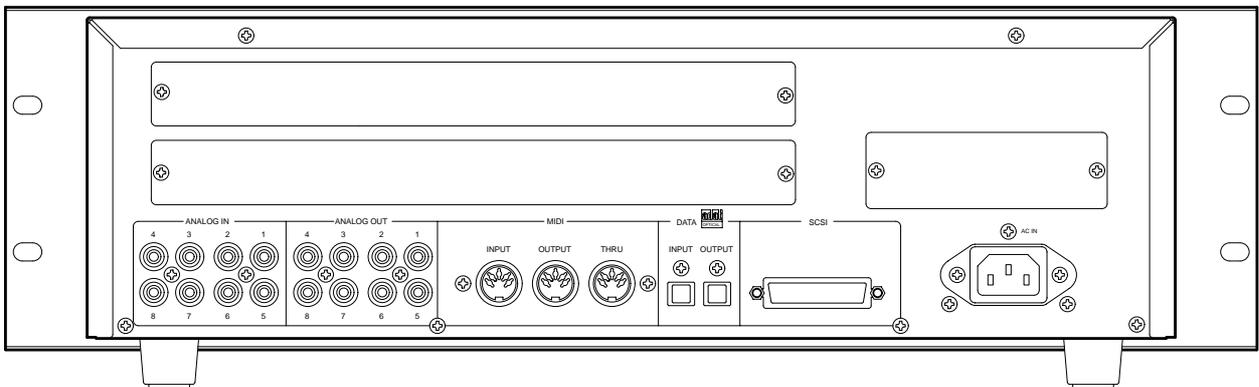
D-108 Front Panel (with the detachable remote controller)



D-108 Front Panel (with the detachable remote controller removed)

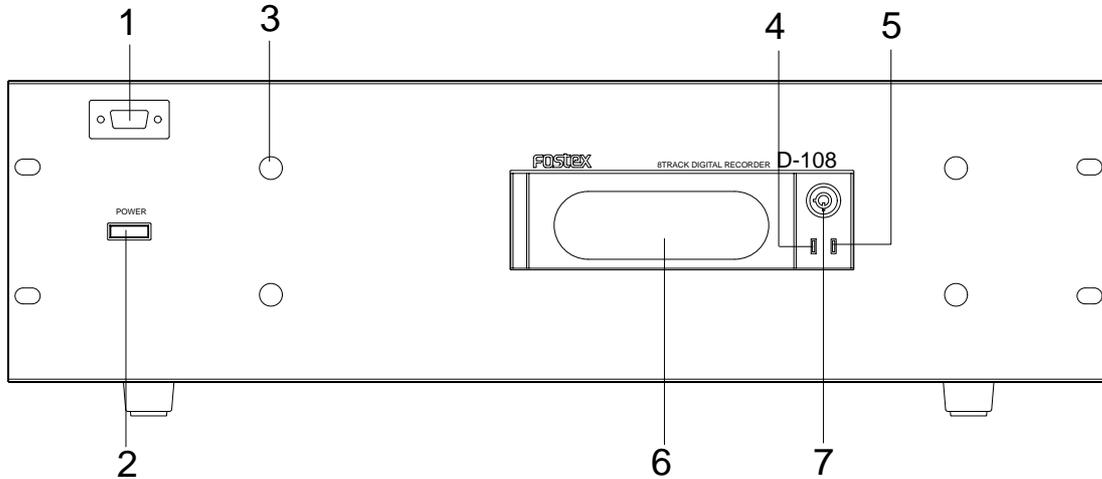


D-108 Rear Panel



Names and Functions

<Front Panel (with the detachable controller removed)>



1. Detachable remote controller connector

The detachable remote controller is connected here. You can remove the controller. Connect the optional extension cable (Model 8551) to extend the distance.

2. Power switch

This switch turns the main power to the D-108 on/off.

<WARNING !>

Before turning the power off to the D-108, first quit the Setup mode and make sure that the recorder section is stopped. Especially, never attempt to turn off the power to the unit while the hard disk is accessing data (the HD ACCESS LED is lit or flashing). Otherwise, not only will you lose recorded data, you may damage to the unit.

<Note>

Should this power switch be switched On/Off in quick succession, in some cases it will fail to switch On at all. This is due to functioning of the internal protection circuit and is not a breakdown. Consequently, should such a symptom appear, switch Off power for a moment, then switch On again after waiting 1 or 2 minutes.

3. Controller mount

The detachable remote controller is mounted on the front panel.

4. Hard disk access LED (Red)

This LED lights up or blinks when the hard disk is writing or reading data. (Same as the HD ACCESS LED on the detachable remote controller.)

5. Hard disk power LED (Green)

This LED lights up if the hard disk operates correctly when you turn the power on to the unit. If the Lock key is unlocked, the power to the hard disk will not be turned on, and the LED will not light up.

6. Removable hard disk cartridge slot

This slot is used to insert a removable hard disk cartridge. This system allows you to replace the hard disk easily.

* Refer to "Quick operation Guide" for more information on how to replace the removable hard disk cartridge.

<Note>

This slot is covered by a dust-proof panel when the unit is shipped from the factory. Remove this panel in order to insert a cartridge.

<Note>

The D-108 package contains a removable case (without a hard disk). Install your hard disk in this removable case.

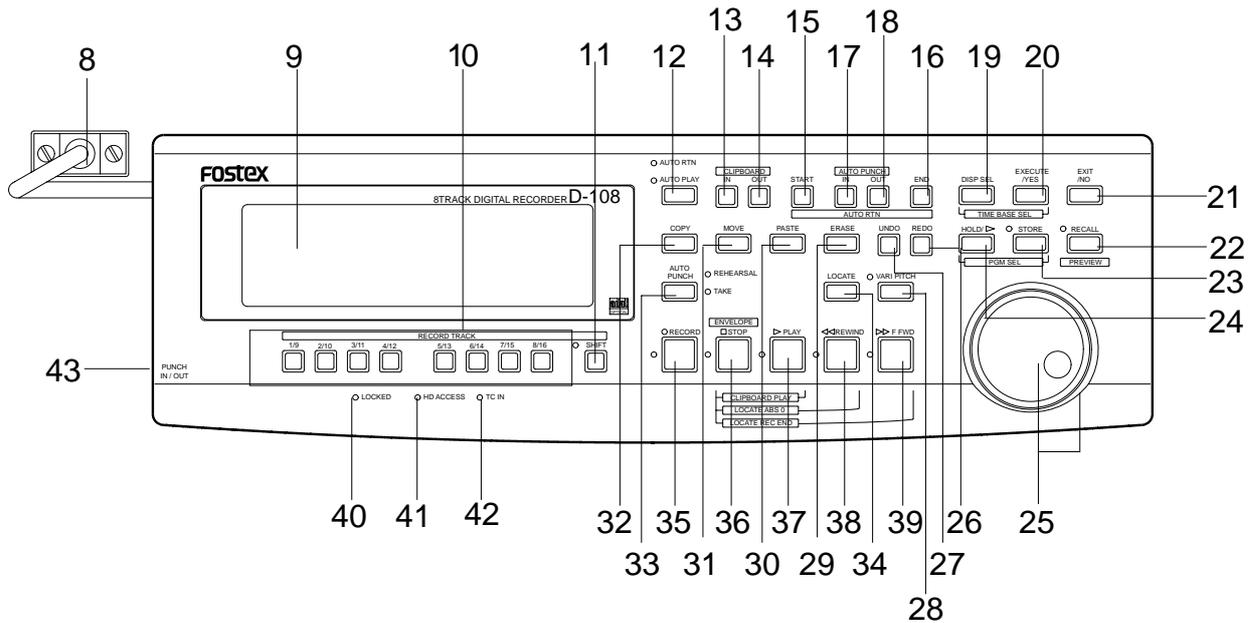
7. Lock/Unlock key

When you remove or install the hard disk cartridge, you need to lock/unlock here using the included key.

<Note>

Be sure to turn the power off to the D-108 before locking or unlocking.

<Detachable Controller>



8. Controller Connection Cable

Connect this cable to the D-108 controller connection jack.

9. Meter display

This meter display shows the signal level and settings.

* Refer to the "Display section" on page "18."

10. Record Track Select key [RECORD TRACK]

Select "SAFE-READY" of the track to record. Pressing the key once will cause the corresponding track to enter the READY mode, and the track displayed (□) will flash. Pressing the key again will cause the corresponding track to enter the SAFE mode, and the track display to turn OFF. When you only press the RECORD button in the READY mode, the track that is READY will enter the input monitor state, and the recording level can be adjusted. Pressing the RECORD button again will put the system back in the REPRODUCTION MONITOR state. You can also use this key to select tracks to copy & paste, move & paste, erase and other editing features, as well as to execute the envelope feature.

<Note>
The panel comes with numbers for track 9-16, however, only tracks 1-8 are operational.

* Refer to page "26" for details about the reproduction monitor and the input monitor.

11. Shift key [SHIFT]

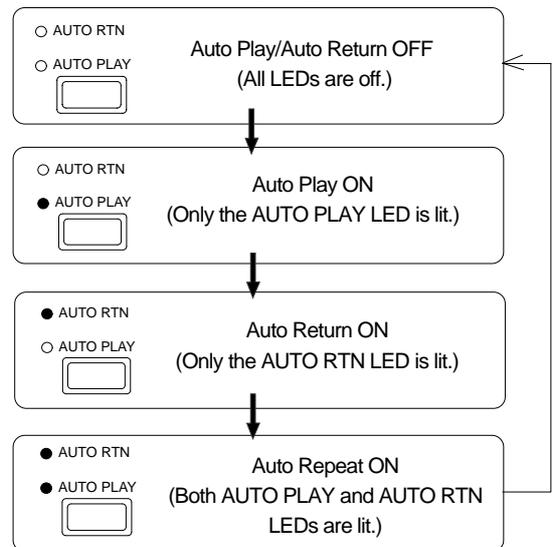
The connect slave unit's recording track is used in the SAFE-READY mode if the D-108 is used as the master system for MIDI slave synchronization.

* Refer to page "82" for details about using the SHIFT key.

12. Auto Play/Auto Return key

Pressing this key repeatedly will change Auto Play mode, Auto Return mode, and Repeat mode On/Off as follows:

(○ : LED off, ● : LED light up)



Auto Play mode:

In this mode, playback will start automatically after the START point is located. This function is effective at any locate points other than the ABS END point.

Auto Return mode:

When the END point is reached during playback, the START point is automatically located in this mode. This function is effective only when the START and END points have been specified.

<Note>
The Auto Return function is works only during playback. In the recording mode, the START point will not be located automatically when the END point is reached.

Auto Repeat mode:

This mode is a combination of Auto Play and Auto Return, and plays back the part between the START and END points repeatedly. The auto repeat function is effective only when the START and END points have been specified correctly.

* Refer to page "60" for details.

13. Clipboard In key [CLIPBOARD IN]

This key is used to store and recall the In point (CLIPBOARD IN point) for the Copy or Move operation. You can locate a stored CLIPBOARD IN point.

If you press the CLIPBOARD IN key while holding down the RECALL key when the recorder is stopped, you can preview the fade-in part at the stored CLIPBOARD IN point.

* Refer to page "67" for copying/moving data.
* Refer to page "60" for locating the CLIPBOARD IN point.
* Refer to page "65" for previewing data at the CLIPBOARD IN point.

14. Clipboard Out key [CLIPBOARD OUT]

This key is used to store and recall the Out point (CLIPBOARD OUT point) for the Copy or Move operation. You can locate a stored CLIPBOARD OUT point.

If you press the CLIPBOARD OUT key while holding down the RECALL key when the recorder is stopped, you can preview the fade-out part at the stored CLIPBOARD OUT point.

* Refer to page "60" for locating the CLIPBOARD OUT point.
* Refer to page "67" for copying/moving data.
* Refer to page "65" for previewing data at the CLIPBOARD OUT point.

15. Auto Return Start key [AUTO RTN START]

This key is used to store and recall the start point (AUTO RTN START point) for the Auto Return or Auto Repeat operation. You can locate a stored AUTO RTN START point.

If you press the AUTO RTN START key while holding down the RECALL key when the recorder is stopped, you can preview the fade-in part at the stored AUTO RTN START point.

* Refer to page "60" for locating the AUTO RTN START point.
* Refer to page "67" for copying/moving data.
* Refer to page "65" for previewing data at the AUTO RTN START point.

16. Auto Return End key [AUTO RTN END]

This key is used to store and recall the end point (AUTO RTN END point) for the Auto Return or Auto Repeat operation. You can locate a stored AUTO RTN END point.

If you press the AUTO RTN END key while holding down the RECALL key when the recorder is stopped, you can preview the fade-out part at the stored AUTO RTN END point.

* Refer to page "60" for locating the AUTO RTN END point.
* Refer to page "67" for copying/moving data.
* Refer to page "65" for previewing data at the AUTO RTN END point.

17. Auto Punch In key [AUTO PUNCH IN]

This key is used to store and recall the recording start point (AUTO PUNCH IN point) for the Auto Punch IN/OUT operation. This point is also used as an erase point. You can locate a stored AUTO PUNCH IN point.

If you press the AUTO PUNCH IN key while holding down the RECALL key when the recorder is stopped, you can preview the fade-out part at the stored AUTO PUNCH IN point.

* Refer to page "39" for more information about Auto Punch In/Out recording.
* Refer to page "67" for more information about pasting data.
* Refer to page "70" for more information about the Erase operations.
* Refer to page "65" for previewing data at the AUTO PUNCH IN point.

18. Auto Punch Out key [AUTO PUNCH OUT]

This key is used to store and recall the recording end point (AUTO PUNCH OUT point) for the Auto Punch IN/OUT operation. This point is also used as an erase point. You can locate a stored AUTO PUNCH OUT point.

If you press the AUTO PUNCH OUT key while holding down the RECALL key when the recorder is stopped, you can preview the fade-in part at the stored AUTO PUNCH OUT point.

* Refer to page "39" for more information about Auto Punch In/Out recording.
* Refer to page "70" for more information about the Erase operation.
* Refer to page "65" for previewing data at the AUTO PUNCH OUT point.

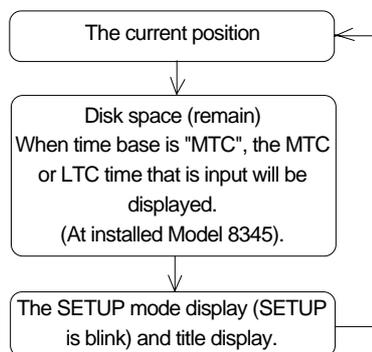
Memory keys (CLIPBOARD IN, CLIPBOARD OUT, AUTO RTN START, AUTO PUNCH IN, AUTO PUNCH OUT, and AUTO RTN END keys) have the following common functions:

- * Pressing a Memory key to recall the point the key is storing (or pressing the RECALL key, and then the Memory key) displays the memory data (time, or bar/beat/clock) currently stored in that key; then the unit enters data edit mode. To edit data, use the HOLD/> key or the SHUTTLE dial to move among the digits, and then use the JOG dial to change the value.
- * After you finish editing data, press the STORE key, and then press one of the Memory keys into which you want to store the point. The edited data will be stored in the specified Memory key.
- * While the current position of the recorder is indicated, press the STORE key, then one of the Memory keys into which you want to store the data. The current position or the recorder will be stored in the Memory key.
You can do this while the recorder is running or stopped.
- * Press a desired Memory key, and then press the LOCATE key to locate the point stored in that Memory key (time, or bar/beat/clock).
- * All memory data can be stored to Programs 1-99 individually.
- * In Setup mode, you can save or load song data for each Program.
- * All data will be retained after you turn off the power.

- * Refer to page "60" for more information on memory data.
- * Refer to page "60" for more information on the Locate function.
- * Refer to pages "24" and "35" for more information on the Program Change function.
- * Refer to page "88" for more information on saving and loading song data.

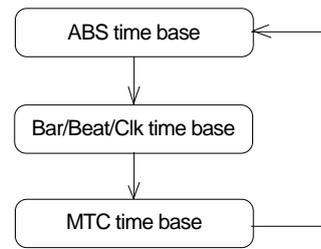
19. Display Select key [DISP SEL]

This key is used to change the display mode. Pressing this key repeatedly will change the display mode as follows:



- * Refer to pages "19" and "23" for more information about the REMAIN.

Pressing this key while holding down the EXECUTE/YES key will switch the Time Base (*) as follows. The Time Base can be set when the display shows the recorder's current position or the available disk space (REMAIN).



(*) Time Base:

The D-108 uses time display (ABS or MTC) or Bar/Beat/Clock display to indicate the current position of the recorder section. These displays are called "Time Base." ABS (Absolute Time) shows the absolute time of the disk, and MTC (MIDI Time code) shows the relative time obtained by adding an MTC offset value to the ABS value. Bar/Beat/Clock (BAR/BEAT/CLK) indicates a position within a piece of music and conforms to the MIDI clock and Song Position Pointers created on the internal Tempo Map. The tune will be displayed up to 999 bars.

- * Refer to pages "22" and "109" for more information about MTC and the internal Tempo Map.

20. Execute/Yes key [EXECUTE/YES]

Press this key to execute the operation when you edit data on the hard disk using the edit functions such as Paste and Erase, when you put the D-108 into SETUP mode, or when you set the parameters in the SETUP menu. Pressing the DISP SEL key while holding down the EXECUTE/YES key allows you to select the Time Base. (Refer to the explanation about the DISP SEL key.)

- * Refer to page "70" for more information about using this key for the Paste or Erase operation.
- * Refer to page "106" for more information about using this key in SETUP mode.

21. Exit key/No key [EXIT/NO]

The opposite of the EXECUTE/YES key, this key is used to stop the operation.

- * Refer to page "70" for more information about using this key for the Paste or Erase operation.
- * Refer to page "106" for more information about using this key in SETUP mode.

22. Recall key [RECALL]

Press this key to recall the stored time value (or Bar/Beat/Clock value). Pressing this key, and then one of the following keys will display the data stored at the key you pressed, and you will be able to edit the data.

RECALL key -> CLIPBOARD IN key

The Clipboard In point is recalled and the D-108 enters the edit mode.

RECALL key -> CLIPBOARD OUT key

The Clipboard Out point is recalled and the D-108 enters the edit mode.

RECALL key -> AUTO PUNCH IN key

The Auto Punch In point is recalled and the D-108 enters the edit mode.

RECALL key -> AUTO PUNCH OUT key

The Auto Punch Out point is recalled and the D-108 enters the edit mode.

RECALL key -> AUTO RTN START key

The Auto Return Start point is recalled and the D-108 enters the edit mode.

RECALL key -> AUTO RTN END key

The Auto Return End point is recalled and the D-108 enters the edit mode.

RECALL key -> LOCATE key

The Locate key data is recalled and the D-108 enters the edit mode.

RECALL key -> VARI PITCH key

The Vari Pitch data is recalled and the D-108 enters the edit mode.

Press the EXIT/NO key, or STOP button to escape from the edit mode (including vari pitch setup mode).

If you press the desired memory key while depressing the RECALL key, you can preview the fade-in/fade-out point stored in the memory key.

And, using [Press LOCATE: **] displayed after pressing the STORE key, this information can also be registered in a desired locate number (00~99).

- * Refer to page "68" for more information about the clipboard.
- * Refer to page "39" for more information about Auto Punch In/Out recording.
- * Refer to page "61" for more information about Auto Return.
- * Refer to page "65" for more information about Preview function.

23. Store key [STORE]

This key is used to store a time value (or Bar/Beat/Clock value) to one of the memory keys. Pressing this key, and then one of the following keys will cause the data shown on the display to be stored to the corresponding memory key you pressed. Pressing the STORE key while holding down the HOLD/> key will change a Program.

STORE key -> CLIPBOARD IN key

Data is stored as a Clipboard In point. The stored data can be used as a locator.

STORE key -> CLIPBOARD OUT key

Data is stored as a Clipboard Out point. The stored data can be used as a locator.

STORE key -> AUTO PUNCH IN key

Data is stored as an Auto Punch In point. The stored data can be used as a locator.

STORE key -> AUTO PUNCH OUT key

Data is stored as an Auto Punch Out point. The stored data can be used as a locator.

STORE key -> AUTO RTN START key

Data is stored as an Auto Return Start point. The stored data can be used as a locator.

STORE key -> AUTO RTN END key

Data is stored as an Auto Return End point. The stored data can be used as a locator.

STORE key -> LOCATE key

Data is stored as a LOCATE key data.

After pressing this key, if you wish to cancel the store operation, press the EXIT/NO key, or STOP button.

And, using [Press LOCATE:**] displayed after pressing the RECALL key, data stored in the desired locate number (00~99) can be recalled.

- * Refer to page "20" and "36" for more information about Program Change function.
- * Refer to page "60" for more information about the Locate function.
- * Refer to page "39" for more information about Auto Punch In/Out recording.
- * Refer to page "61" for more information about Auto Return.

24. Hold/Digit Move key [HOLD/>]

Pressing this key while the recorder transport is operating will hold the time value (or Bar/Beat/Clock value), display the value on the screen, and will place the D-108 into edit mode. If you press this key while the recorder section is stopped, the D-108 will enter edit mode. Pressing this key repeatedly allows you to select the digit (column) to edit. To cancel edit mode, press the STOP button, or EXIT/NO key.

Pressing the STORE key while holding down the HOLD/> key will change the Program.

* Refer to page "20" and "36" for more information about Program Change function.

25. Jog/Shuttle dial**Jog dial (inside):**

Turning the JOG dial while the recorder is stopped performs digital scrubbing in either direction, which allows you to check the audio and locate a point without any change in pitch.

The JOG dial is also used to change values in the data edit mode or when the pitch data is displayed. It also allows you to select a parameter to set in Setup mode.

Shuttle dial (outside):

FWD and REW direction shuttle operation in the STOP mode is possible at +/-1 ~ 64 times fast winding in the no sound state. On the other hand, FWD and REW direction shuttle operation in the PLAY mode is possible in the CUE playback mode at +1 ~ 8 and -1 ~ -7 times speed while cueing. In addition, while in the display edit mode, the editing point can be moved in the same way as by the HOLD/> key.

* Refer to page "54" for more information about the editing the memory data.
* Refer to page "106" for more information about Setup mode.

26. Redo key [REDO]

Pressing this key after you press the UNDO key restores the status obtained before you undo recording or editing. This key is activated only when the recorder transport section is stopped.

* Refer to pages "42", "45", "69" and "72" for more information about the Redo operation.

<Note>
This key is enabled only when the D-108 is stopped.

27. Undo key [UNDO]

After using an edit function such as Paste, or Erase, or after auto punch in/out recording, pressing this key will restore the previous status before editing or recording. This key is activated only when the recorder transport section is stopped.

* Refer to pages "42", "45", "69" and "72" for more information about the Undo operation.

<Note>
This key is enabled only when the D-108 is stopped.

28. Erase key [ERASE]

This key is used to erase a specified area or all data after a specified point on certain "READY" track(s), or all the data in a specified Program.

Use the Auto Punch In/Out points and the RECORD TRACK select key to specify the area to erase.

To erase all data in a Program, press the STORE key while holding down the HOLD/> key to select the Program, then press the ERASE key.

All data recorded in the Program will be erased. You do not need to set a track in READY mode.

* Refer to page "70" for more information about the Erase operation.

<Note>
This key is enabled only when the D-108 is stopped.

29. Vari-pitch key [VARI PITCH]

Use this key to turn the Vari-pitch function on and off. When this function is enabled, the corresponding LED lights up. When this function is disabled, the LED turns off. The range of pitch variation for playback and recording is +/-6.0%, in 0.1% steps.

Press the RECALL key, and then the VARI PITCH key to display the current pitch data.

To change the pitch data, use the JOG dial to change the value while the pitch data is displayed.

You can also change the playback speed when the data is being played back with the Vari-pitch function ON.

* To quit the pitch data display, press the EXIT/NO key, or the STOP button.

<Notes>

* Even when the vari-pitch data is set to 0.0%, pressing this key will turn the LED on.

* You cannot change the pitch data while recording. If the Vari-pitch function was on, the unit will use the pitch data previously set.

<Note>

The Vari-pitch function will be automatically turned off in the following situations:

* When you turn on the power to the unit (The pitch data will be reset to 0.0%).

* When you set Slave mode ON. (The pitch data remembers the previous setting.)

* With the SETUP mode [Clock Sel. ?] menu set to [Opt]
- and data is loaded from an adat or DAT,
- and when digital input track is set to [adat] or [L:*, R: *],
- and when the SETUP mode slave type is set to adat/DAT, and the slave mode switched ON, it will blink but change to steady lighting when a digital signal is correctly input.

* Refer to "Quick Operation Guide" for more information on the Vari-pitch function.

* Refer to pages "80" and "115" for more information on Slave mode.

* Refer to page "44" for more information on digital signals.

30. Paste key [PASTE]

Press this key to copy data or move data that has been copied to the clipboard to a location stored at the AUTO PUNCH IN key.

The data will be pasted at the point stored in the Auto Punch In key. You can select the paste destination track using the RECORD TRACK select key. A destination track to which data is pasted is identical to the source track. This key is activated only when the recorder transport section is stopped.

* Refer to page "67" for more information about the Copy & Paste, and Move & Paste operation.

31. Move key [MOVE]

This key is used to enter into the clipboard data stored in memory by the CLIPBOARD IN/OUT keys. Pressing the MOVE key will store the data in the Clipboard as Move data.

To enter data to be moved, one or more tracks must be readied, and a correct value must be stored for the In and Out points. If you attempt to enter data when all tracks are safe, all track indications and "Select Track!" indication on the display will blink to warn you.

If a correct value is not set for the Clipboard In or Out points, a warning message of "Void In Point!" or "Void Out Point!" will appear.

* Refer to page "67" for more information about the Copy & Paste, and Move & Paste operation.

32. Copy key [COPY]

This key is used to copy data stored in the memory using the CLIPBOARD IN/OUT keys. Pressing the COPY key will store the data in the Clipboard as Copy data. To execute the copy operation, one or more tracks must be readied, and a correct value must be stored for the In and Out points. If you attempt to copy data when all tracks are safe, all track indications and a "Select Track!" indication on the display will blink to warn you.

If a correct value is not set for the Clipboard In or Out points, a warning message of "Void In Point!" or "Void Out Point!" will appear.

* Refer to page "67" for more information about copying data.

33. Auto Punch Mode On/Off key [AUTO PUNCH]

Switch this key ON for auto punch in/out.

When you press this key while a correct value is stored to the AUTO PUNCH IN key and the AUTO PUNCH OUT key, both the REHEARSAL LED and TAKE LED will blink, indicating that Auto Punch mode is on. (If a correct value is not stored, pressing the AUTO PUNCH key will not turn the parameter ON, and the message "Void Out Point!" will appear.)

Pressing the PLAY button under this condition will put the unit into "Rehearsal mode" for Auto Punch In/Out recording. Pressing the PLAY button and RECORD button simultaneously will put the unit into "Take mode."

There are five combinations of the REHEARSAL LED and TAKE LED that indicate the status of the unit regarding auto punch recording:

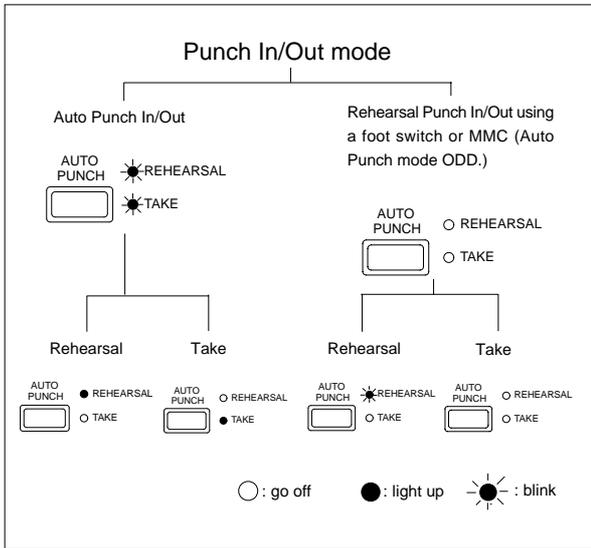
<Note>

If a correct value is not stored, pressing the AUTO PUNCH key will not enable the function, and the message "Void Out Point!" will appear.

If a correct value is not stored, pressing the AUTO PUNCH key will not turn on the function, and the message "Void Out Point!" will alert you. In this case, set a correct value for the Auto Punch In/Out point.

Also, the function is not turned on when you press the AUTO PUNCH key if the disk does not have enough recording space. The display will indicate "-**h**m**s**f Over."

Auto Punch Mode OFF
Both REHEARSAL LED and TAKE LED are off.
Auto Punch Mode ON
Both REHEARSAL LED and TAKE LED are blinking.
Auto Punch Take mode
Only the TAKE LED (red) is lit.
Auto Punch Rehearsal mode
Only the REHEARSAL LED (green) is lit.
Rehearsal mode entered by means of MMC or foot switch
Only the REHEARSAL LED (green) is blinking.



* Refer to page "39" for more information about the Punch In/Out.

34. Locate key [LOCATE]

Use this key to start the LOCATE feature.

Pressing this key after a memory key (CLIPBOARD IN/OUT, AUTO RTN START/END, AUTO PUNCH IN/OUT) locates the memory data programmed in each respective key (time mode or bar, beat, clock setting).

The data can be programmed by individually setting it with one of the 99 (01-99) LOCATE numbers of the LOCATE key.

Note that the data of memory number 00 is available in addition to LOCATE numbers 01-99. The last LOCATE time setting (bar, beat, clock setting) constantly replaces the data stored in the LOCATE key as data in memory number 00. Therefore, it is possible to press this key alone to repeatedly LOCATE the same point.

These data can be individually stored in programs P1-P99. The data for each program is SAVED or LOADED for each program when the song data is designated for SAVE/LOAD in the SETUP mode. This data is maintained even when the power is turned OFF.

* Refer to page "60" for more information about the Locate function.

35. Record button [RECORD]

Pressing only this button places the readied tracks into input monitoring status. Pressing this button again will reset the tracks to playback monitoring. (The RECORD LED will blink when the readied tracks are in input monitoring status.)

Pressing the PLAY button while holding down this button will place the readied tracks into recording. At this time, the PLAY LED and RECORD LED will light, and the readied track indication will be light steadily (instead of blinking).

* Refer to page "26" of the "Before Operating" section for more information about input monitoring and reproduce monitoring.

36. Stop button [STOP]

Pressing this button will stop the transport section of the recorder. Pressing the PLAY, REWIND, or F FWD button while holding down this button will cause the D-108 to perform the following operation:

STOP button + PLAY button
Clipboard playback (The STOP LED will flash and the PLAY LED will light up.) *1
STOP button + REWIND button
Locate ABS 0 *2
STOP button + F FWD button
Locate REC END *3

Pressing the RECORD TRACK select key while holding down the STOP button will cause the envelope function to start, thus, you to use the JOG dial to digital scrub of the track selected.

Pressing the STOP button will abort the editing operations and display the current position of the recorder, if you wish to:

- * quit the data edit mode,
- * cancel the recall or store operation,
- * quit the pitch data display,
- * cancel the edit operation, such as pasting, or
- * cancel the SETUP menu settings.

Pressing the foot switch while holding down this button allows you to turn the punch in/out rehearsal mode ON/OFF.

*1 Clipboard playback:

The D-108 plays back the copy data or move data for the Clipboard. During audio playback of the copy or move data, the FL will display the time length and data type ("Copy Clip Play!" or "Move Clip Play!"), and the copy or move source track indicator will flash, enabling you to quickly determine the track and data type.

*2 Locate ABS 0:

The D-108 will locate the top of the selected Program (ABS TIME: 00m: 00s: 00f).

*3 Locate REC END:

The D-108 will locate the end of the recorded data on the Program (ABS REC END).

- * These operations can be executed only on real tracks 1 ~ 8.
- * Refer to page "22" of the "Before Operating" section for more information about ABS 0 and ABS END.
- * Refer to page "43" for more information about Punch In/Out recording using the foot switch.

37. Play button [PLAY]

Pressing this button will cause the recorder to play back. Pressing this button while holding down the RECORD button will start recording.

Pressing this button while holding down the STOP button will perform the Clipboard playback operation. Refer to the section "STOP button" for more information on the Clipboard playback.

Pressing the PLAY button during recording will stop recording.

38. Rewind button [REWIND]

Pressing this button while the recorder section is stopped will rewind data at 30 times speed. Pressing this button in Play mode will cue data (you can hear sound while rewinding) at five times speed.

Pressing this button while holding down the STOP button will perform the "LOCATE ABS 0" operation, and immediately locate the beginning of the Program (ABS TIME: 00m: 00s: 00f). (Refer to the "STOP button" section for more information about LOCATE ABS 0.)

39. Fast Forward button [F FWD]

Pressing this button while the recorder section is stopped will fast forward data at 30 times speed. Pressing this button in Play mode will cue data (you can hear sound during the fast forward operation) at five times speed. Pressing this button while holding down the STOP button will initiate the "LOCATE ABS REC END" operation, and immediately locate the end of the recorded data on the Program (ABS REC END). (Refer to the "STOP button" section for more information about LOCATE ABS REC END.)

40. Locked LED [LOCKED] (green)

The Locked LED will blink when the D-108 is setup as slave mode. It will light on when the lock is achieved.

* Refer to pages "80" and "115" for more information about "Slave Mode Function."

41. Hard disk access LED (green)

This LED lights up or blinks when the hard disk is writing or reading data.

<CAUTION>

Do not turn the power off while this LED is lit or blinking. Otherwise, data on the hard disk may be damaged.

42. MIDI Time Code In LED [TC IN] (green)

This LED lights up when MTC (MIDI Time Code) is input from an external MIDI device to the MIDI IN connector of the D-108.

43. Punch In/Out jack [PUNCH IN/OUT]

(Connector: PHONE jack)

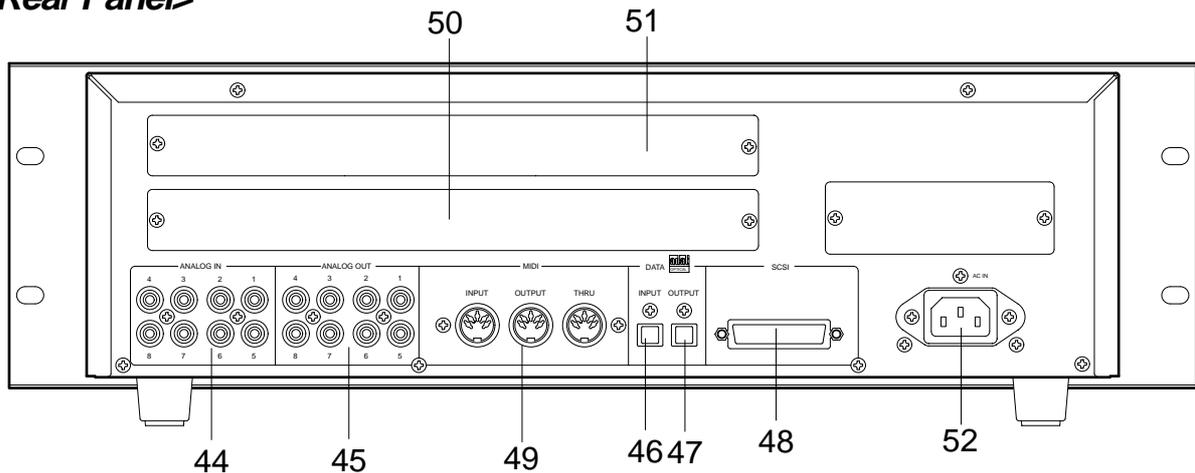
Connecting the optional foot switch will let you control punch In/Out (and rehearsal) recording. Use a Fostex Model 8051 foot switch.

* Refer to page "43" for information about Punch In/Out recording using the foot switch.

<Note>

Be sure to use an "unlatch type" foot switch if you use a foot switch other than the Model 8051. Otherwise, a malfunction could occur.

<Rear Panel>



**44. Input jack [ANALOG IN 1-8]
(connector: RCA pin)**

Analog audio signal from the mixer is routed here. Connect this jack to the Group out (BUSS OUT) connector of the mixer.

**45. Output jack [ANALOG OUT 1-8]
(connector: RCA pin)**

Analog audio signal of the D-108 is output here. Connect this jack to the TAPE IN connector of the mixer.

**46. Data Input connector [DATA INPUT]
(connector: OPTICAL)**

Use this connector to load song data (audio + setup data) from an external device to the D-108. It is also used to input S/P DIF digital signal (from a DAT, CD, or MD) or adat digital signal.

* Refer to page "88" for information about "LOAD" function.
* Refer to page "44" for information "Digital Recording."

**47. Data Output connector [DATA OUTPUT]
(connector: OPTICAL)**

Use this connector to save song data (audio + setup data) from the D-108 to an external device. It is also used to output S/P DIF digital signal or adat digital signal to an external digital device.

* Refer to page "88" for information about "LOAD" function.
* Refer to page "44" for information "Digital Recording."

**48. SCSI connector [SCSI]
(connector: D-sub 25-pin)**

Connect a SCSI device as a current drive or backup device to SAVE/LOAD data. Up to 2 SCSI devices can be connected to the SCSI connector. This means the current drive and backup SCSI equipment can be connected in a chain.

* Refer to page "88" for more details on SAVE/LOAD using a SCSI device.
* Refer to the "Quick Operation Guide" for more details on using a SCSI device as the current drive.

**49. MIDI Input/Output/Thru connector
[MIDI INPUT/OUTPUT/THRU] (connector: DIN 5-pin)**

MIDI INPUT:

Connect the MIDI OUT connector of an external MIDI device here.

The D-108 can be controlled remotely via an external MMC (MIDI Machine Control) or FEX (Fostex System Exclusive Message).

MIDI OUTPUT:

Connect the MIDI IN connector of the external MIDI device here. The D-108 will output MTC (MIDI Time Code), MIDI Clock signal, MMC (MIDI Machine Control) response, and FEX (Fostex System Exclusive Message) response.

MIDI THRU:

This connector outputs the input signal at the MIDI INPUT connector without modification. When using multiple D-108s via MIDI, connect this terminal to the MIDI INPUT connector of the second D-108.

50. Panel A for an optional card

This is the panel used for installing the optional Model 5040 (balanced 8-8 I/O card). Using the Model 5040 allows for balanced analog signal input and output. In general, leave the panel in place.

51. Panel B for an optional card

This is the panel used for installing the optional Model 8345 (TC/SYNC card). Using the Model 8345 makes the D-108 have LTC input and output connectors. Also, the sync lock with video and word clock will be possible. In general, leave the panel in place.

52. AC IN connector

The power cable packaged with this recorder is connected here.

<Note>

Always plug the power cable to the recorder before plugging the cable into the wall outlet.

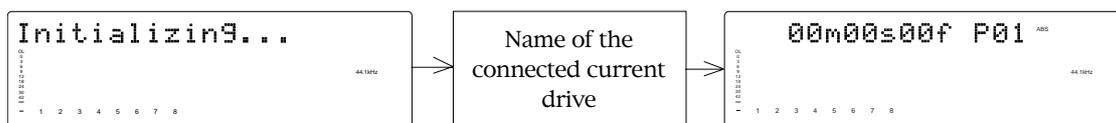
<Display Section>

The D-108 display integrates the level meter of a high-visibility FL tube with a 16 digits and 35 dot message display. The level meter shows the Track 1-8 output level of the recorder section. The time display shows the current time of the recorder section using ABS TIME (Absolute time), MTC (MIDI time code), or MIDI BAR/BEAT (bar/beat). This display also shows messages required for interactive operation. The following section explains the display functions and provides with some examples.

1. Display shown when the power is turned on

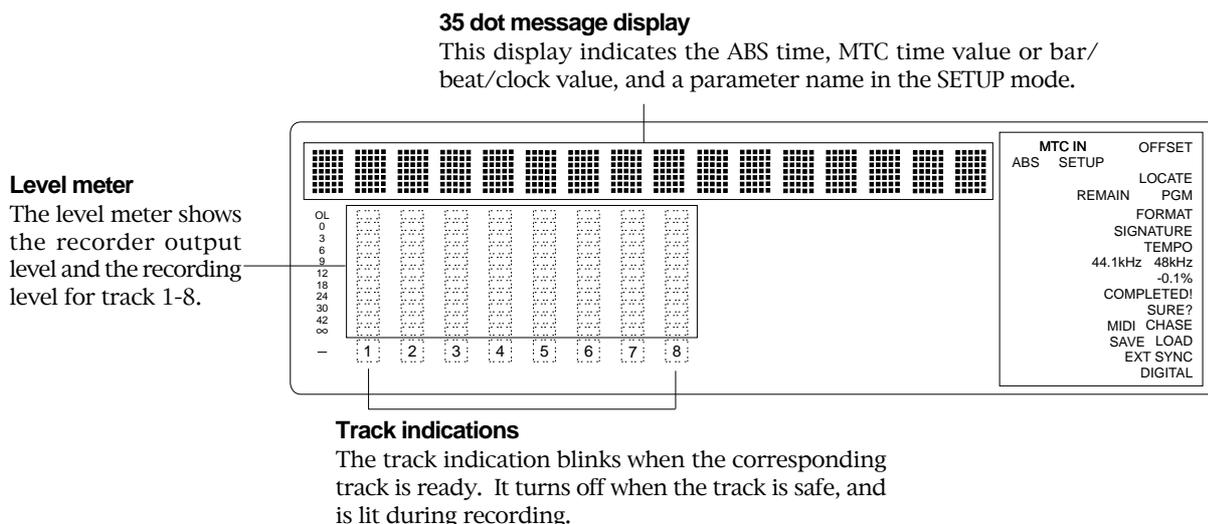
When you turn on the power to the D-108 and the connected E-IDE hard disk, or external SCSI drive (a formatted removable disk or hard disk), the display shows the [Initializing...] message, [Current Dr], the name of the connected current drive, then recording mode (8track mode, etc.), and finally the top position of the disk in the time base (ABS, MTC, or BAR/BEAT/CLK) used in the last Program before you turned the power off.

The following example indicates that the D-108 started with the ABS Time Base used in Program 1.



2. Preset Display

The display below shows all preset items for explanation purpose.



ABS	Lights up when ABS is selected as Time Base.
MTC	Lights up when MTC is selected as Time Base.
SIGNATURE	Lights up to indicate a bar/beat/clock value when BAR/BEAT/CLK is selected as Time Base.
LOCATE	Lights up when the D-108 enters data edit mode, enabling you to edit data. Pressing the LOCATE key while this indicate is lit will cause the D-108 to locate the position of the displayed time or the bar/beat/clock value.
REMAIN	Lights up to indicate available recording time and space on the disk.

MTC IN	With the optional Model 8345 TC/SYNC card installed, this will be lit when MTC or LTC is externally input.
MTC OFFSET	Lights up when MTC Offset menu is selected in SETUP mode.
CHASE	Flashes when Slave mode in SETUP mode is turned on. When a signal is locked, the flashing indicator lights up steadily.
PGM	Lights up to indicate the current Program number.

TEMPO	Lights up when the tempo setting menu is selected in SETUP mode.
44.1kHz 48kHz	This displays the sampling rate of the program you are currently working. During DIGITAL input S/P DIF, the 44.1 kHz or 48 kHz indication will blink when the FS setting is different between the digital signal that is input and that in D-108.
SURE?	This message is shown to confirm whether or not you wish to execute a certain operation.
COMPLETED!	This message indicates that an operation such as copy, move and paste has been completed.
MIDI	This indication lights up when the D-108 receives effective MIDI messages from an external MIDI device.
SAVE	When the D-108 enters save function mode, the selected parameter name will appear here.

LOAD	When the D-108 enters load function mode, the selected parameter name will appear here.
DIGITAL	This indication lights up when the D-108 is receiving a digital signal properly at the DATA INPUT connector while loading data from an external digital equipment (CD,MD, DAT, adat etc.). If this indication is blinking, the digital signal is not being received correctly.
EXT SYNC	With the SETUP mode [Clock Sel.?] menu set to [Opt]; - and data is loaded from an adat or DAT, - and when digital-in is set to [adat] or [L:*, R:*], - and when the SETUP mode slave type is set to adat/DAT, and the slave mode switched ON, it will blink but change to steady lighting when a digital signal is correctly input.

3. Switching the display using the DISP SEL key.

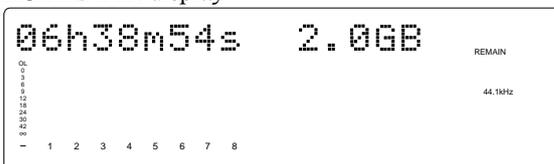
Let's assume that you turned off the power while the time display was using a time base of "ABS," and then you turned the power on again. The D-108 time display will again use a time base of "ABS." (Underline->Displayed program number)

ABS TIME display



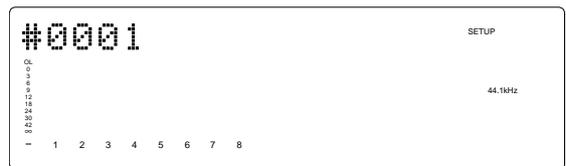
At this time if you press the DISP SEL key, the Disk Remain display will appear. (Both recordable time and hard disk capacity remaining will be converted to mono track and expressed in time and megabytes.)

DISK REMAIN display



If "BAR/BEAT/CLK" is selected for the time base (explained later), the DISK REMAIN indication will show a value (in terms of the number of measures) calculated based on the last beat/tempo data on the tempo map of the recorded song. When you press the DISP SEL key again, the Setup mode display will appear. At this time, the D-108 has not entered the Setup mode. To put the D-108 into the Setup mode, press the EXECUTE/YES key. After pressing the EXECUTE/YES key, if you wish to go back to the previous status, press the EXIT/NO key.

Setup mode display ("SETUP" indication is flashing)



If you press the DISP SEL key again, the screen will return to the "ABS TIME" display.

4. Switching the Time Base display using the EXECUTE/YES key and DISP SEL key

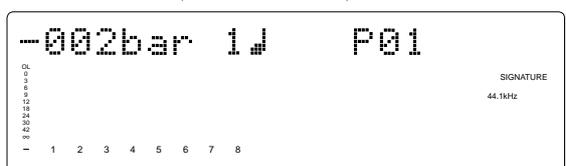
When the screen is showing the ABS TIME or REMAIN display, if you press the DISP SEL key repeatedly while holding down the EXECUTE/YES key, the TIME BASE display will change cyclically.

You can select one of the following Time Base displays.

ABS (Absolute Time)



BAR/BEAT/CLK (Bar/Beat/Clock)



MTC (MIDI Time code)



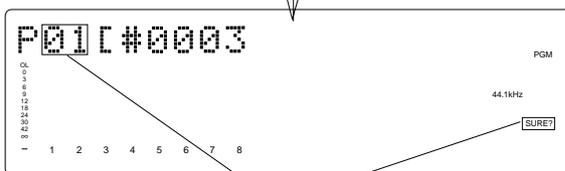
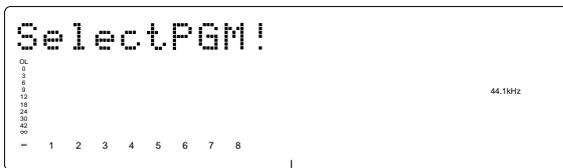
5. Changing Programs using the STORE key and the HOLD/> key

* About the Program Change function

The Program Change function divides the hard disk space into up to 99 parts to accommodate 99 separate Programs (P01-P99 — as long as available recording time allows) so you can record, play back, edit, and reachieve (save and load) data for each Program individually.

For example, the first song can be Program 1, the second song can be Program 2, etc. You need to recall the desired Program before you start recording, playback, editing, or reachieving.

Pressing the STORE key while holding down the HOLD/> key will cause the D-108 to enter Program select mode, display the message “Select PGM!”, followed by the current Program and Program number and a flashing “SURE?” indication.



flashing

You can select the desired Program from the already setup Programs by rotating the JOG dial while the Program number and “SURE ?” are flashing. (“#0003” is the current program title.)

After you select a Program, press the EXECUTE/YES key to return to the selected Program’s ABS indication. The Time Base display will indicate the selected Program’s Time Base, since you can set the Time Base for each Program individually.

To change the Time Base display after you have selected the desired Program, press the DISP SEL key while holding down the EXECUTE/YES key.

Pressing only the DISP/SEL key will take you to the REMAIN display based on the current Time Base.

<Notes>

* If you turn the JOG dial while the ABS display or MTC display indicates a Program number, the Program number indication will change to the sub-frame indication. However, if you operate a transport button, such as the PLAY button or the Stop button, or if you turn the SHUTTLE dial, the sub-frame indication will change back to the Program number indication. (The Program number shown on the BAR/BEAT/CLK display will not change.)

* The maximum record time of the program is dependent on the permissible record time (size) of the harddisk, regardless of how many programs are created on the disk. If, for example, there is roughly 30 minutes of record time remaining (REMAIN) on the current drive immediately after it is formatted, and a 20 minute program is recorded in Program 1, then there is only 10 minutes of recording time remaining for any additional programs.

Simply put, if the total record time is 30 minutes it does not matter whether the 30 minutes is taken by 1 program or shared among several programs, since the total of 30 minutes for a recording remains the absolute total.

Note that some disk space is compensated when several programs are created on the disk. A new program cannot be created when there is no recordable space remaining on the disk.

6. Warning messages

If you perform an incorrect operation, input incorrect data, or if an error occurs, the following alarm indication appears:

Invalid data indication: The input data is not appropriate for the operation.



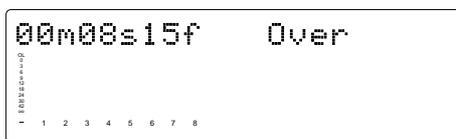
Action to take: Input correct data.

Invalid In/Out indication: The In or Out point is not appropriate for the operation.



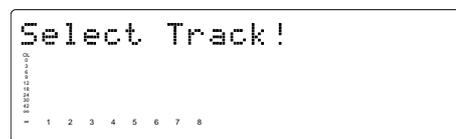
Action to take: Input correct data.

Overtime indication: Available disk space is insufficient for the length of time (the number of measures) indicated on the display.)



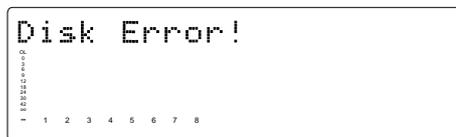
Action to take: During the copy & paste and move & paste operation, try to shorten the length of the copied data by the indicated amount. Alternatively, use the "ERASE" function to move the ABS END point backward to obtain enough disk space for editing.

Unassigned track indication: Select any track.



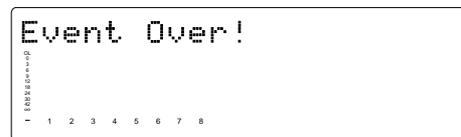
Action to take: Use the RECORD TRACK select key to ready any track.

Disk error indication: This disk cannot be read.



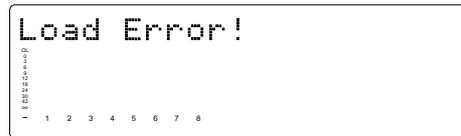
Action to take: Contact the Fostex service station as soon as possible.

Event overflow indication: The editing points are overflowed.



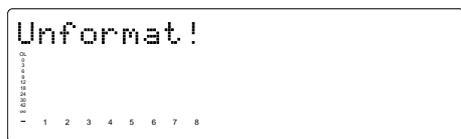
Action to take: You edited too much. The warning means "you cannot paste or erase any more." In regards to event, refer to "Event and Audio File" in "Before Starting" section.

Load error indication: You cannot load data because the data input to the DATA INPUT connector contains an error.



Action to take: Check to see if there is an abnormality with the external digital machine connected to the DATA INPUT connector, or cable. Try to "LOAD" again.

Un-formatted indication: The internal hard disk is damaged or not formatted yet. After this message is shown for about 10 seconds, "Disk Format ?" in Setup mode will flash on the display.



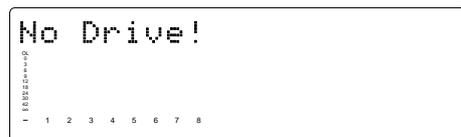
Action to take: Press and hold down the RECORD button and press the EXECUTE/YES key to format the disk. (All audio and other data on the disk will be lost.)

Recording Disable: Recording is disabled.



Action to take: Change the "Off" (recording) "Rec Protect ?" setting in Setup mode.

Hard disk (E-IDE or SCSI) connection error: The hard disk is not connected correctly.

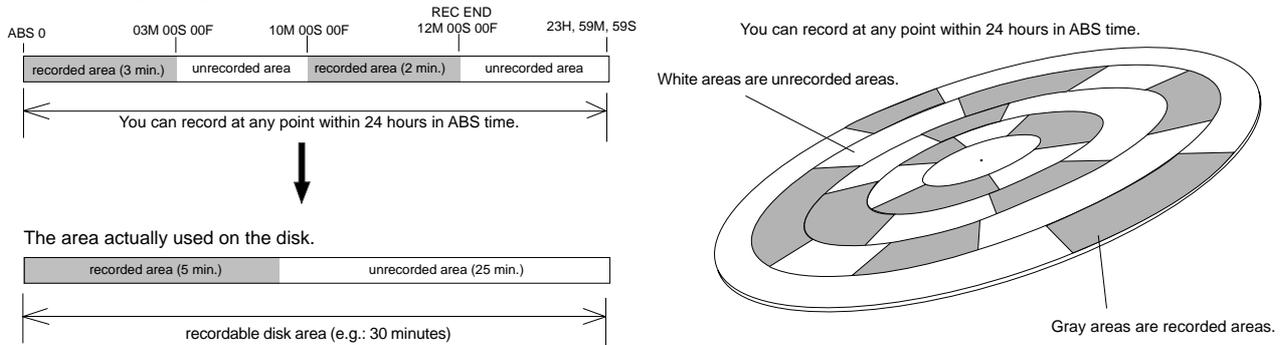


Action to take: Check to see if the external SCSI device is connected to the SCSI connector correctly, or the power to the SCSI device is turned on.

Recording method and REMAIN indicator

Recording method

The D-108 uses a E-IDE hard disk, SCSI removable disk (such as an MO disk, zip disk etc.), or fixed disk instead of a cassette tape. You can start recording sound sources from any point on a formatted disk as long as the point is within the range of 24 hours in ABS time, as described in the previous "Time Base" section. (Refer to the following diagram.)



For example, if you record three minutes of data starting from ABS 0 (top of the disk) to ABS 03m 00s 00f on a disk that has a recordable space of thirty minutes, as shown in the diagram, then if you record two minutes starting at the 10-minute point in ABS time (ABS 10m 00s 00f) to ABS 12m 00s 00f, the recording end point (REC END) is 12 minutes (ABS 12m 00s 00f) in ABS time. However, this does not mean that the entire recording duration is 12 minutes. The disk space actually used for recording is five minutes (3 minutes + 2 minutes).

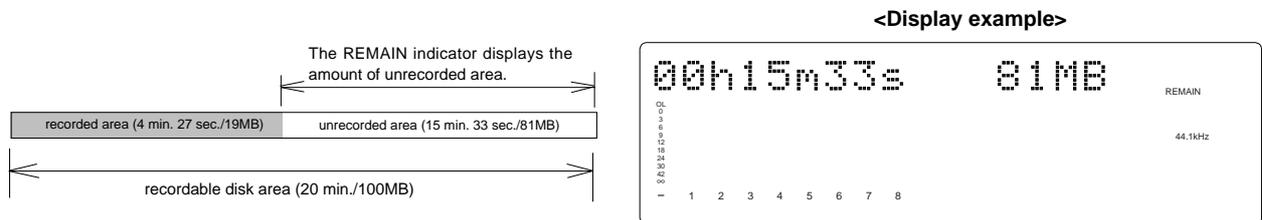
That is, the area between three minutes and ten minutes (that corresponds to 25 minutes of recording space) in terms of ABS time is still unrecorded.

When you try to play or fast forward this unrecorded area, the time counter on the display will count, but the D-108 will not access the disk. However, MTC will be output when you try to play this area.

On the D-108, the top of the disk is called "ABS 0" and the recording end point is called "REC END."

REMAIN indicator

The REMAIN indicator displays available recording time expressed in time value (ABS or MTC) or bar/beat/clock (BAR/BEAT/CLI) value, depending on the currently selected Time Base. It also indicates the available disk space. Right after you format the disk, the REMAIN indicator will show the maximum recordable time and space on the disk. The following example shows that the disk had about 20 minutes or 100MB recordable space after the disk format operation, and has recorded data of 4 minutes 27 seconds (or 19MB).



The REMAIN value is calculated on a mono-track basis. That is, the value indicates available recording time and space if you record on one mono track.

For example, if you wish to know how much you can record on four tracks, you need to divide the current REMAIN value by eight.

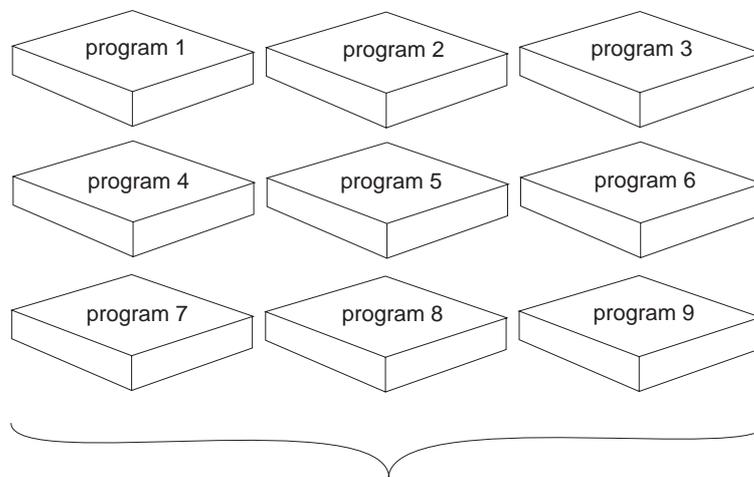
The REMAIN value is also calculated by deducting the time and space of all data on the Real tracks and Additional tracks from the original available recording time and space. Therefore, even if there is no recording on Real tracks, but there is data on Additional tracks, the REMAIN time will consider the time and space used by the data to calculate available time and space.

As described in "Managing the song by Program," the D-108 can set up as many as 99 Programs on the disk. Setting up a Program requires a small amount of disk space. In other words, disk space is used not only for storing recorded data but also for storing all setup data. Therefore, make sure that you have enough space on the disk before you start recording to avoid running out of space (the [OVER !] message flashes in that case).

Managing songs by Program Change function

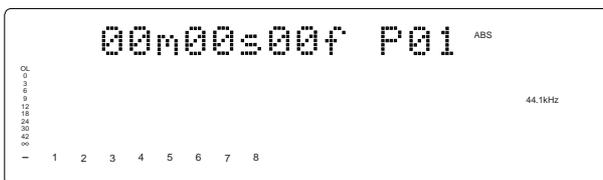
The D-108 features Program Select function, which enables you to set up to 99 Programs on the disk. When you format a disk, one Program will be automatically created on the disk. You may create more Programs, if necessary. You may also delete unnecessary Programs.

The D-108 also features Program Change function that enables you to select one of the Programs set on the disk. Programs on the disk are something like independent containers. You can record, play, and edit each container without affecting other containers. You can also name Programs, which is useful for managing songs.

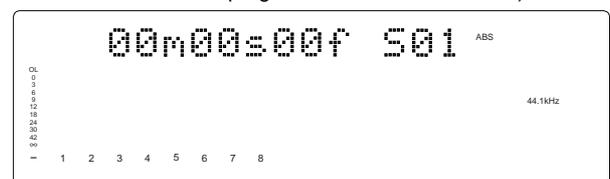


You can set up to 99 programs (independent containers).

This is the Program indication when using an E-IDE hard disk as the current drive ([P] will appear before the program number such as [P01] shown in the example below).



This is the Program indication when using a SCSI disk (removable or fixed) as the current drive ([S] will appear before the program number such as [S01] shown in the example below, to differentiate from a program on an E-IDE hard disk).



Refer to page "36" for more information on the program select function.

Refer to page "37" for more information on the program delete function.

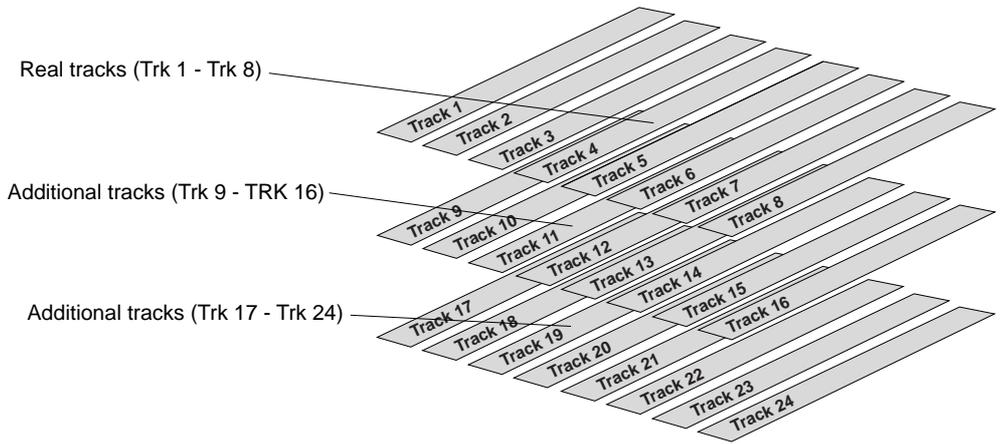
Refer to page "38" for more information on the editing a program title.

Note: Total available recording time is always the maximum available recording time on the disk, regardless of the number of Programs you set on the disk. That is, if you use up the maximum recording time for one Program, you will not be able to record any data in other Programs.

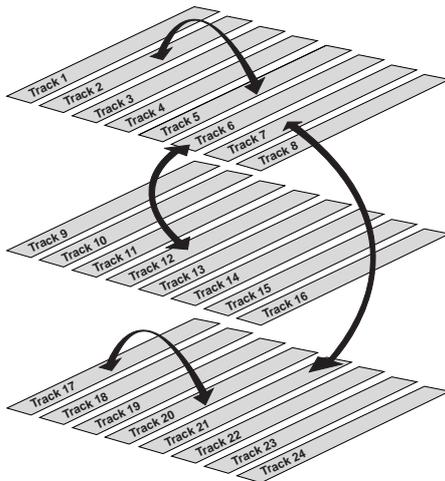
Note: As described in the "REMAIN indicator," creating additional Programs will consume a small amount of disk space.

Real tracks and Additional tracks

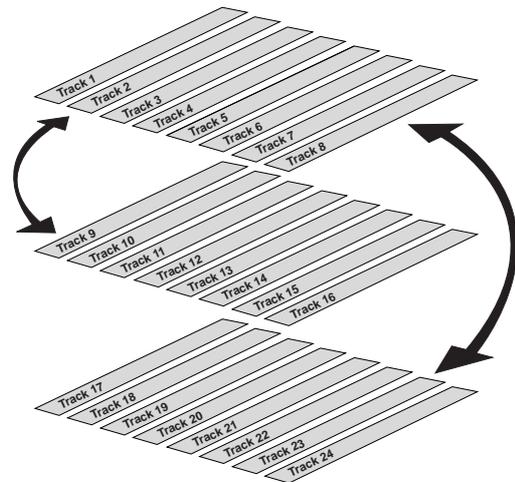
The D-108 features eight Real tracks (1-8) and sixteen Additional tracks (9-24), for a total of twenty-four tracks. Real tracks are used to record sound sources in real-time. Additional tracks are used to temporarily store the sound recorded in the Real tracks. This is useful since you can move data from Real tracks to Additional tracks to clear tracks for fresh recording. The Track Exchange function of the D-108 handles this operation. This function allows you to swap data freely between twenty-four mono tracks. You can also swap data between multiple Real tracks and Additional tracks as an eight-track unit.



You can swap data between twenty-four mono tracks.



You can also swap data between Real tracks and Additional tracks in units of eight tracks.



 **Note:** Data on the Additional tracks also affects the REMAIN value. If Real tracks contain no data, but Additional tracks contain data, the amount of data (time and space) will be reflected in the REMAIN value.

 **Note:** You cannot record data on Additional tracks in real-time. Also, you cannot play back data on Additional tracks as is in real-time. If you wish to play back data on an Additional track, first use the Track Exchange function to move the data to a Real track. Also, you need to move the data to a Real track if you wish to check the REC END point of a song on an Additional track.

 **Note:** If the record time of the data existing on the additional track is longer than the data on the real track and all tracks are saved on an external DAT or adat, then the data of the additional track can only be saved for the time equal to the real track, and the remaining data is not saved. This is because the ABS 0 to REC END of the real track is automatically recognized and saved. There is a need to exchange the track using the track exchange function in this case, as well.

 Refer to page "73" for more information on the Track Exchange function.

Input monitoring and playback monitoring

There are two methods for monitoring track sound (only on the Real tracks): input monitoring and playback monitoring. They are defined as follows:

Input monitoring

Input monitoring means to monitor via track output the recording signal sent to the Real tracks of the recorder. That is, you are monitoring a post-recorder signal, not a pre-recorder signal. The D-108 enters input monitoring status when you perform one of the following operations.

• **When you set a track to recording mode**

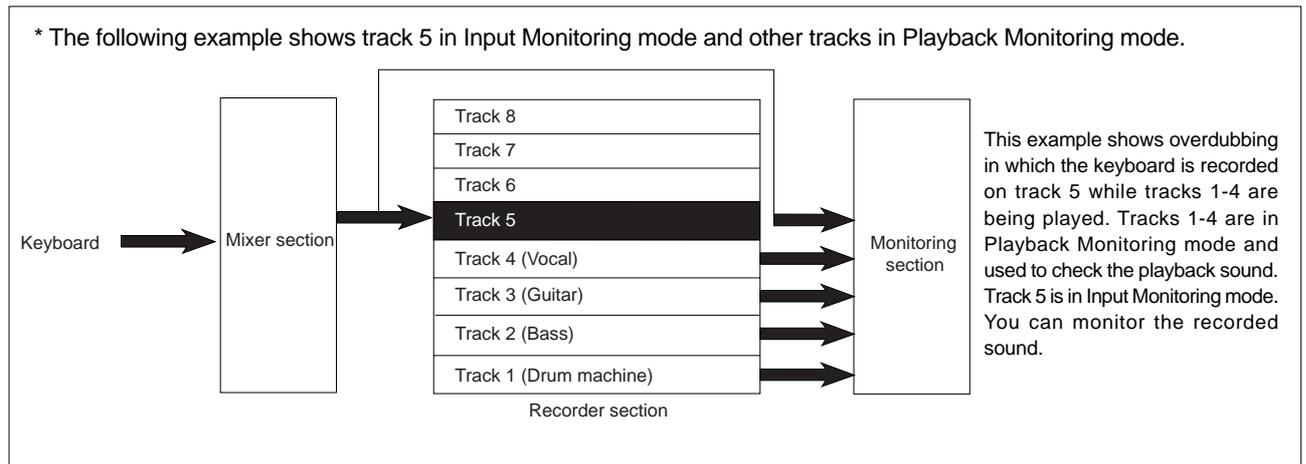
To set a track to recording mode, press the RECORD TRACK select key to set the track READY, then press the PLAY button while holding down the RECORD button.

When recording starts on the READY track, the D-108 automatically enters input monitoring status.

• **When you set a track to recording stand-by mode**

To set a track to recording stand-by mode, press the RECORD TRACK select key to set the track READY, then press only the RECORD button. (Pressing the RECORD button again will cause the D-108 to enter playback monitoring mode.)

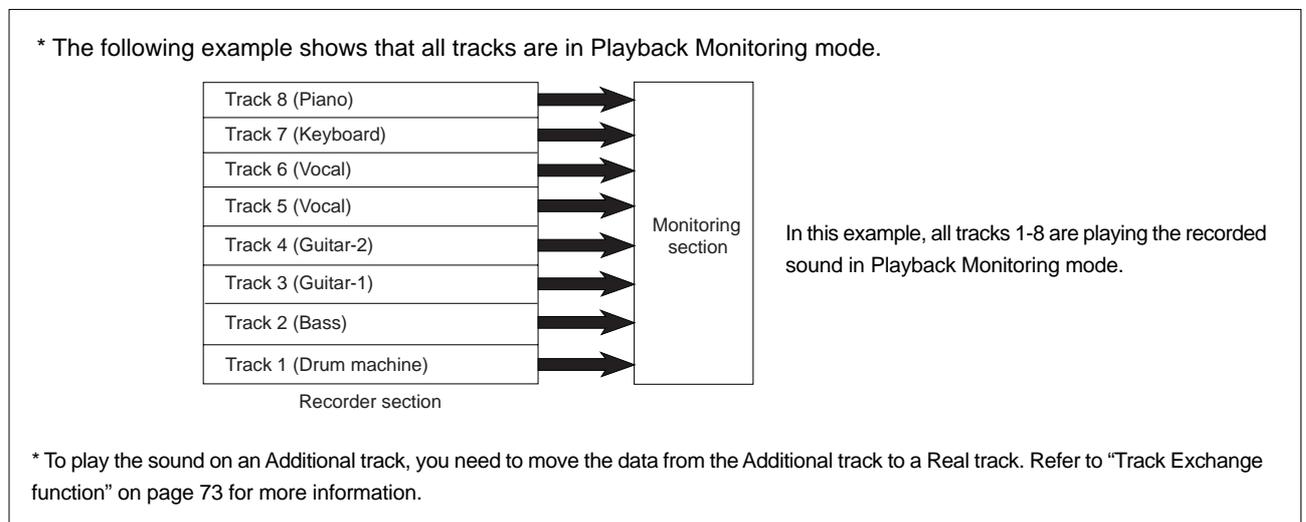
Under this condition, only the READY track enters input monitoring mode, on stand-by for recording.



Playback monitoring

“Playback monitoring” means to monitor the playback sound of the tracks (only Real tracks).

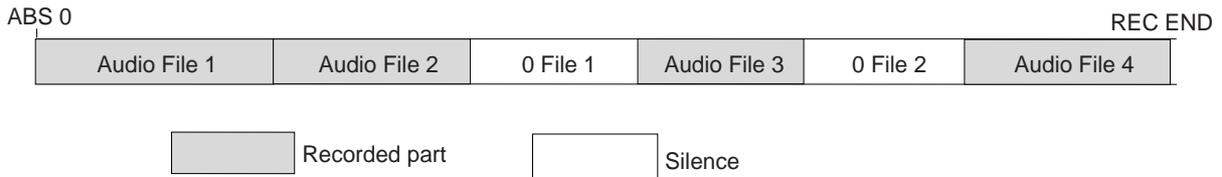
That is, you are monitoring the playback sound on the track, not the sound being recorded to the track.



Audio file and event

<About an audio file>

During recording, the D-108 consecutively records an independent audio file (recorded area) in each track of each Program. However, you can record data on the D-108 at any point within 24 hours of ABS time, and you can intentionally create silence between two audio files. In this case, a silent part is counted as a 0 file. Therefore, audio files and 0 files are consecutively created as shown in the diagram below. The total number of these audio files and 0 files is called "the number of events." The maximum number of events is 512 per track (tracks 1-24). After the number of events reaches 507, new data will not be recorded.



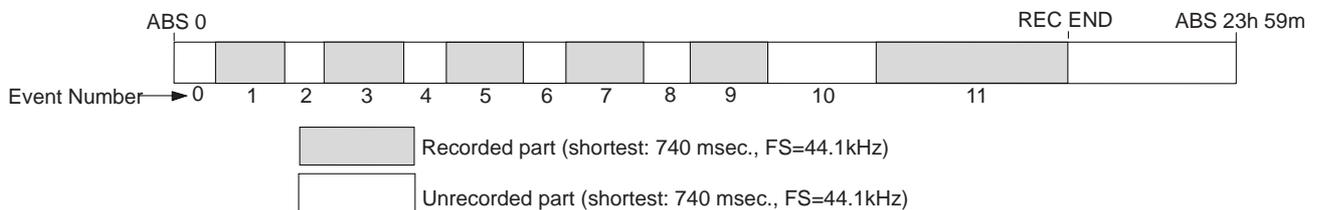
Usually, an event is created by one recording or edit. The number of events increases or decreases depending on the number of edit points or the amount of disk free space. (D-108 disk management operates in such way that the number of events will decrease.) The number of events does not affect usual music production. However, if a small amount of single-track data is written in many different sections on the disk, the maximum number of events may be reached. To avoid this "event number overflow," you need to check the number of events for each track. The D-108 provides an event check menu in Setup mode for this purpose.

<Notes on digital recording>

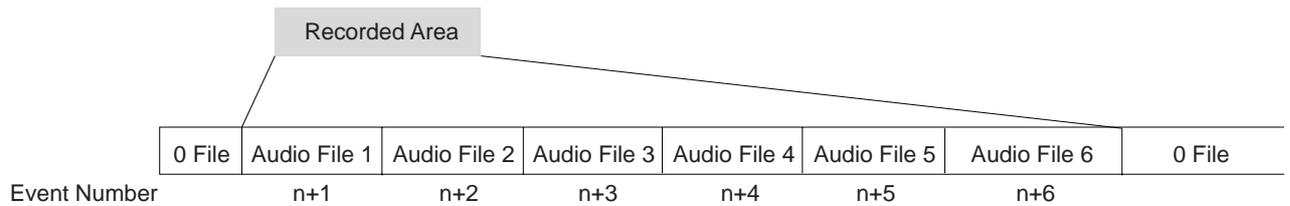
During analog recording, "0 files" are not created since silence does not create "data 0." However, during S/P DIF and adat digital recording, the D-108 records "data 0" (this is called "mute recording"). When one second of consecutive data 0 is input to the D-108, it creates a "0 file" and limits the consumption of disk space. However, repeating this operation will eventually increase the number of events, leading to "event number overflow."

What is an event?

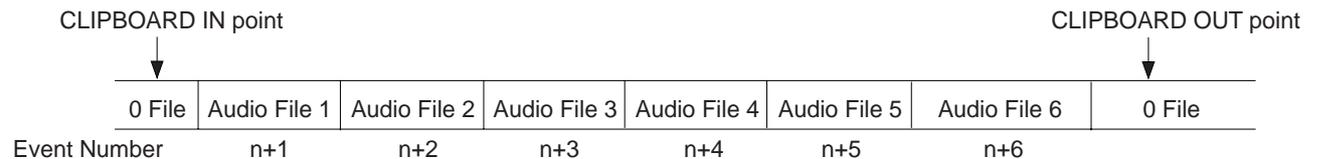
As shown in the diagram below, the number of events can be eleven or more if partial recordings are made. This is because an unrecorded part is regarded as an event, and a recorded part is also regarded as an event(s). The duration of each event can vary from 740 msec to 23 hours 59 minutes 59 seconds (FS = 44.1kHz).



An unrecorded part (zero file) is always regarded as one event, regardless of its duration. However, a recorded part can consist of a group of multiple audio file, as shown in the diagram below. More precisely, one audio file will be divided into multiple audio files if perform many editing operations (such as , copy & paste, move & paste, etc.) on this audio file. Multiple audio files created in this way are regarded as events. (If you do not edit the data at all, the audio file remains in one piece and is regarded as one event.) In this example, one recorded area consists of six consecutive audio files. This means that this part consists of six events.



This is because when you perform a copy & paste, move & paste, or Auto Punch In/Out, the event is split at the edito point. Also, if a continuous long recording is made, the recorded data might scatter to different locations on the hard disk, thus dividing the data unto multiple events.



Countermeasures against accumulating too many events due to a long recording plus many editing operations:

One solution is to save and re-load the data to and from a DAT, adat, or SCSI device. (If the song is too long, you may not be able to save the data to a DAT or adat.)

In this way, multiple consecutive audio files are optimized into one continuous audio file in some cases. Set the Clipboard In point and the Clipboard Out points within an unrecorded range to copy the area (the area that contains multiple audio files and you wish to optimize) between them, then paste the data starting from the same Clipboard In point. Multiple audio files within this range will become a single audio file.

<Hints>

Make sure that you set the Clipboard In/Out points within zero files, and that you paste the area starting from the same Clipboard In point.

* In any case, bear in mind that you cannot reduce the excessive number of events if the target range contains a zero file.

Formatting a Disk

There are instructions for disk formatting in the separate “Quick Operation Guide” and in “Save/load of Song Data” in the main manual. Methods for formatting an unformatted disk and reformatting an already formatted disk will also be explained below. There are two methods in disk formatting - “Current drive disk formatting” and “Backup disk formatting” - and both can be executed using the [Disk Format?] (disk formatting) menu of the D-108 SETUP mode.

THE RECORDING FORMAT

There are three types of recording formats - “eight track format,” “four track format” and “backup format.” If an E-IDE hard disk is used as the current drive, it can be formatted using the eight track format only. If an external SCSI disk (removable type or hard disk) is used as the current drive, either the eight track or four track format may be selected. Please note that the backup mode is used in formatting a SCSI disk (removable or hard disk) to be used for save/load of song data.

<Recording Format>

Application	Current drive recording mode		Exclusive recording mode for backup
Display	[8track format]	[4track format]	[Backup format]
Format type	8 track format	4 track format	Backup format
Sampling Frequency	44.1kHz	44.1kHz	44.1kHz
Quantization	16 bit liner	16 bit liner	
Max. REC time	About 17 minutes/100MB (Converted to one track)	About 17 minutes/100MB (Converted to one track)	
Formattable media	E-IDE hard disk External fixed SCSI hard disk	MO disk, zip disk External fixed SCSI hard disk	MO disk, zip disk External fixed SCSI hard disk
Recording function	*Simultaneous 8 track recording by adat digital input signals. *Simultaneous 8 track recording of S/P DIF digital signals (2 inputs) and analog signals (6 inputs). *Simultaneous 8 track recording of analog input signals.	*Simultaneous 4 track (Chan. 1-4) by adat digital input signals. *Simultaneous 4 track recording of S/P DIF digital signals (2 inputs) and analog signals (2 inputs). *Simultaneous 4 track recording of analog input signals.	* Because this format is exclusively for save/load, real time record/playback is not possible even if it is used as the current drive.
Saving and Loading	*Save/load is possible with an external SCSI drive, DAT or adat.	*Save/load is possible with an external SCSI drive, DAT or adat.	

< NOTE >: “Maximum recording time” in the above list depends on the type and capacity of the disk. In regards to the net recordable time when formatting, please refer to the “List of operation confirmed disks” on the front page of the Owners Manual.

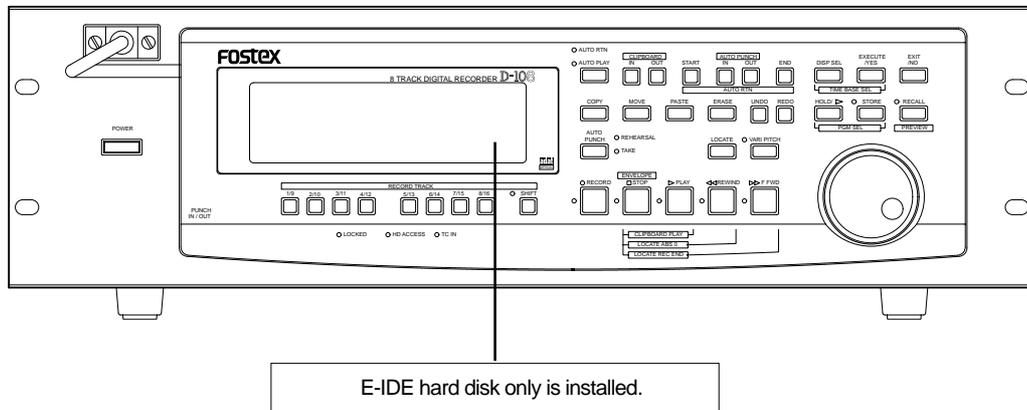
< NOTE >: The eight track format can only be used to format the E-IDE hard disk and the four track format is applicable only on removable type SCSI disks and hard disks. SCSI drives which can be used as the current drive are those assigned with ID numbers 1~5 (not including #6) setup from the drive side. Those that can be used for backup are the removable type SCSI disk and hard disk, which are set to ID number 6.

FORMATTING THE CURRENT DRIVE (E-IDE HARD disk)

This section explains formatting when only an E-IDE hard disk is installed for the current drive.

NEWLY FORMATTING AN UNFORMATTED E-IDE HARD Disk

The following explanations will be on the assumption that D-108 is already has an unformatted E-IDE hard disk installed.



1. Switch ON power to the D-108.

After display of [Current IDE Drv] -> [Model name], the [Unformat!] message is displayed and the D-108 will automatically enter the [Disk Format?] menu of the SETUP mode.

2. Press the EXECUTE/YES key.

The display will change to the record mode and [?] and [SURE?] of the [8 track format] will start to blink.

3. Press the EXECUTE/YES key while pressing the RECORD button.

The unformatted area on the hard disk to be formatted will be displayed and a count down will start as formatting progresses. At the start of formatting, the [∞] section FL in the display level meter will light and then successively extinguish from the right end as formatting progresses.

This requires time especially when formatting a large capacity hard disk. When formatting is completed, [COMPLETED!] will be lit in the display and access to the disk will stop.

4. To exit from the SETUP mode, press the EXIT/NO key (or STOP button).

Upon completion of formatting, the display will change to the Program 1 time base (head of the ABS 0 program).

5. Switch to the REMAIN display by pressing the DISP SEL key and check the recordable time after formatting.

After this check, press the DISP SEL key to return to the original time base display.

REFORMATTING A PREFORMATTED E-IDE HARD disk

A previously formatted E-IDE hard disk will be reformatted here. If the disk is reformatted again, not only will all program data which had been recorded be erased but the program numbers and various settings of D-108 will be returned to the initial state.

1. Switch ON power to D-108.

The D-108 will start up in the initial display (Time base: ABS 0) of the program which had been active previous to switching OFF the D-108.

2. After switching to the SETUP display by pressing the DISP SEL key, press the EXECUTE/YES key.

The D-108 will enter the SETUP mode, the SETUP menu which had been active previous to switching OFF power will be displayed (under the initial setting, and the [Drive Sel.?] menu will be displayed.)

3. Rotate the JOG dial to select the SETUP menu [Disk Format?] and then press the EXECUTE/YES key.

[IDE] will change to blinking. This is an indication that the D-108 is in the standby mode for formatting the internal E-IDE hard disk.

4. While [IDE] is blinking, press the EXECUTE/YES key.

The E-IDE hard disk will be formatted in the same manner as detailed in above "Newly Formatting An Unformatted E-IDE Hard Disk." After completing formatting, [COMPLETED!] will light in the display and disk access will stop.

5. Exit from the SETUP mode by pressing the EXIT/NO key (or STOP button).

The display will change to the program 1 time base indication to which it will be set after formatting.

6. Switch to the REMAIN display by pressing the DISP SEL key to check the recordable time after this formatting.

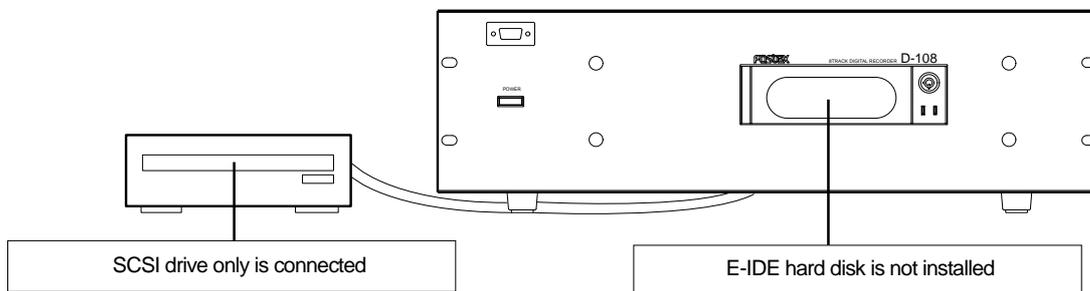
After this check, press the DISP SEL key to return it to the original time base display.

FORMATTING THE CURRENT DRIVE (SCSI disk)

How to format a removable disk (or hard disk) which is connected as the current drive.

Newly Formatting The Unformatted SCSI Disk

In the formatting explanation below, the D-108 is assumed to a SCSI type removable disk (or hard disk) for the current drive and that an unformatted disk is not in the disk drive.



1. Switch ON power to both pieces of equipment.

The D-108 will display the [Initial...] message. This will change to [No Disk]. In the case of a hard disk, following the display of the [Initial...] message at switch ON of power, the [Unformat!] message and enter the SETUP mode follows. Continue from Step 3, below.

2. Set the unformatted removable disk in the current drive.

After displaying [Current Dr] -> [SCSI drive name] -> [Unformat!] messages, the D-108 will automatically enter the SETUP mode [Disk Format?] menu and the [SCSI #] (# = SCSI ID number) message will blink in the display.

3. After checking that [SCSI#] is blinking, press the EXECUTE/YES key.

The ID number and the drive name will be displayed and [SURE?] will blink in the display.

4. Then, press the EXECUTE/YES key again.

The display will change to record mode select and [8 track format] will blink.

5. Select the desired record mode with the JOG dial.

When the JOG dial is rotated, [8 track format] and [4 track format] can be alternately selected. Either the [8 track format] or [4 track format] can be selected only when the SCSI drive is used as the current drive. Normally, when making a recording with the D-108, the [8 track format] is selected for formatting. The [4 track format] is selected depending on the purpose of the recording.

6. After selecting the recording mode, press the EXECUTE/YES key while pressing the RECORD button.

Formatting will start in the selected recording mode. During formatting, [REMAIN] will be lit in the display, the disk unformatted area (capacity) will be displayed and counted down with progress of formatting. [COMPLETED!] will light upon completion of formatting and the disk will stop.

7. Exit from the SETUP mode by pressing the EXIT/NO key (or STOP button).

The display will change to the program 1 time base display (00m 00s 00f S01) to which it will be set after formatting.

8. Switch to the REMAIN display by pressing the DISP SEL key to check the recordable time after formatting.

Press the DISP SEL key after this check to return it to the original time base display. In order to eject the removable disk from the current drive, press the EXIT/NO key while pressing the STOP button. To format other removable disks, after ejecting the formatted disk, load another one in the current drive and repeat the above procedure.

REFORMATTING A PREVIOUSLY FORMATTED SCSI disk

Here is how to reformat previously formatted SCSI disk for use in the current drive or for backup. When a disk is reformatted, any previously recorded program data will all be erased and, at the same time, the number of programs and various settings will revert to its original state. The explanations below are based on the assumption that a SCSI drive is connected as the current drive, that a formatted disk is not loaded in the SCSI drive and, [No Disk] is shown in the display.

* Steps in reformatting a disk which have been formatted for use in the current drive

1. Load disk in the drive.

After display of the [8 track mode] or [4 track mode] in which it had been formatted, the display will change to time base (00m 00s 00f S01) of the current drive.

2. After switching to the SETUP display by pressing the DISP SEL key, press the EXECUTE/YES key.

At the same time as entering the SETUP mode, the SETUP menu which was active previous to switching off power will be displayed. Under this initial setting, the [Drive Sel.?] menu will be displayed.

3. Select [Disk Format?] in the SETUP menu by rotating the JOG dial, and then press the EXECUTE/YES key.

The display will change to blinking of [SCSI #] (# = ID number of the SCSI equipment).

4. Press the EXECUTE/YES key while [SCSI #] is blinking.

ID number and drive name will be displayed and both [?] and [SURE?] will blink.

5. Press the EXECUTE/YES key again.

The display will change to select the record mode and [SURE?] will blink.

6. After selecting the record mode by rotating the JOG dial, press the EXECUTE/YES key while pressing the RECORD button.

Formatting will start in the selected record mode. After formatting is completed, [COMPLETED!] will blink and disk access will stop.

7. Exit from the SETUP mode by pressing the EXIT/NO key (or the STOP button.)

The display will change to the program 1 time base (ABS 00m 00s 00f S01) to which it will be set after formatting.

In order to eject the removable disk from the current drive, press the EXIT/NO key while pressing the STOP button.

* Steps in reformatting a disk which have been formatted for backup use (including DOS formats)

1. Load disk in the drive.

After display of [Illegal format], the display will change to the backup disk time base (00m 00s 00f B01).

< NOTE >: The backup disk time base that appears here is displayed simply for entering the SETUP mode and will be ignored by displaying [Void command] even if an attempt is made to record from this state.

2. After switching to the SETUP display by pressing the DISP SEL key, press the EXECUTE/YES key.

Simultaneous with entering the SETUP mode, the SETUP menu which was active prior to switch off of power will be displayed under the initial setting, the [Drive Sel. ?] menu will be displayed.

3. Select the SETUP menu [Disk Format?] by rotating the JOG dial and press the EXECUTE/YES key.

The display will change to blinking of [SCSI #] (# = ID number of SCSI equipment).

4. Press the EXECUTE/YES key while [SCSI #] is blinking.

The ID number and drive name will be displayed and [?] and [SURE?] will blink.

5. Press the EXECUTE/YES key again.

The display will change to selecting the record mode and [SURE?] will blink.

6. After selecting the record mode with the JOG dial, press the EXECUTE/YES key while pressing the RECORD button.

Formatting will start in the selected recording mode. Please wait patiently during formatting. [COMPLETED!] will be lit upon completion of formatting and disk access will stop.

7. Exit from the SETUP mode by pressing the EXIT/NO key (or the STOP button).

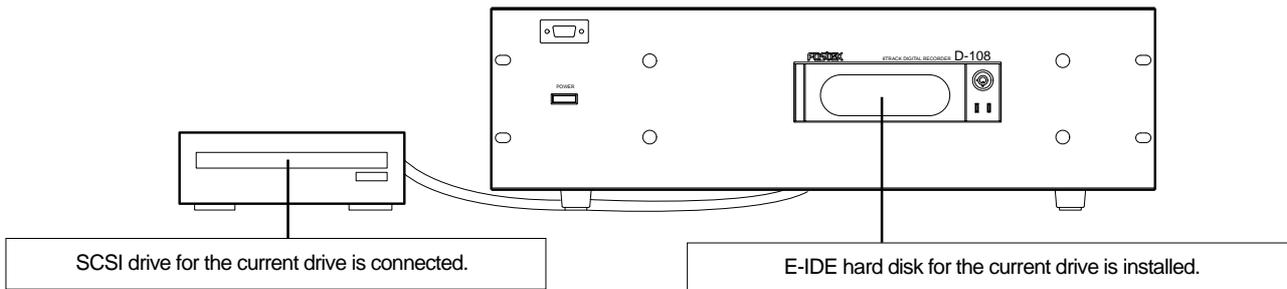
The display will change to the program 1 time base display (ABS 00m 00s 00f S01) to which it will be set after formatting.

In order to eject the removable disk from the current drive, press the EXIT/NO key while pressing the STOP button.

FORMATTING OF BOTH E-IDE AND SCSI EQUIPMENT

In a situation where both the E-IDE hard disk and a SCSI drive are used for the current drive, each current drive disk will be formatted here. Normally, when power is switched ON to equipment using both types as the current drive, the E-IDE hard disk will automatically become active as the current drive.

In the D-108, regardless to which is the current drive, the presently active current drive can format the other current drive. In the procedure below, it is assumed that the E-IDE hard disk had been formatted in according to the above "FORMATTING THE CURRENT DRIVE (E-IDE HARD disk)" and this, then will format the SCSI drive. It is also assumed that the E-IDE time base is shown in the display.



1. After switching to the SETUP display by pressing the DISP SEL key, press the EXECUTE/YES key.

The D-108 will enter the SETUP mode and the display will change to the SETUP menu which was in effect prior to switch OFF of power.

2. Select the [Disk Format?] menu by rotating the JOG dial and press the EXECUTE/YES key.

[IDE] will change to blinking and as the JOG dial is rotated. This will alternately switch and allow a choice between the blinking [IDE] and blinking [SCSI #] (# = ID of the SCSI equipment).

3. After selecting [SCSI #] with the JOG dial, press the EXECUTE/YES key once again.

No matter whether an unformatted or formatted disk is loaded in the SCSI drive, the ID number and drive name will be displayed and [SURE?] will blink.

4. Press the EXECUTE/YES key once again.

The display will change to selecting the recording mode and [8 track format] will blink.

5. Select the desired recording mode with the JOG dial.

Either [8 track format] or [4 track format] can be selected alternately by rotating the JOG dial. Only when the SCSI drive is used for the current drive, either the [8 track format] or [4 track format] can be selected. Normally, the [8 track format] is selected for formatting when recording with the D-108. Depending on the purpose of the recording, it can also be formatted in the [4 track format].

6. After selecting the recording mode, press the EXECUTE/YES key while pressing the RECORD button.

Formatting will start in the selected recording mode. [REMAIN] will be lit during formatting, the disk unformatted area (capacity) displayed and will count down with progress of the formatting. After formatting is completed, [COMPLETED!] will light and the disk will stop.

7. Exit from the SETUP mode by pressing the EXIT/NO key (or STOP button).

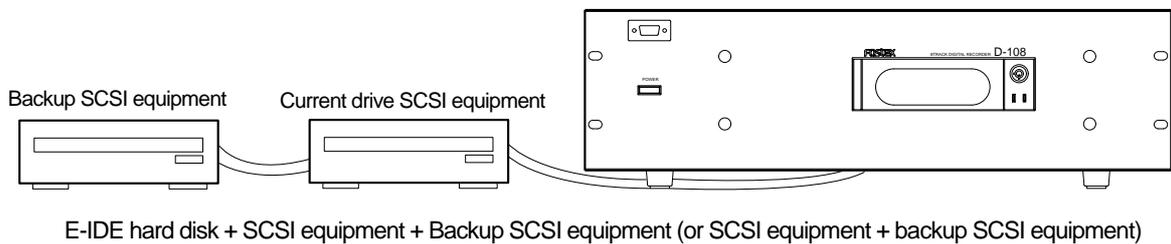
The display will change to the time base shown prior to entering the SETUP mode.

In order to confirm REMAIN upon completing the formatting, enter the SETUP mode [Drive Sel. ?] menu while the E-IDE hard disk is in the current drive state, and then after changing the current drive, switch to the REMAIN display. In order to eject the removable disk from the current drive after formatting, press the SCSI drive EJECT button.

FORMATTING THE BACKUP disk (SCSI disk)

In the D-108, song data recorded in the current drive can be saved /loaded by using the backup SCSI drive disk, not to mention DAT and adat. In addition to the current drive, when a backup SCSI drive is connected to D-108, the ID number for the backup SCSI drive must be set to "6" and the disk must be formatted in the backup exclusive recording mode. Even if the backup disk is loaded in the SCSI drive, the disk information cannot be displayed such as by the current drive. For this reason, in order to format the backup disk, same as with the aforementioned current SCSI disk formatting, it must be forcibly executed by the SETUP mode [Disk Format?] menu. In this example, assume that the current drive and backup drive are connected as shown below and that it is in the time base for the E-IDE hard disk.

< NOTE >: A disk intended for save/load by WAV file cannot be formatted by the D-108 [Disk Format?] menu. The WAV file (DOS format) disk must be formatted beforehand in another computer (PC/AT type).



1. After switching to the SETUP display by pressing the DISP SEL key, press the EXECUTE/YES key.

The D-108 will enter the SETUP mode and the display will change to the SETUP menu which was active prior to switch OFF of power.

2. Select the [Disk Format?] menu by rotating the JOG dial, then press the EXECUTE/YES key.

[IDE] will change to blinking and when the JOG dial is rotated, the alternately blinking [IDE] and [SCSI 6] can be easily selected (If a current drive SCSI is also connected, [SCSI #] (# = ID number of the SCSI drive) will also be displayed).

3. After selecting [SCSI 6] with the JOG dial, press the EXECUTE/YES key again.

Even though an unformatted or formatted disk is loaded in the SCSI drive, the ID number and drive name will be displayed and both [?] and [SURE?] will blink.

4. Then, press the EXECUTE/YES key again.

[Backup format?] will be displayed and both [?] and [SURE?] will blink. This is an indication that it is in standby for formatting the backup disk by the [Backup format].

5. Press the EXECUTE/YES key while pressing the RECORD button.

Formatting will start in the backup format mode. During formatting, [REMAIN] will be lit in the display, the disk area (capacity) not yet formatted will be displayed and count down will continue with progress of formatting. After formatting is [COMPLETED!] will be lit and disk will stop.

6. Exit from the SETUP mode by pressing the EXIT/NO key (or the STOP button).

The display will change to the current drive time base prior to entering the SETUP mode.

To retrieve the disk from the backup drive, press the drive EJECT button.

Handling Programs

This chapter explains how to handle Programs. It covers the following topics:

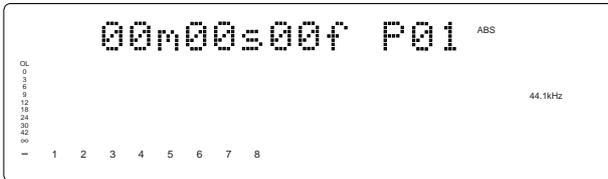
1. Creating a new Program
2. Using a Program Change function
3. Deleting a Program
4. Editing a Program title

Creating a new Program

You can manage individual songs by setting multiple programs on the disk, as explained in the "Managing Songs by Program Selection" section of the "Before Starting" chapter. You can set up to 99 Programs. One Program is automatically created on the disk when the disk is newly formatted with this equipment. Follow the steps below to create a new Program. The prerequisite of this operation is that the disk is in an "initial state" where there is only one Program on the disk. With this operation the E-IDE harddisk is used as the current drive and formatted in the [8 track mode].

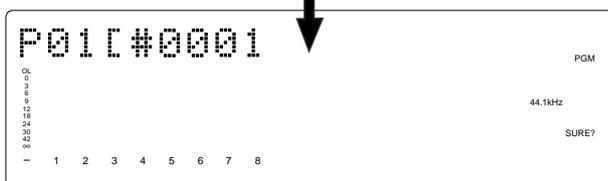
1. Turn on the power to the D-108.

Upon starting up the D-108, [Initialize...]->[Current IDE Drv]->[Harddisk model number]->[Storage mode ([8 track mode] in this case)] messages are followed with an ABS time base, then show the top of the Program (ABS 0). At this time, the current Program is indicated as [P01].



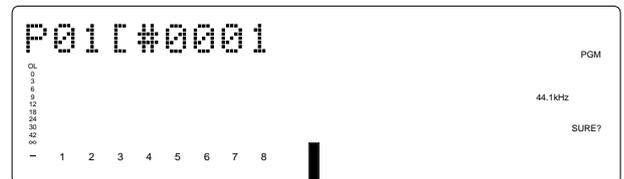
2. While holding down the HOLD/> key, press the STORE key.

[Select PGM!] appears on the display briefly, then changes to a flashing [01] of [P01] and [SURE?] flash. ([#0001] is the default name of PGM 01.)



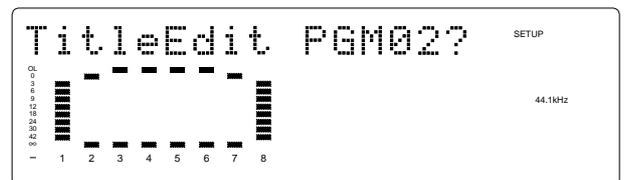
3. Turn the JOG dial clockwise.

The question marks [?] of [New Program?] and [SURE?] flash. This indication asks you if you wish to set a new Program (Program 2).



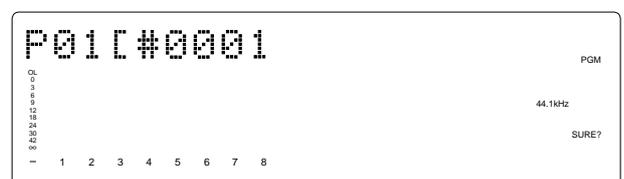
4. Press the EXECUTE/YES key.

The D-108 automatically enters [Title Edit PGM?] menu in SETUP mode. You can enter a title for Program 2. ([?] flash.) If you prefer the default name, press the EXIT/NO key.



5. Press the EXECUTE/YES key again.

A default title (#0002) appears on the display, with [#] and [SURE?] flashing. This means that you can enter a name for the new Program. If you wish to name the Program with a unique title, continue the steps below. In either case, you can change the title later, as explained in "Editing a Program title."



To enter a title:

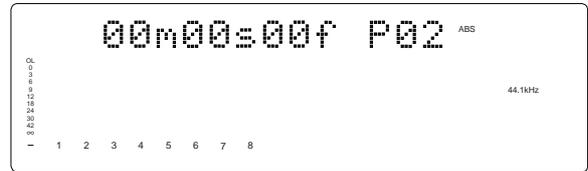
- Turn the JOG dial for the flashing cursor to voluntarily input alphanumerics.
- Move the flashing cursor with the HOLD/> key or SHUTTLE dial. The title can contain up to 16 alphanumeric characters.
- You can input the following alphanumerics and symbols.

```

# $ % & ' ( ) * + , - . / 0 1 2 3 4
5 6 7 8 9 : ; < = > ? @ A B C D E F
G H I J K L M N O P Q R S T U V W X
Y Z [ \ ] ^ _ ` a b c d e f g h i j
k l m n o p q r s t u v w x y z { |
} ~ € _ ! "
    
```

6. When you finish entering the title, press the EXECUTE/YES key.

Program 2 (PGM 02) and its title are set. The display shows the ABS Time Base indication of the Program.



<Important!>

- When you create a new Program by selecting the [New PGM ?] menu, a new Program is created with an increment number. That is, if only one Program exists and when you create a new Program, it will be named Program 2. If Programs 1-5 already exist, a new Program number will be 6.
- If there is insufficient recording space on the disk, you cannot create the new Program. Each time you create a new Program, the recordable area on the disk will decrease.

7. Press the EXIT/NO key, or STOP button.

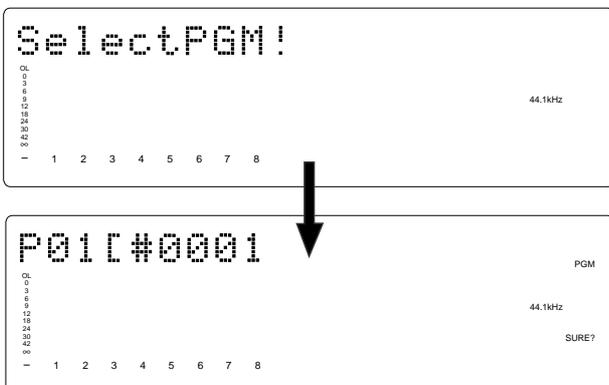
Using a Program Change function

If multiple Programs exist on the disk, you need to select a Program to record, play, or edit. This section describes how to select a Program.

Note: You cannot use the Program Change function when the D-108 is in SETUP mode.

1. When the D-108 is stopped, press the STORE key while holding down the HOLD/> key.

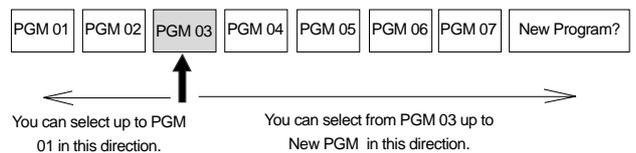
[Select PGM] appears on the display briefly, then changes to a flashing "01" ([#0001 of PGM 01] and [SURE?] flash. ([#0001] is the default name of PGM 01.)



2. Turn the JOG dial to select the desired Program number (flashing).

Rotating the JOG dial counter-clockwise decreases the number, and rotating it clockwise increases the number. If you turn the JOG dial clockwise all the way, [New Program?] will be selected. Select [New Program ?] to create a new Program as mentioned in the previous section "Creating a new Program."

For example, you can select one of seven Programs as follows:



3. Press the EXECUTE/YES key.

The ABS Time Base indication for the selected Program appears. In this way, you can be sure to select a Program before you start working.

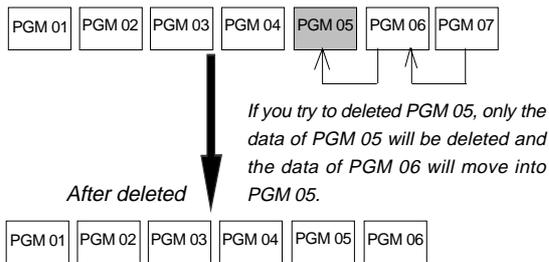
Deleting a Program

This section explains how to delete an unnecessary Program.

Deleting an unnecessary Program will expand the recordable area, making your work flow more smoothly, since recording or editing requires sufficient recordable area (free space on the disk). Use the [Delete PGM ?] menu in SETUP mode to delete a Program.

<Notes on deleting a Program>

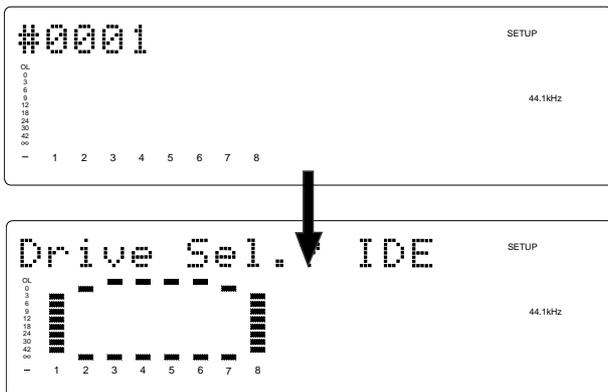
- You can delete only the currently-selected Program. Refer to the previous section, "Using a Program Change function," for information on how to select the desired Program before you proceed to delete the Program.
- If only one Program exists and you try to delete it, data contained in the Program will be deleted, but the Program itself will remain. For example, assume that PGM 01 -07 exist and you try to delete PGM 05. Program number 05 will remain, but the data inside PGM 05 will be replaced with the data of PGM 06. The subsequent Programs' data will move in the same way. Therefore, it will appear that PGM 07 has been deleted. If you delete the last Program (PGM 07 in this example), PGM 07 will be completely deleted.



Note: You cannot use the Undo/Redo function to delete Programs. Make sure that you delete the correct Program.

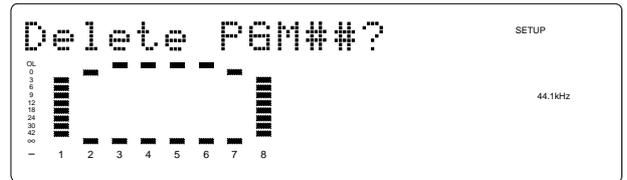
1. Press the DISP SEL key while the D-108 is stopped, to put the system in the SETUP mode, then press the EXECUTE/YES key.

The D-108 enters SETUP mode, and displays the first hierarchy of the SETUP menu that was displayed before you turned off the power. The default setting is [Drive sel. ?] menu (setting a current drive).



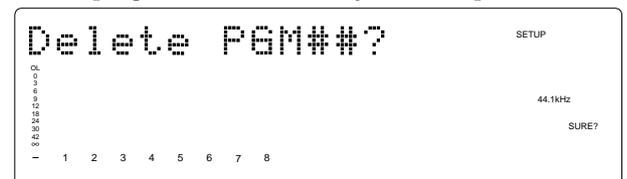
2. Turn the JOG dial to select the first hierarchy of the [Delete PGM ?] (deleting a Program) menu.

Alternatively, you can use the HOLD/> key, or the SHUTTLE dial.



3. Press the EXECUTE/YES key.

The display will change and [SURE?] will flash? This indicates that the system is in the stand-by state to delete a program that is currently started up.



To cancel the delete operation, press the EXIT/NO key while [SURE ?] is flashing. Each time you press the button or key, the D-108 will return to a higher level in the hierarchy, and finally exit SETUP mode.

4. Press the EXECUTE/YES key again.

When the D-108 displays [Deleting...] and finishes deleting the Program, the data of the next Program number moves in, and its ABS time appears.

To check the REMAIN time and free space, press the DISP SEL key to display the [REMAIN] indication after the Program is deleted.

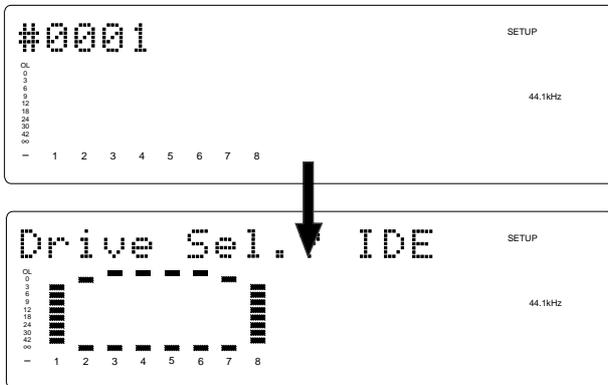
Editing a Program title

You can name the Program as explained in the "Creating a new Program" section. You can also change the title later by using the [Title Edit ?] menu in SETUP mode.

Note: You can edit the title of the selected Program before you select SETUP mode. You cannot select a Program after the D-108 enters SETUP mode. Be sure to select the desired Program using the steps explained in the "Using the Program Change function" section.

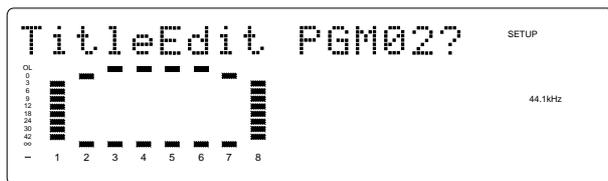
1. Press the DISP SEL key while the D-108 is stopped, to put the system in the SETUP mode, then press the EXECUTE/YES key.

The D-108 enters SETUP mode, and displays the first hierarchy of the SETUP menu that was displayed before you turned off the power. The default setting is [Drive sel. ?] menu (setting a current drive).



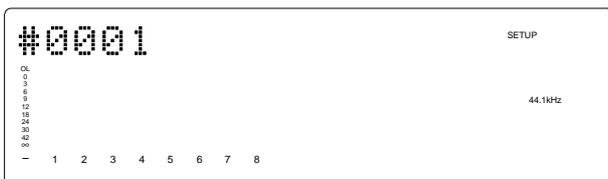
2. Turn the JOG dial to select the first hierarchy level of the [Title Edit ?] ([?] flash.) menu.

The HOLD/> key can be used in addition to the JOG dial to select the indication. The following example assumes that the title of Program that can be edited is Program 2.



3. Press the EXECUTE/YES key.

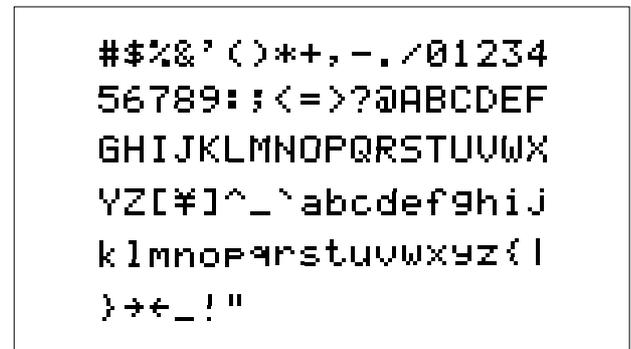
The currently-selected Program title appears with the left-most character flashing.



4. Move the flashing cursor with the HOLD/> key or SHUTTLE dial. Use the JOG dial to input the character or number desired. The title can contain up to 16 alphanumeric.

You can enter up to 16 characters, nine of which will appear on the display.

You may enter the following characters and numbers:



5. After you enter the title, press the EXECUTE/YES key.

The new title is confirmed, and the ABS time value of the Program appears.

6. Press the EXIT/NO key, or the STOP button.

<Check the title input>

To check the title that was newly input, press the DISP SEL key and then switch to the SETUP mode.

The newly input title will appear when the SETUP mode appears. After confirming the title, press the DISP SEL key to switch back to the top of the previous Program indication.

Punch In/Out Recording

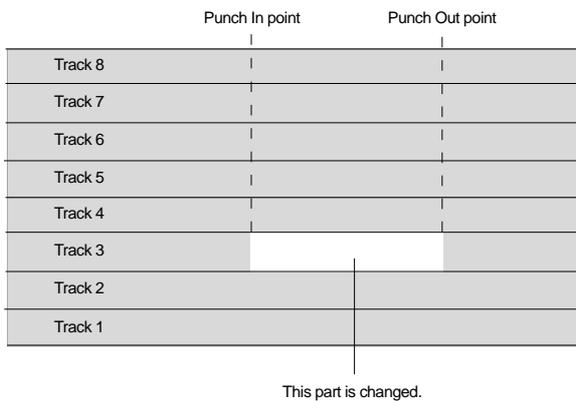
What is Punch In/Out recording?

Punch In/Out recording enables you to record over previously-recorded parts. See the diagram below.

For example, using the Punch In/Out function allows you to change an unsatisfactory guitar solo.

The D-108 offers two types of Punch In/Out functions. One is called Auto Punch In/Out, in which you automatically re-record a specified part. The other is called Manual Punch In/Out, in which you record data manually (using your foot to operate an optional foot switch, model 8051).

Both functions feature "Rehearsal mode" to enable you to practice repeatedly until you are ready.



- **Select a Program for Punch In/Out recording.**
- **Initialize the D-108.**
- **Check the sampling rate setting.**

Note: You can use the Punch In/Out recording only for Real tracks 1-8. If you wish to use Punch In/Out recording for data on an Additional track, first move the data to the Real tracks.

Auto Punch In/Out

To perform Auto Punch In/Out recording, you need to specify the Auto Punch In point (recording start point) and the Auto Punch Out point (recording end point).

Preparation

Storing the edit points

1. Refer to "Storing the edit points" to set the Auto Punch In/Out points.

Store the Auto Punch In point to the AUTO PUNCH IN key, and the Auto Punch Out point to the AUTO PUNCH OUT key.

- Refer to page "54" for more information on storing the edit points.

Note: Make sure that you specify an Auto Punch In point that precedes the Auto Punch Out point. If the Auto Punch Out point precedes the Auto Punch In point, [Void Out !] appears and you will be unable to perform Auto Punch In/Out recording.

Previewing and trimming the edit points

You can check the stored edit points by pressing the corresponding memory keys to display them on the LCD. You can also change the points if necessary.

In this example, use the Preview function to fine-tune the point while previewing.

1. While the D-108 is stopped, hold down the RECALL key and press the memory key.

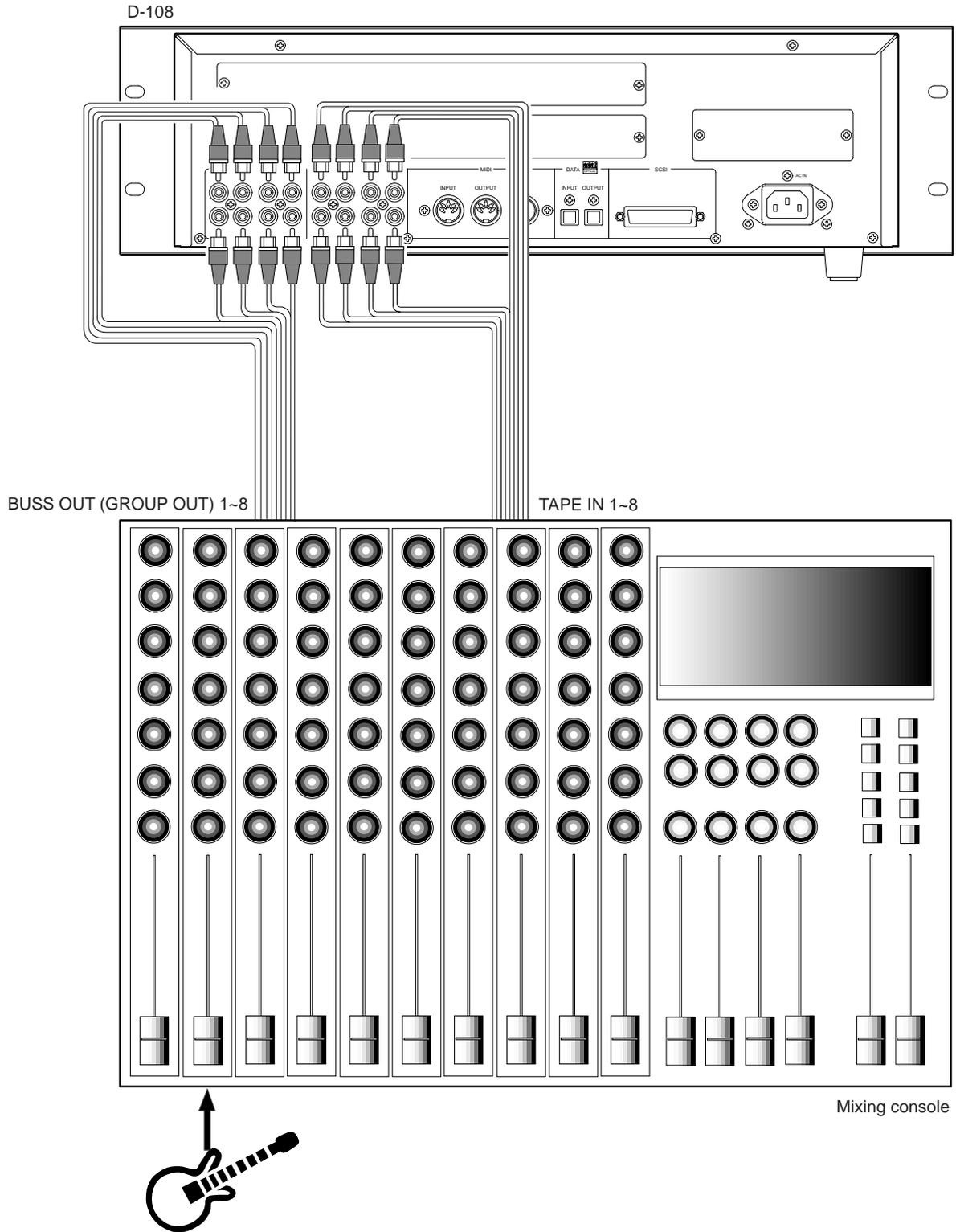
Pressing the AUTO PUNCH IN key enables you to listen to the sound at the AUTO PUNCH IN point ("previewing the sound rise [fade-out]"). Pressing the AUTO PUNCH OUT key enables you to listen to the sound at the AUTO PUNCH OUT point ("previewing the sound fall [fade-in]").

2. Trim the edit point while auditioning the sound.

- Refer to page "65" for more information on the Preview function.

D-108 Owner's manual (Punch In/Out Recording)

When you finish storing and adjusting the respective edit points, you can proceed to the Auto Punch In/Out operations. In this example, we will re-record part of the guitar phrase on track 3, chosen from all the recordings on tracks 1-8. Prior to proceeding with this operation, check to see that an external mixer is connected to D-108 as shown in the figure. then confirm that the guitar to record on track 3 is connected to the input jack of the mixer.



Rehearsing Auto Punch In/Out recording

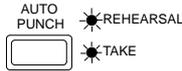
In Rehearsal mode, the READY track assumes input monitoring mode between the Auto Punch In and Out points, and the sound is not recorded. You can practice Auto Punch In/Out operation repeatedly before you proceed to actual recording. Locate the recording start position slightly before the Auto Punch In point.

<Tips for rehearsal>

Set the preroll value while referring to the "Changing the Initial Settings (SETUP Mode)" chapter. In this way, the D-108 can locate a point that precedes the Auto Punch In point by the specified preroll value. This enables you to start playback slightly before the Punch In point. (Refer to page *** for more information on "Changing the Initial Settings.") The D-108 will repeat playback data between the AUTO RTN START point and the AUTO RTN END point if you set the AUTO RTN START point before the Auto Punch In point and the AUTO RTN END point after the Auto Punch Out point. This allows you to repeat rehearsal. See the "Hint-2."

1. Press the AUTO PUNCH key.

The AUTO PUNCH mode will turn ON. The REHEARSAL LED (green) and TAKE LED (red) of the AUTO PUNCH key will flash.

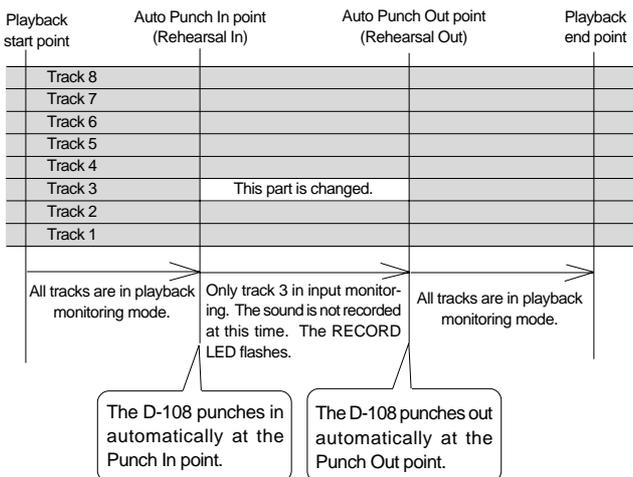


2. Set the track for Auto Punch In/Out to READY.

Press the RECORD RACK select key [3] to set track 3 to READY.

3. Start playback of the D-108 from a point slightly before the Auto Punch In point.

Only the REHEARSAL LED (green) will light up, and start rehearsal. The D-108 operates as shown in the figure below during rehearsal operations.



4. Play the guitar accompanying the playback sound from tracks 1 - 8 for rehearsal, while adjusting the recording level.

You will hear the guitar performance between the Auto Punch In and Out points. Otherwise, you will hear the recorded guitar sound.

5. When you are satisfied with your rehearsal, press the STOP button.

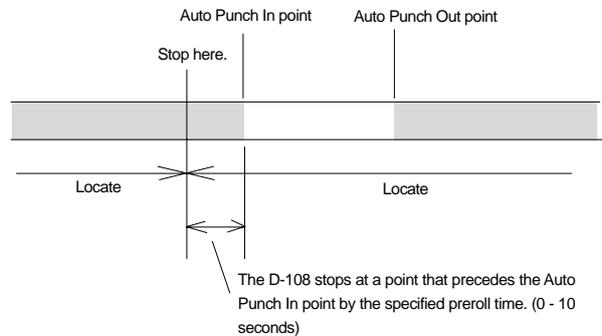
<Hint 1>

Locating a point slightly before the Auto Punch In point

To locate the playback start point for rehearsal, press the AUTO PUNCH IN key, then press the LOCATE key.

The D-108 displays the time (position) stored in the AUTO PUNCH IN key, and locates the point and stops.

Press the REWIND button to go backward. If you have set the preroll time as described on page "111," you can locate a point that precedes the Auto Punch In point by the specified preroll value.



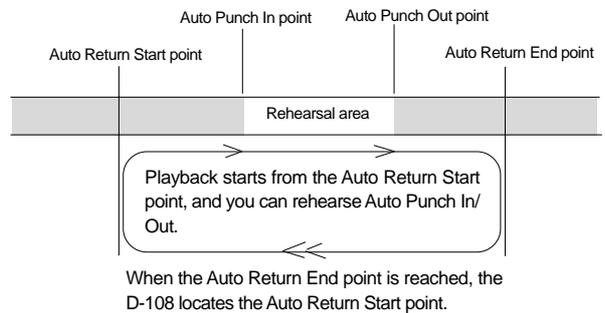
<Hint 2>

Quick and easy operation for repeated rehearsal

Using the Auto Return function and the Auto Play function enables you to rehearse repeatedly.

As shown below, set the AUTO RTN START and END points for Auto Return and Auto Play. In this way, you can repeat rehearsal easily, while checking the recording level and concentrating on your performance.

Refer to page "54" for more information on setting the AUTO RTN START/END points.



Note: If the D-108 display [Over!] when you turn on Auto Punch mode, the disk does not have enough free space for Auto Punch In/Out. You need to erase part of the Program data, then try again.

Auto Punch In/Out Take

After you are satisfied with your rehearsal, you can proceed to an actual take of Auto Punch In/Out. You can undo or redo Auto Punch In/Out recording if you change your mind. The control panel settings are the same as those for rehearsal.

1. Press the RECORD TRACK select key [3] to set track 3 to READY.

2. Locate a point slightly before the Auto Punch In point.

3. Confirm that Auto Punch mode is turned on.

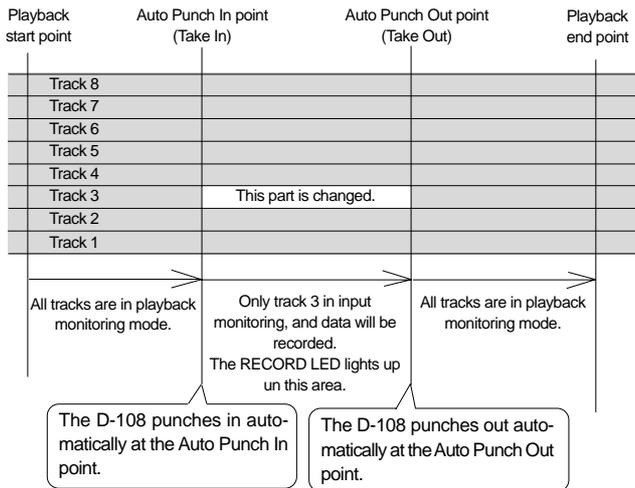
Press the AUTO PUNCH key to turn on the function, if it is not already on (REHEARSAL/TAKE LED flashes).

4. Press the RECORD button while holding down the PLAY button.

Only TAKE LED (red) lights up and starts TAKE.



The D-108 operates as follows.



- Track 3 indication on the display will only light up between the AUTO PUNCH IN/OUT point, and will flash in any other case.
- When the Auto Punch Out point is passed, the D-108 cancels Auto Punch mode automatically, and nothing appears in the A. PUNCH display area.

<Caution after Punch Out>

At "Take" of punch out, the punch-in recording track will not immediately enter the repro monitor mode from the input monitor mode enter the repro monitor mode about two seconds after mute playback. This is a functional feature of D-108 and not a malfunction.

5. When you finish recording, press the STOP button.

6. Play track 3 to check the result of the Auto Punch In/Out operation.

If you fail with AUTO PUNCH IN/OUT and are not satisfied, repeat the process by performing the AUTO PUNCH IN/OUT undo operations described in the next section.

Undo/Redo Auto Punch In/Out recording

You can undo or redo Auto Punch In/Out recording.

Press the UNDO key after recording is complete to restore the conditions that existed prior to the recording.

Press the REDO key again to restore the conditions that existed after the recording.

Follow the notes below:

Note-1: The Undo/Redo function is effective only when the D-108 is stopped.

Note-2: The Undo/Redo is not effective if you perform one of the following operations after you finish recording:

- When a new recording is made.
- While a new editing is executed (such as Copy & Paste, Move & Paste, or Erase).
- When in the AUTO PUNCH ON mode, when the AUTO PUNCH IN point is passed in the PLAY (or RECORD) mode.
- When the power is momentarily switched off.
- When the program is changed.
- When ejecting a removable SCSI disk that is the current drive.

Manual Punch In/Out

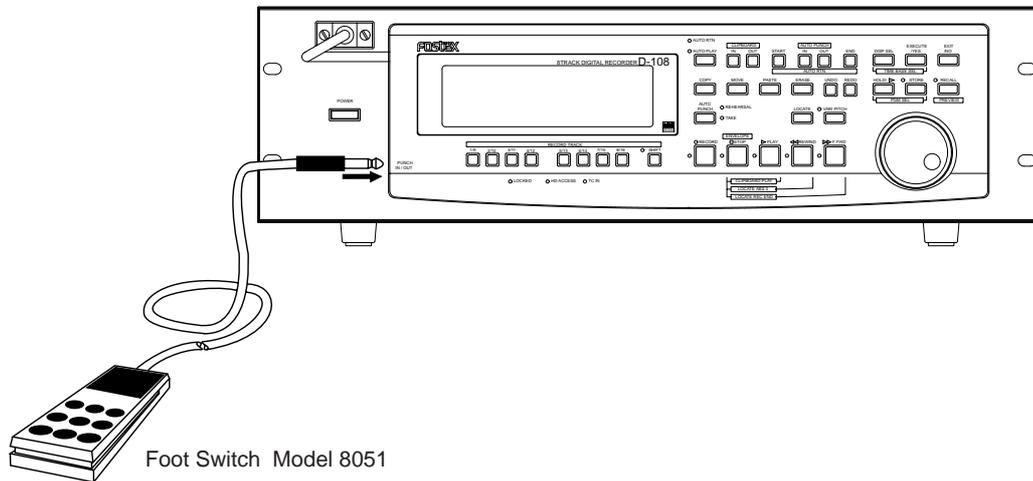
This section explains how to perform Manual Punch In/Out using a foot switch (optional Model 8051). You do not need to specify the Punch In/Out points. Instead, you press the foot switch at the Punch In/Out point. Manual Punch In/Out also offers rehearsal and actual takes. You can repeat rehearsal until you are ready. As an example, replace a part of the recorded guitar solo on track 3.

- Initialize the D-108.
- Select a desired Program for Punch In/Out.
- Check a sampling frequency of the D-108.

Preparation

Check to see that the guitar is connected to the input jack of the mixer, as required for [AUTO PUNCH IN/OUT] mentioned earlier.

Connect an optional foot switch (Model 8051) to the PUNCH IN/OUT jack on the rear panel.



Rehearsing Manual Punch In/Out recording

In Rehearsal mode, the READY track enters input monitoring mode between the Punch In and Out points (the points at which you press the foot switch), and the sound is not recorded. You can practice the Punch In/Out operation repeatedly before you proceed to actual recording.

1. Press the foot switch while holding down the STOP button.

[Rehearsal On] will appear on the display for about 1 second, then rehearsal mode will appear and the REHEARSAL LED (green) of the AUTO PUNCH key flashes.



2. Press the RECORD TRACK select key [3] to set track 3 to READY.

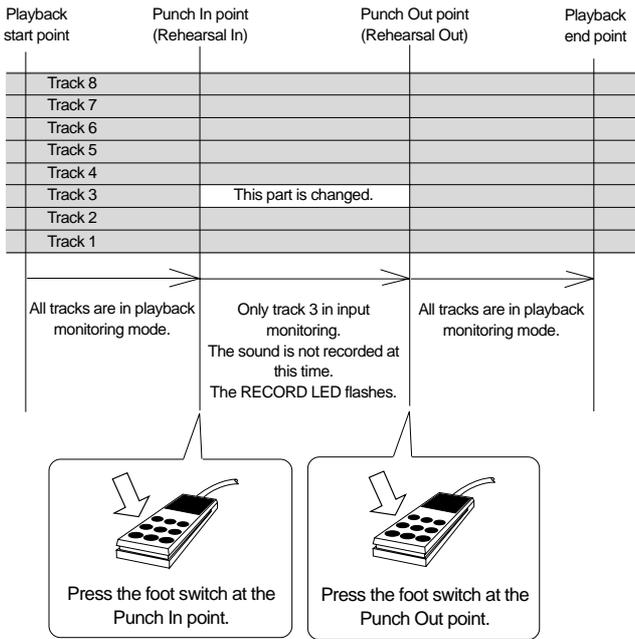
3. Press the PLAY button to play back from a point slightly before the Punch In point.

4. Play the guitar accompanying the playback of tracks 1 to 8.

The recording level and monitor volume is adjusted on the mixer in the same manner as done for [AUTO PUNCH IN/OUT] described earlier.

5. Press the foot switch once at the desired Punch In point, then press the foot switch again at the desired Punch Out point.

The rehearsal mode will operate as shown in the figure. Between the Punch In and Out points the current performance of the guitar will be played as the guitar monitor sound. The previous recording is heard in any other case. The RECORD LED lights up when Punching In and turn off when Punching Out. (the REHEARSAL LED remains flashing)



6. When you finish rehearsing, press the STOP button. If you are still unsatisfied, repeat steps 3-5.

Cancelling Rehearsal mode

1. While holding down the STOP button, press the foot switch.

The display shows [Rehearsal Off] for 1 second, then the flashing REHEARSAL LED turns off and cancels the rehearsal mode.

<Hint>

To rehearse repeatedly, set the AUTO RTN START point slightly before the Punch In point, and the AUTO RTN END point slightly before the Punch Out point.

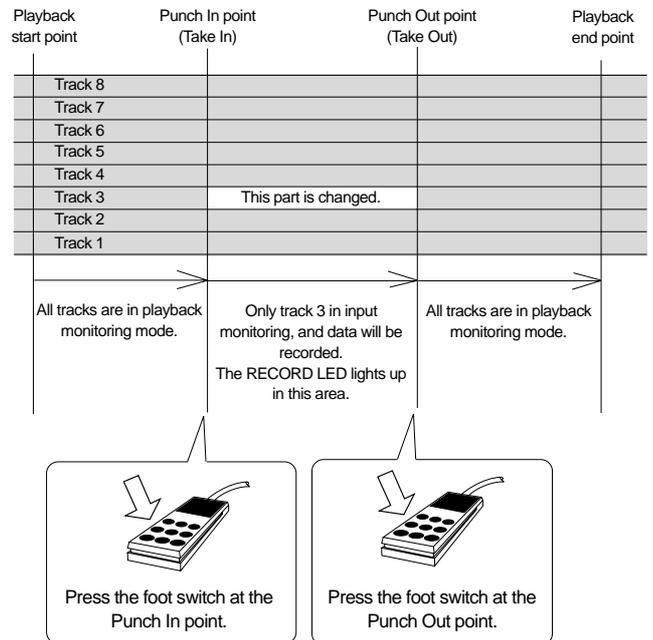
This will help you concentrate on your performance or check the recording level easily (especially since Manual Punch In/Out involves operating the foot switch operation as well as the D-108). (See <Hint-2> in the "Rehearsing Auto Punch In/Out recording" for more information.)

Manual Punch In/Out take

You can proceed to record if you are satisfied with the recording level, foot switch timing, and rehearsal.

Note: You cannot record a second take during the Manual Punch In/Out operation without stopping the D-108. That is, the D-108 will continue playing after you finish recording a take, but you cannot record another take by pressing the foot switch.

1. Confirm that Rehearsal mode is cancelled, and start playing the D-108 from a point slightly before the desired Punch In point.
2. Play the guitar, accompanying the playback of tracks 1 to 8.
3. Press the foot switch at the desired Punch In point. Press the foot switch again at the desired Punch Out point.
The D-108 will operate as follows. The D-108 enters recording mode at the Punch In point, and cancels recording mode at the Punch Out point.
4. Press the STOP button.
5. Play track 3 and check the result of Punch In/Out.



<Caution after Punch Out>

At "Take" of punch out, the punch-in recording track will not immediately enter the repro monitor mode from the input monitor mode enter the repro monitor mode about two seconds after mute playback. This is a functional feature of D-108 and not a malfunction.

<Hint>

You can use the PLAY button and the RECORD button, instead of using the foot switch. Follow the steps below. This method also does not allow you to record another take unless you stop the D-108 first.

Procedure:

1. Press the PLAY button to start playback from a point slightly before the Punch In point.
 2. Press the RECORD button while holding down the PLAY button at the desired Punch In point. (Punch In recording starts.)
 3. Press the PLAY button at the desired Punch Out point. (Recording is punched out.)
- If you press only the RECORD button in both steps 2 and 3, you can rehearse Punch In/Out.

Undo/Redo Manual Punch In/Out recording

You can undo or redo Manual Punch In/Out recording.

Press the UNDO key after recording is complete to restore the conditions that existed prior to the recording.

Press the REDO key again to restore the conditions that existed after the recording. Follow the notes below:

Note-1: The Undo/Redo function is effective only when the D-108 is stopped.

Note-2: The Undo/Redo is ineffective if you perform one of the following operations after you finish recording.

- When a new recording is made.
- While a new editing is executed (such as Copy & Paste, Move & Paste, or Erase).
- When in the AUTO PUNCH ON mode, when the AUTO PUNCH IN point is passed in the PLAY (or RECORD) mode.
- When the power is momentarily switched off.
- When the program is changed.
- When ejecting a removable SCSI disk that is the current drive.

Digital Recording

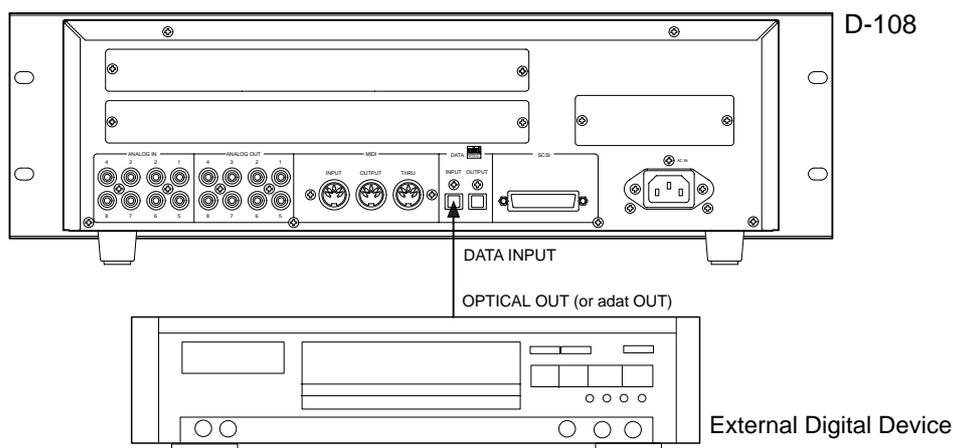
Digital recording from an external digital device

This chapter describes how to digitally record data from a connected digital device (CD, MD, DAT, adat etc.) to tracks on the D-108. Use the "Setting digital input tracks" menu in SETUP mode to assign incoming digital signals (DATA IN L/R) to tracks. If you have selected adat input in the "Setting digital input tracks" menu, all eight-track data will be digitally recorded from the external adat.

The currently-selected Program will be used for digital recording. The digital input track assignment is shared by all existing Programs.

< Notes in setting the SETUP mode [Clock Sel.?] menu at digital recording >

There is the [Clock Sel.?] (setup of external sync) menu in the D-108 SETUP mode and the initial setting is [Int.] (internal clock). When in this [Int.] setting, although digital recording is executed by "setting the digital input track," the external digital input signal will not be in the external sync mode ([DIGITAL] only will be lit but [EXT SYNC] will not be lit). Therefore, to make a digital recording externally in sync with the digital input signal, the SETUP mode [Clock Sel.?] menu must be preset to [Opt]. When thus set to [Opt], it will be possible to make a digital recording of the digital input signal in sync with the external sync signal. If a connection is made to a digital mixer such as to create a digital loop system and a digital recording is to be executed, it must be used with [Clock Sel.?] set to the initial [Int.] setting (Refer to the later page 50 for precautions in regards to a digital loop.). For setting the SETUP mode [Clock Sel.?] menu, refer to page 122.



Connecting an external digital device

- * Connect the DATA IN jack of the D-108 with the OPTICAL OUT jack of an external digital device using an optical cable.

If the digital device has only the COAXIAL (RCA pin) jack as a digital output, use a Fostex COP-1 (an optional optical/coaxial converter).

Note: The D-108 switches the DATA INPUT connector between an S/P DIF digital signal (Optical) and an adat digital signal during setting of the digital input track in Setup mode. Both signals use the same connector configuration, but carry different data.

Selecting a Program to record

- * If multiple Programs exist, first select the desired Program using the Program Change function.

• See page 36 for more information on Program Change.

Setup the D-108 operating clock

- * Set the operating clock to [Opt] using the SETUP mode [Clock Sel.?] (setting the operating click) menu.

• See page 122 for more information on setting the operating clock.

Setting the sampling rate for a recording program

<Important>

When a digital signal is to be input to D-108, be sure to set the D-108 sampling rate identical with the external digital equipment. In the case of adat digital signals or S/P DIF digital signals, recording is also possible although the setup sampling rates may not be identical but if digital recording is executed with the operating clock set to [Opt.] by the aforementioned [Clock Sel. ?] menu, it will be recorded at a speed different from the true figure. The reason for this is that when the digital input track is setup in D-108, the word clock external sync (D-108 will be operated by the external equipment clock) will be applied to the S/P DIF or adat digital signals that is input. Also, as the operating clock will not be by external sync if digital recording is executed with the [Clock Sel. ?] set to [Int.], difference in speed will not occur. However, as it will operate similar to an FS converter, sound quality might deteriorate. However, although [Clock Sel. ?] is set to [Int.], when loading from an external DAT or adat, or if the SETUP mode [Slave mode?] is ON and the [Slave Type?] is adat or S/P DIF, it will momentarily enter external sync of the digital input. If digital input and output are both connected, be careful to avoid creating a digital loop.

* In the case of a S/P DIF digital signal, if the sampling rate setting is different, 44.1kHz or 48kHz inside the display will blink to warn that the sampling rate is not correct.

* For details on the sampling rate setup procedure, refer to "Setup of the sampling rate" menu of the SETUP mode.

* In the following, the explanations will be in the assumption that this is a digital mixer possible in input of digital signals whose clock source can be setup at digital IN.

- See page 121 for more information on Setting the sampling rate.

After setting the sampling rate, press the DISP SEL key to display the REMAIN indication and check the remaining time available for recording. If there is not enough time for recording, try to increase the time by using the Erase function to move the REC END point of another Program forward, or by saving the song data of Programs that are not often used to a DAT machine to clear that data from the unit.

Note: A 48kHz sampling rate setting requires more disk space than 44.1kHz setting. This means that the available recording time would be shorter.

- See page 70 for more information on the Erase function.
- See page 88 for more information on Saving song data.

Setting up a digital input track

1. Select the desired track using the "Setting digital input tracks" menu in SETUP mode.

You can select any track from tracks 1-8 to assign to L or R. You can also select [adat] instead of tracks 1-8 to digitally record all eight-track data from an external adat.

When a track is assigned and a correct digital signal is input, the FD-8 displays [DIGITAL] on the display. If incoming digital signal is abnormal, the [DIGITAL] and [EXT SYNC] indicators flashes. Refer to "Setting digital input tracks" in the "Changing the Initial Settings (SETUP Mode)" chapter on page 117.

Caution: Do not connect or disconnect an optical cable to or from the DATA IN jack of the D-108 while a track is assigned as digital input. Otherwise, noise may be induced to the D-108, affecting the connected digital device.

Note: While a track is assigned for digital input, you cannot use the same track for analog recording via the corresponding input jack. When you finish digital recording, set the "Setting digital input tracks" menu to [L: -, R: -] (no assign).

However, in other tracks not assigned for digital input, it is possible to record analog signals. For example, if tracks 1 and 2 (L: 1, R: 2) are selected for digital inputs, then digital signals in tracks 1 and 2, and analog signals in other tracks can be recorded, thus making it possible to simultaneously record digital and analog signals on all eight tracks. Refer to page 51.

When the "Setup of the digital input track" is set to "adat," please note that tracks 1 ~ 8 will all be assigned to digital input and thus, analog signals cannot be recorded in any of the tracks.

Note: When setting up the digital input track, the tracks to be assigned to L and R cannot be the same, such as [L: 4] and [R: 4]. If setup is executed by mistakenly selecting the same track numbers for L and R, the number setup for the L channel will be given priority and " - " (no assign) will be setup automatically.

When you finish setting the parameters in SETUP mode, be sure to press the EXIT/NO key or the STOP key to exit SETUP mode.

Selecting a recording track

1. Press the RECORD TRACK select key of the recording track to set that track in ready mode.

Starting and quitting recording

1. Locate the top of the Program.

2. Make sure that [DIGITAL] and [EXT SYNC] indicator lights up on the display. Hold down the RECORD button and press the PLAY button to start recording on the D-108.

3. Start playback on the external digital device.

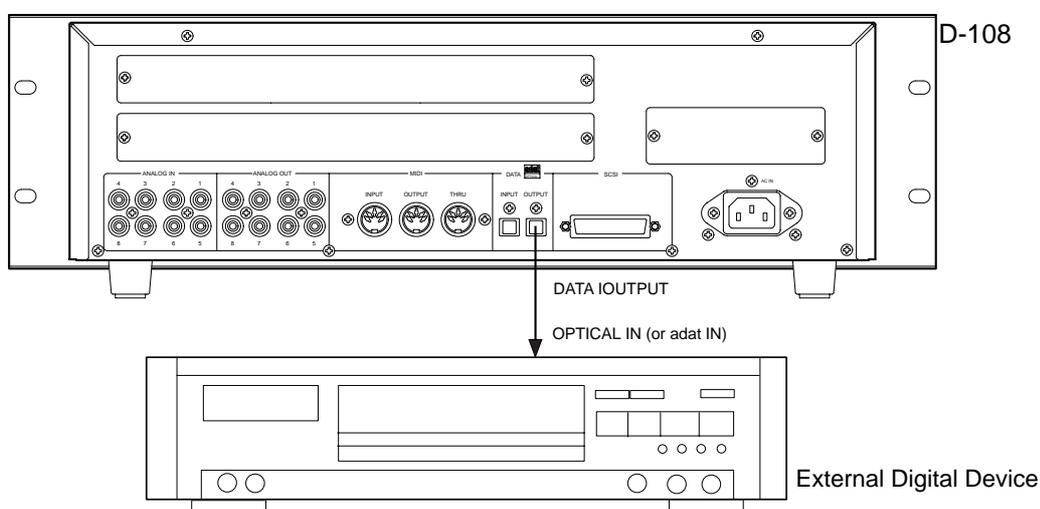
Check to see if the level meter of the D-108 is moving, responding to the input signal.

4. When recording is complete, stop the D-108 and the external digital device.

Digital recording to an external device

This chapter describes how to digitally record data from an external MD, DAT, CD-R or adat that is connected to the D-108 containing the recorded songs. Two voluntary tracks from real tracks 1-8 can be freely assigned to the L and R of the digital output for digital output to an external device. Further, the data of all 8 tracks can also be output (when [adat] is selected). The current program is the program that can be digitally recorded. Note that the "Digital Output Track Setting" is effective for all programs though there may be several programs set at the time.

Note: Data in the additional track cannot be directly digital recorded externally. In order to digital output the data in the additional track, it must first be transferred to a real track (use the track exchange function). For an explanation of the track exchange function, refer to page 73.



Connecting an external digital device

- * Connect the DATA OUT jack of the D-108 with the OPTICAL IN jack of an external digital device using an optical cable.

If the digital device has only the COAXIAL (RCA pin) jack as a digital output, use an optional COP-1 (optical - coaxial converter).

Note: The D-108 switches the DATA OUTPUT connector between an S/P DIF digital signal (Optical) and an adat digital signal during setting of the digital input track in Setup mode. Both signals use the same connector configuration, but carry different data.

Note: If you connect both the digital input and output of the D-108 to those of an external device, a digital loop might be generated. Refer to "Connecting a digital mixer" for more information.

Selecting a playback program

- * If multiple Programs exist, first select the desired Program using the Program Change function.

• See page 24 for more information on Program Change.

Setting the sampling rate for a playback program

- * You need to set the sampling rate of a playback program to match that of the digital device before recording digital data.

Note: When a digital signal is output from the D-108, be sure to match the sampling rate of the external digital device to that of the D-108. If the sampling rate setting does not match, you cannot record the S/P DIF digital signal and noise may be generated.

Setting a digital output track

1. Select the desired track using the "Setting digital output tracks" menu in SETUP mode.

You can select any track from tracks 1-8 to L or R. You can also select [adat] instead of these tracks to digitally record all eight-track data to an external adat.

Refer to "Setting digital output tracks" in the "Changing the Initial Settings (SETUP Mode)" chapter on page 119 for more information on setting a digital output track.

When you finish setting the parameters in SETUP mode, be sure to press the EXIT/NO key or the STOP key to exit SETUP mode.

Note: When setting up the digital output track, the tracks to be assigned to L and R cannot be the same, such as [L: 4] and [R: 4]. If setup is executed by mistakenly selecting the same track numbers for L and R, the number setup for the L channel will be given priority and "-" (no assign) will be setup automatically for R. In other words, L channel will be setup to the specified track and R channel will be setup to no assign.

All tracks including tracks specified for digital output also output analog signal.

Setting up an external device

Set the external device so that it will accept a digital signal. On some devices, you may need to set it so that the device will synchronize to the input digital signal.

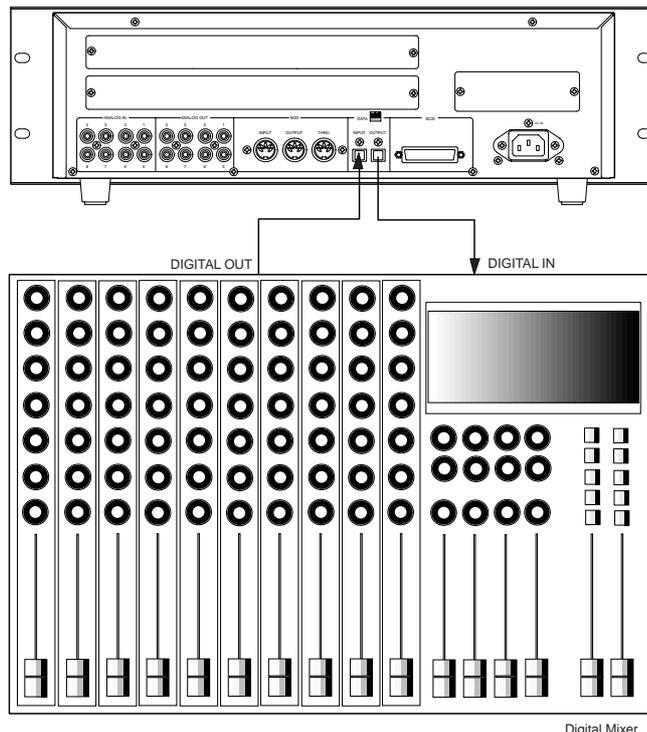
Note: When you are monitoring the digital signal from the external digital device and a signal cannot be input or digital noise is generated, check the connection, cabling, and settings on the D-108 and the external digital device.

Starting and quitting recording

1. Locate the top of the Program.
2. Start recording on the external digital device.
3. Press the PLAY button on the D-108 to start playback.
Digital data is output from the selected track and recorded on the external digital device.
4. When recording is complete, stop the D-108 and the external digital device.

Connecting a Digital Mixer

The following explanations assume that this is a digital mixer, which can input digital signals whose clock source can be setup at digital IN.



< Precautions in setting the SETUP mode [Clock Sel.?] menu when digital recording >

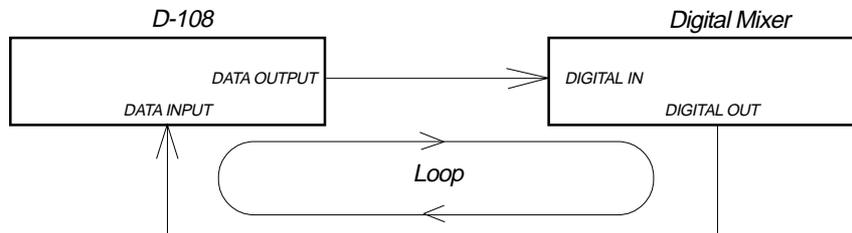
For digital recording in any system which could create a digital loop such as with a digital mixer, set the [Clock Sel.?] to the initial setting of [Int.]

< A digital loop >

In a connection between the D-108 and a digital mixer as shown below, if the D-108 SETUP mode [Clock Sel.?] (setting the operating clock) menu is set to [Opt.] and the digital mixer clock source is set to DIGITAL IN, a clock loop is created and the system will not operate correctly. In order to avoid this loop, change either piece of the equipment to INTERNAL clock using the following procedure.

- * 1. Change the D-108 SETUP mode [Clock Sel.?] menu to the [Int.] setting (internal clock: initial setting).
- * 2. Set the digital mixer clock source to INT.

Normally, when creating such a system, setting the D-108 to [Int.] INTERNAL ([Clock Sel.?] is recommended. If both pieces of equipment are set to INTERNAL, external sync will be asynchronous and could be the cause of poor sound. For details on setting the SETUP mode [Clock Sel.?] menu, refer to page 122.



Connecting a digital mixer

1. Connect the DATA INPUT of the D-108 to the digital output jack of the digital mixer, and the DATA OUTPUT of the D-108 to the digital input jack of the digital mixer.

Setting a digital mixer

1. Set the clock source to digital IN
2. Set the mixer so that it will be able to accept a digital input signal.
Refer to the instruction manual that came with the external digital mixer.

Setting the D-108

1. Select a program.
2. Referring to the above < A digital loop >, set the SETUP mode [Clock Sel.?] (operating clock) to [Int.].

3. Set the sampling rate.

Set the sampling rate of the D-108 to that of the digital mixer.

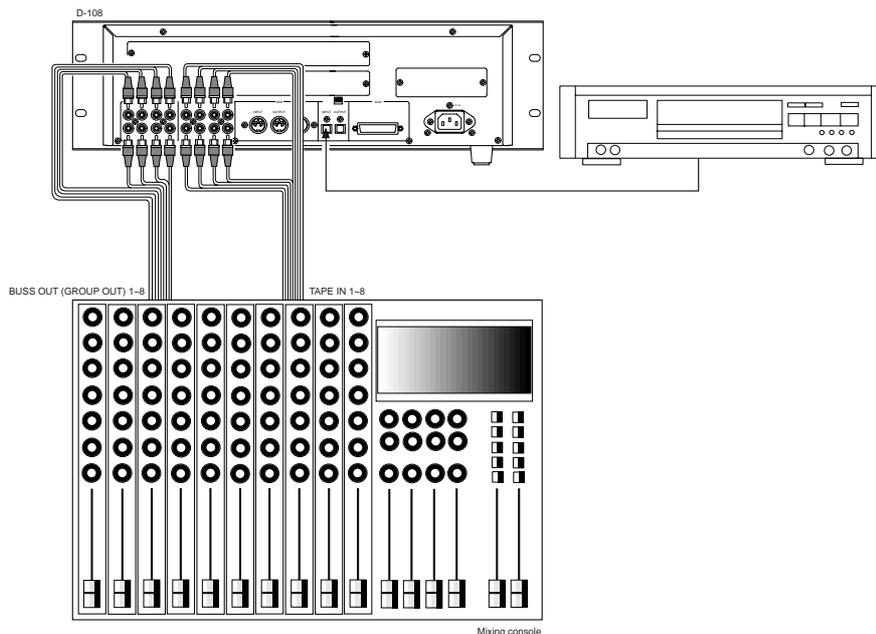
4. Set the digital input track in SETUP mode according to the type of the digital input signal.
5. Set the digital output signal in the digital output track parameter in SETUP mode.

Note: By switching ON the slave mode and the slave type set to *adat* or *S/P DIF*, the D 108 will sync ([EXT SYNC] will be lit) with the digital signal set at the digital input track. Should the digital input track be set to [L: -, R:-], the D-108 will sync with the digital signal setup in the slave type. Even though the [Clock Sel.?] menu is set to [Int.], the D-108 will automatically switch to external sync and create a digital loop.

Digital and analog simultaneous recording

Set the "Digital Input Track Setup". Analog signal recording is possible for all other tracks that are not assigned when recording S/P DIF digital signals (excluding adat digital signals). Use this function to simultaneously record a total of 8 tracks with a breakdown of 2 S/P DIF digital signals (L, R) and 6 analog signals. In the following connection example, S/P DIF signals from CD, MD or DAT are input sources to track 1 and 2, and the instrument/vocal analog signals pass through the mixer to tracks 3-8, to simultaneously record 8 tracks. Put the D-108 in the "Initial Setting" prior to starting operations.

Note: In the same way as "Recording from external digital equipment," be sure to set any external digital equipment and the D-108 to the same sampling rate.



Note: Normally, when using commercial equipment such as CD or MD for recording, set to [Opt.] the SETUP mode [Clock Sel. ?] menu. If a recording is made with the [Clock Sel. ?] menu remained in the initial setting [Int.], the clock will change become asynchronous and cause sound deterioration. For information on setting up the [Clock Sel. ?] menu, refer to page 122.

Connecting an external digital device and musical instruments

1. Connect the DATA IN jack of the D-108 with the OPTICAL OUT jack of an external digital device using an optical cable.

If the digital device has only the COAXIAL (RCA pin) jack as a digital output, use a Fostex COP-1.

2. Connect the analog signal sound source to the mixer input.

For any musical instruments or microphones to be connected as the sound source, set the mixer to record on tracks 3-8 on the D-108.

Starting the recording Program

1. If multiple Programs exist, first select the desired recording Program.

Setting a digital input track

1. In the "Setting digital input tracks" menu in SETUP mode, set [L: 1] and [R: 2], then exit SETUP mode. Now inputs L and R from the external digital device are assigned to tracks 1 and 2. When you finish setting the parameters in SETUP mode, be sure to press the EXIT/NO key or the STOP key to exit SETUP mode.

Setting a recording track

1. Set the RECORD TRACK select keys 1-8 in READY mode for recording on tracks 1-8.

With this setting, digital signals can be recorded on tracks 1 and 2 and sound sources such as musical instruments connected to the mixer inputs can be simultaneously recorded on tracks 3-8.

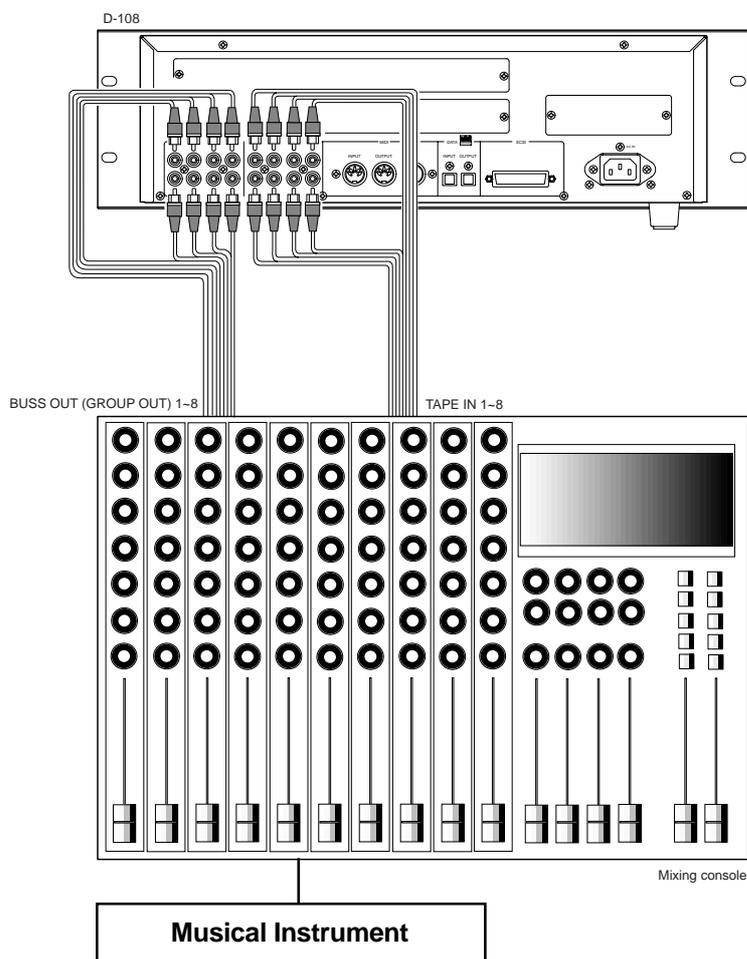
Recording to a Metronome Sound

This chapter explains how to record your performance while you are playing an instrument accompanied by a metronome based on the time signature and tempo specified in the Tempo Map. The metronome sound is output from track 8.

- Initialize the D-108 before the operation.
- If multiple Programs exist, first select the desired Program.

<Notes>

- * When you finish using the Metronome function, turn the function off in SETUP mode.
- * When the Metronome function is on, you cannot record data on track 8, or you cannot play data recorded on track 8.

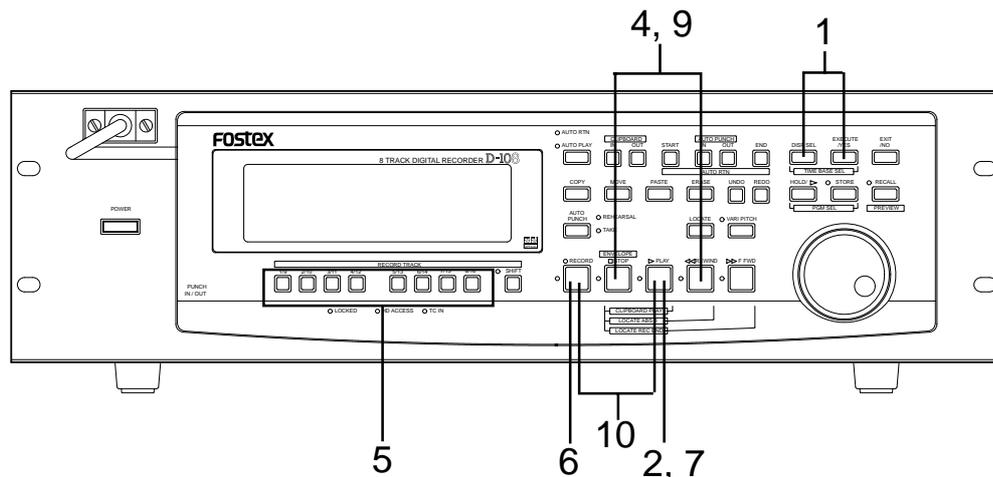


Creating a Tempo Map

- * Set the time signature using the “Setting a time signature” menu in SETUP mode. Refer to the “Setting a time signature” section on page 108.
- * Set a tempo for a given point using the “Setting a tempo” in SETUP mode. Refer to the “Setting a tempo” section on page 109.

Turning the Metronome function on

- * Turn the Metronome function on using the “Setting the Metronome function” menu in SETUP mode. Refer to the “Setting the Metronome function” section on page 111.



Checking the metronome sound

1. Depress the DISP SEL key, then press the EXECUTE/YES key to priority switch the time base to BAR/BEAT/CLK.
2. Start playback from the beginning of the Program. Even if the selected Program does not have any recorded data, track 8 outputs the metronome sound and the D-108 counts time.
3. Adjust the system so the sound output from track 8 can be monitored with the mixer. You will hear the metronome sound output from track 8 using the Tempo Map created earlier.
4. After confirming the metronome sound, stop the recorder section and return to the top Program.

Adjusting monitor/record level of the musical instrument

5. Press the RECORD TRACK select key of the track to record the musical instrument on, and then put that track in the READY mode.
6. Press the RECORD button. The LED of the RECORD button will flash and the READY track will go to the input monitor mode.
7. Press the PLAY button and playback the Program from the top. Only the READY track will go to the input monitor mode (recording does not take place), and all other tracks will be in the reproduction monitor mode, therefore track 8 plays back the metronome sound.

8. Play the musical instrument in time with the metronome and adjust the recording level of the track to be recorded on the mixer.
9. After adjusting the recording level, stop the recorder and return to the top of the Program.

Starting recording

10. Hold down the RECORD button and press the PLAY button to start recording. The READY track will go to the input monitor mode just as when the recording level was adjusted. The time the level that was actually adjusted with the mixer will be recorded.
11. Play the musical instrument in time with the metronome.

Quitting recording

12. Press the STOP button to stop the recorder.

Checking the recorded sound

13. Turn OFF the ready track RECORD TRACK select key.
14. Locate the top of the Program and start playback. Adjust and monitor the track playback sound recorded on the mixer. Since the metronome function still remains ON at this time, you can hear the metronome sound during playback of the recorded sounds when you turn up the track 8 monitor volume.

Storing a Locate Point (Edit Point)

You can store specific individual time data (time, bar/beat/clock) in each memory key (*). The time data stored is used as an "Editing Point" to execute "Locate Point" or Auto Punch In/Out, Copy & Paste, Move & Paste or Erase. You can also store 99 (Locate Number 01-99) time data in the LOCATE key, in addition to the Memory key, to enable locate only features. This chapter will describe how to store specific data in the memory key and how to edit and re-store data is already stored in the memory key. The data stored in each memory are used for the following operations.

*** Memory key**
 When you set the IN/OUT points for Auto Punch In/Out, IN/OUT points for Copy & Clip/Move & Clip, and START/END points for Auto Return/Auto Repeat, END points.

AUTO PUNCH IN key	<ul style="list-style-type: none"> * Locating the AUTO PUNCH IN point. * Recording start point for the Auto Punch In/Out operation. * Paste start point for the Copy & Paste or Move & Paste operation. * Erase start point for the Erase operation.
AUTO PUNCH OUT key	<ul style="list-style-type: none"> * Locating the AUTO PUNCH OUT point. * Recording end point for the Auto Punch In/Out operation. * Erase end point for the Erase operation.
CLIPBOARD IN key	<ul style="list-style-type: none"> * Locating the CLIPBOARD IN point. * Copy start point for copying or moving data to the clipboard during the Copy & Paste or Move & Paste operation.
CLIPBOARD OUT key	<ul style="list-style-type: none"> * Locating the CLIPBOARD OUT point. * Copy end point for copying or moving data to the clipboard during the Copy & Paste or Move & Paste operation.
AUTO RTN START key	<ul style="list-style-type: none"> * Locating the AUTO RTN START point. * Locate end point from AUTO RTN END in Auto Return or Auto Repeat modes.
AUTO RTN END key	<ul style="list-style-type: none"> * Locating the AUTO RTN END point. * Locate start point to AUTO RTN START in Auto Return or Auto Repeat modes.

<Note on storing the locate point>
 When you set the IN/OUT points for Auto Punch In/Out, IN/OUT points for Copy & Clip/Move & Clip, and START/END points for Auto Return/Auto Repeat, make sure that IN points precede the OUT points and START points precede the END points.

You can also store time data in the LOCATE key, in addition to each memory key explained above. You can store up to 99 individual time data in the LOCATE key for locate only features. Store the data by specifying Locate Number to locate the intended time data. Note that the LOCATE key always stores the last located time data in real-time. This Locate Number is stored as 00, and does not require a Locate Number specification to locate it. Simply pressing the LOCATE key directly, will locate that data. This becomes an advantage since it is possible to repeatedly locate the last located point. You can edit the data stored in the LOCATE key, as so with the data stored in the Memory key. For more details refer to page 57.

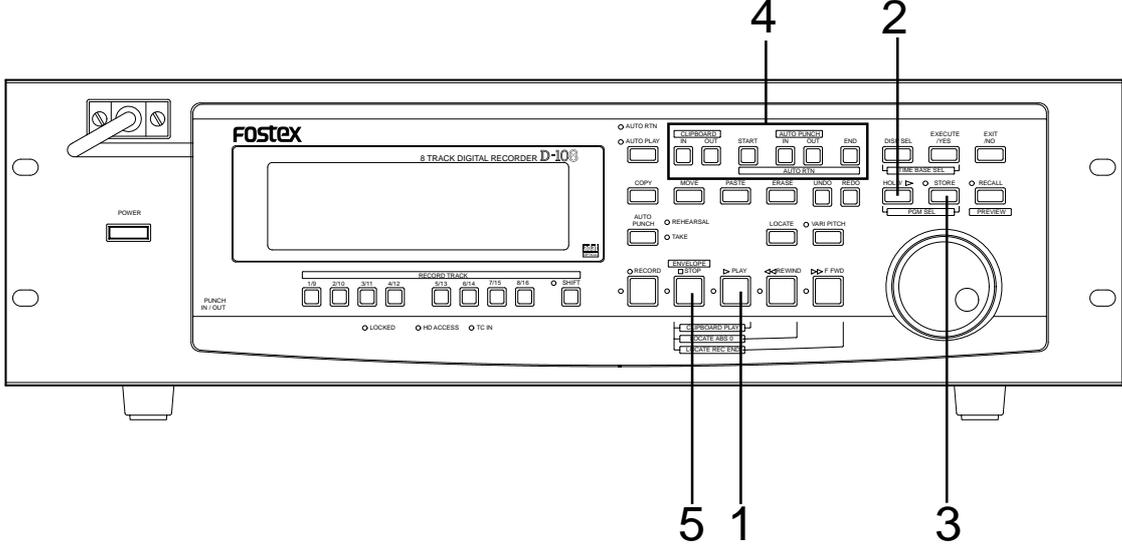
- * You can store locate points for each Program. (You need to select a Program first.)
- * The data can be also saved or loaded even after the Song data is saved or loaded.
- * All locate points stored in the memory keys will be maintained after you turn off the D-108.

Storing and editing the locate points to the memory keys

- Select the desired Time Base using the DISP SEL key and EXECUTE/YES key and if you wish to use a Time Base other than ABS.
- The stored or edited locate points are used only in the currently-selected Program.

Storing in real-time

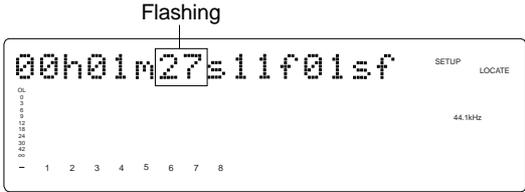
You can store the locate point (in the ABS, MTC, or BAR/BEAT/CLK Time Base) in real-time while the D-108 is playing.



1. Press the PLAY button to play back data.

2. When the point you wish to store is reached, press the HOLD/> key.

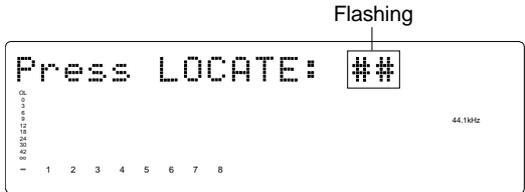
The time value or bar/beat/clock value of the point is captured. The D-108 enters data edit mode.



3. Press the STORE key.

The STORE LED lights up.

<Note>
 The following menu (##=number from 00-99) appears when pressing the STORE key. This menu is used to store data in the LOCATE key, described later. Ignore this menu and go to the next step when storing data in the memory key.



4. Press the desired memory key.

The STORE LED turns off. The captured time value (or bar/beat/clock value) is stored in the memory key. After the data is stored, the D-108 displays the previous Time Base and continues playback.

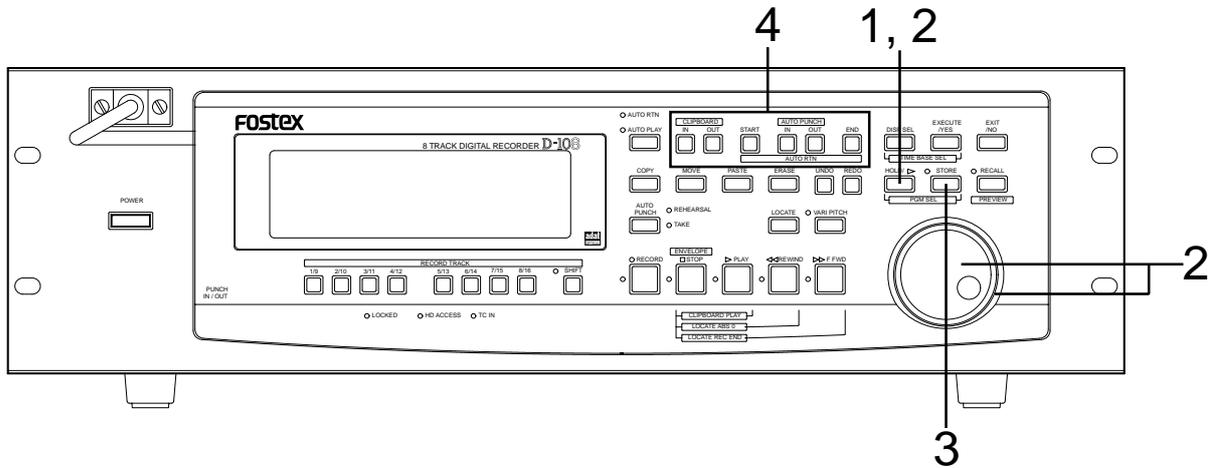
- You can omit Step 2 to speed operation.

5. Press the STOP button.

- If you set "BAR/BEAT Resolution mode" in SETUP mode to ON, the D-108 will round off the CLK value of the captured bar/beat/clock value. That is, the locate point will be at the beginning of the beat (00). Refer to page 120 for more information.

Editing and storing locate data

If you know the position of the desired locate point, follow the steps below.



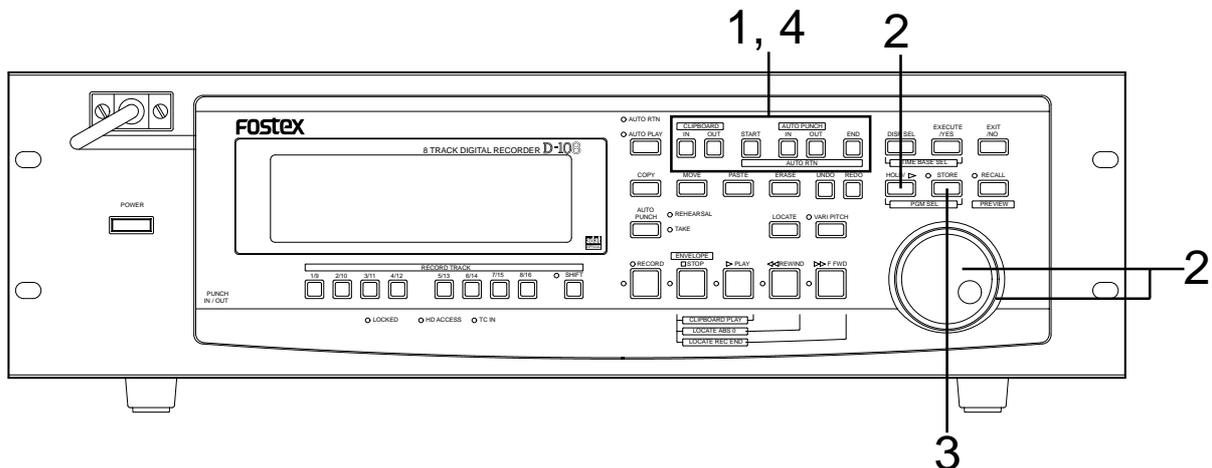
- 1. Press the HOLD/> key while the D-108 is stopped.**
The currently-displayed time value (or bar/beat/clock value) is captured and the D-108 enters data edit mode.
- 2. Press the HOLD/> key, or turn the SHUTTLE dial to move the flashing cursor on the time value digit, and use the JOG dial to increase or decrease the value.**
- 3. Press the STORE key.**
The [Press LOCATE: ##] menu will appear as indicated before. Ignore this go to the next step.

- 4. Press the desired memory key.**
The STORE LED turns off.
The input time value (or bar/beat/clock value) is stored in the corresponding memory key.

- Press the STORE key instead of the HOLD/> key in Step 1 and omit Step 3 to speed operation.

Editing and storing data

You can recall data stored in the memory key, edit it, and store it. again



- 1. While the D-108 is stopped, press the memory key that stores the data you wish to edit.**
The stored data appears on the display and the D-108 enters data edit mode.
- 2. Press the HOLD/> key, or turn the SHUTTLE dial to move the flashing cursor to the time value digit, and use the JOG dial to increase or decrease the value.**

- 3. Press the STORE key.**
The [Press LOCATE: ##] menu will appear as indicated before. Ignore this go to the next step.
- 4. Press the memory key that you pressed in Step 1 again.**
The STORE LED will turn off. The edited data is stored, and the D-108 displays the previous Time Base indication.

- You can store the edited data in a memory key other than the one you pressed when you recalled the data. For example, you can recall the AUTO PUNCH IN point data, edit it, and store it to the AUTO PUNCH OUT key.
- Refer to page 39 for more information on Auto Punch In/Out.
- Refer to page 67 for more information on Copy & Paste, Move & Paste, and Erase.
- Refer to page 60 for more information on Auto Return and Auto Repeat.
- You can also use the Preview function to edit the stored locate points (edit points). Refer to "Preview Function" on page 65 for more information.

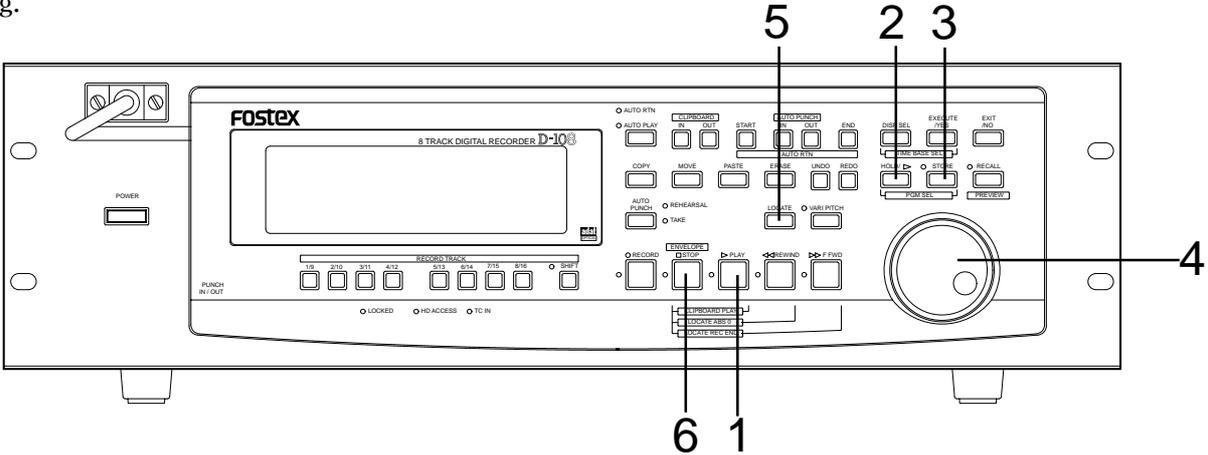
Storing and editing LOCATE key

You can store up to 99 individual time data in the LOCATE key for Locate only operations. The time data stored can also be assigned with a specific locate number from 01-99. This means the desired locate number can be specified to locate that specific time data. The memory data of the LOCATE key can also be edited in the same manner as the data in the Memory key. After editing the data the LOCATE key can locate that point, or even be re-stored as data for other Memory keys.

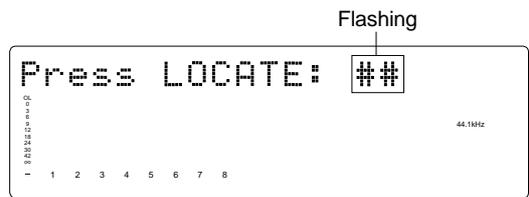
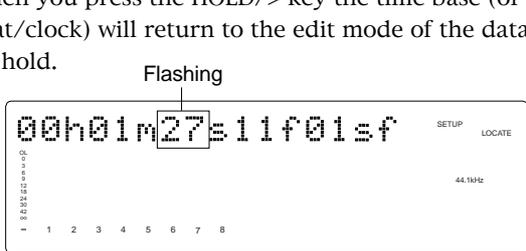
- <Note>**
- * The last data located with the Memory key or LOCATE key is constantly stored as LOCATE number 00. However, this data is constantly replaced after every LOCATE command. Therefore, do not use Locate Number 00 for independent Locate data.
 - * You cannot preview the data stored in the LOCATE key, though it is possible to preview data stored in other Memory keys.
-
- * If you use a time base that is not an ABS time, there is a need to priory switch to the desired time base using the DISP SEL key and EXECUTE/YES key.
 - * Any editing or storing of data for the LOCATE point is valid only for the program that is currently started up.

Storing in real-time

You can store the locate point (in the ABS, MTC, or BAR/BEAT/CLK Time Base) in real-time while the D-108 is playing.



1. Press the **PLAY** button to start playback.
2. Press the **HOLD/>** key in the store location. When you press the HOLD/> key the time base (or bar/beat/clock) will return to the edit mode of the data put on hold.
3. Press the **STORE** key (the **STORE LED** lights up). The memory number selection menu will appear, as follows.



4. Select the LOCATE number desired using the JOG dial.

LOCATE number from 00-99 are selectable. However, select a number other than 00.

5. Next press the LOCATE key.

The time base (or bar/beat/clock) put on hold is stored as data in the LOCATE number selected. The system will return to the original time base when the storage process is completed, and playback is resumed.

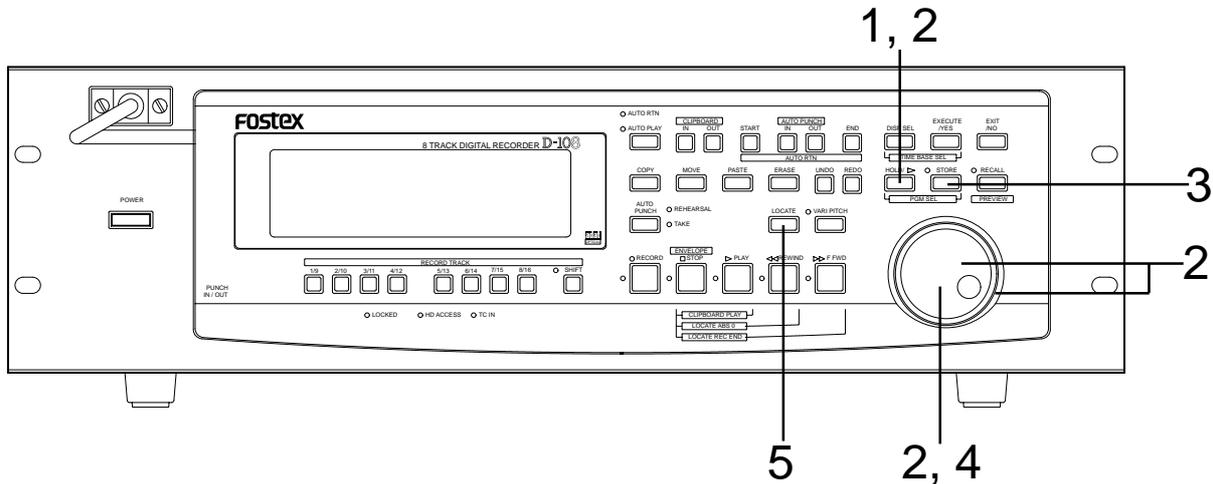
6. After completing the store process, press the STOP button to stop the recorder section.

• You can omit Step 2 to speed operation.

• If you set "BAR/BEAT Resolution mode" in SETUP mode to ON, the D-108 will round off the CLK value of the captured bar/beat/clock value. That is, the locate point will be at the beginning of the beat (00). Refer to page 120 for more information.

Editing and storing locate data

If you know the position of the desired locate point, follow the steps below.



- 1. Press the HOLD/> key while the D-108 is stopped.**
The currently-displayed time value (or bar/beat/clock value) is captured and the D-108 enters data edit mode.
- 2. Press the HOLD/> key, or turn the SHUTTLE dial to move the flashing cursor on the time value digit, and use the JOG dial to increase or decrease the value.**
- 3. Press the STORE key.**

4. Select the LOCATE number desired using the JOG dial.

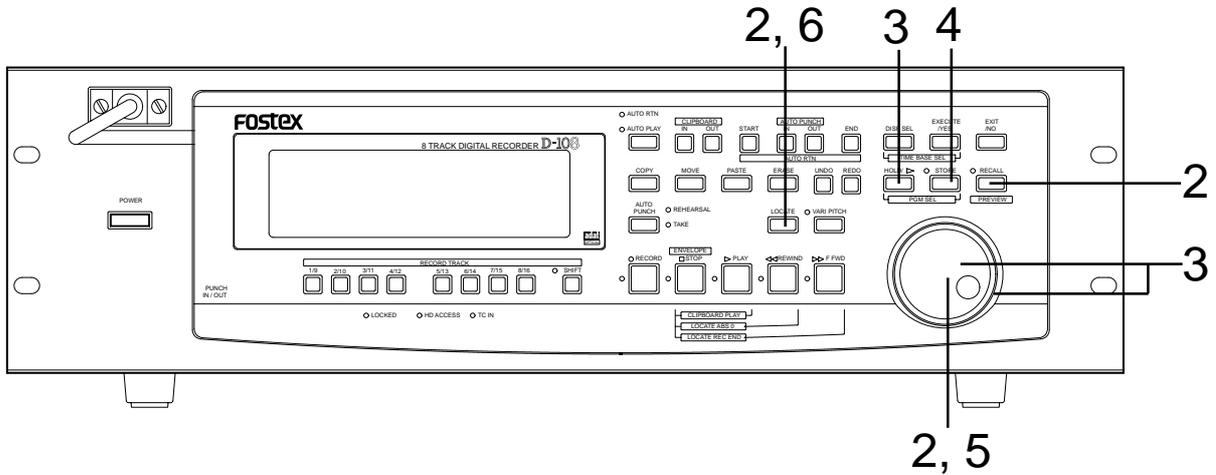
5. Press the LOCATE key.

The edit time data is stored as the time data for the selected LOCATE number.

• Press the STORE key instead of the HOLD/> key in Step 1 and omit Step 3 to speed operation.

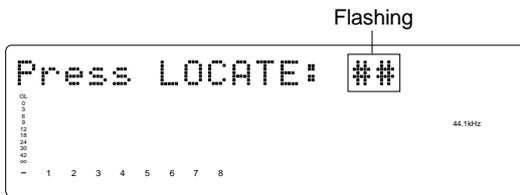
Edit and re-store data that is already stored

RECALL the desired time data already stored in the LOCATE key, edit that data and re-store it.



1. Press the RECALL key while the D-108 is stopped.

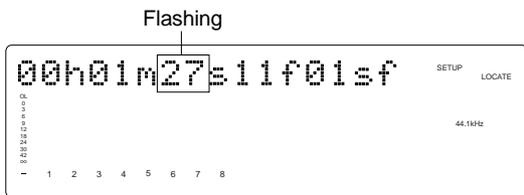
The menu to select the LOCATE number will appear.



•If the STORE key is press instead of the LOCATE key at this stage, it becomes possible to directly LOCATE the time data of the selected LOCATE number. For more details refer to the next section on "Location Functions."

2. Turn the JOG dial to select the desired LOCATE number, then press the LOCATE key.

The data edit mode will appear when the data stored in the selected LOCATE number appears.



5. You can use the JOG dial to input the desired LOCATE number.

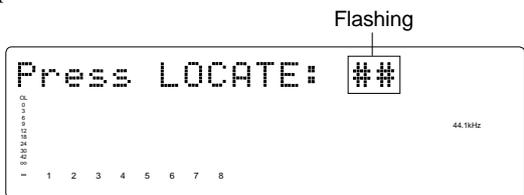
6. Press the LOCATE key.

The edit time data is stored as the time data for the selected LOCATE number.

3. Press the HOLD/> key, or turn the SHUTTLE dial to move the (cursor) column of the time indication to edit (cursor flashing point), increase or decrease the number setting with the JOG dial or input the desired time base.

4. Press the STORE key (the STORE LED lights up).

The LOCATE number selection menu to store data will appear.



Locate Function

The D-108 swiftly locates (it moves the current location of the recorder section) the desired point when necessary. Locate include edit points (in ABS time, MTC time, or in bar/beat/clock) that are stored for the Copy, Move, Paste, Erase, or Auto Punch In/Out operations.

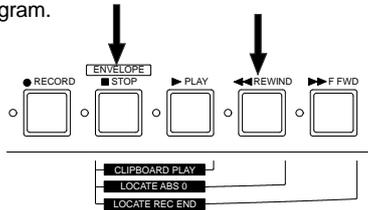
They also include Locate by specifying a voluntary time, and Locate specifying a voluntary Locate Number (01-99), as well as Locate directly to the recording end point in a Program (REC END). An application of the Locate function includes auto functions such as Auto Play, Auto Return and Auto Repeat.

Direct Locate

The Direct Locate function enables you to locate the following points:

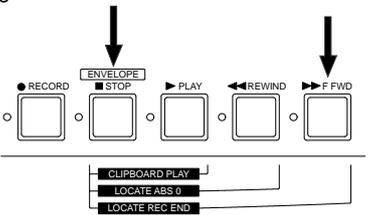
• **Locate the beginning of the Program (LOCATE ABS 0)**

Press the **REWIND** button while holding down the **STOP** button. The D-108 will immediately locate the beginning of the currently-selected Program.



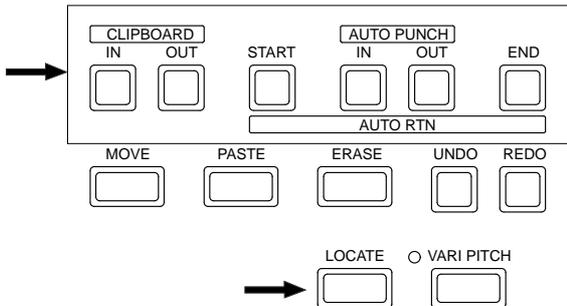
• **Locate the recording end point of the Program (LOCATE REC END)**

Press the **F FWD** button while holding down the **STOP** button. The D-108 will immediately locate the end point of the currently-selected Program.



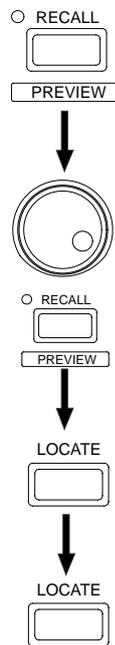
• **Locate the position stored in one of the memory keys**

Press the desired memory key, then press the **LOCATE** key. The D-108 will locate the point (edit point) stored in the corresponding memory key immediately.



The located time data is always stored as time data in Locate Number 00.

• **Specify the Locate Number to locate data**



1. Press the **RECALL** key. The Locate Number selection menu appears.



2. Turn the **JOG** dial or press the **RECALL** key to select the desired number.

3. Press the **LOCATE** key once. The time stored in the selected Locate Number appears.

4. Press the **LOCATE** key again.

The time data of the selected LOCATE number is swiftly located. The located time data is constantly stored as time data in Locate Number 00.

• **Locate a specified point**

Refer to "Editing and storing locate data" in the chapter "Storing a Locate Point (Edit Point)" for information on how to edit the data and on pressing the LOCATE key instead of the STORE key. The point at specified time value (or bar/beat/clock value) will be located immediately.

• **Locate the last-located point**

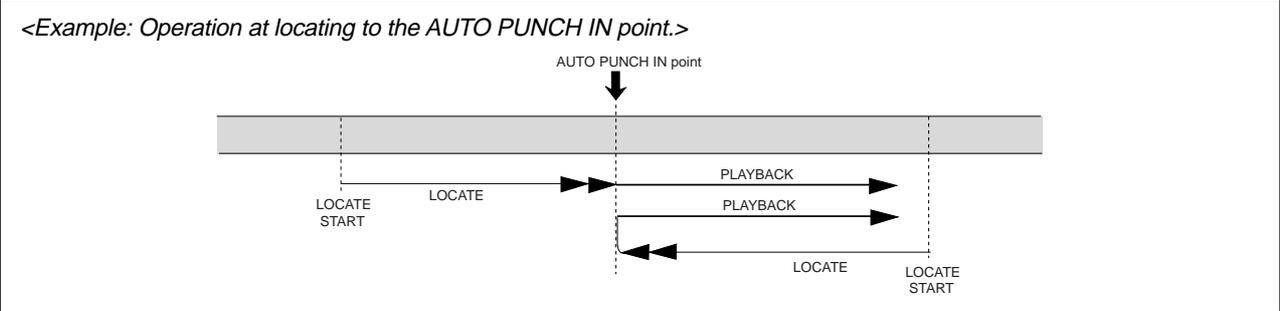
Directly press the **LOCATE** key. The time data of Locate number 00 is located. Locate number 00 is always update with the last data located (excluding LOCATE ABS 0 and LOCATE REC END). Therefore, you will locate the data in memory number 00 every time you directly press the LOCATE key.



Auto Play

The Auto Play function allows the D-108 to start play back automatically from the located point. AUTO PLAY mode should be turned on before you execute the Direct Locate function described above.

Note: This function is effective within 24 ABS hours. Therefore, if playback continues over the recording end point, the D-108 will still continue counting the time. Also, when the D-108 locates ABS REC END, it will continue counting the time from the recording end point. (However, the D-108 does not access the disk after reaching the recording end point.)



1. Press the AUTO RTN/AUTO PLAY key to turn on the [AUTO PLAY] LED.



2. Press the LOCATE key, or memory key.

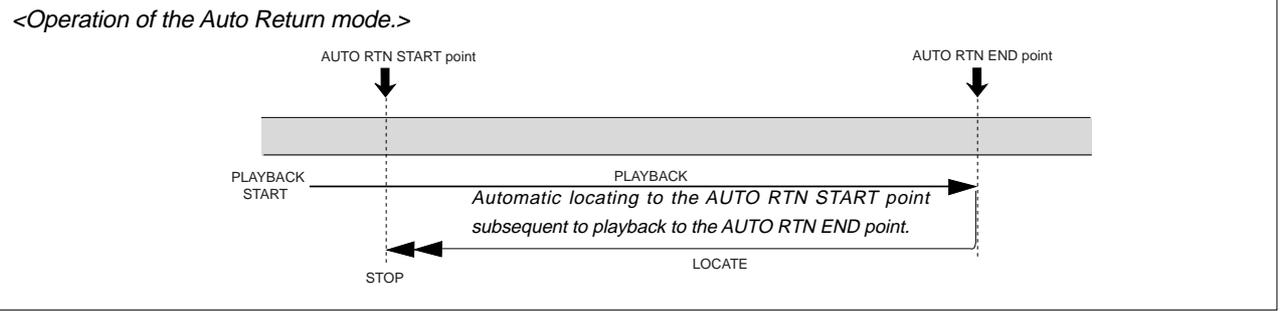
The D-108 locates the point and plays as shown in the diagram.

3. Press the STOP button to stop the D-108.

- You can set a preroll time in the [Preroll Time ?] menu in SETUP mode so that the D-108 will start playback preroll time before the locate point. You can set the preroll time from 0 to 10 seconds. Refer to the chapter "Changing the Initial Settings (SETUP Mode)" on page 111.

Auto Return

This function allows the D-108 to play data up to the AUTO RTN END point, then automatically locate the AUTO RTN START point as shown in the diagram below. To enable this function, AUTO RTN mode should be on and the AUTO RTN START point and AUTO RTN END point should already be set.



1. Store the AUTO RTN START and AUTO RTN END points.

Refer to the chapter "Storing a Locate Point (Edit Point)" on page 54 for information on storing the desired points in the AUTO RTN START key and the AUTO RTN END key.

2. Press the AUTO RTN/AUTO PLAY key to turn on the [AUTO RTN] LED.



3. Start playback a little before the AUTO RTN END point.

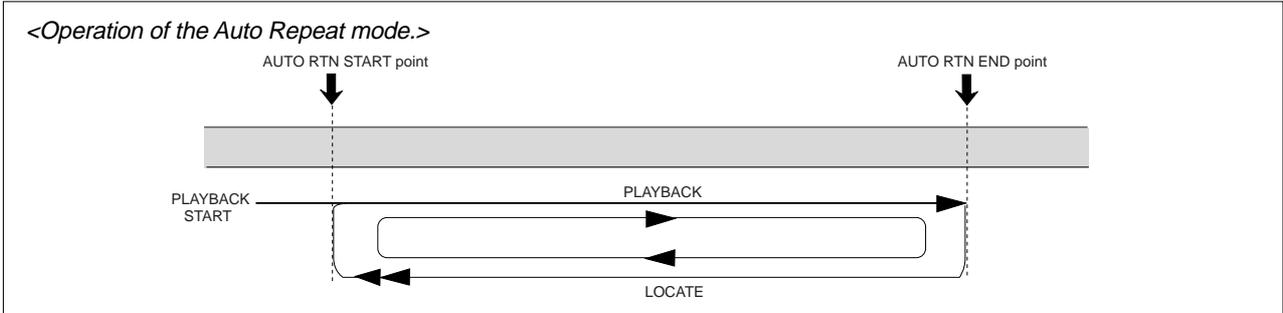
The D-108 operates as shown in the diagram.

- You can set a preroll time in the [Preroll Time ?] menu in SETUP mode so that the D-108 will start playback preroll time before the locate point. You can set the preroll time from 0 to 10 seconds. Refer to the chapter "Changing the Initial Settings (SETUP Mode)" on page 111.

Auto Repeat

The Auto Repeat function allows the D-108 to repeat playback up to the AUTO RTN END point, automatically locate the AUTO RTN START point, then play up to the AUTO RTN END point until you cancel the function by pressing the STOP button. To enable this function, both AUTO PLAY mode and AUTO RTN mode should be turned on, and the AUTO RTN START point and the AUTO RTN END point should already be set.

Using this function will facilitate the Auto Punch In/Out and Manual Punch In/Out rehearsal. See “Hint” after the following section.



1. Store the AUTO RTN START and AUTO RTN END points.

Refer to the chapter “Storing a Locate Point (Edit Point)” on page 54 for information on storing the desired points in the AUTO RTN START key and the AUTO RTN END key.

2. Press the AUTO RTN/AUTO PLAY key to turn on the [PLAY RTN], [AUTO PLAY] LEDs

- AUTO RTN
 - AUTO PLAY
-

3. Start playback a little before the AUTO RTN START point.

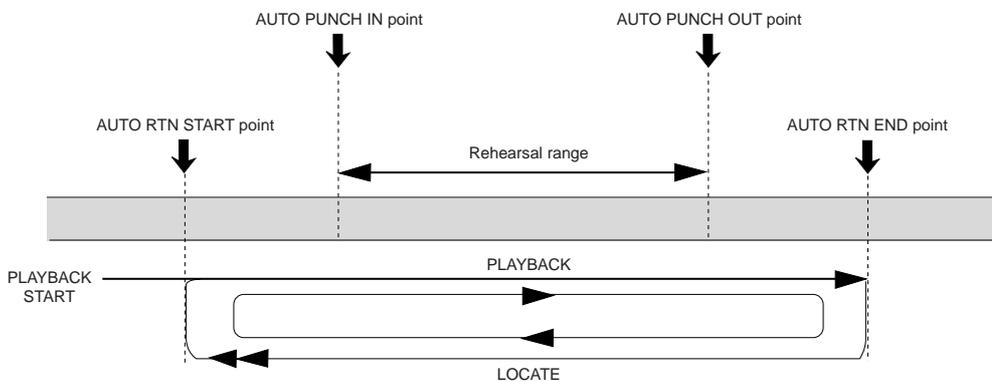
The D-108 operates as shown in the diagram, and stops at the AUTO RTN START point.

• You can set a preroll time in the [Preroll Time?] menu in SETUP mode so that the D-108 will start playback preroll time before the locate point. You can set the preroll time from 0 to 10 seconds. Refer to the chapter “Changing the Initial Settings (SETUP Mode)” on page 111.

<Hint>

You can make repeated Auto Punch In/Out rehearsal much easier and quicker by using the Auto Repeat function. Set the AUTO RTN START point prior to the AUTO PUNCH IN point, and set the AUTO RTN END point after the AUTO PUNCH OUT point. The recorder will repeat the operation automatically so you can concentrate on your rehearsal. Cancel Auto Repeat mode before you record a take.

The D-108 will play this range repeatedly for rehearsal, which makes it easy for you to check the recording level and practice your performance.



Cue & Review Function

This chapter explains how to use the “Cue & Review” function with the REWIND button, the F FWD button, and the SHUTTLE dial, and also explains “Digital Scrubbing” with the envelope function. During Cue/Review and Digital Scrubbing you will hear the sound recorded on the disk, which makes it easy for you to swiftly locate the desired point without failure while listening to the sounds.

The prerequisite of the following operation is that the time base is ABS, however, the operation can be executed in any time base. To execute this function with a non-ABS time base there is a need to priority switch over to the desired time base.

Cue & Review function using the REWIND and F FWD buttons

You may cue & review the audio data at five-times speed while the recorder is playing.

- 1. Press the PLAY button to play the audio data.**
- 2. Press the F FWD button during playback.**

This cues in the forward direction at five-times speed. The PLAY LED and F FWD LED lights up while cuing is taking place.
- 3. Adjust the monitor sound of the track to monitor on the mixer.**
- 4. Press the PLAY button again to restore the original play back speed.**
- 5. Press the REWIND button instead of the F FWD button.**

This cues in the rewind direction at five-times speed. The PLAY LED and REWIND LED lights up while cuing is taking place.
- 6. Press the PLAY button to restore the original playback speed.**

Cue & Review function using the SHUTTLE dial

You can use the SHUTTLE dial for +1~7 times or -1~8 times Cue/Review while playing back the recorder section.

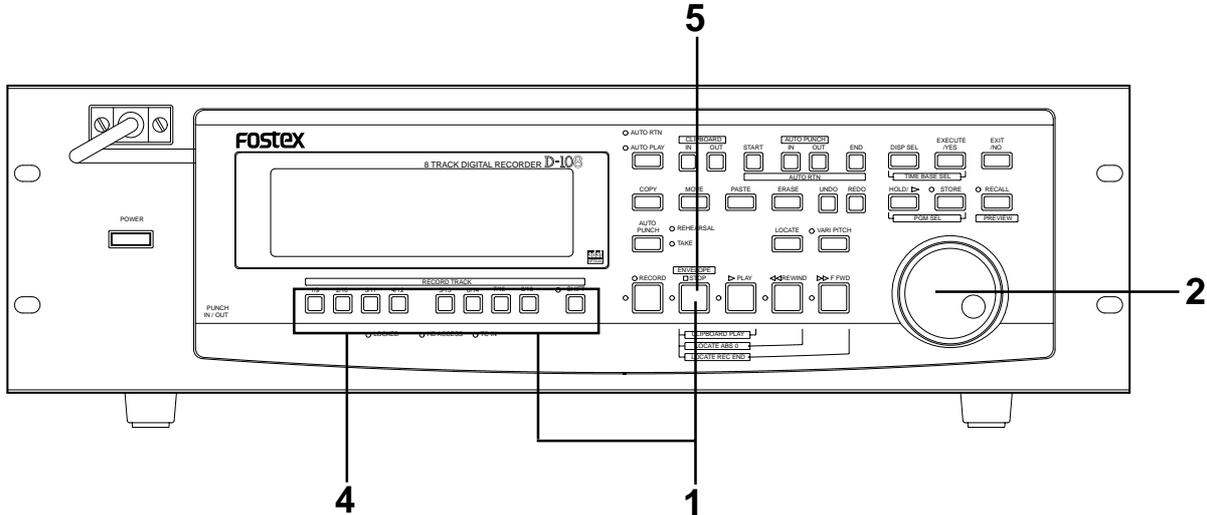
- 1. Press the PLAY button to start playback.**
- 2. Turn the SHUTTLE dial clockwise during playback.**

The forward direction cue speed variates from +1~7 times speed depending on the degree (angle) of turning the dial. PLAY LED flashes and F FWD LED lights up during the cue process.
- 3. Adjust the monitor sound of the track to monitor on the mixer.**
- 4. Let go of the SHUTTLE dial to return to normal play speed.**
- 5. Similarly, turn the SHUTTLE dial counterclockwise during playback.**

The rewind direction review speed variates from -1~8 times speed depending on the degree (angle) of turning the dial. PLAY LED flashes and REWIND LED lights up during the review process.
- 6. Let go of the SHUTTLE dial to return to normal play speed.**

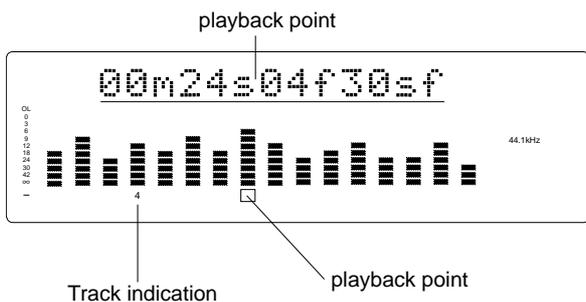
Digital scrubbing using the envelope function

You may perform digital scrubbing using the “Envelope Function” of the D-108 while the recorder section is stopped. The envelope function allows digital scrubbing for each track recorded. The display will show the envelope indication of the track selected.



1. While the recorder section is stopped, depress the **STOP** button and then press the **RECORD TRACK** select key of the desired record track.

This turns ON the envelope function. The envelope indication of the selected track will appear on the display. The following example shows the indication of track 4 envelope, after RECORD TRACK select key 4 is pressed. At this time the recorder section is in the STILL status (scrub mode is in still status) and the REWIND LED and F FWD lights up.



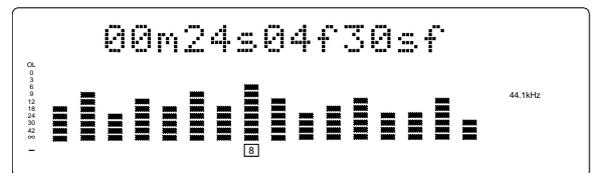
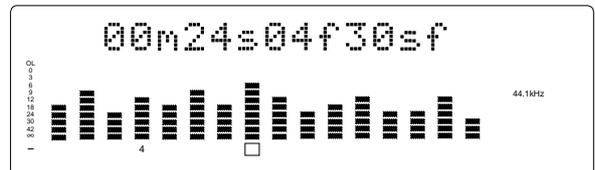
2. You can use the **JOG** dial to digitally scrub the performance of the track selected.

The envelope of the performance recorded on the track varies in real-time. During forward direction scrub the F FWD LED lights up, and during rewind direction scrub the REWIND LED lights up.

3. Adjust the monitor sound of the selected track so that it can be monitored on the mixer.

4. Press the **RECORD TRACK** select key of the desired record track to select another track.

[Please Wait!] will briefly appear and then go to the envelope indication of the selected track. The following example shows the case when the indication is switched from track 4 to track 8.



5. Press the **STOP** button to stop the envelope function.

Doing so will turn OFF the envelope function. The D-108 will return to the time base indication prior to turning the envelope function ON.

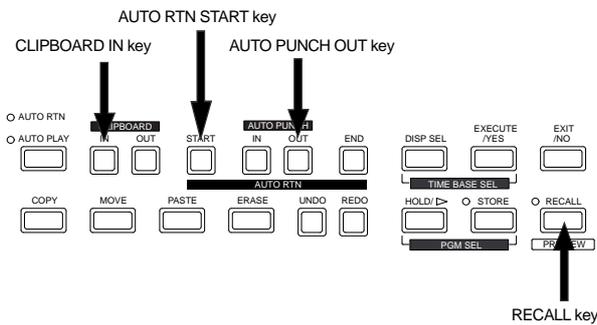
Preview Function

The preview function enables you to repeatedly audition the rise (fade in) or the fall (fade out) of the sound data at a locate point (edit point) that is stored in the AUTO PUNCH IN/OUT, AUTO RTN START/END, or CLIPBOARD IN/OUT key. This is also called “point rehearsal.”

With this function, you can check the locate points in real-time. You can also use this function to fine-tune the position of the locate points while previewing the sound. This function is effective only when the D-108 is stopped.

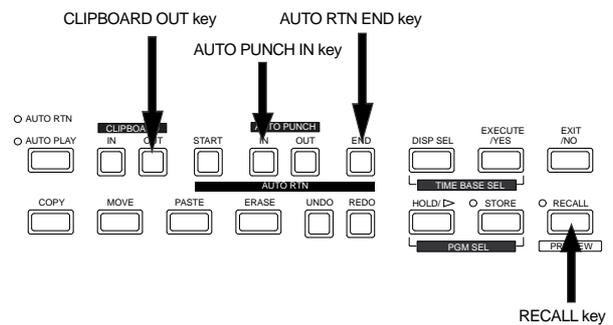
• **Previewing the rise of the sound (fade in)**

While holding down the RECALL key, press the AUTO RTN START key, the AUTO PUNCH OUT key, or CLIPBOARD IN key.

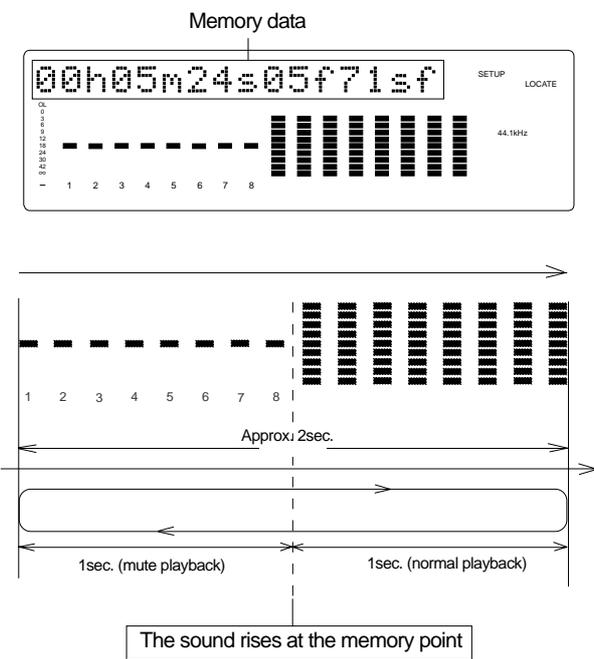


• **Previewing the fall of the sound (fade out)**

While holding down the RECALL key, press the AUTO END START key, the AUTO PUNCH IN key, or the CLIPBOARD OUT key.

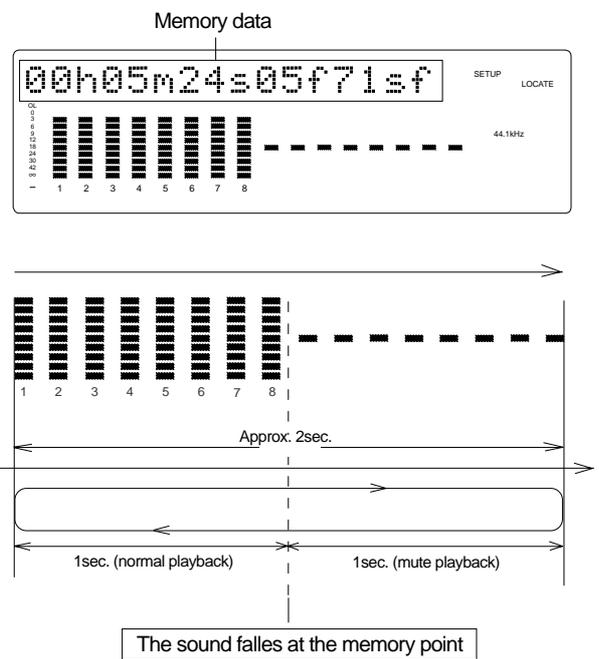


<Display indication during the Preview operation>



The D-108 repeats playback the “rise sound” at the locate point (edit point). As shown in the diagram, one-second of data prior to the locate point is muted during playback. The mute is off (fade in) at the locate point and the sound is played back for one second. The D-108 will repeat this operation until you quit the Preview function.

<Display indication during the Preview operation>



The D-108 repeats playback of the “fall sound” at the locate point (edit point). As shown in the diagram, one-second of data prior to the locate point is played back, then muted (fade out) at the locate point. The muted playback continues for one second. The D-108 will repeat this operation until you quit the Preview function.

Executing the Preview function

1. Press the desired memory key while holding down the RECALL key when the D-108 is stopped.

Pressing the desired memory key will enable you to preview the sound at the locate point (edit point) stored in the corresponding memory key.

Memory key	Operation
AUTO PUNCH IN key AUTO RTN END key CLIPBOARD OUT key	The D-108 plays the fall (fade out) of the sound at the locate point stored in the keys.
AUTO PUNCH OUT key AUTO RTN START key CLIPBOARD IN key	The D-108 plays the fall (fade in) of the sound at the locate point stored in the keys.

2. Adjust the monitor sound of the selected track so that it can be monitored on the mixer.

Note: If data stored in each memory key is in the initial state, all memory keys will be in ABS time 00h 00m 00s. In other words, the program head value is in the memory. Should fade out preview be executed in this condition, the [Void Data !] message and memory data [00h 00m 00s] will alternately flash in the display as a warning. However, for fade in preview, this will function as the memory data [00h 00m 00s] point.

3. Press the STOP button or the EXIT/NO key.

Trimming the sound while previewing

You can trim the position of the locate point (edit point) using the JOG dial while you preview the sound. At this time, you can also adjust the size of the trimming steps (the amount of offset controlled by the JOG dial). Trimming allows you to fine-tune the position of the locate point stored in the memory keys while previewing the sound. Use this function to change the Auto Punch In/Out points, the start point of Copy & Paste and Move & Paste, and the start and end points of the Erase function.

<Notes>

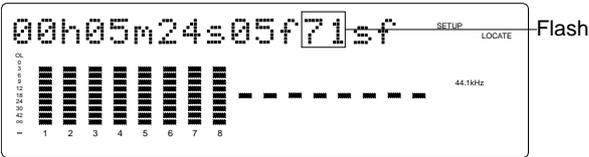
- You can audition the result of trimming during the next preview. That is, if you trim the position while previewing the sound for the first time, you can check the result when you preview the sound next time.
- If the locate point is shifted outside the range of the preview playback as a result of trimming, [Void Data!] and the locate point indication appear alternately. In this case, you cannot use the Preview function. Trim the position again so that it will be within the playback range.
- When Auto Punch mode is turned on and you trim the Auto Punch In or Auto Punch Out point while previewing the sound with [Void Data!] indicated on the display, Auto Punch mode will be cancelled.

1. Start previewing the sound by following the steps described on the previous page.

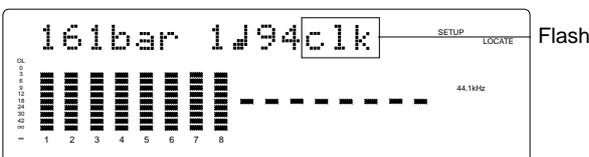
2. Use the JOG dial to trim the position.

When previewing starts, the unit of JOG trimming flashes on the screen. For example, value of SF (sub-frame) flashes if ABS Time Base or MTC Time Base is selected. CLK (clock) flashes if BAR/BEAT/CLK is selected. The flashing value also indicates the position you can trim.

Example: Time Base is ABS (value of SF flashes.)



Example: Time Base is BAR/BEAT/CLK (CLK flashes.)



3. To change the unit of trimming, press the HOLD/> key, or turn the SHUTTLE dial.

These key or dial will change the trimming unit as follows:

	Time Base	
	ABS or MTC	BAR/BEAT/CLK
HOLD/> key		
SHUTTLE dial (clockwise)		
SHUTTLE dial (counter clockwise)		

4. Trim the position at the selected unit (digit).

5. Press the STOP button or the EXIT/NO key.
The trimmed locate point (edit point) data will be stored in the corresponding memory key.

Editing Tracks

The D-108 features speedy, nonlinear, nondestructive editing of independent audio tracks because it uses a 3.5 inch E-IDE hard disk, SCSI type Zip and MO with removable disks, or fixed hard disk. The following four editing functions allow "Editing of Independent Audio Tracks."

<Edit functions>

Copy & Paste

You can copy a specific range of data from a specific track and paste it to the same or a different track.

Move & Paste

You can move a specific range of data from a specific track and paste it to the same or a different track.

Erase

You can erase a specific range of data from a specific track or all tracks. You can also erase all specific program data and put that program in the default status.

Track Exchange

You can swap data between tracks. Monaural track data can be swapped between Real tracks 1–8 and Additional tracks 9–24. Multiple-track data can be swapped between Real tracks 1–8 and Additional tracks 9–16, and Additional tracks 17-24 by eight-track unit.

Note: These edit functions are available for the currently-selected Program. You can perform Copy & Paste, Move & Paste, and Erase operations (except for Track Exchange) for data recorded in the Real tracks.

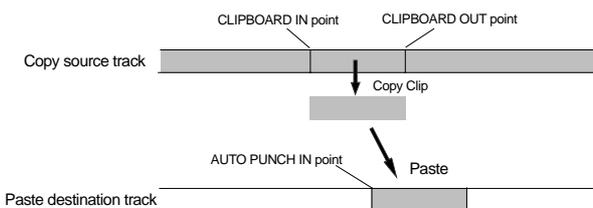
If the disk contains multiple Programs, you need to select the desired Program first to perform the track edit operation. Do not select another Program until you finish the edit operation. Otherwise, you may lose or incorrectly edit another Program.

Copy & Paste and Move & Paste

Copy & Paste and Move & Paste might seem like the same function. However, they are different, as shown in the diagram. Remember this difference when you start using these functions.

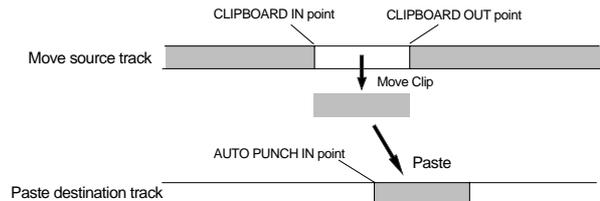
• Copy & Paste

Using the Copy & Paste function enables you to copy a specific range of data from a specific track to the clipboard as shown below (this is called [Copy Clip] operation on the D-108), then paste the data at a specific point in a specific track. The number of copy source tracks and the number of destination tracks are the same. That is, if you copy mono track data, you can paste it to a mono track. If you copy adjacent odd/even tracks (e.g., track 1 and track 2), you can paste it to adjacent odd/even tracks. The data on the clipboard remains as it is. You can paste it as many times as you wish.



• Move & Paste

Move & Paste is almost the same as Copy & Paste. As shown in the figure, it allows you to move a specific range of data from a specific track to the clipboard (this is called [Move Clip] on the D-108), and paste it to a destination track. The difference from Copy & Paste is that the data on the source track and the clipboard will be erased when you paste the data to the destination. That is, you cannot paste the moved data repeatedly.

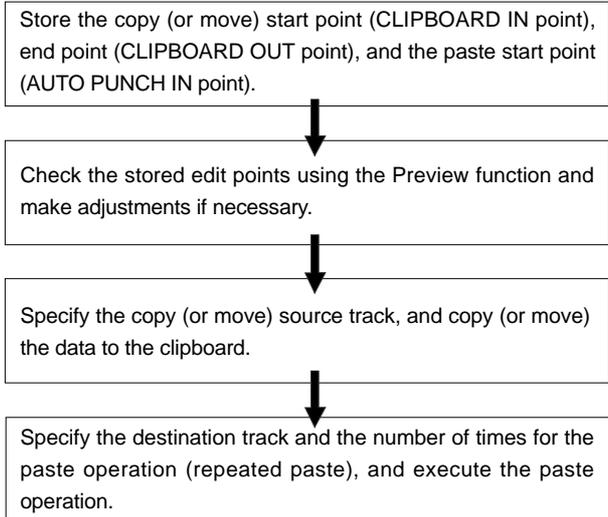


As shown in the drawing, points for copy or move are called the CLIPBOARD IN point for the copy (or move) starting point, and CLIPBOARD OUT point for the ending point, and the paste starting point is called the AUTO PUNCH IN point.

Note: The data on the clipboard will be replaced by new data each time you press the COPY key (or MOVE key).

Note: If pasted data overlaps the source data, the content of the source data will be altered.

Follow the steps below to perform the Copy & Paste or Move & Paste operation.



Storing the edit points

1. Refer to the “Storing and editing the locate points to the memory keys” section for information on storing the copy (or move) start and end points, and the paste start point.

Store the copy (or move) start point to the CLIPBOARD IN key, the end point to the CLIPBOARD OUT key, and store the paste start point to the AUTO PUNCH IN key.

• See “Storing and editing the locate points to the memory keys” on page 54.

Checking and adjusting the edit points

After you store the edit points, you can check them on the display by pressing the corresponding keys. You may also adjust the points. This section explains how to preview and fine-tune the edit points using the Preview function.

1. While the recorder section is stopped, press and hold down the RECALL key and press the memory key for which you wish to check the edit point.

You can preview “fade in” at the CLIPBOARD IN point, “fade out” at the CLIPBOARD OUT point, and “fade out” at AUTO PUNCH IN point.

2. Trim the edit point while previewing.

• Refer to “Preview Function” on page 65 for more information.

Executing Copy (or Move)

1. Press the RECORD TRACK select key of the copy (or move) source track to set it READY.

You can select one (mono) track, multiple tracks, or all eight tracks.

When using the Copy & Paste function, however, you can change the paste destination track only when you have selected a mono track, or an odd-numbered track and the adjacent even-track (i.e.: 1-2, 3-4, or 5-6, 7-8).

If you have copied multiple tracks (other than the above combination), the data will be pasted to the copy source tracks.

2. Press the COPY key (or MOVE key).

Press the COPY key to execute copy & paste. Press the MOVE key to execute move & paste.

Copy (or Move) is instantly completed. The previous time base display will appear after [Copy Clip] (or [Move Clip]) then [COMPLETED!] appears on the display.

Note: Pressing the COPY key (or MOVE key) without selecting a track in Step 1 will cause the display to indicate an alarm message [Select TRK !]. Select a track, then press the COPY key (or MOVE key).

Note: If an Output point has been specified before the In point (the In point value is the same or large than the Out point value), the display will show the error message “Void In Point!” or “Void Out Point!” and return to the previous screen. In this case, set the correct In/Out points and try again to copy (or move) the data.

Now the sound data to be pasted has been copied (or moved) to the clipboard, you can check the data on the clipboard by following the steps below. If there is no problem with the data, you can proceed to the paste operation.

Checking the clipboard data

- * Hold down the STOP button and press the PLAY button.

The D-108 indicates whether the sound data on the clipboard is a copied data or moved data ([Copy Clip] or [Move Clip]) and plays the data (this is called clipboard playback).

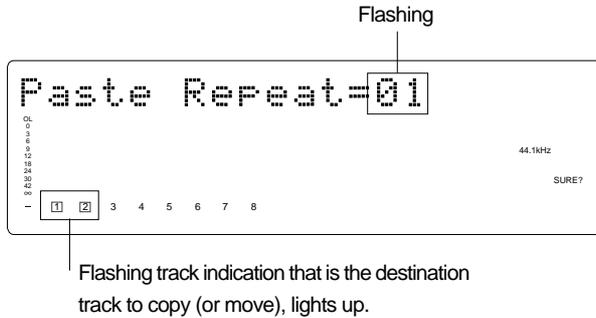
During playback, the TRACK display of the copied (or moved) track will blink.

- * Press the PASTE key again to get ready for the paste operation.

Executing Paste

4. Press the PASTE key.

[Copy Paste] (or [Move Paste]) appears briefly, then the menu requesting for the number of times for the paste operation appears, and the number [01] of paste times and [SURE?] flashes ([01] indicates that paste takes place one time). At this time, flashing track indication that is the destination track to copy (or move), lights up.



5. Select a destination track to paste data.

All selected tracks' LEDs light up. You can select only mono tracks as the destination of a copied or moved mono track. If you copied or moved adjacent odd-even tracks, you can select only adjacent odd-even tracks as the destination. If you do not select any tracks, the data will be pasted back to the copy or move source track.

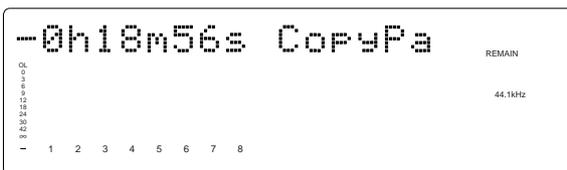
6. Turn the JOG dial to enter the number of repeats (Repeat=01).

You can enter up to 99. However, this is automatically limited by the available recording space on the disk. That is, if the disk has enough free space, you can set up to 99 repeats. If the disk has only a small amount of free space, the JOG dial allows you to set a lower number of repeats.

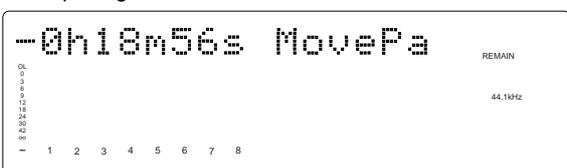
7. Press the EXECUTE/YES key.

[Copy Pa] (or [Move Pa]) flashes and the duration of the pasted data appears as a negative number on the display. This number will count down as the paste operation proceeds.

When pasting the copy data.

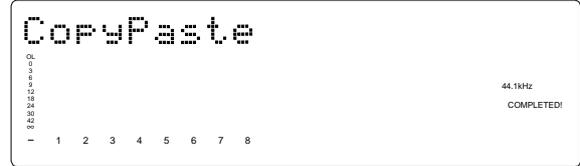


When pasting the move data.

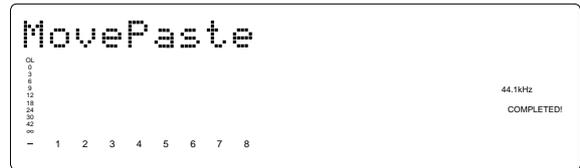


When the paste operation is complete, the flashing [Copy Paste] (or [Move Paste]) lights up continuously, and [COMPLETED !] is displayed.

When the copy paste operation is complete.



When the move paste operation is complete.



Note: If you try to execute the paste operation by pressing the EXECUTE/YES key when the disk has insufficient free space, [Over !] appears on the display and edit mode is cancelled. In this case, you need to delete unnecessary data or Programs. Refer to the following section, "Erase," and to "Deleting a Program" on page 72 for more information on erasing.

8. Press the STOP button or the EXIT/NO key.

The D-108 exits edit mode and displays the previous Time Base indication.

9. Turn off the RECORD TRACK select key of the copy (or move) source track.

Undo/Redo Paste

You can undo or redo a Copy & Paste and Move & Paste operation.

- To restore the data that existed prior to the paste operation, press the UNDO key.
- To restore the pasted data after you undo the paste operation, press the REDO key again.

Note: The Undo/Redo function is effective only when the D-108 is stopped.

Note: If you perform one of the following operations after you use the Copy & Paste or Move and Paste operation, the Undo/Redo function will no longer be effective.

- When a new recording is made.
- When a new editing is executed (such as Copy & Paste, Move & Paste, Erase).
- While in the AUTO PUNCH ON mode, when the AUTO PUNCH IN point is passed in the PLAY (or RECORD) mode.
- When the power is momentarily switched off.
- When the program is changed.
- When ejecting a removable SCSI disk that is the current drive.

Erase

There are three methods for erasing data. Understand the difference between these methods before you use the Erase function.

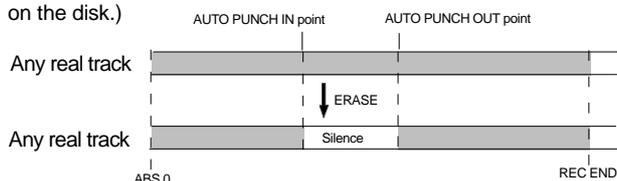
* If multiple Programs are set on the disk, first select the desired Program. Do not select another Program, or select another sampling rate until you finish the erase operation.

• Erasing a specified part of the data between ABS 0 and REC END:

You may erase a specified part of the data between ABS 0 and REC END (the end point of the recording) in the currently-selected Program. (The erased part is replaced with silence.)

You can erase data on a mono real track or multiple real tracks. To erase data on an additional track, you need to move the data to a real track, then erase it. As shown below, the REC END point (the end point of recording) is not affected.

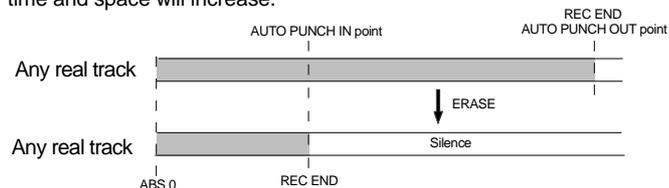
The erased area is replaced with silence. As a result, the REMAIN time and space will increase. (You will have more recordable space on the disk.)



• Erasing data from a specified point to REC END:

You may erase all data in the range from a specified point to REC END in the currently-selected Program. You can erase data on a mono real track or multiple real tracks. To erase data on an additional track, you need to move the data to a real track, then erase it.

When you erase all tracks' data, the REC END point will move backward. However, if you erase data on a mono track or multiple tracks (but not all tracks), the REC END point may not be affected. (Refer to the note below.) After the erase operation, the REMAIN time and space will increase.

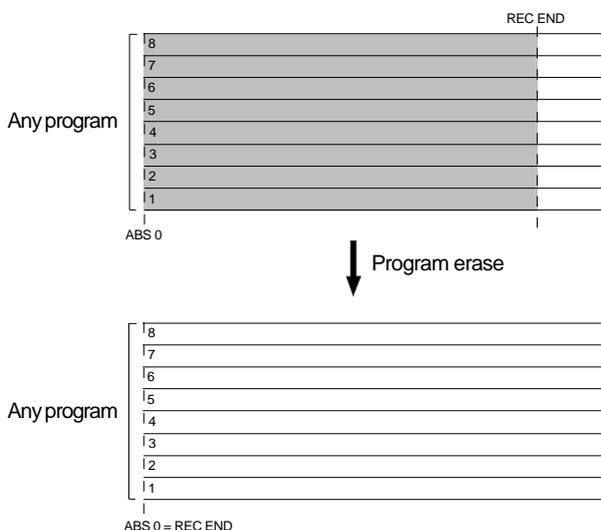


• Erasing specific Program data (Program Erase)

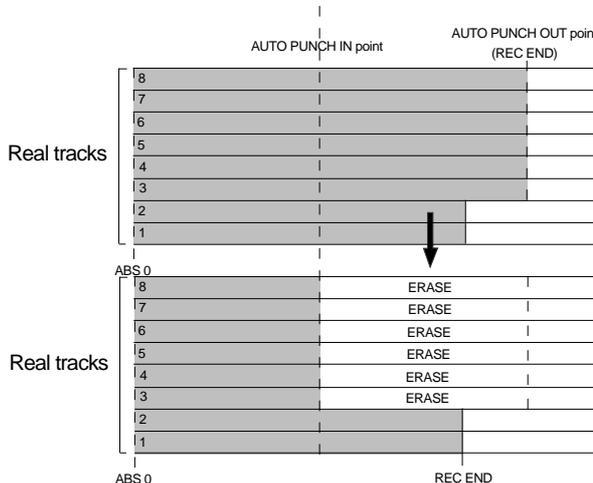
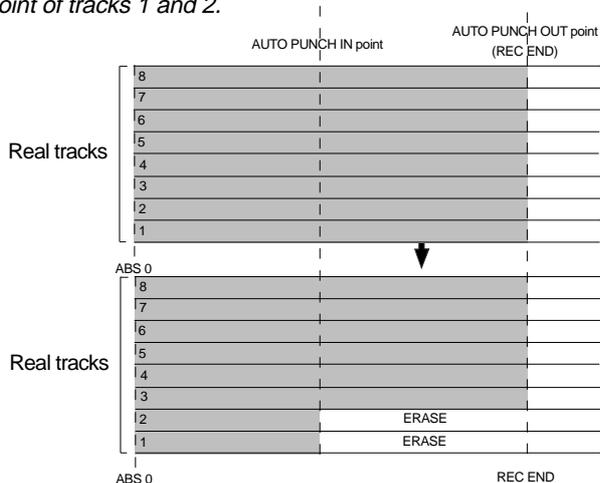
This function enables you to erase data entirely from a selected program and return the initial settings of this program to its initial figures. Unlike the other two erase functions, for Program Erase you do not need to specify tracks or set the Auto Punch In/Out points.

Executing this erase function will erase all data recorded in the selected Program. The ABS time and the REMAIN value will return to their default settings.

Use caution, since you cannot UNDO this erase operation.

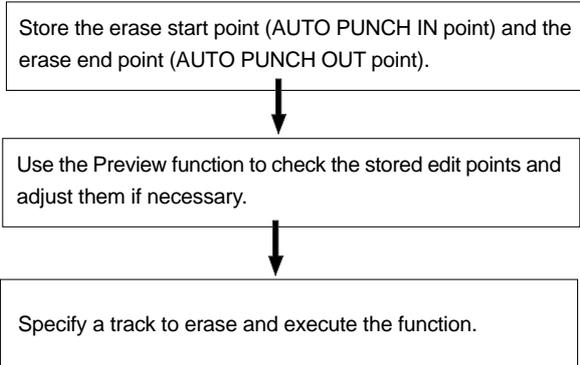


Note: If all real tracks contain data as shown below, erasing data on tracks 1 and 2 will not affect the position of REC END. On the other hand, if all Real tracks contain data as shown below, erasing data on tracks 3 - 8 will move up REC END to the end point of tracks 1 and 2.



How to erase data for a specific part between ABS 0 and REC END

Follow the steps below to erase data:



Storing the edit points

1. Refer to the “Storing and editing the locate points to the memory keys” section for information on storing the erase start and end points.

Store the erase start point to the AUTO PUNCH IN key, and the end point to the AUTO PUNCH OUT key.

- If you wish to erase the data from a specific point, store the REC END or later point as the erase end point. Refer to the <Note> for information on storing the REC END point.
- See “Storing and editing the locate points to the memory keys” on page 54.

Checking and adjusting the edit points

After you store the edit points, you can check them on the display by pressing the corresponding keys. You may also adjust the points.

1. While the recorder section is stopped, press and hold down the RECALL key and press the memory key for which you wish to check the edit point.

You can preview “fade-out” at the AUTO PUNCH IN point and “fade-in” at AUTO PUNCH OUT point.

2. Trim the edit point while previewing.

•Refer to “Preview Function” on page 65 for more information.

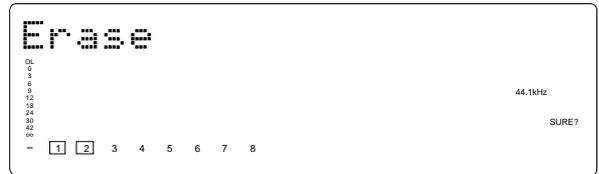
Executing Erase

1. Press the RECORD TRACK select key to select the track to erase, to set it READY.

You can select a mono track or multiple tracks (including all 8 tracks). The selected track indication flashes.

2. Press the ERASE key.

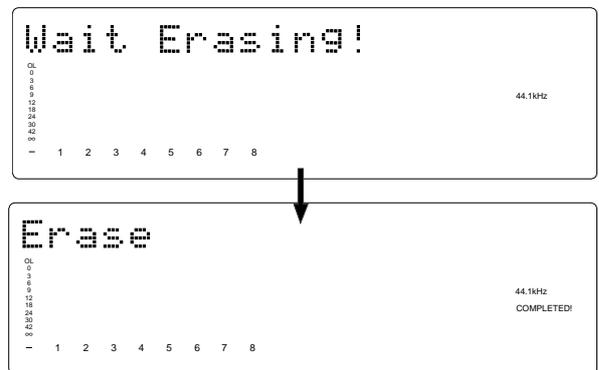
[Erase] appears on the display, and [SURE?] flashes. The track indication lights up.



- To cancel the erase operation, press the STOP button or the EXIT/NO key while [SURE ?] flashes on the display.

3. Press the EXECUTE/YES key again.

The D-108 starts erasing the data and [Wait Erasing] flashes. When the erase operation is completed, [COMPLETED !] lights up.



4. Press the STOP button or the EXIT/NO key.

The D-108 exits edit mode and displays the previous Time Base indication.

- To erase the data in its entirety from the tracks, you can also use the Program Delete function to erase the entire Program. In either case, you can expand the recordable area on the disk. Use either one of the erase operations to erase unnecessary data if the D-108 displays an alarm message indicating insufficient recordable space for Auto Punch In/Out, Copy & Paste, or Move & Paste.
- To erase the data in its entirety from ABS 0 - REC END, it is recommended that erase end point (AUTO PUNCH OUT point) is stored after the REC END time to ensure thorough erase performance. To do this, move the recorder section location to the REC END point prior to storing the AUTO PUNCH OUT point, press the PLAY button from that location, move the ABS time after the REC END, and store. The hard disk will not successfully access points after REC END though play is executed after REC END, however, this makes it possible to move up the ABS time.

Undo/Redo Erase

You can undo or redo the Erase operation.

- To restore the data that existed before you erased it, press the UNDO key.
 - To restore the data after you undo the Erase operation, press the REDO key again.
- When you press the UNDO or REDO key, the D-108 will undo or redo the operation immediately, and display [Undo !] or [Redo !] and [COMPLETED !].

Note: The Undo/Redo function is effective only when the D-108 is stopped.

Note: If you perform one of the following operations after you use the Copy & Paste or Move and Paste operation, the Undo/Redo function will no longer be effective.

1. When a new recording is made.
2. When a new editing is executed (such as Copy & Paste, Move & Paste, Erase).
3. While in the AUTO PUNCH ON mode, when the AUTO PUNCH IN point is passed in the PLAY (or RECORD) mode.
4. When the power is momentarily switched off.
5. When the program is changed.
6. When ejecting a removable SCSI disk that is the current drive.

Erase all data of a voluntary program (Program Erase)

Here we will erase unnecessary data on all tracks that are recorded on specific programs.

The erase procedure conducted here varies from the "Erasing a Program" procedure described in "Program Operations" mentioned earlier. Here, instead of erasing the program itself, the data in all tracks are erased, while the program remains intact.

After erasing the data, that program goes to the default status as when creating a New Program.

Therefore, ABS 0=REC END, and the tempo map setting and program title will return to the default setting.

Note: Note that the UNDO/REDO function cannot be used at Program Erasing.

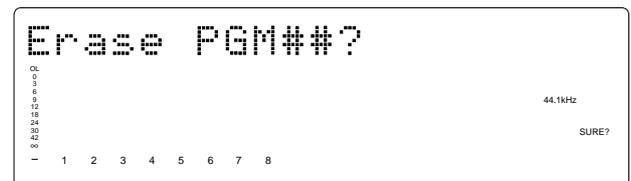
2. Turn the JOG dial to select the program number to erase.

By turning the JOG dial all the program numbers currently set will alternately appear. Fully turn the JOG dial clockwise. [New Program ?] will appear. This is used to create a new program.

Executing erase

3. Press the ERASE key after selecting the program to erase.

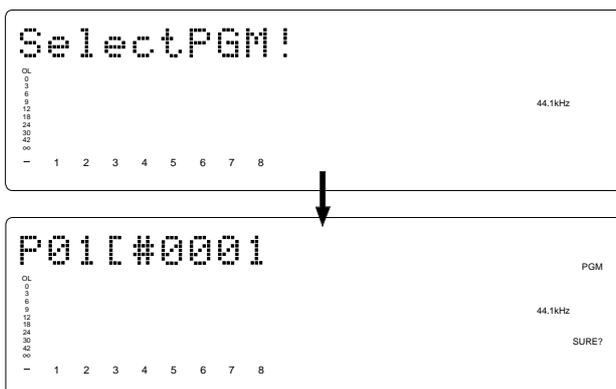
[Erase PGM **?] (** represents the program number and [?] flashes) appears, and [SURE?] flashes. This display indicates that the system is standing by to erase the program data selected.



Selecting a program to erase

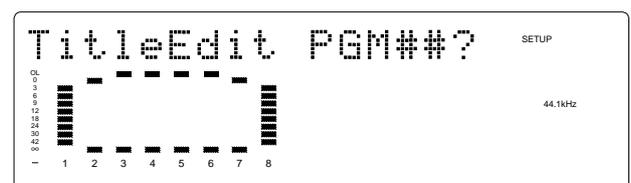
1. Depress the HOLD/> key then press the STORE key while the device is stopped.

The current program number and title appears after [Select PGM!], then the number and [SURE ?] flashes.



4. Press the EXECUTE/YES key.

When erase is completed, [COMPLETED!] will light up, then automatically display the [Title Edit PGM**?] (title edit) menu of the SETUP mode.



5-1. Press the EXIT/NO key to exit without inputting a title.

A [Temporary Title] is automatically assigned. The top indication (ABS 0) of the program erased appears.

5-2. Press the EXECUTE/YES key to input the title.

The title input menu will appear to allow input of a specific title. For more details on editing a title, refer to the "Editing a program title" section of the "Program Operation" chapter on page 38.

To erase all data on the track you can use the "Program Delete" function to erase all programs in a manner other than with the above mentioned erase procedures. Either measure will make space on the disk to allow for more recordings. If an [Over !] warning appears, indicating that there is not enough disk space, during Auto Punch In/Out, Copy & Paste or Move & Paste, there is need to erase some unnecessary data to make more space. For more details on deleting a program, refer to the "Deleting a Program" section of the "Program Operation" chapter on page 37.

Track Exchange

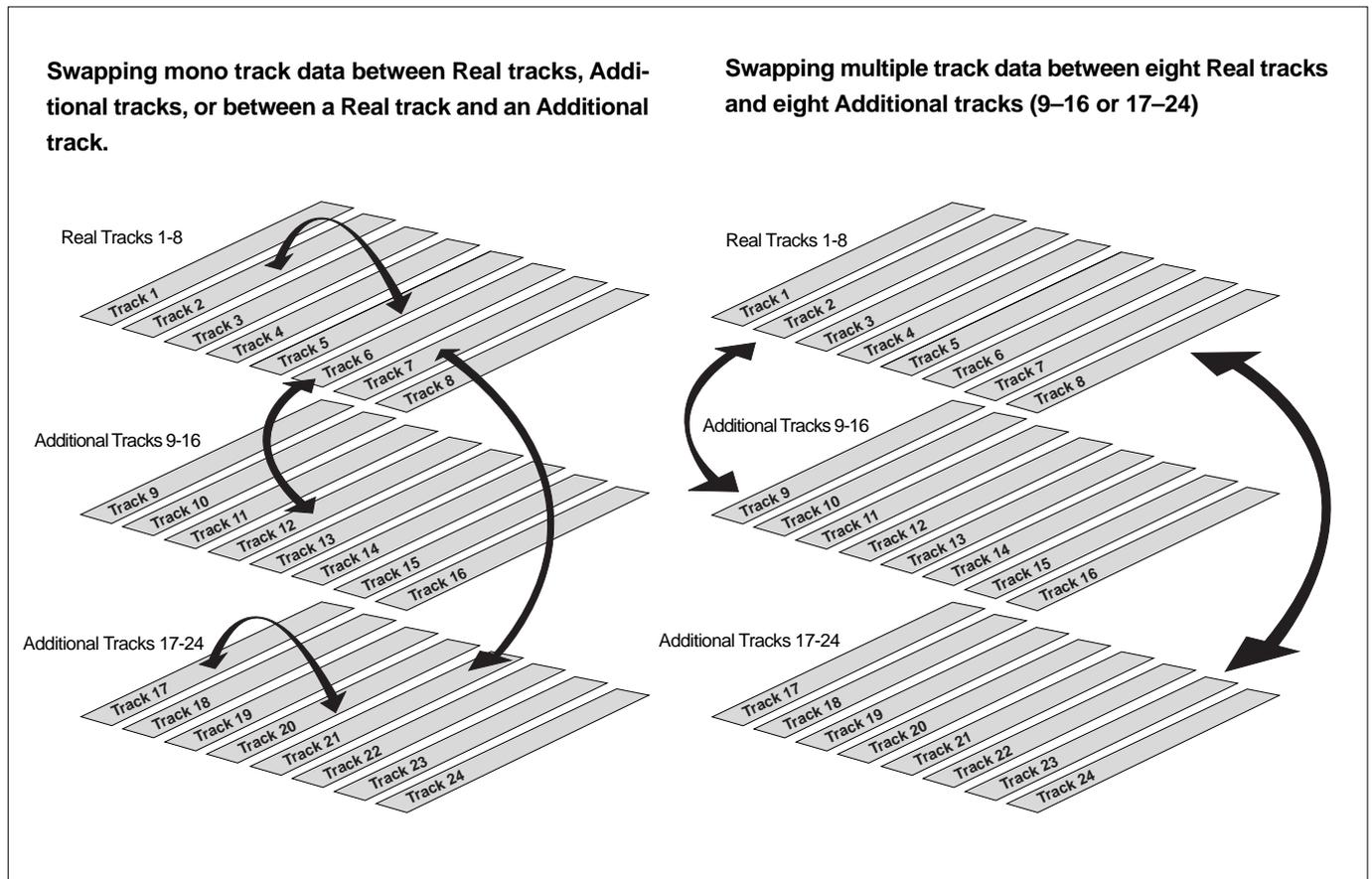
The Track Exchange function enables you to swap mono track data or multiple track data of the current Program between Real tracks and Additional tracks in units of single or multiple tracks.

You can swap mono track data between Real tracks, Additional tracks, or between a Real track and an Additional track. You can swap multiple track data between eight Real tracks (1-8) and Additional tracks (9-16 or 17-24). Refer to the diagrams below for information on how data on the tracks can be moved using this function.

The Track Exchange function also enables you to move Real track data to an empty Additional track (to empty the original Real track) so that you can use the Real track for a new recording. This capability lets you use tracks more flexibly.

You need to move data on an Additional track back to a Real track to audition the data, since data on an Additional track cannot be played in real-time.

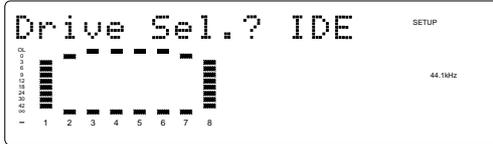
You can also use this function when you wish to check the REC END point of an Additional track, as described in the "Erase" section. Execute [Track Exchange] with the [Track Exchange?] menu in the SETUP mode of the D-108.



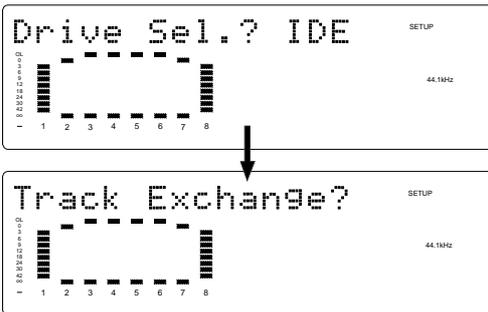
Executing Track Exchange

1. While the D-108 is stopped, press the DISP SEL key to go to the SETUP menu, then press the EXECUTE/YES key to go to the SETUP mode.

The [Drive Sel. ?] menu will appear in the default status.



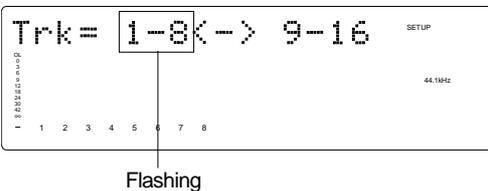
2. With the JOG dial, choose "[Track Exchange?]" menu.



3. Press the EXECUTE/YES key.

The display shows the track selection.

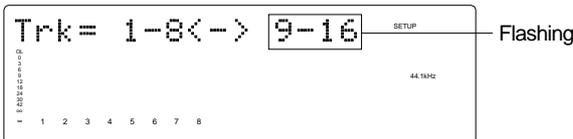
The current display shows that you can swap eight-track data between Real tracks 1-8 and Additional tracks 9-16. If you wish to select other tracks, follow the step below.



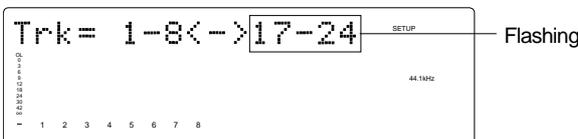
4. Select the tracks to swap data.

- Selecting Real tracks 1-8 and Additional tracks 17-24:

1. Press the HOLD/> key or turn the SHUTTLE dial to move the flashing [1-8] (left) indication to the flashing [9-16] (right) indication.



2. Turn the JOG dial to change flashing [9-16] to flashing [17-24].

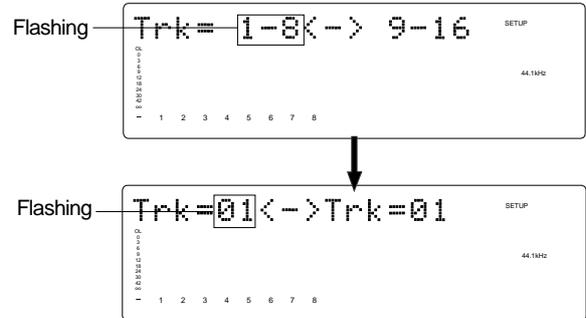


- Swapping mono track data between any two tracks

1. When [1-8] is flashing, turn the JOG dial.

Turning the JOG dial allows you to select a mono track from [1], [2], [3], [4]..... [24] in the left column. The right column continues a mono track.

For example, if you select [4] in the left column, the display indicates [4<>1], meaning you can swap data between tracks 4 and 1.



2. To select a number on the right, press the HOLD/> key or turn the SHUTTLE dial as done for the left, to move the flashing point. Then use the JOG dial to select a specific track number.

* When you swap data between mono tracks, the indications [Trk=04<>Trk=01] and [Trk=01<>Trk=04], for example, mean the same thing — swapping data between tracks 1 and 4.

Note: If you select the same tracks for swapping mono track data, the setting is ignored. The D-108 will indicate [Select Err] for a short moment, then return to the previous display.

4. Press the EXECUTE/YES key.

[Exchange] lights up and the swapping operation is completed immediately.

The D-108 indicates [COMPLETED !], then returns to the previous Time Base display.

* You cannot play data or check the REC END point on the Additional tracks. To do so, you need to move the data to a Real track.

If you load back-up data from the external DAT recorder, adat machine, or backup SCSI drive, the data maintains the same condition as when you previously saved it to DAT, adat, or backup SCSI drive.

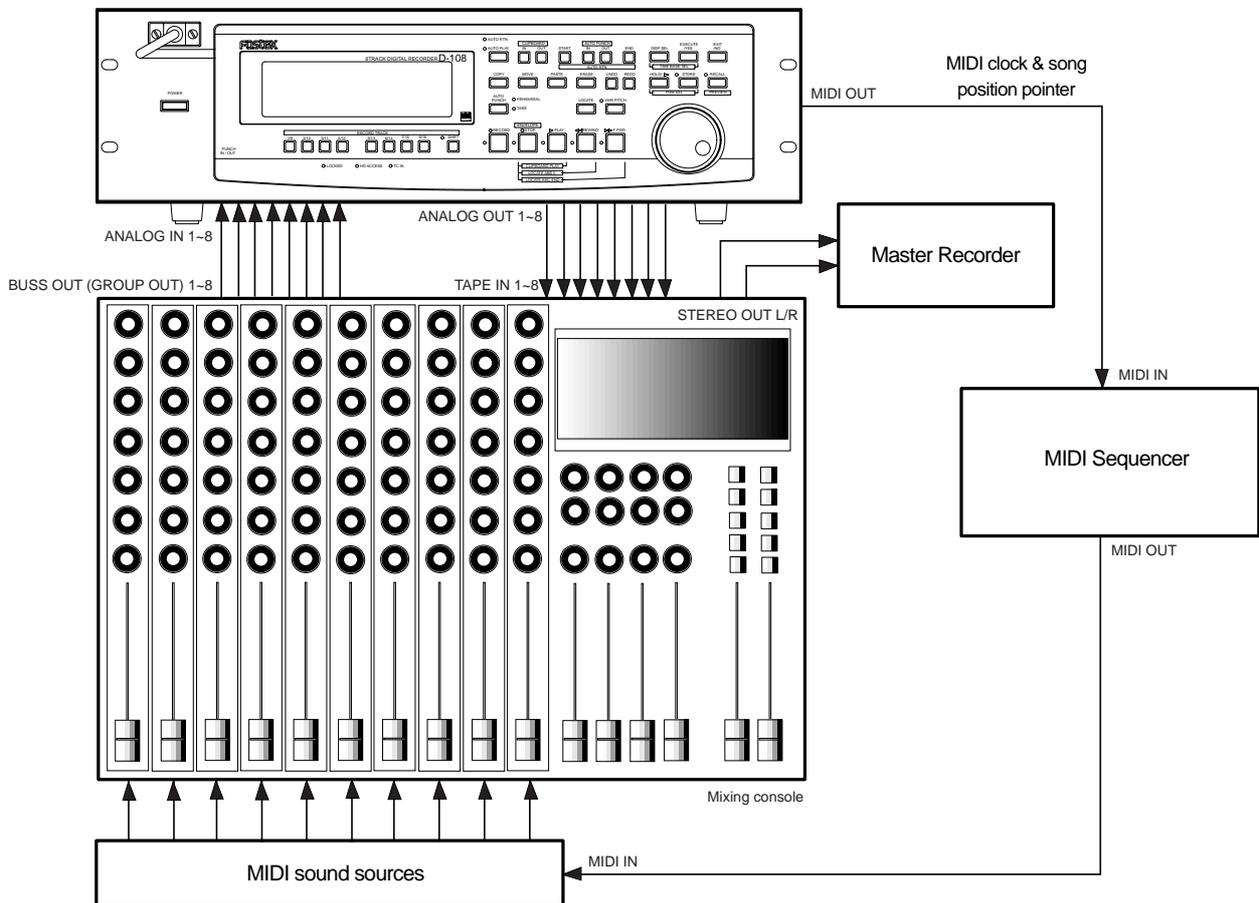
MIDI sync function

The following are examples concerning general types of systems using MIDI related functions contained in the D-108.

MIDI clock sync system

By setting any desired meter at any desired point of the programmable tempo map contained in the D-108, and by output of a MIDI clock and song position pointer according to the setting, a hardware type MIDI sequencer can be synchronized as a MIDI clock slave. Consequently, in this system, the D-108 will be the master and the MIDI sequencer the slave.

- * Restore the default settings on D-108.
- * Check for the correct program and proper sampling frequency.



Connecting external equipment (Refer to connecting schematic)

1. Connect the D-108 MIDI OUT to MIDI IN of the MIDI sequencer.
2. Set the MIDI sequencer for "external sync mode (EXTERNAL SYNC) by MIDI clock."
 * Refer to the Owners Manual of the equipment in use for details.

Setup of D-108

1. Because the MIDI clock and song position pointer will be output from the D-108, set the SETUP mode "MIDI sync signal output setting" to "CLK."

- * Initial setting: CLK
- * Permissible setting: CLK (MIDI clock and song position pointer:"CLK")
MTC (MIDI time code: "MTC")
Off (No output of MIDI sync signal)
- * This item can be setup for each program.
- * The setting can be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "112", SETUP mode "MIDI sync signal output setting" for correct operating procedures.

2. The meter in the desired bar can be set by "Time signature setting" of the SETUP mode.

- * Initial setting: 001 bar, 4/4 signature.
- * Permissible bar setting: 001~999
- * Permissible meter setting: 1/4, 2/4, 3/4, 4/4, 5/4, 1/8, 3/8, 5/8, 6/8, 7/8, 8/8, -- -- (Elimination of signature)
- * Permissible setting of maximum number of points: 64 points
- * This item can be set for each program.
- * The setting can be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "108", SETUP mode "Time Signature Setting" for operating procedure.

3. Tempo in the desired bar can be set by "Tempo setting" of the SETUP mode.

Tempo map is made in steps 2 and 3.

- * Initial setting: 001 bar, 1st meter, Tempo120.
- * Permissible bar setting: Follows the previous "Setup of the time signature."
- * Permissible signature setting: Follows the previous "Setup of the time signature."
- * Permissible setting of tempo: Quarter note=30~250 (Tempo elimination)
- * Permissible setting of maximum number of points: 64 points
- * This item can be set for each program.
- * The setting can be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "109", SETUP mode "Tempo Setting" for operating procedure.

4. Set the SETUP mode "Metronome setting" to ON if click sound is to be output according to the setup tempo map.

- * Initial setting: Off
- * Permissible setup item: Off, On
- * This item can be set for each program.
- * The setting can be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "111", SETUP mode "Metronome setting" for operating procedure.

5. Press the DISP SEL key while pressing the EXECUTE/YES key, and then change the time base display to BAR/BEAT/CLK.

Confirming the MIDI clock sync

During recording and at playback following the recording, the time base (BAR/BEAT/CLK) is displayed in accordance to the setup tempo map, and the MIDI clock and song position pointer is also output. Confirm that the travel position (BAR/BEAT/CLK) of the D-108 and the travel position of the synchronized MIDI sequencer are matched.

* If correct sync cannot be obtained, re-check the connections/cables and setting of both equipment.

<Note>

In the D-108, the "ABS 0" position is set at "002BAR/1BEAT /00CLK."

This setting is made in consideration of the time required (it will not sync immediately) for the MIDI sequencer, etc. to enter into sync. As a result, if the D-108 is played back from ABS 0 (LOCATE ABS 0), sync will be completed by the time it reaches the first bar, and will thus synchronize from head of the tune.

Execution of recording

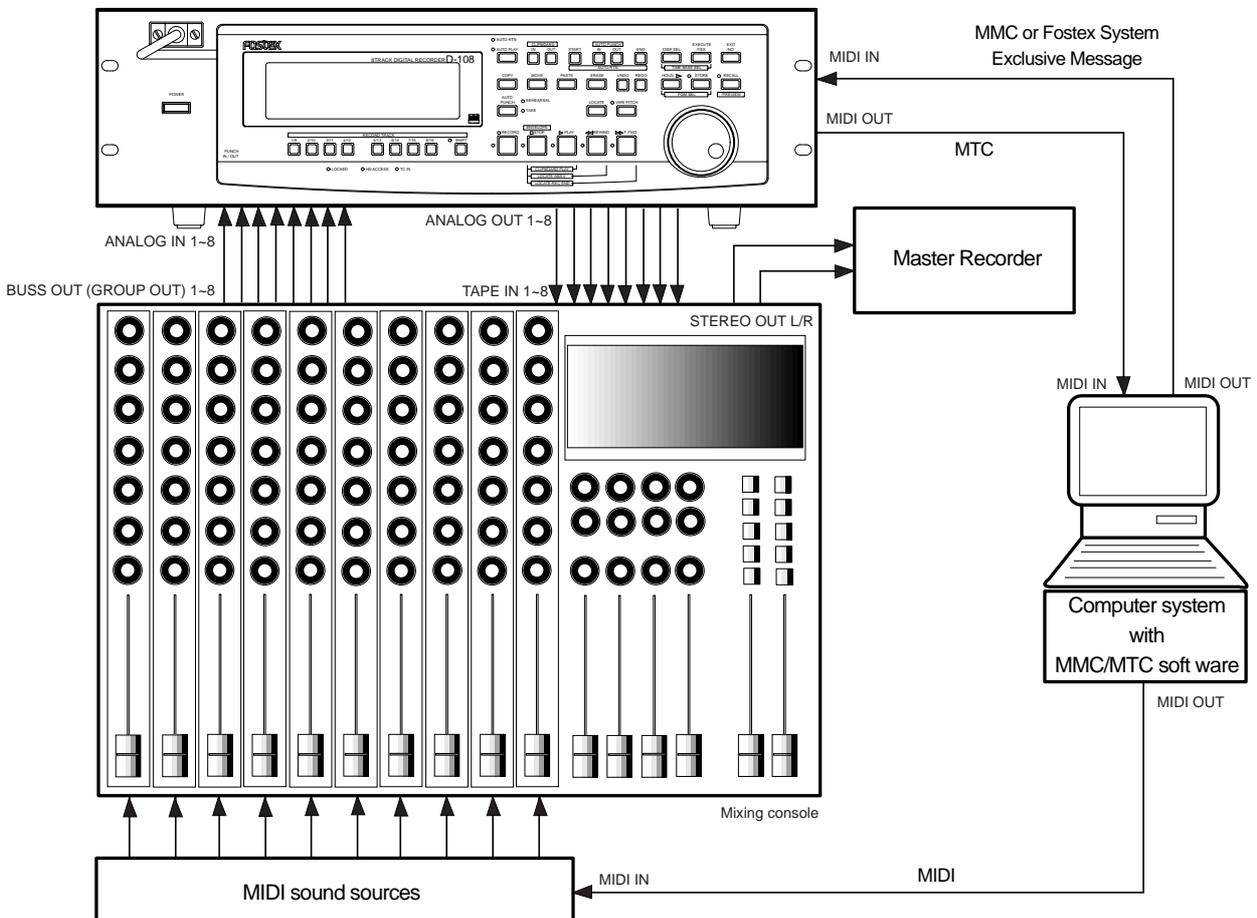
Various ways of recording can be conducted while synchronizing the D-108 and the MIDI sequencer with the MIDI clock.

MTC sync/MIDI machine control system

The following will explain synchronization by the MTC (MIDI time code) output and the computer controlling system using MMC (MIDI machine control). In this system, the D-108 will be the master and the computer (with sequence software) will be the slave. The D-108 will attach any desired offset (time difference) against ABS time (absolute time) and output it as MTC in any desired frame rate.

It can also carry out the proper operation upon receiving an MMC and Fostex System Exclusive Message from outside. In this case, because the D-108 can setup a DEVICE ID number by the SETUP mode "MIDI Device ID Setting" menu, a multiple number of D-108's can be separately controlled by changing the DEVICE ID numbers in the transmitted message from the computer. In regards to the corresponding content for MMC, refer to the "MMC list" on page "126" and on the Fostex System Exclusive Message, the "Fostex Exclusive List" on page "127."

- * Set D-108 in the initial state.
- * Confirm the program and sampling frequency.



Connecting to external equipment

Connect the D-108 MIDI IN/OUT to the computer (with MIDI interface) MIDI IN/OUT (MMC/MTC complied sequence software is activated in the computer).

Setup of external equipment

Setup the following in the sequence software.

- * Set to MTC external sync mode (EXTERNAL SYNC).
- * Set for output of MMC.
- * Set to the desired MTC read out frame rate.
- * Set start time of the tune (which MTC time is to be the first bar). Refer to precaution in regards to MTC offset, farther on.

For details, refer to Owners Manual of the external equipment.

Setup of D-108

1. Because MTC will be output from D-160, set to "MTC" the SETUP mode "MIDI sync signal output setting."

Refer to page "112", SETUP mode "MIDI sync signal output setting" for operating procedure.

2. Set a random offset time by the SETUP mode "MTC offset time setting."

- * Initial setting: 00h (Hour) 59m (Minute) 57s (Second) 00f (Frame) 00sf (Sub Frame)
- * Permissible setup time: 00h 00m 00s 00f 00sf ~ 23h 59m 59s 29f 99sf
- * This item can be set for each program.
- * The setting can be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "113", SETUP mode "MTC offset time setting" for operating procedure.

3. In the SETUP mode "MTC offset mode setting," whether the MTC offset time setup in Step 2 should be output (ABS) at the ABS 00m 00s 00f 00sf position or at the 001BAR 1BEAT 00CLK (bar, signature) must be selected.

- * Initial setting: ABS
- * Permissible setup item: ABS, Bar ÀÙ
- * This item can be setup for each program.
- * The setting can be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "114", SETUP mode "MTC offset mode setting" for operating procedure.

4. Setup to the same frame rate as that setup by the sequence software by "MTC Frame rate setting" of the SETUP mode.

- * Initial setting: 25 frames
- * Permissible setup of frame rate: 24, 25, 29.97nd, 29.97df, 30nd, 30df
- * This item can be setup for each program.
- * The setting can be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "113", SETUP mode "MTC Frame rate setting" for operating procedure and details.

5. Set to the same figure as the sequence software MMC device number (and Fostex System Exclusive Message device number) by the SETUP mode "MIDI device ID setting."

When the sequence software transmits by "7F," it means "ALL DEVICE" and therefore, it need not be setup.

- * Initial setting: 00
- * Permissible setup ID: 00 ~ 99
- * This item will be the setting common to all programs.
- * This setting cannot be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "120", SETUP mode "MIDI device ID setting" for operating procedure and details.

6. Press the DISP SEL key while pressing the EXECUTE/YES key to show time base in the MTC display.

<Notes on MTC related setups>

By "MTC offset time setting" and "MTC offset mode setting," at what position (ABS 0 or 001BAR/1BEAT/00CLK) should the setup MTC (MTC offset time) is to be output is set. When setting the start time of the tune in the sequence software by these setups, be careful of the following points.

*** Offset mode: For ABS**

If playback is started from ABS 0, since MTC will be output starting from the MTC offset time that has been set, the start time of the tune set by the sequence software must be set about 3 seconds later from the MTC offset time that was setup. This will provide time because the sequence software cannot sync immediately after MTC is output. For example, if the initial setting of 00h 59m 57s 00f 00sf" is used, set the start time of the tune to "01h 00m 00s 00f." If playback is thus started from ABS 0 (LOCATE ABS 0), sync will be obtained by the time it reaches the first bar and therefore it can be made to sync from the head of the tune.

*** Offset mode: For BAR**

As mentioned before, because the "ABS 0" position is set at the "002BAR / 1BEAT / 00CLK" position, the setup MTC offset time can be set to the head of the tune without taking into account the time until reaching sync, as mentioned above. The length of the time two bars beforehand will change in accordance to the first bar setting for "signature" and "tempo." For example, it will be long if the tempo is set slow. This mode can be effectively applied when using the MIDI clock and MTC in parallel, and when using MTC for the sync signal while controlling the D-160 with time base BAR/BEAT/CLK.

Confirming MTC sync/MMC

1. During recording and at playback after recording, time base MTC is displayed according to the setting and MTC is output at the same time.

Check that the D-108 traveling position (MTC) and the traveling position of the sequence software in sync are matched.

2. Send MMC commands such as PLAY, STOP and LOCATE from the sequence software to see that the D-108 will be properly controlled.

When a correct MIDI command (MMC or FEX) is received, "MIDI" in the display will be lit for about 40msec. There is no setting in the D-108 to receive MMC or FEX but it will operate if a correct MIDI signal is input.

* If sync and control cannot be done correctly, re-check connections/cables and the setting of both equipment.

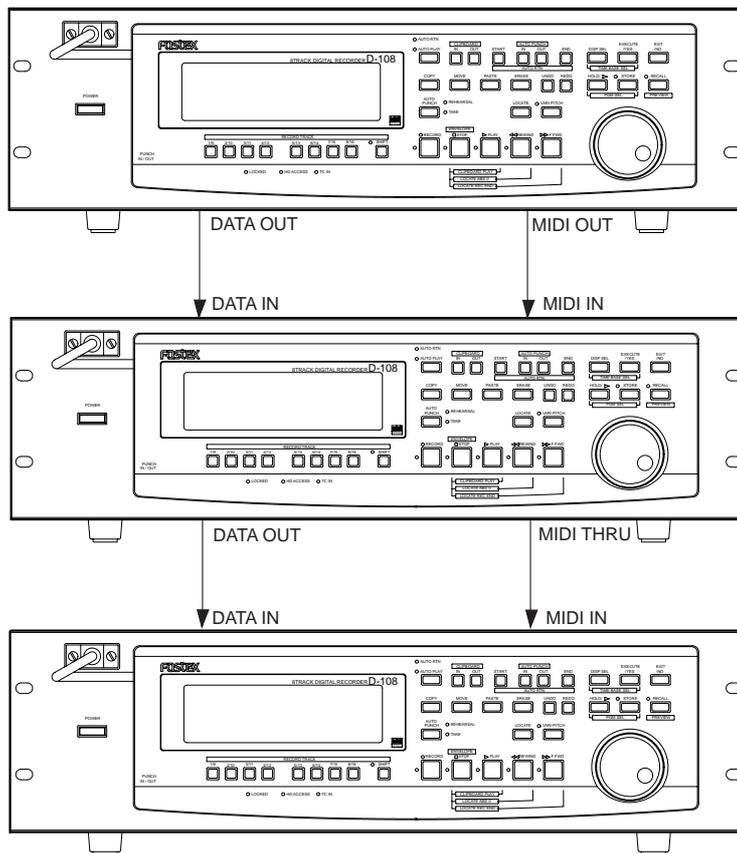
Execution of recording

Carry out various recordings while synchronizing a D-108 and a MIDI sequencer with the MIDI clock.

Multitrack system by the slave mode

The following will explain an example of constructing a 24 track system using three D-108's and its slave mode functions.

- * Initialize D-108.
- * Confirm the program.
- * Set all three D-108's to the same sampling frequency.



Equipment interconnections

1. From D-108 (#1) to D-108 (#2), connect DATA OUT to DATA IN and MIDI OUT to MIDI IN.
2. From D-108 (#2) to D-108 (#3), connect DATA OUT to DATA IN and MIDI THRU (Note!!!) to MIDI IN.

<Note>
 In order to slave drive a D-108 with each other, the best setting is to supply Adat digital signals together with MTC from the master.

Setup of D-160 (#1): <Master>

1. Because MTC, which is the reference for sync, is output from D-108 (#1), set the "MIDI sync signal output setting" of the SETUP mode to "MTC."

Refer to page "112", SETUP mode "MIDI sync signal output setting" for operating procedure and details.

2. A random frame rate to be used is set by the SETUP mode "MTC Frame rate setting."

Refer to page "113", SETUP mode "MTC Frame rate setting" for operating procedure and details.

3. With the SETUP mode "MTC offset mode setting," whether the MTC offset time will be output (ABS) at the ABS 00h 00s 00f 00sf point or at the 001BAR 1BEAT 00CLK (bar/signature) point of the tempo map, is selected.

Refer to page "114", SETUP mode "MTC offset mode setting" for operating procedure and details.

4. A random offset time is set by the SETUP mode "MTC offset time setting."

Refer to page "113", SETUP mode "MTC offset time setting" for operating procedure and details.

5. "00" is set with the SETUP mode "MIDI device ID setting."

Refer to page "120", SETUP mode "MIDI device ID setting" for operating procedure and details.

6. Set to "adat" the digital signal to be output by the SETUP mode "Digital output track setting."

Refer to page "119", SETUP mode "Digital output track setting" for operating procedure and details.

7. Press the DISP SEL key while pressing the EXECUTE/YES key to change the time base display to MTC.

Setup of D-108 (#2) <Slave 1> and D-108 (#3) <Slave 2>

1. Set the SETUP mode "MTC Frame rate setting" to the same frame rate as in D-108 (#1).

* Refer to page "113", SETUP mode "MTC Frame rate setting" for operating procedure and details.

2. Set the SETUP mode "MTC offset mode setting" to the same mode as in D-108 (#1).

Refer to page "114", SETUP mode "MTC offset mode setting" for operating procedure and details.

3. Set the SETUP mode "MTC offset time setting" to the same offset time as in D-108 (#1).

Refer to page "113", SETUP mode "MTC offset time setting" for operating procedure and details.

4. Set the SETUP mode "MIDI device ID setting," to "01" in D-108 (#2), and to "02" in D-108 (#3).

Refer to page "120", SETUP mode "MIDI device ID setting" for operating procedure and details.

5. Using the SETUP mode "Slave mode setting," set slave mode to "On," and the SETUP mode "Slave mode type setting," the slave type to "adat."

- * Slave mode initial setting: Off
- * Permissible setup item: On, Off
- * Slave type initial setting: Vari
- * Permissible setup item: Vari, SP DIF, adat, Free
- * This item can be set for each program.
- * The setting can be saved/loaded as song data.
- * This setting will be held even though power is switched OFF.

Refer to page "115", SETUP mode "Slave mode setting", and to page "116", SETUP mode "Save mode type setting", for operating procedure and details.

6. Press the DISP SEL key while pressing the EXECUTE/YES key to change the time base display to MTC.

<Note>
 After this setup, check the following in D-108 (#2) and D-108 (#3).
 * Blinking of "CHASE" in the display: This will change to constant lit upon completing chase lock in later operation.
 * "DIGITAL" is lit in the display: This means it is externally synchronized against the input digital signal.

<Note>
 Do not insert or remove the optical cable connected to DATA IN when the slave mode is set to "On." Doing so could generate noise and affect external equipment.

Check chase lock

1. When the master unit (D-108 (#1)) is played back, MTC IN LED of the slave unit (D-108 (#2) and D-108 (#3)) will be lit, "CHASE" in the display will immediately change from blinking to lit and chase lock will be completed.

Check that the MTC time on display are same in both master and slave units.

2. When the master starts recording, the slave will also start recording upon completing chase lock.

3. When the master is stopped, the slave will also stop as MTC from the master will be interrupted.

"CHASE" in the display will change from lit to blinking.

4. During FF/REW, the master only will be in the FF/REW mode and the slaves will remain stopped but when playback/recording is started, the slaves will immediately chase lock.

<Note>

The D-108 re-chase window is fixed at "10 frame." In other words, when MTC of the master and slave drifts apart more than 10 frames, it will assume that chase lock is disengaged and the slave will match the position again with the master (re-chase operation). During the re-chase operation, sound output will be muted. If the drift is within 10 frames, the slave will recognize this and continue to travel. Because the master supplies digital signal to slave in this system, re-chase is rarely carried out following chase lock.

* Should the D-108 fail to correctly chase lock and control, re-check the connection /cables and all settings.

Selecting a recording track

Select the recording tracks for both master and slave.

1. Press the select key of the voluntary RECORD TRACK of the master machine and slave machine.

You can use the D-108 (#1) which is the master machine to put the record track of the slave machine in the SAFE/READY mode. Conduct the following steps to do so.

* Press the SHIFT key on the master machine (SHIFT LED lights up).

The menu to select the ID number of the slave machine appears.



* Press the select key of the RECORD TRACK according to the ID number of the slave machine.

Example: Slave machine = #2 (ID=01)

Press select key 1 of the RECORD TRACK to control the record track. [Slave Device 01] will lights up on the display. This makes it possible to select the record track of slave machine #2 with an ID=01.



* Press the select key of the RECORD TRACK that is the same as the track to record of the slave machine.

Example: Press the select key of the master machine for 1/9 to put track 1 in the SAFE/READY mode. The record track of the slave machine will be READY.

* After setting up the slave machine (#2), press the SHIFT key once again.

The KED dims down. Conduct the steps again in the same manner from step 1 to setup slave machine (#3).

Execution of recording

A variety of recording work can be carried out with all three D-108's in the chase lock mode.

External MIDI equipment sync system by the slave mode

Up to this point, synchronization with external MIDI equipment has been explained with the D-108 as the master and MIDI equipment as the slave but depending on the slave mode setting, the MIDI equipment can be set as the master and D-108 as the slave.

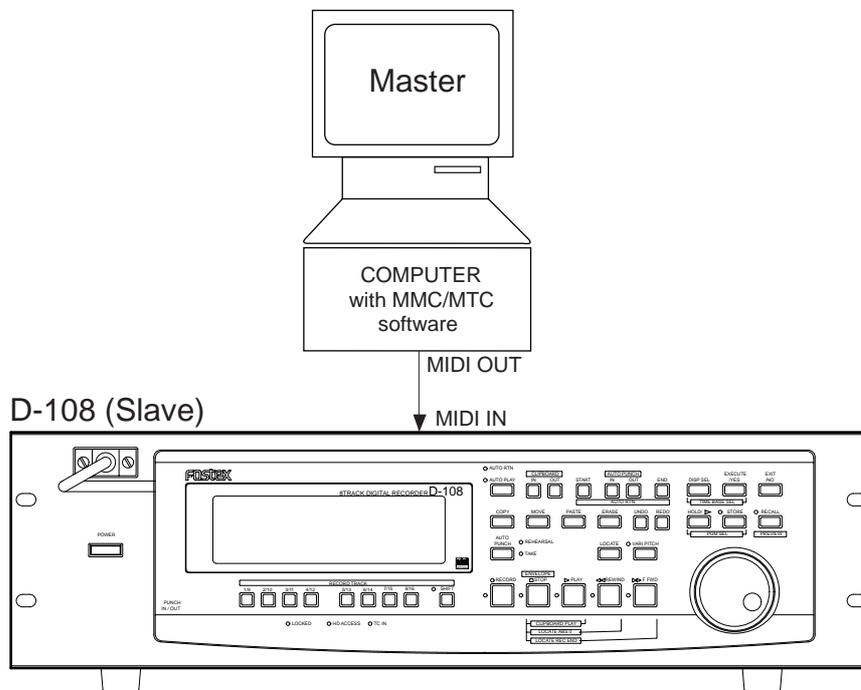
<Note>

External MIDI equipment which can be used as the master is limited to those which can output MTC.

* Initialize D-108.

* Confirm the program and sampling frequency.

* In the following, the explanation will be on the assumption that a computer (with sequence software) is used.



Connection to external equipment

Connect MIDI OUT of the computer (with MIDI interface) with MIDI IN of D-108. The computer sequence software complying to MMC/MTC must be activated.

Setup of external equipment

Sequence software is setup as follows.

- * Set for output of MTC.
- * Set frame rate of the MTC to be output.
- * Confirm start time of the tune.

Refer to Owners Manual of the respective equipment for details.

Setup of D-108

1. Set to same frame rate as the sequence software by the SETUP mode "MTC Frame rate setting."

Refer to page "113", SETUP mode "MTC Frame rate setting" for operating procedure and details.

2. Set to the desired mode by the SETUP mode "MTC offset mode setting."

Refer to page "114", SETUP mode "MTC offset mode setting" for operating procedure and details.

3. A random offset time can be set by the SETUP mode "MTC offset time setting."

Refer to page "113", SETUP mode "MTC offset time setting" for operating procedure and details.

4. Set slave mode to "On" by the SETUP mode "Slave mode setting," and the slave type to "Vari" by the SETUP mode "Slave mode type setting."

Refer to page "115", SETUP mode "Slave mode setting", and page "116", SETUP mode "Slave mode type setting", for operating procedure and details.

5. Press the DISP SEL key while pressing on the EXECUTE/YES key to change the time base display to MTC.

<Precautions at MTC related setups>

The position (ABS 0 or 001BAR/1BEAT/00CLK) when the setup MTC (MTC offset time) should be output was setup by the "MTC offset time setting" and "MTC offset mode setting." In accordance to start time of the tune set by the sequence software, setup as explained below.

Offset mode: For ABS

Set the MTC offset time about three seconds prior to the start time of the tune set by the sequence software. Because the D-108 cannot immediately chase lock after input of MTC, in order to sync the D-108 from head of the tune, set the preroll using the sequence software, and playback from before the actual head of the tune to allow the D-108 to enter into sync by the time it arrives at the head of the tune.

Offset mode: For BAR/BEAT

The MTC offset time can be set to the same time as the start time of the tune set by the sequence software. Because the "ABS 0" position is set at the "0002BAR/1BEAT/00CLK" position in the D-108, as mentioned before, the preceding time required for sync is already set. The preceding time of two bar lengths could change in length depending on the first bar's "signature setting" and "tempo setting" mentioned before. For example, it will be longer if the tempo is slowed down.

Confirming chase lock

1. When the sequence software is played, MTC IN LED of the D-108 will light, "CHASE" in the display will change from blinking to lit and the chase lock will be completed.

Check that the MTC output by the sequence software and MTC time displayed in the D-108 are the same.

2. When the sequence software stops, MTC will be interrupted and the D-108 will also stop.

"CHASE" in the display will change from lit to blinking.

3. During FF/REW of the sequence software, D-108 will remain stopped but upon starting to record, the D-108 will immediately chase lock.

<Note>

Chase lock of the D-108 by MTC only is permissible when speed difference of the MTC from the master is within +/- 5.6%. Against the MTC within this range, variable pitch will be constantly applied internally for chasing. Chase lock, however, will not function against MTC at a speed difference outside this range. Also, when the master speed difference is large, it is advised to let D-108 learn the master speed by entering PLAY prior to recording. By doing so, it will be lock faster from the second and later sessions.

* Should it not be possible to chase lock, re-check connections / cables and all settings.

Execution of recording

Carry out various recordings while the D-108 is chase locked to the sequence software.

<One Point Advice>

Sync signal "Free" of the "Slave mode setting" menu:

When the D-108 is made to chase lock by MTC only, variable pitch will be constantly applied by external MTC. If a digital signal is output to an external digital equipment from the D-108, it will not be able to follow the speed difference (MTC speed difference of the master) of the D-108 and the external digital equipment, in some cases, may not be able to input a continuous digital signal.

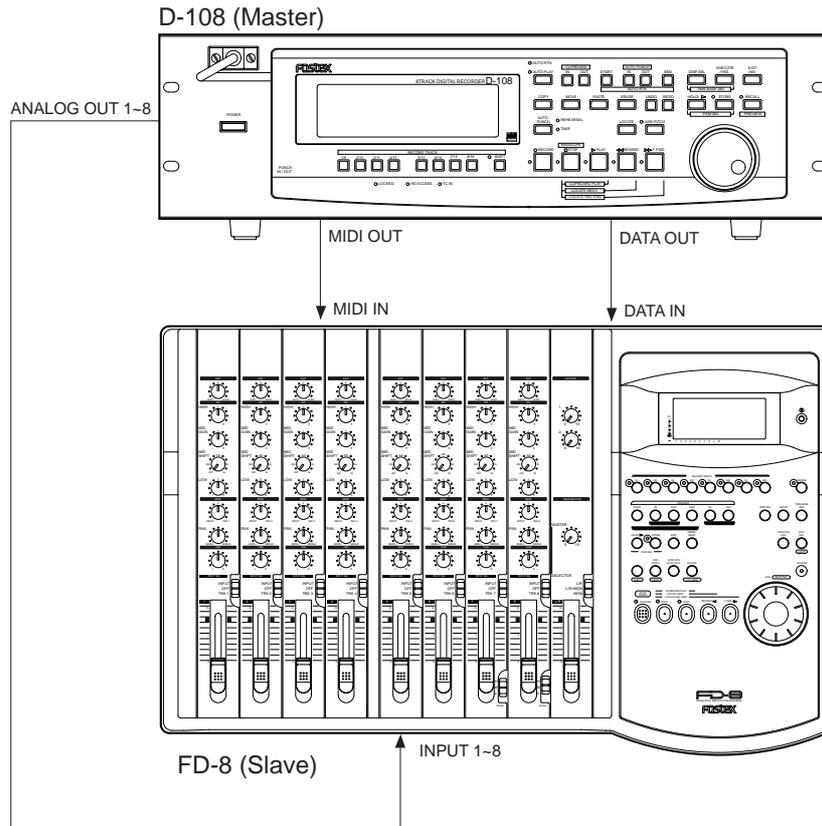
As a counter measure, the sync signal should be set to "Free" by the "Slave mode setting" menu. Using this setting, the D-108 will enter self operation by the internal clock, after completion of chase lock, and it will be possible to supply a stable digital signal to the external equipment.

Under this setting, when MTC drift between the master unit and slave unit exceeds 10 frames, the D-108 will assume that chase lock has been disengaged and the slave unit will carry out position matching again with the master unit (re-chase operation). During the re-chase operation, sound output will be muted and the digital signal will also be interrupted. If it is within 10 frames, the slave unit will continue to run while admitting this drift.

Multitrack system using a FD-8, FD-4

This section explains a multitrack system that uses the D-108 as master and a multitracker (FD-8 or FD-4) as slave. Using the D-108 as a master device allows for Chase Lock operation using the Vari-pitch function or the MTC. The example explained here uses Fostex FD-8 as a slave machine, but you can use another model with the same settings to configure the multitrack system.

- * Initialize the D-108 and the FD-8.
- * Check the Programs on both machines.
- * Set the sampling frequency on both machines to 44.1kHz.



Connecting the devices

- * Connect DATA OUT of the D-108 to DATA IN of the FD-8, and MIDI OUT of the D-108 to MIDI IN of the FD-8.

<Note>

The best setup is to supply the MTC and S/P DIF digital signal from the master device so slave operation will be successful.

Setting the D-108 (Master)

1. The D-108 will output the MTC for the sync operation.

Set the "MIDI sync output signal setting" in the Setup mode to "MTC."

Refer to "MIDI sync output signal setting" in the Setup mode on page "112" for the procedure and additional information.

2. Set any frame rate for the "MTC Frame rate setting" in the Setup mode.

Refer to "MTC Frame rate setting" in the Setup mode on page "113" for the procedure and additional information.

3. Select "ABS" for the sake of compatibility with the FD-8 for "MTC offset mode setting" in the Setup mode.

Refer to "MTC offset mode setting" in the Setup mode on page "114" for the procedure and additional information.

4. Set an offset time for "MTC offset time setting" in the Setup mode.

Refer to "MTC offset time setting" in the Setup mode on page "113" for the procedure and additional information.

5. Set the "MIDI device ID setting" in the Setup mode to "00".

Refer to "MIDI device ID setting" in the Setup mode on page "120" for the procedure and additional information.

6. Select "SP DIF" as the digital output signal for the "Digital output track setting" in the Setup mode.

* Only an S/P DIF digital signal can be used with the D-80, D-80 Ver. 2, DMT-8 Ver. 2, DMT-8 VL, and DMT-8.

Refer to "Digital output track setting" in the Setup mode on page "119" for the procedure and additional information.

7. Press the DISP SEL key while holding down the EXECUTE/YES key to select MTC as the Time Base indication.

Setting the FD-8 (Slave)

Refer to the FD-8 User's Guide for the procedure and additional information.

1. Use the same frame rate as the D-108 for the "MTC frame rate setting" in the Setup mode.

2. Use the D-108's offset time for the "MTC offset time setting" in the Setup mode.

There is no "MTC offset mode setting" on the D-80, D-80 Ver. 2, DMT-8 Ver. 2, and DMT-8 VL. When you use the D-108's setting, the MTC offset mode will automatically become "ABS."

3. Set the "MIDI device ID setting" in Setup mode to "01" on the FD-8.

4. Set the Slave mode to "On" for the "Slave mode setting" in the Setup mode.

You can set the Slave mode on the D-80, D-80 Ver. 2, DMT-8 Ver. 2, and DMT-8 VL, but you cannot select a sync signal (SLAVE TYPE). If you use the D-108's setting, "SP DIF" will be automatically selected.

5. Press the DISP SEL key while holding down the EXECUTE/YES key to select MTC as the Time Base indication.

<Note>

After this setting, check the following items on the FD-8.

* "SLAVE" is flashing on the display: When the Chase Lock operation is complete, this indicator will light.

* "DIGITAL" lights on the display: The FD-8 is syncing to the external digital signal.

<Note>

Do not connect or remove the optical cable the DATA IN connector while Slave mode is on. This can generate noise, affecting the connected external devices.

Checking Chase Lock

1. When the master device (D-108) is played, the flashing "PLAY" button lamp will light and Chase Lock will be complete.

Check to make sure the display shows the correct MTC time.

2. When you start recording on the master device, the slave device will start recording after the Chase Lock operation is complete.

3. When you stop the master device, the MTC transmission from the master device will be interrupted and the slave machine will also stop.

The illuminated "PLAY" button's lamp will begin to flash.

4. While the master device is in fast forward or rewind mode, the slave machine will remain stopped.

When you start playing or recording on the master device, the slave machine will start the Chase Lock operation.

<Note>

The re-chase window of the FD-8 and FD-4 is "10 frames" fixed. This is the same as the D-108. When the MTC of the master device and the MTC of the slave machine slip from each other by 10 frames or more, the slave machine will interpret this as being out of sync, and will try to lock with the master device again (this is called a "re-chase" operation). During the re-chase operation, audio output will be muted. If slippage is within 10 frames, the slave machine will continue running while accepting the slippage. Since the master device supplies a digital signal to the slave machine in this system, the slave machine will not perform the re-chase operation after chase lock is complete.

* If the Chase Lock operation or control is incorrect, check all connections, cables, and settings.

Selecting a recording track

Select the recording tracks for both master and slave.

1. Press the SHIFT key on the master machine (SHIFT LED lights up).

The menu to select the ID number of the slave machine appears.

2. Press the select key of the RECORD TRACK according to the ID number of the slave machine.

Example: Slave machine = #2 (ID=01)

Press select key 1 of the RECORD TRACK to control the record track. [Slave Device 01] will lights up on the display. This makes it possible to select the record track of slave machine #2 with an ID=01.

3. Press the select key of the RECORD TRACK that is the same as the track to record of the slave machine.

Example: Press the select key of the master machine for 1/9 to put track 1 in the SAFE/READY mode. The record track of the slave machine will be READY.

4. After setting up the slave machine (#2), press the SHIFT key once again.

The KED dims down. Conduct the steps again in the same manner from step 1 to setup slave machine (#3).

* If the control is incorrect, check all connections, cables, and settings.

Recording

You can record while the D-108 is chase locked.

<One Point Advice>

You can use the D-108 as a slave machine. In this case, set the Slave mode to "On" for the D-108's "Slave mode setting", and set Slave type to "SP DIF" for "Slave mode type setting."

Saving and loading data

The D-108 allows you to select the data (audio data and Setup data) from a current Program and save it to a DAT machine as an S/PDIF digital signal or to an adat machine as an adat digital signal, or save it to a SCSI device. You can also re-load the saved data to the D-108. In particular, using a SCSI device enables you to save and load the data of all Programs (up to 99 Programs), as well as an individual Program. These save and load functions are convenient when you wish to store Programs (complete or in progress) temporarily to a DAT, adat, or SCSI device to clear enough space on the internal hard disk to make new recordings.

*******About saved and loaded data*******

The data format and time required to SAVE/LOAD song data will vary between saving and loading with a DAT using S/P DIF digital signals, saving and loading with an adat device using adat digital signals, or saving and loading with a SCSI device. Refer to the following explanation for more details.

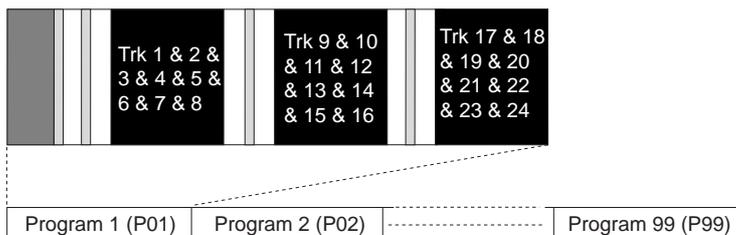
S/PDIF digital signal (You can save and load each Program individually.):

Following about five seconds of pilot signal (shown in the diagram below), song data in the current drive is output to a connected DAT. Two tracks of audio data (shown in black in the diagram) are output. To save data from Real tracks 1-8, two-track data will be output four times, which takes twice as much time as the song duration (ABS 0 to REC END). To save all data including Additional tracks 9-24, two-track data will be output twelve times, which takes twelve times the song duration. Saved data is also loaded two tracks at a time.



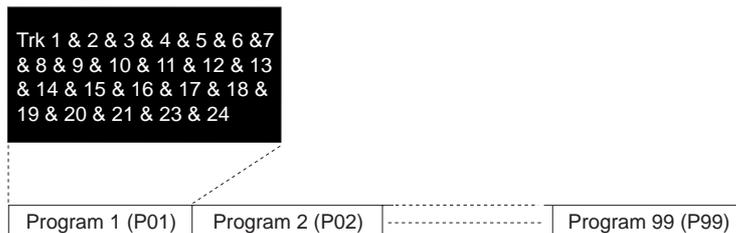
adat digital signal (You can save and load each Program individually.):

After about five seconds of pilot signal (shown in gray in the diagram below), song data in the current drive is output to a connected adat. Eight-track audio data (shown in black in the diagram) is output. To save the data from Real tracks 1-8, data will be output once, which takes the same amount of time as the song duration (ABS 0 to REC END). To save all data including Additional tracks 9-24, eight-track data will be output three times, which takes three times the song duration. Saved data is also located eight tracks at a time.



SCSI (You can save and load each Program individually or all Programs at once.):

All Real track data and Additional track data is output simultaneously to a SCSI disk as shown in black in the diagram. Therefore, saving and loading a Program takes much less time relative to a DAT or adat. No pilot signal or beep is recorded. If the available disk space is smaller than the song data size, you may use multiple disks (up to 99 disks) to save and load an entire song.



<The following items can be saved and loaded as song data>

Memory data: CLIPBOARD IN/OUT, AUTO RTN START/END, AUTO PUNCH IN/OUT point data
Time Base: ABS, MTC, or BAR/BEAT/CLK
Setup mode: * Time signature setting (BAR BEAT), * Tempo setting, * Click On/Off setting
* Preroll Time setting, * Midi Sync Out setting, * MTC Frame Rate setting
* MTC Offset setting, * MTC Offset Mode setting, * Rec Protect On/Off setting
* Slave Mode on/off setting, * Slave Type setting, * FS (sampling frequency) setting

<The following items cannot be saved or loaded as song data>

Auto Play mode and Auto Return mode On/Off
Vari-pitch mode On/Off, and pitch data
Setup mode: * Digital In setting, * Digital Out setting, * Bar/Beat Resolution On/Off setting
* Device ID setting

<Notes>

* You can save or load only one Program to and from a DAT or adat at a time. Use a SCSI device to save or load all Programs.

* The D-108 can only save and load data to and from digital devices that support non-compression recording, and S/P DIF or adat format digital recording functions.

Basically, any device that supports the adat format can be used for the D-108's saving and loading operation. However, for the S/P DIF format, you cannot use an MD or DCC that employs compression recording system, a CD-R machine that automatically corrects the interval between Programs, or other devices that automatically change the sampling rate. Devices with SCMS can be used if they satisfy the conditions described above.

Basically, any digital device that supports non-compression recording, and the S/P DIF or adat formats, should be able to save and load the D-108's data correctly. However, some devices may not, due to the occurrence of multiple errors. The following Fostex models have been tested and approved for the save and load operation:

FOSTEX: D-5, PIONEER: D-05

<Note when saving data using DAT or adat>

Song data can be saved as a real track, additional track or ALL data. Please note the following points when saving song data using a DAT or adat device.

The save time of the data depends on the time of the song data (ABS 0-REC END) on the real track. Therefore, if you attempt to save data that exists on an additional track that is longer than the data on the real track, the data on the additional track will only be saved for the same amount of time as the data on the real track.

Let's say, you have 10 minutes recorded on the real track and you tentatively move it to the additional track (track exchange function). Then you save a real track by leaving that moved portion blank, which leaves you with only 3 minutes of recording on the track. This means only 3 minutes of the data on the additional track will be saved, and the remaining 7 minutes will not be saved. If you want longer save time, you can edit the save time during save operations (Go to page 91 <Step 7>).

This can be done by either setting the save time to a longer save time (however, the maximum time that can be edited is 59 minutes 59 seconds), or move the data with the longest recording time on the additional track to the real track and then save that data. Be careful not to erase the data that you need on the additional track when conducting these procedures. For more details on track exchange go to page 73.

Saving the data using DATA OUT

S/P DIF digital signal (or adat digital signal) from the DATA OUT jack of the D-108 is saved. The prerequisite is that an E-IDE harddisk is used as a current drive.

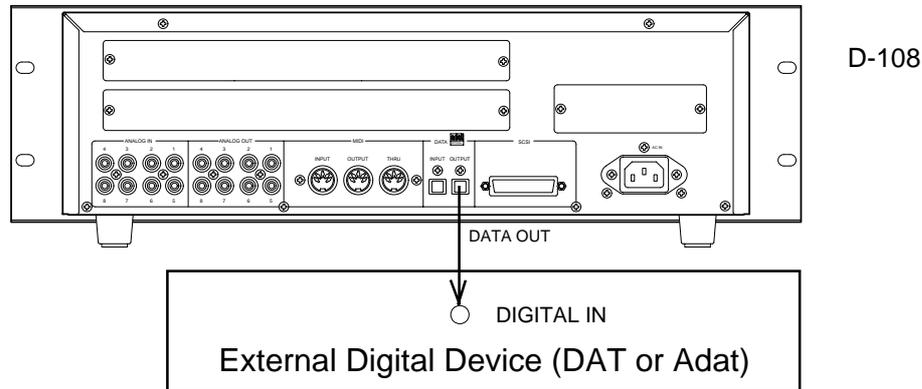
- * Restore the initial settings on the D-108.
- * Set the same sampling rate on the external digital device and the D-108.

Connecting an external device

Connect DATA OUTPUT connector of the D-108 to the digital input connector on the external digital device.

<Note>

The D-108 has DATA OUT connectors for an S/P DIF digital signal (OPTICAL) and for an adat digital signal. These connectors have the same shape but carry different information.



- * If the external device has only COAXIAL type (RCA) digital I/O connectors, connect an optional COP-1 (optical/coaxial converter) to use an S/P DIF digital signal.
- * Connecting both output and input connectors on the D-108 to the input and output connectors on the external digital device respectively may generate a digital loop. Refer to "Connecting a digital mixer" on page "50" for more information.

Setting up an external device

1. Set the same sampling rate to that of the D-108.
2. Select digital input on the external device so that the external device will accept a digital signal.

On some external devices, you may have to set up so that the external device will synchronize with the incoming digital signal.

<Note>

If the external device does not accept the digital signal or if you notice digital noise, check the connection, cabling, and the settings of the D-108 and the external device.

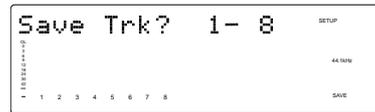
- * Refer to the instruction manuals that came with any external digital device for details.

Executing the save operation

Use the "Save PGM?" menu in Setup mode.

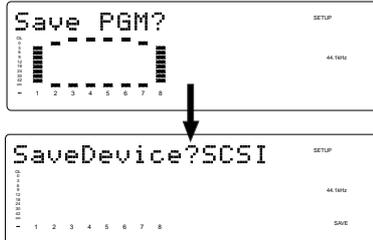
- * Output format available: adat, DAT, SCSI (6)
- * Programs available: P01 - P99
- * Track available: When using an adat or DAT: Tracks 1-8, Tracks 1-16, Tracks 1-24, Tracks 9-16, Tracks 9-24, Tracks 17-24;
When using a SCSI disk: All tracks will be automatically selected.

1. Press the DISP SEL key to select "SETUP" ("SETUP" will flash), then press the EXECUTE/YES key. ("SETUP" will light up.)
The D-108 enters Setup mode.



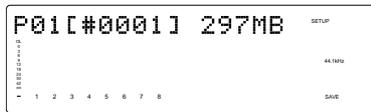
2. Use the JOG dial to select "Save PGM?" ("?" will flash.).
3. Press the EXECUTE/YES key.

The message "Save Device?" and an indication of the digital signal to be saved ("DAT," "adat," or "SCSI") will flash on the display.



4. Rotate the JOG dial to select a type of digital signal format to be used for the save operation.
Selecting "adat" will save data in the adat digital signal format. Selecting "DAT" will save data in the S/P DIF digital signal format. Select "SCSI" if you are saving or loading data via SCSI. The following operation will be that when "adat" or "DAT" is selected for "Save Device?."

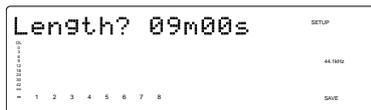
5. Press the EXECUTE/YES key.
Selection of the digital signal format for the save operation will be confirmed, and the existing Program numbers will flash on the display.



6. Rotate the JOG dial to select a Program to save.
You can select any existing Program (up to 99) to save.

7. Press the EXECUTE/YES key.
The length of the time (ABS 0 - REC END) of the program recording selected appears and the time shown can be edited. The time is usually saved according to the time displayed, however, it is possible to shorten the time to save at this stage when saving the time. In other words, though the actual recording may be 9 minutes 00 seconds, as shown in the example below, that time can be edited to 5 minutes when saved.

As mentioned in the <Note> above, if the data on the additional track is longer the time can be set to a longer time and saved (however, the maximum time that can be edited is 59 minutes 59 seconds).



8. Press the EXECUTE/YES key again.
"Save Trk ? 1-8" ("1" is flashing) appears on the display and you can select tracks to save. While "1" is flashing, rotate the JOG dial to select "1"->"9"->"17." To select "8"->"16"->"24," use the SHUTTLE or press the HOLD/> key to flash "16" and rotate the JOG wheel.

9. Select the desired track range using the JOG dial.
You can select 1, 9 and 17 of the points that are flashing (left). Use the SHUTTLE or HOLD/> key to move the flashing cursor to the left, then turn the JOG dial to select 8, 16 and 24. You can select track saving combinations from Tr1-16, Tr1-24, Tr9-16, Tr9-24 and Tr17-24, in addition to Tr1-8.

<Note>
Refer to the <Note> on page 89 prior to saving data including the additional track.

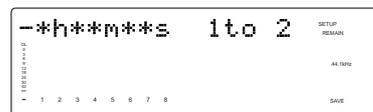
10. Press the EXECUTE/YES key.
"Rec Start DAT!" (Start recording on the DAT) or "Rec Start adat!" (Start recording on the adat) appears on the display, and "SURE?" flashes.



11. Confirm that the external device is syncing with the digital input signal, and start recording on the external device (DAT or adat).
Setting a START-ID (DAT) or a locate point at the recording start point will facilitate future loading operations.

12. Confirm that the recording on the external device has started, and press the EXECUTE/YES key. ("REMAIN" will light.)

The save operation starts, and the time required for the save operation appears on the display and a few seconds later, it will start counting down. This few seconds delay is due to the pilot signal which is recorded to mark the beginning of the Program to facilitate future load operation. Therefore, the actual save operation starts when counting down starts. Two tracks are saved each time in the order of Track 1 and 2, 3 and 4, etc. to a DAT machine. Eight tracks are saved each time in the order of Track 1-8, 9-16, etc. to an adat machine. The level meter indication during save of DAT will always be for only tracks 1 and 2 and always for tracks 1~8 in save of adat.



13. When data is successfully saved a "COMPLETED!" message will appear on the display, and stop the external DAT or adat.

14. Press the STOP button or the EXIT/NO key to quit the Setup mode.
The display will return to the previous time base indication.

* To cancel the operation or restore the indication shown before you pressed the EXECUTE/YES key, press the STOP button or the EXIT/NO key. Pressing one of these keys repeatedly takes you to the previous layer, finally quitting the Setup mode, and the display will return to the previous time base indication. If you press the STOP button or the EXIT/NO key any time after you execute the save operation but before it is complete, the saved song data will be invalid.

Loading the data using DATA IN

Load the data by S/P DIF digital signals (or adat digital signals) from the DATA IN jack of the D-108. The prerequisite is that an E-IDE hard disk is the current drive, as in the save conditions mentioned earlier.

- * Restore the initial settings on the D-108.
- * Set the same sampling rate on the external digital device and the D-108.

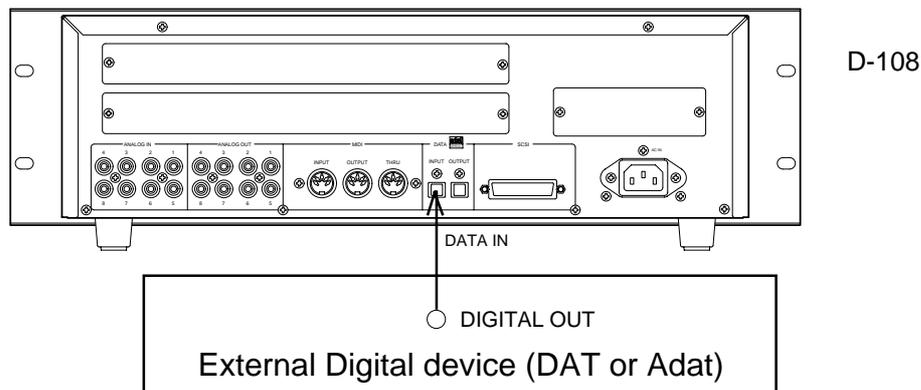
Connecting the external device

Connect DATA INPUT connectors of the D-108 to the digital output connectors on the external digital device.

<Notes>

* The D-108 has DATA INPUT connectors for an S/P DIF digital signal (OPTICAL) and for an adat digital signal. These connectors have the same shape but carry different information.

* Do not remove the optical cable or perform any other operation that would disconnect the S/P DIF signal until the session is complete. Otherwise, the D-108 will generate noise, and affect the connected device.



* If the external device has only COAXIAL type (RCA) digital I/O connectors, connect an optional COP-1 (optical/coaxial converter) to use an S/P DIF digital signal.

* Connecting both output and input connectors on the D-108 to the input and output connectors on the external digital device respectively may generate a digital loop. Refer to "Connecting a digital mixer" on page "50" for more information.

Setting up an external device

1. Setup the external device so that it can output a digital signal.
2. Locate the beginning of the pilot signal recorded in the saved data.

* Refer to the instruction manual that came with your external digital device for details.

Executing the load operation

You will use the "Load PGM ?" menu in Setup mode.

- * Input format available: adat, DAT, SCSI (6)
- * Programs available: P01 - P99
- * Track available: When using an adat or DAT: Tracks 1-8, Tracks 1-16, Tracks 1-24, Tracks 9-16, Tracks 9-24, Tracks 17-24;
When using a SCSI disk: All tracks will be automatically selected.

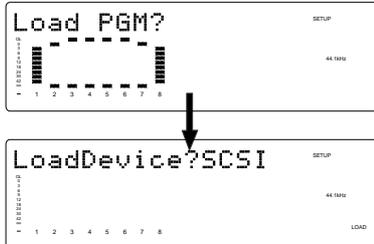
1. Press the DISP SEL key to select "SETUP"
 ("SETUP" will flash) and press the EXECUTE/YES key. ("SETUP" will light up.)

The D-108 will enter the Setup mode.

2. Use the JOG dial to select "Load PGM ?" ("?" will flash.).

3. Press the EXECUTE/YES key.

The message "Load Device?" and the type of digital signal to be loaded ("DAT," "adat," or "SCSI") will flash on the display.

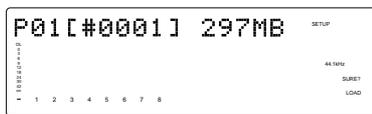


4. Rotate the JOG dial to select the type of digital signal format to be used for the load operation.

Selecting "adat" will load data in the adat digital signal format. Selecting "DAT" will load data in the S/P DIF digital signal format. Select "SCSI" if you are loading data via SCSI. The following operation will be that when "adat" or "DAT" is selected for "Load Device?."

5. Press the EXECUTE/YES key. ("SURE?" flashes.)

The digital signal selected is set and the program number currently set on the load destination current drive flashes. The size of the program recording is also displayed.



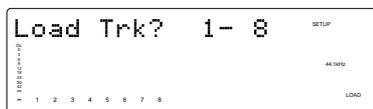
6. Rotate the JOG dial to select a Program into which to load data.

You can select any existing Program (from up to 99). If you select a Program that already contains data and execute the load operation, the existing data will be overwritten by the new data. If you do not wish to overwrite any data in any current Program, use the JOG dial to select "New PGM" to execute the load operation. You can do this only when the number of existing Programs is 99 or less and the hard disk has enough free space to accommodate the new data.

If a program that is already recorded with some sort of data is selected and loaded, only the song data loaded will be valid. All the data of the programs recorded on that same track up to then will be erased.

7. Press the EXECUTE/YES key.

Now you can select tracks into which to load.

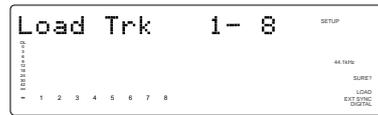


8. Select the desired track range using the JOG dial.

You can select 1, 9 and 17 of the points that are flashing (left). Use the SHUTTLE or HOLD/> key to move the flashing cursor to the left, then turn the JOG dial to select 8, 16 and 24.

You can select track loading combinations from Tr1-16, Tr1-24, Tr9-16, Tr9-24 and Tr17-24, in addition to Tr1-8.

9. Press the EXECUTE/YES key. ("SURE?" flashes.)



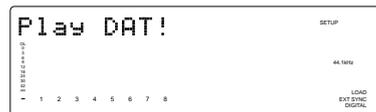
<Notes>

* If digital signal is being input correctly, a red "DIGITAL" and "EXT SYNC" indicator will light up on the display. If the red "DIGITAL" and "EXT SYNC" indicator flashes, check the connection, cabling, and the settings of the D-108 and the external device.

* The FS indication will flash and warn you if the sampling frequency of the D-108 and DAT vary when loading with S/P DIF digital signals. Be careful when setting the sampling frequency for adat digital signals because there will be no FS warning though there may be a discrepancy.

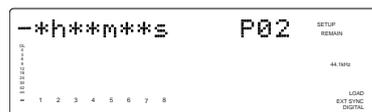
10. Press the EXECUTE/YES key again.

"Play DAT!" (Start playing the DAT) or "Play adat!" (Start playing the adat) appears on the display.



11. Play the corresponding external device (DAT or adat).

The load operation starts when the D-108 accepts the incoming digital signal. The time required for the load operation appears on the display and starts counting down. Two tracks are loaded at a time from a DAT machine in the following order: Track 1 and 2, 3 and 4, etc. from a DAT machine. Eight tracks are loaded each time in the order of Track 1-8, 9-16, etc..



12. When the load operation is complete, "COMPLETED!" flashes on the display.

13. Press the STOP button or the EXIT/NO key to quit Setup mode.

The display will indicate the time base set for the loaded Program.

Press the STOP button or EXIT/NO key to return to one previous menu prior to the EXECUTE/YES key or if you want to cancel a procedure. Everytime you press these keys you will move back one previous hierarchy, and eventually escape from the SETUP mode and return to the time base display. Note that all the song data saved will be invalid if you press the STOP button or EXIT/NO key while saving at <Step 11>.

Saving the data using SCSI

This procedure will SAVE/LOAD using a SCSI harddisk that is a backup disk. A backup purpose SCSI harddisk is generally used after formatted in the backup format, however, a DOS formatted (computer format) SCSI harddisk can also be used to SAVE/LOAD in WAV. Data saved in WAV can be re-loaded and even directly be read by the computer. Therefore, this kind of data can be used as music software, as well. The prerequisite is that an E-IDE harddisk is the current drive as mentioned in the save section using a DAT or adat device.

About SCSI device

Be sure to use a drive and a disk with ioperation guaranteed by Fostex. For more information on disks supported by the D-108, refer to the "List of drives with guaranteed operation" in this manual.

<Note>
 These SCSI devices have already been tested for performance at Fostex. However, any product lot includes variance 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-108 with external SCSI devices.

Connecting a SCSI device

Refer to the diagram to connect a SCSI device to a D-108.

<Notes on connection>

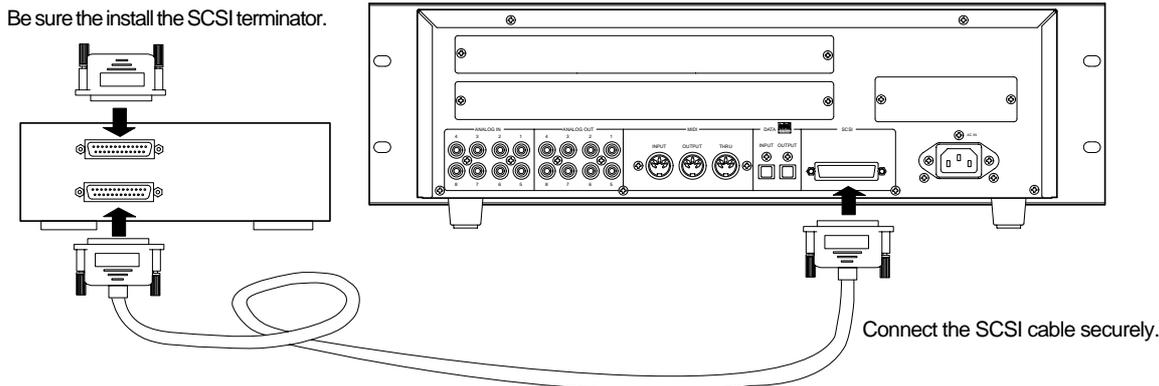
- * Before making connections, make sure that both the D-108 and the SCSI drive are turned off.
- * Up two SCSI drives may be connected on a SCSI chain with the D-108. Connect one SCSI drive as a "current drive" for real-time recording/playback. (Refer to "SCSI ID number setting" below.)
- * The SCSI connector on the D-108 is a 25-pin connector compatible with Macintosh computers. Use a cable with connectors that conform to the standards for connecting a SCSI drive.
- * The last SCSI drive on the SCSI chain should be terminated. Install a SCSI terminator, or turn the termination switch to "on" if the drive has a termination qswitch (like a zip drive).

<SCSI ID number setting>

- * Be sure to set the SCSI ID number for the SCSI drive correctly, according to the purpose of the drive (as a current drive or a back-up drive). The ID setting is very important.

Using the SCSI drive as a current drive	➔	Select any number from 0 to 5, but not "6."
Using the SCSI drive as a back-up drive	➔	Select "6."

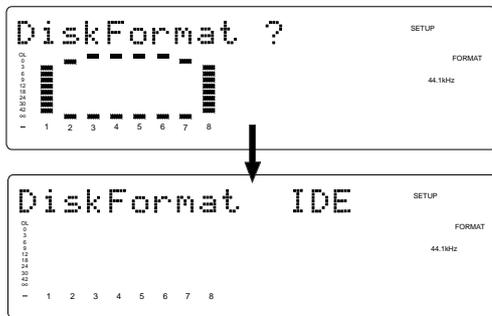
* You must format the SCSI disk after you connect it to the D-108. Refer to the "Formatting" section on the next page for the formatting procedure.



Formatting a SCSI disk

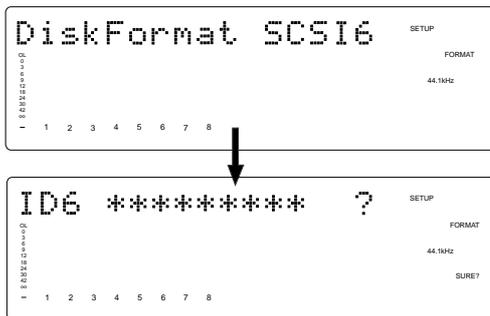
An unformatted disk or a disk used with the computer can also be used. Check to see that the data on the disk is no longer necessary prior to formatting a disk that was previously used with the computer. Once formatting is started it cannot be stopped. The formatting process will erase all data. Be especially careful not to erase the data that you still need. The prerequisite here is that a removable disk is used. The same procedures apply for a fixed SCSI harddisk, as well.

1. Connect the SCSI device to the D-108 and turn the power on to the both machines.
2. If you are using a removable disk, insert the disk into the drive.
3. Press the DISP SEL key to select the Setup mode, and press the EXECUTE/YES key.
The Setup mode menu appear on the display.
4. Turn the JOG dial to select "Disk Format?" ("?" flashes), and press the EXECUTE/YES key again.
"Disk Format IDE" ("IDE" flashes) appears.

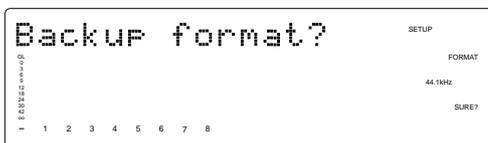


CAUTION: If format is executed while "IDE" is blinking, the internal IDE hard disk will be formatted and data in the IDE hard disk will be lost.

5. Rotate the JOG dial to display the flashing "SCSI6" and press the EXECUTE/YES key.
The ID number and name of the connected SCSI device appear on the display, and "?" and "SURE?" flash.



6. Press the EXECUTE/YES key.
The "Backup format?" ("?" flashing) message appears and "SURE?" flashes. This indicates that you are in the standby mode to format the backup purpose SCSI harddisk in the "Backup Format".

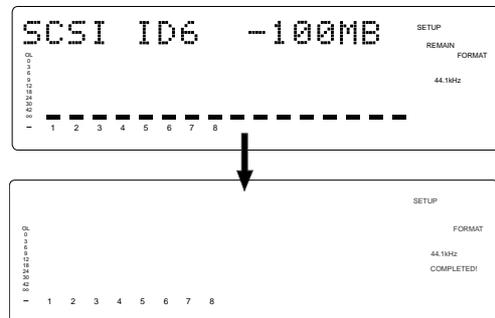


7. Press and hold down the RECORD button and press the EXECUTE/YES key.

"REMAIN" lights up and formatting starts.

As the formatting operation progresses, the size of the area to be formatted on the disk will count down on the display. Also, when the formatting operation starts, all the FL indicators (for Tracks 1-16) at level ∞ of the level meters light up. As the formatting operation progresses, these indicators will be turned off from Track 16. This condition indicates that the disk is being formatted correctly.

When formatting is complete, "COMPLETED!" will appear and all the FL indicators will turn off.



8. Press the EXIT/NO key or the STOP button to quit the Setup mode.

The D-108 returns to the ABS display of the Program that was selected before it entered Setup mode.



Your backup purpose SCSI harddisk has been formatted after completing the steps up to this point. The SCSI harddisk is now ready to SAVE/LOAD.

To continuously format another disk, remove the disk from the SCSI drive and then repeat the same procedures.

Press the eject switch on the SCSI drive to remove the disk from the SCSI drive.

In addition to the formatting procedure mentioned above, you can also use the following steps to format an unformatted disk.

Install an unformatted fixed disk or removable disk, and go to the "Drive Sel.?" menu in Setup mode. Change the current drive from "IDE" to "SCSI".

The D-108 will recognize that the SCSI disk is not formatted and automatically enter the "Disk Format ?" menu in Setup mode, where you can follow the procedure mentioned above to format the disk.

Saving data of an individual Program

When saving with a SCSI hard disk it is possible to save each program or all programs. This section will explain the procedures to save each program. Go to the next Chapter for more details on how to save all programs.

- * Output format available: adat, DAT, SCSI 6
- * Programs available: P01 - P99, or All Program
- * Track available: When using an adat or DAT: Tracks 1-8, Tracks 1-16, Tracks 1-24, Tracks 9-16, Tracks 9-24, Tracks 17-24;
When using a SCSI disk: All tracks will be automatically selected.

<Note>
Label each disk with a serial number (1, 2, 3...) prior to saving one program on several removable disks. This makes it easier to load the program, as explained later.

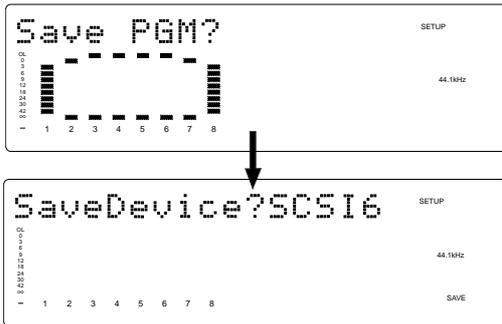
1. Press the DISP SEL key to select "SETUP" ("SETUP" will flash), and then press the EXECUTE/YES key.

"SETUP" will light up. The D-108 will enter the Setup mode.

2. Use the JOG dial to select "Save PGM?" ("?" will flash.)

3. Press the EXECUTE/YES key. ("SAVE" lights up.)

The indication of the type of digital signal to be saved will flash on the display.



4. Rotate the JOG dial to select a flashing "SCSI 6."

5. Press the EXECUTE/YES key. ("SURE?" flashes.)

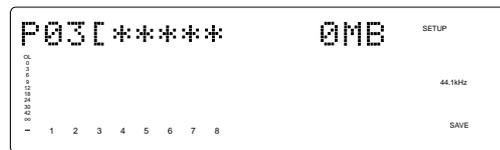
The digital signal to save is set on "SCSI 6", the program number currently set on the current drive flashes and the size of that program appears.



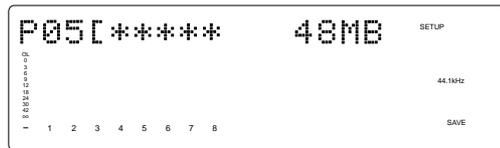
6. Rotate the JOG dial to select a Program to save.

You can select any existing Program individually or all Programs (Save All). (Refer to the next section for information on saving all Programs.) As mentioned previously, the display indication differs as follows depending on whether the selected Program to save requires only one removable disk or multiple disks.

* If you have selected a Program that has no recorded:



* If you have selected a Program that requires only one disk to save:

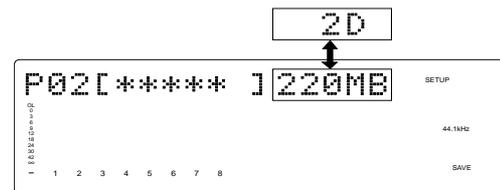


* If you have selected a Program that requires multiple disks:

The following indication, for example, appears. (**** is the tentative title, the program number flashes, the information on the size of the program and number of disks necessary, alternate)

This display indicates that one SCSI harddisk is not enough to save the program chosen, and that several disks are necessary to proceed with the save procedure. In the following example you see a "2D" indication as the number of disks necessary. This indicates that 2 disks are necessary to execute the save procedure.

This program can be selected and executed even when using a fixed disk. However, in this case saving with several disks is not possible, and therefore, the save procedure will be interrupted.



7. Press the EXECUTE/YES key. ("SURE?" flashes.)

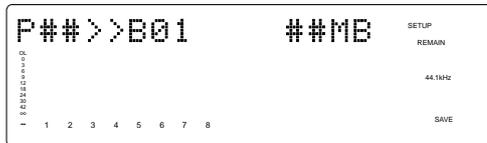
The D-108 performs the save operation differently depending on the selected Program.

*** When selecting a program that can be saved on one backup disk:**

The backup disk will indicate that a new program is going to be created (backup disk shows B01).



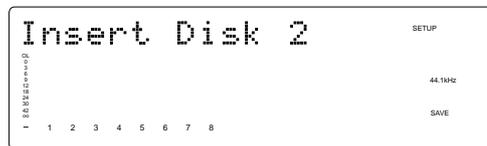
Pressing the EXECUTE/YES key will start save operations and then the following indication will appear. This indicates that the song data of the current drive selected is being saved on the B01 backup disk. The disk space necessary to save the data is counted down while the data is being saved.



When the data is saved, the system goes to the program time base indication prior to going to the SETUP mode, then "COMPLETED!" lights up.

*** When selecting a program to save that requires several disks:**

Save will immediately start if the EXECUTE/YES key is pressed at <Step 7>. The save process appears as in the above case. When the first disk is full, that disk is ejected and the display will indicate "Insert second disk!".



Save is automatically resumed when the second disk is inserted in the SCSI drive. The same process is repeated when a third, or more disks are required.

When the program is successfully saved on the last disk, the program time base indication (ABS 0) that was started up prior to entering the SETUP mode appears and "COMPLETED!" lights up.

8. Press the EXECUTE/YES key. ("SURE?" flashes.)

The D-108 performs the save operation differently depending on the selected Program.

<Note>

You cannot interrupt the save operations on the SCSI harddisk, as with DAT or adat.

You will have to start the save process from the very first disk again, if you erroneously press the EXIT/NO key during the insertion of several disks required to save the program on.

Press the eject switch on the SCSI drive to remove the disk from the SCSI drive after the program has been successfully saved.

The instructions on the left was based on use of disks that were already formatted for backup use, when saving programs using several disks.

It is recommended that all the disks to save data on are already formatted prior to the save process. However, there may be times that you will unexpectedly not have enough formatted disks during the save process thus, forcing you to use an "unformatted disk" or a "used disk" that already has other data saved on it. Observe the respective procedures described when inserting the disk according to the [Insert Disk 2] or [Insert Disk 3] message that prompts you to "Insert another disk!!" as shown in the instructions on the left.

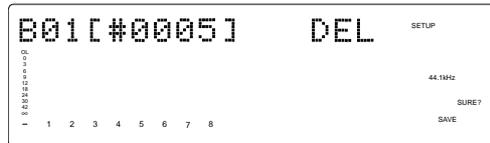
*** When inserting an unformatted disk**

The D-108 automatically recognizes an "Unformatted" disk, and will indicate [Unformat!], then automatically go to the [Disk Format?] menu in the SETUP mode, to format the backup disk. Follow the formatting procedures to actually format the backup disk.

The save process automatically resumes when the disk is successfully formatted.

*** When inserting a disk that is saved or loaded with other data**

The following display may appear as an example, when inserting such type of disk. This prompt is asking you whether you want to erase the existing data saved on the disk that was inserted, and indicates that you have entered the [Delete PGM?] menu in the SETUP mode.



If it is okay to erase that disk, press the EXECUTE/YES key. The [Delete ALL PGM?] message will appear. Press the EXECUTE/YES key to delete all programs.

Save is automatically resumed after the programs are deleted. If it is not okay to erase the disk, turn the JOG dial to select [Eject] when the above indication appears to eject the disk. Press the EXECUTE/YES key after [Eject] is selected.

When the disk is ejected, then a prompt to [Insert Disk] will appear on the display. Insert another disk.

*** When inserting a disk that was used as the current drive**

[Wrong Disk] will briefly appear, the [Disk Format?] menu of the SETUP mode will appear for backup formatting, then the following indication will appear.



If it is okay to proceed formatting, then execute the formatting process as done in the above case. If it is not okay to proceed formatting, then turn the JOG dial to select [Eject] to eject the disk.

The save operations can automatically be resumed in such manner when the disk is formatted as a backup disk or when a program is deleted.

Saving all Programs (Save ALL)

1. Follow Steps 1 through 5 of the "Saving an individual Program" procedure.

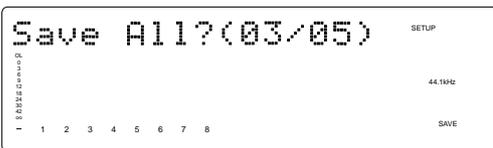
2. Use the JOG dial to select "Save ALL?" ("?" flashes.).

Selecting "Save All?" will cause the following display to appear.

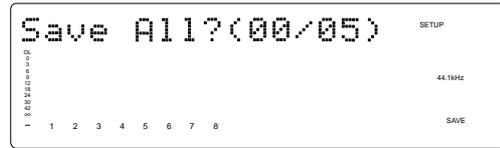


This indicates the number of ALL the programs being saved and the actual number of programs that can be saved. The number on the right side of (**/**) indicates the total number of programs existing, and the number on the left side indicates the number of programs that can be saved.

Therefore, when the numbers on the left and right are equal then all the programs can be saved, as shown in the case above. However, you must note the following indications that are individually described.



"03/05" means that three Program out of five Programs can be saved.



"00/05" means that no Programs can be saved. If you press the EXECUTE/YES key at this point, "Void Command!" appears and you cannot proceed with the save operation.

<Note>

If you have selected "Save All", you cannot use multiple disks to save.
In this case, chose the save operation for an individual Program.

3. Press the EXECUTE/YES key ("SAVE" light up.)

The save process is started and save is taking place serially from Program 1. "COMPLETED!" lights up when the program is successfully saved.

4. Press the STOP button or the EXIT/NO key to return to the previous Time Base display.

<Note>

You cannot abort a load operation on a SCSI device while it is in progress.

Loading the data using SCSI

Here you are loading on the current drive, the data of each program or the data of all programs saved on the backup purpose SCSI hard disk. The prerequisite is that the current drive is an E-IDE hard disk, as in the case of save procedures mentioned earlier, and that a backup SCSI hard disk is connected to the D-108.

Load the data saved on one removable disk (or fixed disk).

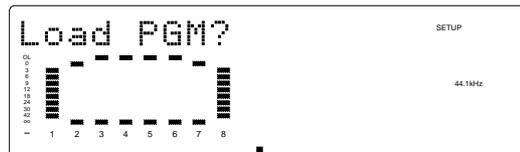
Load the program with the "Load PGM?" menu in the SETUP mode. This assumes that a saved disk is inserted in the backup purpose SCSI hard disk.

- * Input format available: adat, DAT, SCSI 6
- * Programs available: P01 - P99, or All Program
- * Track available: When using an adat or DAT: Tracks 1-8, Tracks 1-16, Tracks 1-24, Tracks 9-16, Tracks 9-24, Tracks 17-24;
 When using a SCSI disk: All tracks will be automatically selected.

1. Press the DISP SEL key to select "SETUP" ("SETUP" will flash) and press the EXECUTE/YES key. ("SETUP" will light up.)
The D-108 will enter the Setup mode.

2. Use the JOG dial to select "Load PGM?" ("?" will flash.).

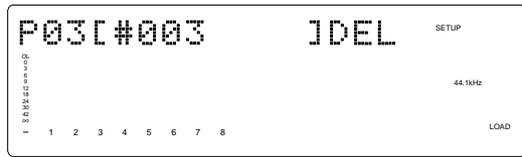
3. Press the EXECUTE/YES key. ("LOAD" will light.)
An indication of the type of the digital signal to be loaded will flash on the display.



4. Rotate the JOG dial to select a flashing “SCSI 6.”

5. Press the EXECUTE/YES key.

The external digital device is set to “SCSI 6,” and the existing Song numbers will flash on the display.



This is because the “Load All” operation will first erase any Program data on the disk before loading Song data. Pressing the EXECUTE/YES key at this point will cause “Delete All PGM?” (deleting all Programs) to appear, and then “SURE?” will flash.

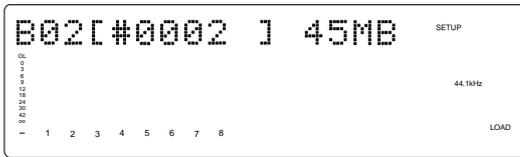
6. Rotate the JOG dial to select the data to load.

You can choose to load any existing Song individually or all Songs collectively.

The display indication differs as follows depending on whether you selected an individual Song number or all Song numbers.

*** When selecting a specific backup number**

The example shows that backup number 2 (B02) has 45MB of disk space (02 flashes).

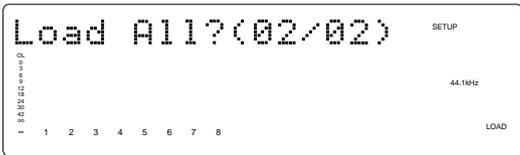


<Note>

Be careful when choosing "Load All?" since all programs on the load destination will be erased. Check to see that the data on the current drive is not important prior to going ahead with the "Load All?" procedure. If there is any important data on the disk, cancel the load process at this stage.

***When selecting all backup numbers**

This is an example of all backup data selected when there are two backup data present. (? flashes)



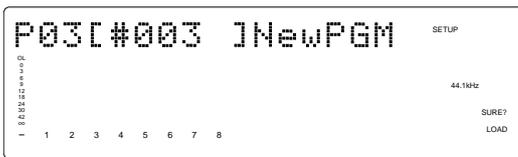
Turning the JOG dial in this state makes it possible to select another program for the load destination, as well as the "Eject" choice. To remove the disk at this point, select the "Eject" feature then press the EXECUTE/YES key.

7. Press the EXECUTE/YES key. (“SURE?” flashes.)

The load destination (current drive) program can now be selected. The following indications will appear when selecting individual or ALL programs in the previous step.

*** When selecting a specific backup number**

A prompt inquiring whether to setup a new program on the current drive appears (New PGM indication appears and [SURE?] flashes).



8. Press the EXECUTE/YES key.

Song data will be loaded to the selected Program. If, for example, backup 1 is started for Program 1, then "B01>>P1 ***MB" will appear, "REMAIN" lights up, load proceeds, and "***MB (program size)" is counted down, when individual programs are loaded.

If the EXECUTE/YES key is pressed to load all programs, then the display will show "Delete ALL PGM?". Loading is started when the EXECUTE/YES key is pressed again.

When the load operation is complete, “COMPLETED!” will light and the D-108 will display the Time Base that was shown before the unit entered the Setup mode.

Turning the JOG dial in this state makes it possible to select another program, other than the above, on the current drive. The size of the program appears when the program is selected. If you select a program that is already recorded with data and load is executed for the load destination, the existing data is deleted while loading takes place.

If you do not want to overwrite the existing data, select "New PGM" mentioned above, prior to loading.

9. Press the STOP button or the EXECUTE/YES key, and “COMPLETED!” will turn off.

<Note>

You cannot abort a load operation on a SCSI device while it is in progress.

*** If you have selected “Load All?(**/**):**

The D-108 will indicate the destination Program number on the internal hard disk. Use the JOG dial to select a desired destination Program number into which to load data.

If the destination hard disk already contains data and you select a Program, “DEL” (Delete) appears following the Program number.

Loading data saved on several removable disks

As an example here, we will load the data of a Program saved onto two removable disks.

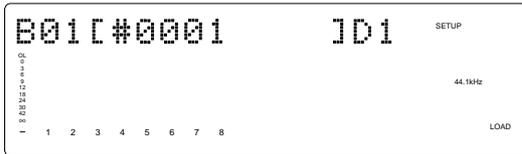
1. Insert the first disk (Disk-1) into the SCSI device.

<Note>
 Make sure that you insert the disks in the correct order. If you insert the wrong disk, the D-108 displays [Wrong disk] -> [Illegal No!] and ejects the disk. Follow the disk markings you made during the save operation.

2. Follow Steps 1-4 of the "Loading Song data" procedure.

3. Select "SCSI" and press the EXECUTE/YES key. ("LOAD" lights up).

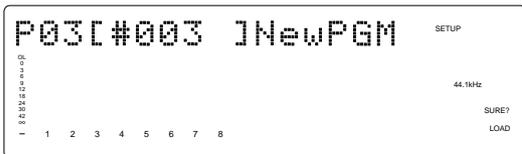
The external digital device is set to "SCSI". The display flashes the number of the existing Backup data in the SCSI disk, and then indicates that the first disk has been inserted.



Rotating the JOG dial will toggle between "B01" and "Eject." If you wish to cancel the load operation and remove the disk, select "Eject" and press the EXECUTE/YES key.

4. Press the EXECUTE/YES key after "B01[#0001]D1" appears.

A prompt inquiring whether to set a new program on the current drive which is the load destination will appear. ([New PGM] appears and [SURE?] flashes.)



Turning the JOG dial in this state makes it possible to select a program on the current drive. The size of the program appears when the program is selected.

If you select a program that is already recorded with data and load is executed for the load destination, the existing data is deleted while loading takes place. If you do not want to overwrite the existing data, select "New PGM" mentioned above, prior to loading.

5. Press the EXECUTE/YES key after selecting the program.

Loading is started and the display will show "B01>>P**.***MB". This indicates that the backup data (B01) on the SCSI harddisk is being loaded on the current drive program (P**). The "**.***MB" (load size) is counted down as loading proceeds.

When Disk 1 loading is completed, an "Insert Disk 2" message appears, and Disk 1 is automatically ejected.

6. Insert Disk 2 (second disk) into the SCSI hard disk drive according to what the display requests.

Loading automatically resumes when Disk 2 is inserted.

The display will show the same count down as shown for Disk 1. The size of the program is counted down along with the load process.

When all data is loaded, "COMPLETED!" lights up, and the program time base (ABS 0) started up prior to going into the SETUP mode will appear.

The "COMPLETED!" prompt can be canceled by pressing the EXIT/NO key or STOP button.

<Note>
 You cannot abort a load operation on a SCSI device while it is in progress.

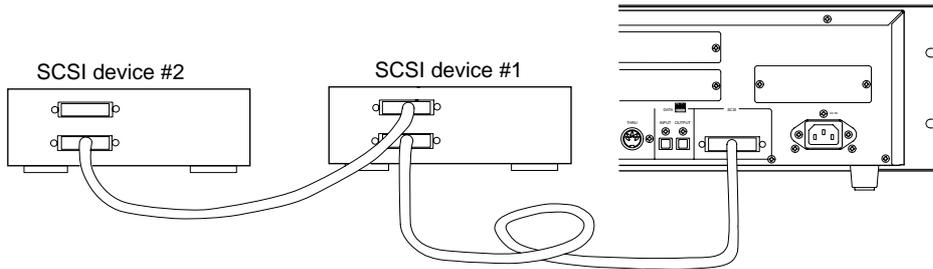
Saving or loading using a SCSI hard disk as the current drive

The [SAVE/LOAD] process described up to the previous page is based on the prerequisite that an E-IDE hard disk is used as the current drive. This section will describe the procedures necessary for the SAVE/LOAD process when using a SCSI drive as the current drive.

SAVE/LOAD procedures using a SCSI drive, DAT, adat or backup purpose SCSI drive as the current drive are basically the same as when using an E-IDE hard disk. However, you must be careful of the following points when using a SCSI drive as the current drive.

Backup drive connections

Connect the backup purpose SCSI disk to the other open SCSI terminal of the SCSI device that is already connected as the current drive, as shown in the figure below. (there is no specific chronological order concerned when connecting the equipment)

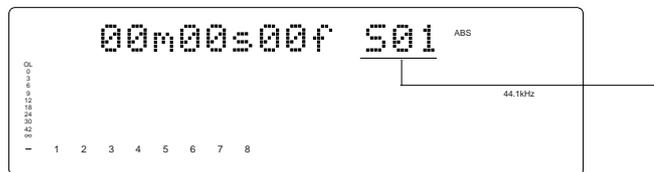


<Note>
 Always terminate the empty SCSI terminal of the second SCSI device using a SCSI terminator when connecting a second SCSI device. Leave the termination switch ON if the Zip or other SCSI devices are switched type systems. When using a switched SCSI device for both the current drive and backup drive, turn the switch OFF for the first device and the switch ON for the second device.

<Setting the ID number (IMPORTANT!)>
 Set the SCSI devices that is the current drive with ID numbers 1, 2, 3, 4 or 5. Do not use ID number 6 for the current drive. Always assign the backup equipment to ID number "6".

Switching the current drive

The current drive can be mounted with the SCSI device by turning on the power if only a SCSI device is used as the current drive (no E-IDE harddisk mounted). However, if both E-IDE harddisk and SCSI devices are used, the E-IDE hard disk always mounts as the current drive when the power is turned ON. Based on this fact, to SAVE/LOAD data recorded on the current drive that is a SCSI device, there is a need to switch the current drive to the SCSI device through the "Drive Sol.?" (current drive setup) menu in the SETUP mode. Check to see that the display resembles the following figure prior to proceeding with the SAVE/LOAD process.



<Note>
 If the current drive is an E-IDE harddisk then the program displayed during the SAVE/LOAD process will come with a [P] (standing for Program) prefix, in the manner of P01, P02, etc.
 If the current drive is a SCSI device then the program displayed during the SAVE/LOAD process is differentiated with a [S] (standing for SCSI) prefix, in the manner of S01, S02, etc.
 Further, in the case of a backup purpose SCSI device the prefix will be a [B] (standing for backup) prefix, in the manner of B01, B02, etc.
 Keep this in mind when executing "SAVE/LOAD" operations as mentioned earlier.

SAVE/LOAD using a DOS-formatted disk (WAV file)

As mentioned earlier in the SAVE/LOAD procedures using a SCSI disk, you can setup the D-108 with a DOS-formatted disk, in addition to the usual backup disk, to SAVE/LOAD in WAVE file (RIFF WAVE file format, hereafter WAV). Data saved or loaded in WAV file allows the user to save and re-read data as in the earlier case of "SAVE/LOAD". The data saved is read into the computer (PC AT) and can be used as materials to play or edit using music software that run WAV.

<Formatting>

The D-108 does not have the function to format disks in DOS from the "Disk Format?" menu in the SETUP mode. Therefore, all disks used to save or load WAV must be pre-formatted on the computer prior to use. When formatting in DOS format a removable disk or a fixed disk with more than 2GB space you may have to select a file format of either [FAT16] or [FAT32]. The D-108 is only compatible with the [FAT16] file format. Make a point to select only the [FAT16] file format when formatting a disk. Note that disks that are formatted in [FAT16] can only have up to a maximum of 2GB of space in one area. This means, that regardless of how much disk space there is, the D-108 can only recognize data up to 2GB in size. Also note that saving and loading in WAV is not compatible with partitioning. Therefore, the system will only recognize the first partition of harddisks that have been partitioned. The other partitions will not be recognized at all.

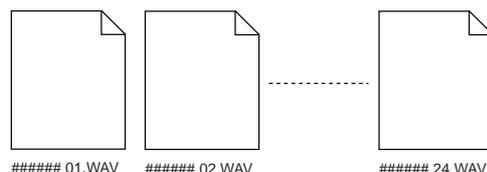
To save or load in WAV, always use a disk that has been newly formatted. Using a disk that has been previously saved or loaded may result in slower access speed.

<Note 1>

Saving and loading in WAV only accesses the file on the route and therefore, the folder is not recognized. Note that there is a limit to the number of characters and symbols that can be input for the title since DOS file names only allow for 8 characters and an extension (.WAV) and cannot accommodate long file names. Therefore the title input on the current drive may be replaced with other characters/symbols when saved. It is important to input a recognizable title when saving the file. (For more details refer to "How To Save" operations described below)

WAV file names are identified with a 6 character file name, with the remaining 2 characters indicating the track number (equaling 8 characters). The track number is automatically assigned when the file is saved.

When saving one program (song) in WAV, 24 WAV files as shown in the figure below are created (1 file for 1 track). Files like that shown in the figure below are created for tracks that are not recorded, as well. ##### (6 characters) indicates the title name and 01, 02 indicates the track number. (Example: icon indication)



<Note 2>

It is recommended that you always backup the data on the current drive prior to saving or loading on a DOS formatted disk to prevent damaging or losing the data due to error taking place on the D-108.

<Note 3>

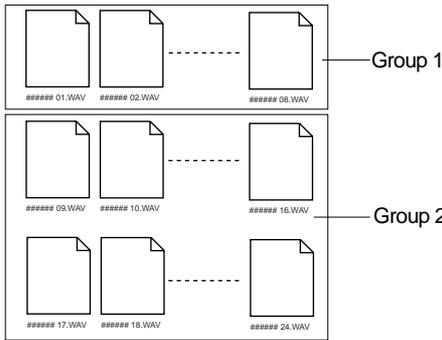
Saving in WAV also saves the silent range as "Zero Data", therefore, it may take more disk space. If, for example, 2 minutes of space are recorded, with a breakdown of 1 minute between the points ABS 0" to ABS 1", and 1 minute between ABS 10" to ABS 11" (ABS 1 minutes to 10 minutes are not recorded), only 2 minutes worth of space are consumed on the current drive, however in WAV, a total of 11 minutes of space is consumed.

<Keep In Mind!>

As it was already mentioned earlier, saving files in WAV will save all the program data on the current drive. If the saved titles of the files on tracks 1-24 are the same, all data of the track can be loaded, as in the case with the save function. It is also possible to load only the voluntary track data saved with WAV.

This, for example, means that a voluntary track from the track data saved can be edited with computer software and allow for you to load only that track data. Simply put, data can be freely loaded in such manner.

To make this possible the title name of the file and the extension (.WAV) mentioned earlier play an important role. Remember, WAV recognizes a file by the 6 character title plus the 2 digit track number, along with the extension following the (8 character) file name. Therefore, those identifiers can be changed so that the file is not recognized. (Refer to following example)



Let's, for example change the title name of the files for track 1-8, of the files saved (all title names are the same) as shown in the left figure.

This means it is now possible to individually select Group 1 and Group 2 when loading the file. If, for example, you want to load only the data of tracks 1-8, select Group 1. If you want to load only tracks 9-24, then select Group 2 to execute the process. If you want to save each track individually, all you have to do is give respective titles to each track, in a similar manner.

There is also the option to store a file that you do not want to load in a folder that was separately created in addition to this, on the disk. WAV only recognizes the files on the disk and does not recognize a folder, therefore WAV can only load the files that are outside the folders.

<Note>: Do not use a disk created with folders in such manner, for save purposes. If you do, there will be an error generated in the remaining disk space when saving data, which will prevent the data from being saved properly. When using such disk for save purposes always take the file out of the folder.

<Note when loading voluntary track data>

When loading with WAV, data is overwritten while being loaded. If data already exists as a program on the current drive, then the existing data will be overwritten for the amount of the data loaded.

You can also effectively use this feature when loading a similar program on the program saved, since it is possible to edit only the voluntary track on the computer and then load that data back to the original program. If for example, you want to load the data of only tracks 1-8 on a program that is already recorded with data of tracks 1-24, then only tracks 1-8 that are loaded are overwritten, and the previous data of tracks 9-24 remain intact. However, there is a need to be very careful when applying this procedure to load different programs since the loaded program result in a mixture of different data.

Saving with WAV file...

The following procedure is based on the prerequisite that the backup purpose SCSI drive is set with a DOS formatted disk and the current drive is an E-IDE disk.

1. Press the DISP SEL key to go to the "SETUP" menu, then press the EXECUTE/YES key.

This will put you in the SETUP mode.

2. Select "Save PGM?" ("?" is flashing) with the JOG dial, then press the EXECUTE/YES key.

The digital signal that is currently set to be saved flashes.

3. Use the JOG dial to select "SCSI 6" that is flashing then press the EXECUTE/YES key.

The [Drive Name] and [DOS format] appears, then the program number of the current drive flashes as when saving to a SCSI disk, as mentioned earlier.

4. Use the JOG dial to select the program to save.

When selecting a program that can be saved on one disk, only the program number flashes.

When selecting a program that requires multiple disks to be saved on, the program number flashes, along with the size indication and the number of disks required to save the data that will alternately flash.

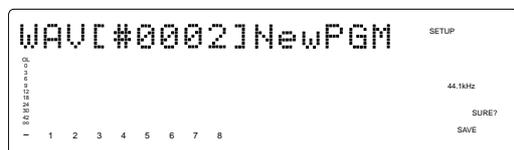
There is no "Save All" option when saving with WAV.

If only one program that can be selected exists, the indication will remain the same even if the JOG dial is turned.

5. After selecting the program to save, press the EXECUTE/YES key.

The indication to create a new program appears on the DOS disk that is the save site, then [SURE?] flashes.

You can select [Eject] (eject disk) by turning the JOG dial at this time.



6. Press the EXECUTE/YES key again.

The menu to input the title of the data being saved will appear. The beginning of the title flashes. By turning the JOG dial of the flashing point you can input the number or symbol desired. You can move the flashing point (cursor) with the HOLD/> key or SHUTTLE dial. Refer to the <Note> mentioned earlier, to input the title.

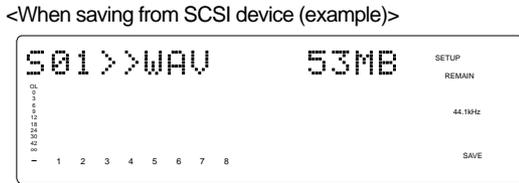
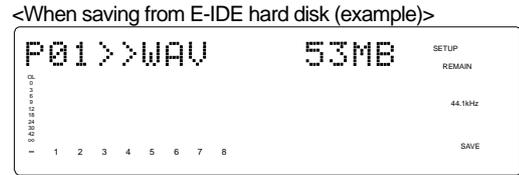
<Note>
 WAV can only recognize 6 characters in a title. Always create a title with 6 characters. If you attempt to save a long title that was input on the current drive, the alphabet and symbols may be replaced with alphabets and symbols that WAV can recognize (within WAV's limit), with only up to 6 characters being valid. If, for example, a title was made in lower case on the current drive, it may be replaced with upper case characters on WAV.

You can input the following alphanumeric and symbols at this stage.

Number: 0-9
Symbol: ! # \$ % & ' () @ ^ _ -
Alphabet: A-Z

7. Input the title then press the EXECUTE/YES key.

The title is saved and the following indication appears. The following example may appear depending on the current drive. The save progress and the size indication is counted down.



When the save process is completed, the time base indication of the program that was started prior to entering the SETUP mode appears, and [COMPLETED!] lights up.

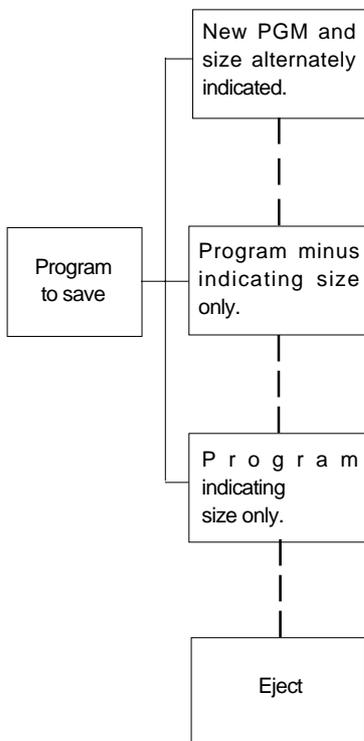
8. Press the EXIT/NO key or STOP button.

[COMPLETED!] turn OFF.

<Note when using a disk that is already saved with other programs>

The instructions indicated above apply to a disk without any data saved on it (immediately after formatting). However, when using a disk with data already on it, the program saved can be selected in the following manner.

By turning the JOG dial the program, New PGM and Eject operations of the save side can alternately be selected.



This refers to creation of a new program on the disk. However, it indicates that there is not enough disk space "indicated" to create a new program. If save is attempted by selecting this indication a [Disk Full!] message appears, followed by a [Delete All WAV?] message. If you proceed with the save process all programs on the disk are erased, and only the new data is saved. ALL Programs data on the disk are erased and the newly saved data only is saved on the disk.

This indicates that there is not enough space "indicated" to save the program selected. If save is attempted by selecting this indication a [Disk Full!] message appears, followed by a [Delete All WAV?] message. If you proceed with the save process all programs on the disk are erased, and only the new data is saved. ALL Programs data on the disk are erased and the newly saved data only is saved on the disk.

This indicates that there is enough space on the disk to save the program selected. If save is attempted by selecting this indication, a [DEL] indication appears after the Program indication. Saving in such manner will erase only the selected programs, while saving. In other words, only the selected data is overwritten with new data and the other programs remain intact.

You can eject the disk by selecting this indication and pressing the EXECUTE/YES key. Select this indication to cancel the save process or to switch disks.

<Note>

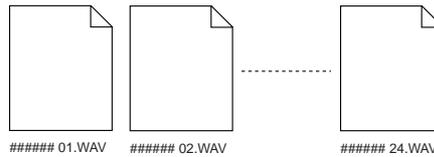
Note that the access speed of the disk is compromised when using a disk that has been repeatedly saved or loaded and overwritten with data many times, such as in the above mentioned manner. It is recommended that you use a newly formatted disk to prevent any compensation in speed.

Loading with WAV file

The following procedures are based on the prerequisite that the backup purpose SCSI drive is set with a disk saved in WAV, with a current drive that is an E-IDE harddisk.

<Note when loading>

When data that is already saved is edited on the computer and then saved on the computer, be careful of any changes in the title. It is possible to completely load the files of all tracks if the title name remain the same as when they were saved. However, if due to some reason a voluntary file is attempted to be saved under a different title name, the D-108 will recognize this as multiple files, as described earlier. Before changing the title, always check to see that the title only consists 6 characters, that the track number is correctly input, and the title comes with an "extension" (.WAV), prior to loading. The file cannot be recognized when loading the file if the title is longer than 6 characters, the track number is incorrect, or if the title contains no extension. Therefore, it is important that these prerequisites are properly observed.



<Note when inputting a title on the computer>

You must use the following symbols and alphanumerics to use the computer to input the title name of the data saved. If you use any alphanumerics or symbols other than those indicated below, the file on the disk may not be recognized. It is important that you do not use any spaces between characters, as well.

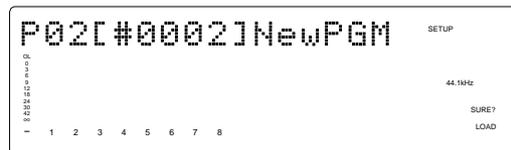
Number: 0-9
Symbol: ! # \$ % & ' () @ ^ _ -
Alphabet: A-Z

<Hint!>

You can switch tracks upon loading if the track number (only) is changed prior to loading while the title remains the same, as when conducting Track Exchange. For example, if you change [#####02.WAV] to [#####05.WAV], and change [#####05.WAV] to [#####02.WAV] and attempt loading, tracks 2 and 5 will be replaced with each other.

1. Press the DISP SEL key to go to the "SETUP" menu, then press the EXECUTE/YES key.

This will put you in the SETUP mode.



2. Select "Load PGM?" ("?" is flashing) with the JOG dial, then press the EXECUTE/YES key.

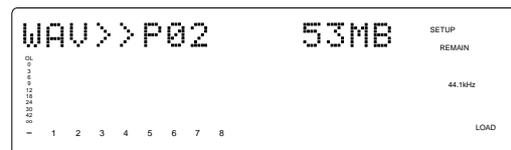
The digital signal that is currently set to be loaded flashes.

6. Press the EXECUTE/YES key again.

Select the menu to create a new program and execute loading to immediately start loading that program. If an existing program is selected to be loaded, [Overwrite!] will appear on the display, followed by a flashing [SURE?] message. If you proceed with this procedure the existing program data is overwritten while loading takes place. Continue the procedure by pressing the EXECUTE/YES key to start loading while overwriting data.

3. Use the JOG dial to select "SCSI 6" that is flashing then press the EXECUTE/YES key.

The [Drive Name] and [DOS format] appears, then the program size saved appears and [SURE?] flashes.



4. Use the JOG dial to select the program to load.

If there are several programs saved on the disk, use the JOG dial to select the Program/Size of the program saved or select [Eject] to eject the disk.

If there is only 1 program saved on the disk, you can only select the Program or [Eject] option even if the JOG dial is turned for other choices.

When loading is completed the [COMPLETED!] indication lights up, and the time base indication of the program that was started prior to entering the SETUP mode, appears.

5. After selecting the program to load, press the EXECUTE/YES key.

The indication to create a new program appears on the load destination E-IDE harddisk and [SURE?] flashes. You can select the Program/Size of the files existing on the E-IDE harddisk by turning the JOG dial at this time.

7. Press the EXIT/NO key or STOP button.

Only the [COMPLETED!] message turn OFF.

Changing the Initial Settings (SETUP Mode)

SETUP mode of the D-108 offers the “Changing the initial settings” menus that configure the operating environment of the D-108, a “Check” menu that enables you to check the number of events of each track, and the “Execution” menus that execute certain operations, such as save and load.

The “Changing the initial settings” menus include 20 parameters as shown in Table-1 below. These parameters were set before the unit was shipped from the factory (These values are called the “initial settings.”). Modifying these settings allows you to change the operating environment of the D-108.

The “Check” menu provides one parameter “Checking the number of events” as shown in Table-2.

Also, as shown in Table-3, the “Execution” menus include six items: Title Edit?, Delete. PGM?, Load PGM?, Save PGM?, and Disk Format?, which you can execute by selecting the corresponding SETUP menu. This chapter explains how to use the “Changing the initial settings” menus shown in Table-1 and the “Check” menu shown in Table-2. For more information on the “Execution” menus, refer to the corresponding pages in the “Reference page” column in Table-3.

<Table-1> “Changing the initial settings” menu

Parameters	Display	Default setting	Refer page	Community
Setting a time signature	Signature Set ?	001BAR 4/4	108	○
Setting a Tempo	Tempo Map Set ?	001BAR 1↓120	109	○
Setting the metronome function	Click ↓ ?	oFF	111	○
Setting a preroll time	Preroll Time ?	00	111	○
Setting MIDI sync output signal	MIDI Sync OUT ?	CLK (Clock)	112	○
Setting an MTC frame rate	Frame Rate ?	25 frame	113	○
Setting an MTC offset value	MTC OFFSET	00H 59M 57S 00F 00SF	113	○
Setting Offset mode	Offset Mode ?	ABS	114	○
Setting the slave mode	Slave Mode ?	oFF	115	○
Setting the reference time code	Ref. TC ? Void	Available with option Model 8345 (Refer to the 8345 manual)		
Setting the slave type	Slave Type ?	VAri	116	○
Setting the record protect function	Rec Protect ?	oFF	117	○
Setting digital input tracks	Digi in ?	L- R- (No assign)	117	●
Setting digital output tracks	Digi out ?	adat	119	●
Setting BAR/BEAT resolution mode	↓ Resolution ?	oFF	120	●
Setting the MIDI device ID number	Device ID ?	00	120	●
Setting the sampling rate	Sample Rate ?	44.1	121	○
Setting the operating Clock	Clock Sel. ?	Int	122	●
Setting the sync preset	Sync Preset ?	Available with option Model 8345 (Refer to the 8345 manual)		
Setting the current drive	Drive Sel. ?	IDE	123	*

○ Modes applicable program by program. They can be saved/loaded.

● Modes applicable to all programs. They cannot be saved/loaded.

<Table-2> “Check” menu

Check item	Display	Refer page	Community
Check of the Event number on the track.	NOs Of Event ?	123	-

<Table-3> “Execution” menu

Execution item	Display	Refer page	Community
Deleting a Program	Delete PGM ?	37	-
Editing a Program title	Title Edit PGM ?	38	-
Saving song data to an external digital device	Save PGM ?	88	-
Loading song data from an external digital device	Load PGM ?	88	-
Formatting an current drive disk	Disk Format ?	29	-
Track swapping	Track Exchange ?	73	-

Selecting SETUP mode

Follow the steps below to select the desired SETUP menu in SETUP mode.

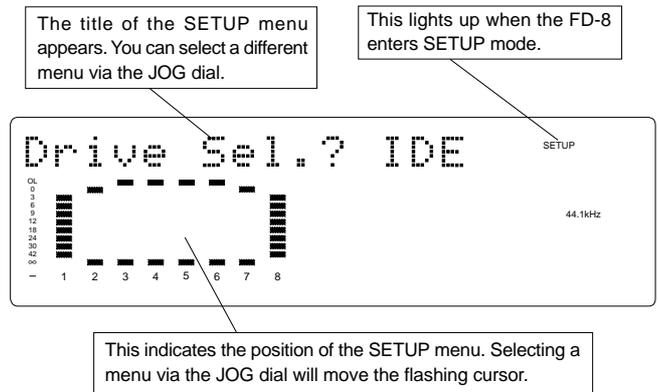
1. While the D-108 is stopped, switch to the SETUP display by pressing the DISP SEL key, and then press the EXECUTE/YES key.

The SETUP display stops flashing. This is the first step in the SETUP mode.

The position of the SETUP menu that you choose will start flashing on the level meters. Each SETUP menu has a dedicated position in the FL tube display.

Note: With the factory initial settings, or when you turn on the power again after you format a current drive disk, "Drive Sel? (Setting a current drive)" appears. Otherwise, the first hierarchy level of the previously-selected SETUP menu appears.

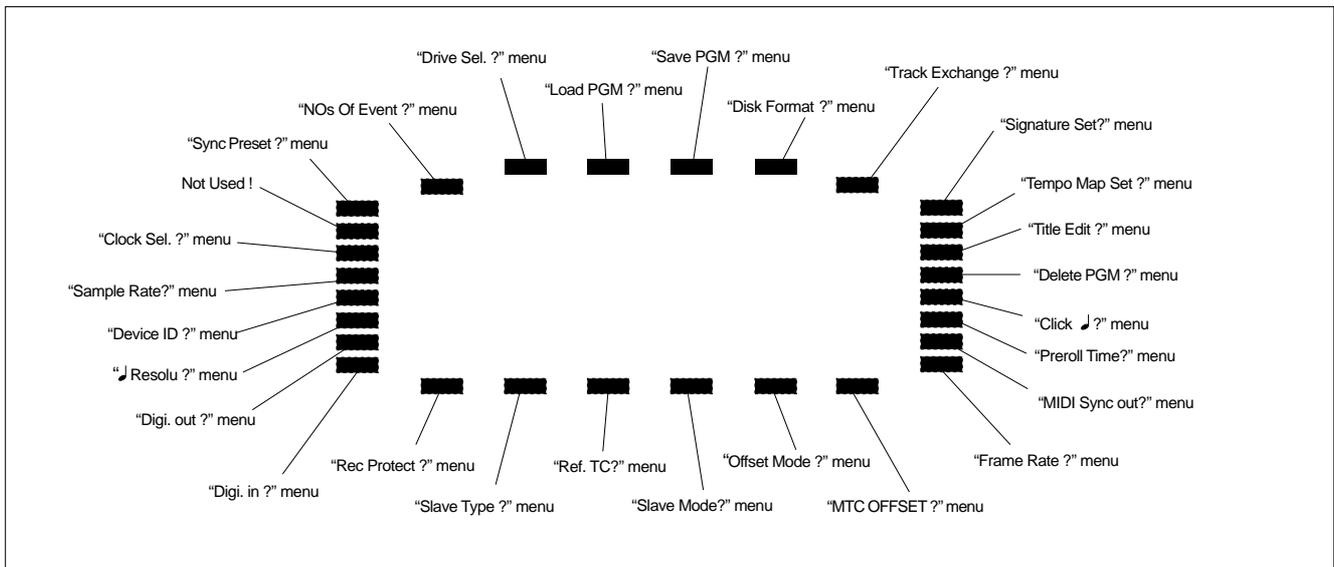
To exit SETUP mode, press the STOP button or the EXIT/NO key. Each time you press one of these keys, the D-108 returns to the previous hierarchy level of the menu, and finally exits SETUP mode.



2. Select the desired menu using the JOG dial, then press the EXECUTE/YES key.

The D-108 displays the second hierarchy level of the selected SETUP menu, where you can set parameters.

The following diagram shows the position of each menu.



Note: This feature also shows these two menus; "Ref. TC ?", and "Sync Preset ?". However, since these menus will only work when the optional accessory Model 8345 is installed, there is no explanation of these functions in manual. Refer to the Model 8345 manual for details.

Time Signature Setting ("Signature Set?")

This mode sets up the time signature of a song.

The way it sets this up is, for example, to start a song with a 4/4 beat from the first bar, then to change it to a 2/4 beat at bar number 17. The time signature and next section tempo setting make up a tempo map.

After the tempo map is figured out by completing the time signature and tempo setting, the D-108 will be able to handle "BAR / BEAT/CLOCK" and the metronome function. You need to set up the time signature and tempo to generate the MIDI Clock & Song Position Pointer.

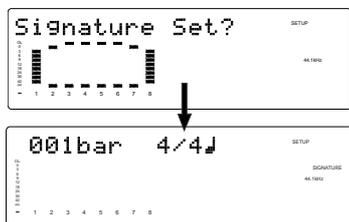
* Refer to page "117" for details of "MIDI Clock Synchronization".

- * Initial Setting: 001bar 4/4 beat
- * Available bars: 001 ~ 999
- * Available time signature: 1/4, 2/4, 3/4, 4/4, 5/4, 1/8, 3/8, 5/8, 6/8, 7/8, 8/8, - / - (Delete)
- * Maximum setting points : 64
- * The setting is applicable song by song.
- * The setting can be saved or loaded as a part of the song data
- * The setting is memorized even when the power is off.
- * Make sure you choose the right program before setting this mode.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display stops flashing.

2. Choose "Signature Set?" with the JOG dial.
The "?" display will start flashing.

3. Press the EXECUTE/YES key.
The D-108 will display "SIGNATURE" and the last recalled bar number with the time signature that has been registered. In the case of the initial setting, as only the first bar is registered with a 4/4 beat, it will show "001 bar, 4/4 beat".



Time Signature Setting Check

4. Turn the JOG dial when the D-108 displays "SIGNATURE".
If there are some setting changes registered in a song, you can see the next set up point by rotating the JOG dial clockwise. ("*** bar */* ♪)
If you turn the JOG dial fully clockwise, "- - - bar - / - ♪" will be displayed. This means there are no more time signature changing points registered.

<Note>

The D-108 counts a beat with the last registered time signature, i.e. one bar before the "- - - bar - / - ♪". In the case of the initial setting, because only the first bar is registered with a 4/4 beat, the beat counts with a 4/4 beat until the end unless you register a different time signature after the second bar.

Time Signature Register

5. Press the EXECUTE/YES key when the D-108 displays "SIGNATURE".
The display will show "- / - ♪" flashing to allow you to enter a new time signature changing point.

6. Use either the HOLD/> key or SHUTTLE dial to choose "bar" or "♪ beat". Then, use the JOG dial to enter the bar number or time signature you want.

The bar numbers you can enter are from 001 to 999. And the time signatures you can enter are "1/4, 2/4, 3/4, 4/4, 5/4, 1/8, 3/8, 5/8, 6/8, 7/8, 8/8".
For your information, the "- / -" means "No Signature registered" and can be used to delete a signature change point. When you turn the JOG dial while the display shows "*** bar" flashing, it will either show the time signature as "*/*" on the already registered bars or as "- / -" if a bar has no time signature registered.

7. Press the EXECUTE/YES key after you have entered a required bar number and time signature.

The setting will now be registered. Then, the display will go back to Item 5 and show "*** bar" flashing, allowing you to enter a new time signature setting.

8. Repeat the procedures described in items 5 ~ 7 to register further time signatures.

* Press either the STOP button or EXIT/NO key to return from the second step to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

<Note>

You can register the setting up to 64 points. If you try to register over 64 points, the 65th point onwards will be ignored.

Time Signature Edit & Delete

Follow the procedures described as in Items 1 ~ 5.

6. When the display shows flashing "* bar", choose the bar that carries the signature you want to edit with the JOG dial.**

7. Press the HOLD/> key or turn the shuttle dial to choose the "*/*".

The flashing display will move to the "*/*" and allows you to change the time signature setting.

8. With the JOG dial, choose a required time signature.

If you choose "- / -", the time signature on the bar will be deleted.

9. Press the EXECUTE/YES key after you have changed or deleted the time signature on the bar number you wanted.

The setting will now be registered. Then, the display will return to Item 5 and show "*** bar" flashing, which allows you to enter a new time signature setting.

* Press either the STOP button or EXIT/NO key to return from the second step to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

<Note>

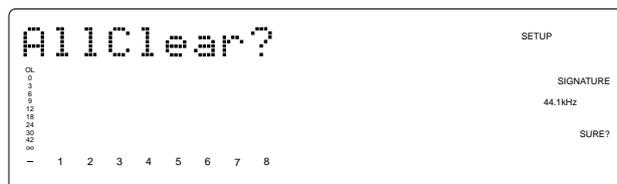
You cannot register the "- / -" setting on the 001bar.

Delete all Time Signature Setting at once

Follow the procedures described as in items 1 ~ 5.

6. While the display shows "* bar" flashing, turn the JOG dial fully counter clockwise.**

The display will now show "All Clear?" and flashing "SURE?".



7. Press the EXECUTE/YES key to proceed.

All the registered time signature settings will be erased and go back to the initial setting. Then, the display will go back to item 5 and show "*** bar" flashing.

<Note>

Be careful because this procedure wipes out the tempo setting as well as time signature setting.

* Press either the STOP button or EXIT/NO key to return from the second step to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

Tempo Setting ("Tempo Map Set?")

This mode sets up the tempo on a song. The way it sets this up is, for example, for the tempo to become 150 bpm at the 3rd beat in the 12th bar. The tempo setting and time signature in the previous section make up a tempo map. After the tempo map has been calculated by completing the tempo and time signature setting, the D-108 will be able to handle "BAR /BEAT/CLOCK" and the metronome function. You need to set up the tempo and time signature to generate the MIDI Clock & Song Position Pointer.

* Refer to page "75" for details of "MIDI Clock Synchronization".

- * Initial Setting: 001bar 1st beat 120 bpm
- * Bar to register: Follows to the time signature setting
- * Beat to register : Follows to the time signature setting
- * Available tempo : 30 ~ 250, - - (Delete)
- * Maximum setting points : 64
- * The setting is applicable song by song.
- * The setting can be saved or loaded as a part of the song data
- * The setting is memorized even when the power is off.
- * Make sure you choose the right program before setting this mode.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.

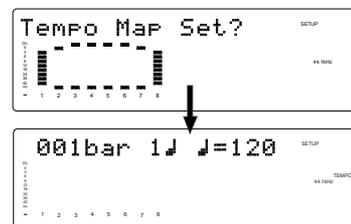
The SETUP display will stop flashing.

2. Choose "Tempo Map Set?" with the JOG dial.

The "?" display will start flashing.

3. Press the EXECUTE/YES key.

The D-108 will display "TEMPO" and last recalled bar number with its tempo setting which is already registered. In the case of the initial setting, because only the first bar, first beat is registered with a 120 bpm, it will show "001bar 1 ♩ =120".

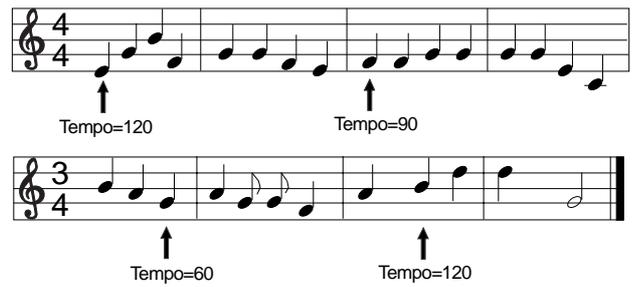


Tempo Setting Check

4. Turn the JOG dial when the D-108 displays "TEMPO".

If there are some setting changes registered in a song, you can see the next set up point by rotating the JOG dial clockwise. ("***bar * ♩ =***") If you turn the JOG dial fully clockwise, "--- bar - ♩, ♩ = ---" will be displayed. This means there is no more tempo changing points registered.

<Note>
 The D-108 counts a beat with the last registered tempo, i.e. one bar before the "- - -bar - ♪ ♪ = - - -". In the case of the initial setting, because only the first beat of first bar is registered with a 120 bpm, the beat counts with a 120 bpm until the end unless you register a different tempo after the second beat of first bar.



Tempo Register

5. Press the EXECUTE/YES key when the D-108 displays "TEMPO".

The display will show flashing "***bar" so that it allows you to enter a new tempo changing point.

6. Use either the HOLD/> key or SHUTTLE dial to choose "bar", "♪ beat" or "TEMPO".

Then, use the JOG dial to enter a required bar/beat and tempo that you want to register.

The bar numbers and beat you can enter follows the time signature setting described in the previous section, and the tempo settings you can enter are 30 ~ 250 bpm.

For your information, the "- - -" means "No tempo setting registered" and can be used to delete a tempo change point. When you turn the JOG dial while the display shows "***bar" or "* ♪" flashing, it will either show the tempo as "****" on the already registered bar/beat or as "- - -" if a bar/beat has no tempo setting registered.

7. Press the EXECUTE/YES key after you have entered a required bar/beat and tempo.

The setting will now be registered. Then, the display will go back to Item 5 and show "***bar" flashing so which you to enter a new tempo setting.

8. Repeat the procedures described in items 5~7 to register further tempo settings.

* Press either the STOP button or EXIT/NO key to return from the second step to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

<Note>
 You can register the setting up to 64 points. If you try to register over 64 points, the 65th point onwards will be ignored.

Example : A tempo map can be setup as in the following example, i.e. set the required tempo after having set time signature.

Tempo Map	
Time signature setting	Tempo setting
001 BAR 4 ♪ 4	001 BAR 1 ♪ TEMPO 120 003 BAR 1 ♪ TEMPO 90
005 BAR 3 ♪ 4	005 BAR 3 ♪ TEMPO 60 007 BAR 2 ♪ TEMPO 120

Tempo Setting Edit or Delete

Follow the procedures described as in Items 1~5.

6. Use either the HOLD/> key or SHUTTLE dial to choose "bar", "♪ beat" or "TEMPO".

Then, use the JOG dial to enter a required bar/beat and tempo that you want to edit. The display will show tempo as "****" on the already registered bar/beat.

7. Press the HOLD/> key or turn the shuttle dial to choose the "♪ =***".

The flashing display will move to "♪ =***" so that it allows you to change the tempo setting.

8. With the JOG dial, choose a required tempo.

If you choose "- - -", the tempo setting on the bar/beat will be deleted.

9. Press the EXECUTE/YES key after you have changed or deleted the tempo setting on the bar/beat you wanted.

The setting will now be registered. Then, the display will go back to Item 5 and show "***bar" flashing, which allows you to enter a new tempo setting.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other setup mode, or eventually return to the normal time base display.

<Note>
 You cannot register the "- - -" at the 001 bar 1 ♪.

Delete all Tempo Setting at once

If you proceed with "Delete all Time Signature Setting at once" as described in the previous section, the D-108 will erase all the tempo settings as well as the time signature settings.

* Refer to the "Delete all Time Signature Setting at once" section for details.

Metronome Setting ("Click ♪? ")

The D-108 is able to generate the metronome click tone according to the tempo map figured out by the time signature and tempo setting. You can record a track at the same time as listening to the metronome click tone. If you set this mode to ON, track 8 will generate the metronome click tone in either play or record mode.

<Note>

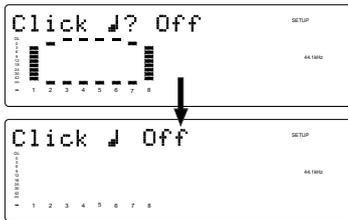
If you set this mode to ON, the D-108 cannot playback the recorded sound from track 8, as track 8 will be the click track exclusively. In conjunction with this, do not record track 8 with this mode on. If track 8 is in record mode, the click will not be generated.

- * Initial setting : Off
- * Available setting : Off, On
- * The setting is applicable song by song.
- * The setting can be saved or loaded as a part of song data
- * The setting is memorized even when the power is off.
- * Make sure to choose the right program before setting up this mode.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display stops flashing.

2. With the JOG dial, choose "Click ♪?".
The "?" display will start flashing.

3. Press the EXECUTE/YES key.
The display will start flashing either "Off" or "On" of current setting. In the case of initial setting it will show "Off".



4. Choose either ON or OFF with the JOG dial.

On	Click tone will be generated.
Off	Click tone will not be generated.

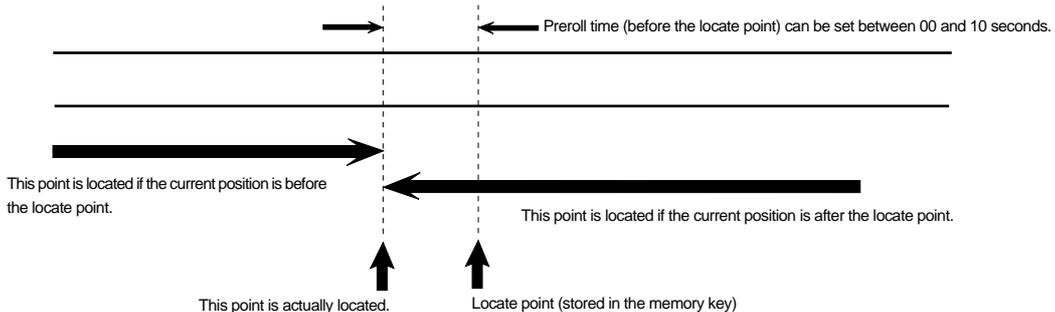
5. Press EXECUTE/YES key after choosing the setting you want.

* Press either the "STOP" button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

Preroll Time Setting ("Preroll Time ? ")

The D-108 has a preroll function, which stops at the backwards specified time location. This function is useful when you want to start monitoring the recorded audio from just before a locate point.

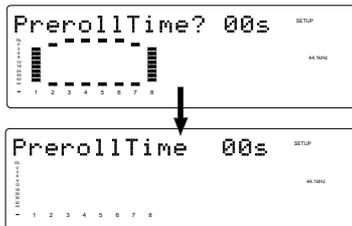
- * Initial setting : 00sec
- * Available setting : 00 ~10sec in 1sec step
- * The setting is applicable song by song.
- * The setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the powering off.
- * Make sure you choose the right program before setting up this mode.



1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display will stop flashing.

2. With the JOG dial, choose "Preroll Time?".
The "?" display will start flashing. The display will also show the current setting. In the case of initial setting, it will show 00 second.

3. Press the EXECUTE/YES key.
The current setting will start flashing "***" which indicates it is ready to change setting.



4. With the JOG dial, enter the required preroll time.
You can set the preroll time between 0 and 10 sec in 1 second steps. If you turn the JOG dial clockwise, the time value will increase. And if you turn the JOG dial counter clockwise, the time value will decrease vice versa.

5. Press the EXECUTE/YES key after you have entered the preroll time you want.
The setting will be registered and the display will go back to the Item 2 above.

* Press either the "STOP" button or EXIT/NO key to return from the second step menu to the first or to quit the SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

MIDI Sync Signal Output Setting ("Midi Sync Out ? ")

This mode sets up the type of MIDI sync signal for external MIDI equipment. The type of signal the D-108 outputs is either MIDI Clock & Song Position Pointer or MTC (MIDI Time Code). Choose one so that the external MIDI equipment can recognize it when synchronizing to the D-108. In case of the MIDI Clock & Song Position Pointer, you need to set the section "Time Signature" and section "Tempo as previously mentioned." In case of the MTC (MIDI Time Code), you need to set the section "MTC Frame Rate", "MTC Offset Time" and "MTC Offset Mode" described below.

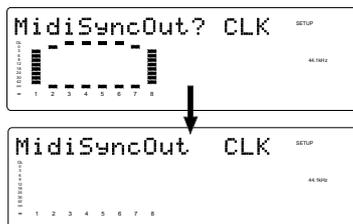
* See page "75" "MIDI Synchronization Function" for details of the MIDI sync.

- * Initial setting : CLK
- * Available setting : CLK (MIDI Clock & Song Position Pointer), MTC (MIDI Time Code), Off
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the power is off.
- * Make sure to choose the right program before setting up this mode.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display will stop flashing.

2. With the JOG dial, choose "Midi Sync Out?".
The "?" display will start flashing. The display will also show the current setting. In the case of initial setting, it will show CLK.

3. Press the EXECUTE/YES key.
The current setting will start flashing "***" which indicates it is ready to change setting.



4. With the JOG dial, enter a required Midi Sync Signal.
Choose the type of MIDI signal you want.

"CLK"	The D-108 generates the MIDI Clock & Song Position Pointer.
"MTC"	The D-108 generates the MIDI Time Code.
"Off"	The D-108 generates no MIDI Sync signal.

5. Press the EXECUTE/YES key after you have entered the Midi Sync Signal you wanted.
The setting will be registered and the display will go back to step 2 above.

* Press either the "STOP" button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

MTC Frame Rate Setting ("Frame Rate ? ")

If you choose MTC as the MIDI sync signal in the previous section "MIDI Sync Signal Output Setting", you need to set up this mode. You can set up the frame rate of the MTC generated for external MIDI equipment such as computer based sequencer software. Choose the frame rate so that the external MIDI device can receive it.

* See page "75" "MIDI Synchronization Function" for details of the MTC sync.

- * Initial setting : 25 frames
- * Available setting : 24, 25, 30df, 30nd, 29.97df, 29.97nd
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the power is off.
- * Make sure you choose the right program before setting up this mode.

<Note>

There are no 29.97nd or 29.97df in the MTC standard. Use either 30nd or 30df unless you definitely need to synchronize the D-108 with NTSC video.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.

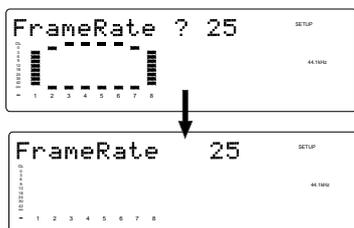
The SETUP display will stop flashing.

2. With the JOG dial, choose "Frame Rate?".

The "?" display will start flashing. The display will also show the current setting. In the case of initial setting, it will show 25 frames.

3. Press the EXECUTE/YES key.

The current setting will start flashing "***" which indicates it is ready to change the setting.



4. With the JOG dial, enter the frame rate you want.

Choose the frame rate you want from;
24, 25, 30 non drop frame, 30 drop frame, 29nd (29.97 non drop frame) and 29df (29.97 drop frame).

5. Press the EXECUTE/YES key once again.

The setting will be registered and the display will go back to the Item 2 above.

* Press either the "STOP" button or EXIT/NO key to return from the second step menu to the first or to quit the SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

MTC Offset Time Setting ("MTC OFFSET")

If you choose the MTC as the MIDI sync signal in the previous section "MIDI Sync Signal Output Setting", you need to set up this mode. You can set up the offset time between the MTC output and internal ABS time.

In the case of the initial setting, MTC will output 00h 59m 57s 00f 00sf at the ABS 00h 00m 00s 00f 00sf point which is ABS 0.

You can also set the MTC offset based on the 001bar 1beat 00clk position rather than ABS 0. Refer to the next section "MTC Offset Mode Setting" for details.

* See page "75" MIDI synchronization function for details of the MTC sync.

- * Initial setting : 00h 59m 57s 00f 00sf
- * Available setting : 00h 00m 00s 00f 00sf ~ 23h 59m 59s 29f 99sf
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the power is off.
- * Make sure you choose the right program before setting up this mode.

<Note>

We recommend you set about three seconds of preroll time because in the MTC OFFSET of 00h 59m 57s rather than 01h 00m 00s, considering the preparation time to start the external sequencer in the event that you have chosen "ABS" in the MTC OFFSET mode.

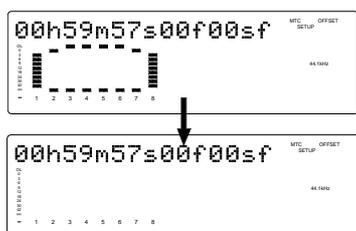
1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key. The SETUP display will stop flashing.

2. With the JOG dial, choose "OFFSET".

The display will show the current setting. In the case of initial setting, it will show 00h 59m 57s 00f 00sf.

3. Press the EXECUTE/YES key.

The "s", second digits, display will start flashing which is asking you to specify the second digit of the offset time you want.



4. Use either the HOLD/> key or SHUTTLE dial to choose time digits, i.e. "h", "m", "s", "f", "sf".

Then, use the JOG dial to enter the required time value that you want to register. The available setting is from 00h 00m 00s 00f 00sf to 23h 59m 59s 29f 99sf.

5. Press the EXECUTE/YES key after you have entered the required Offset.

The MTC Offset will now be registered and the display will then go back to Item 2 above.

* Press either the "STOP" button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key.

<Note>

For example, if you set MTC Offset mode to [ABS] (see the next section) and you wish to start the song from MTC's 01h 00m 00s 00f, you may wish to set a preroll of three seconds with an MTC offset of 00h 59m 57s 00f.

MTC Offset Mode Setting ("MTC Offset ?")

If you choose the MTC as the MIDI sync signal in the previous section "MIDI Sync Signal Output Setting", you need to set up this mode. This mode chooses the MTC time with offset, which you have already set in the previous section, to start either from the ABS 0 position or from the 001 bar 1 beat 00 clk on the tempo map.

* See page "75" MIDI synchronization function for details of the MTC sync.

- * Initial setting : ABS
- * Available setting : ABS, Bar ↓
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the powering is off.

<Notes>

- * As an example, if you set MTC Offset mode to [ABS] and you wish to start the song from MTC's 1h 00m 00s 00f, you may want to set a preroll of three seconds with MTC Offset of 00h 59m 57s 00f. If you select [Bar ↓] as the MTCOffset mode, a preroll of two measures is automatically set. Use 01h 00m 00s 00f; do not set a preroll value.
- * If you set Offset mode to [Bar ↓] and use MTC to synchronize sequence software on the computer, the tempo of the sequencer may sometimes slip gradually. This is because the tempo of the D-108 and the tempo of the software are slightly different even if both use the same tempo. Some sequence software can read the tempo output from the D-108 correctly. We recommended that you use the tempo of the D-108 on the sequence software. No such problems will occur if the sequence software synchronizes the D-108 via MIDI clock, instead of MTC.

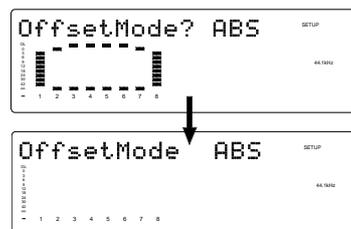
1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key. The SETUP display will stop flashing.

2. With the JOG dial, choose "Offset Mode?".

The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will show [ABS].

3. Press the EXECUTE/YES key.

The current setting will start flashing which indicates it is ready to change setting.



4. With the JOG dial, enter a required setting either ABS or Bar ↓.

If you choose the "ABS", the MTC time with offset will output at the ABS 0 position. If you choose the "Bar ↓", the MTC time with offset will output at the 001bar 1beat 00clk position which according to the tempo map.

5. Press the EXECUTE/YES key once again.

The setting will be registered and the display will go back to step 2 above.

* Press either the "STOP" button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

Slave Mode Setting ("Slave Mode? ")

This mode allows you to choose the D-108 slave mode setting either ON or OFF. If you set the mode to ON, the D-108 will synchronize to the incoming MTC(MIDI time code)from master unit. It will also synchronize to a type of external sync signal which you have chosen with the section "Sync Signal Setting". You can make up a multi track recording system using Fostex Digital Multitrack Recorder, and also with some sequencer software.

* See Page "75" for MIDI synchronization for more details.

- * Initial setting : Off
- * Available setting : On, Off
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the power is off.
- * Make sure you choose the right program before setting up this mode.
- * Make sure you choose the right sampling frequency before setting up this mode.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.

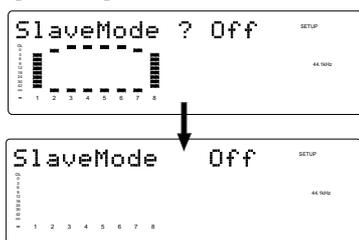
The SETUP display will stop flashing.

2. With the JOG dial, choose "Slave Mode?".

The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will display Off.

3. Press the EXECUTE/YES key.

The current setting will start flashing which indicates it is ready to change setting.

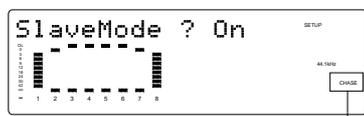


4. With the JOG dial, choose either "On" or "Off".

If you choose "Off", the slave function will not work.

5. Press EXECUTE/YES key after choosing the setting you want.

If you have chosen "Off", the display will go back to step 2 described above. However, if you have chosen "On", as well as the display going back to step 2, the "CHASE" indicator on the display will start flashing.



The "CHASE" indicator on the display will start flashing.

This means that the Slave Mode has been set to On but, "Chase Lock" has not been achieved yet. When the "Chase Lock" is completed, the "CHASE" indicator will stop flashing. You can now choose which type of sync signal the D-160 should follow, after you have set this mode to On. Refer to next section "Slave Type Setting" for more details.

6. Press either the STOP button or EXIT/NO key to go back to the normal time base display before entering the SETUP mode.

Slave Mode Type Setting ("Slave Type ? ")

If you have set the Slave Mode to ON in the previous section "Slave Mode Setting", you can choose what type of external sync signal that the D-108 synchronizes to. This mode allows you to choose the external sync signal type.

* See Page "75" for MIDI synchronization for more details.

- * Initial setting : Vari
- * Available setting : Vari, SPDIF, adat, Free
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the power is off.
- * Make sure you choose the right program before setting up this mode.
- * Make sure you choose the right sampling frequency before setting up this mode.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.

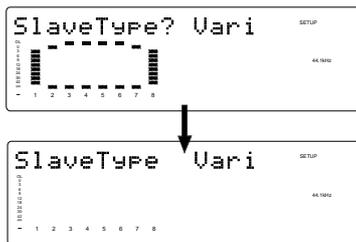
The SETUP display will stop flashing.

2. With the JOG dial, choose "Slave Type?"

The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will show Vari.

3. Press the EXECUTE/YES key.

The current setting will start flashing which indicates it is ready to change setting.



4. With the JOG dial, choose the setting you want.

"Vari"	The D-108 as a slave will only rely on the incoming MTC while synchronizing.
"SPDIF"	The D-108 will lock to the MTC first. Then, it will sync lock to the incoming SPDIF digital signal.
"adat"	The D-108 will lock to the MTC first. Then, it will sync lock to the incoming adat digital signal.
"Free"	The D-108 will freely play back on its own internal clock, after locking to the MTC.

<Notes>

- * You need to input MTC from an external device to the D-108 with any Slave type (external sync signal).
- * The D-108 re-chase window is fixed to ten frames. That is, an offset between the master device and slave device exceeds ten frames, the D-108 interprets that as out of sync, and tries to chase and lock to MTC sent from the master device. (This operation is called "re-chasing.") During the re-chase operation, audio output is muted. If the slave machine slips with MTC from the master device by less than ten frames, the slave machine continues running while recognizing the slippage.

<Notes>

- * This menu is used to select a digital used for external synchronization when Slave mode is turned on. If you wish to specify the type of digital signals to record, you need to use the "Setting digital input tracks" menu.
- * When you set the Slave type, the Vari Pitch function is automatically disabled. (The [VARI PITCH] indicator turn off.)

5. Press EXECUTE/YES key after choosing the setting you want.

The display will then go back to step 2 described above.

6. Press either the STOP button or EXIT/NO key to go back to the normal time base display before entering the SETUP mode.

- * Press either the "STOP" button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

<Notes>

- * If you have chosen either "SPDIF" or "adat" as a sync signal, the "DIGITAL" indicator on the display will light up provided the appropriate digital signal has been input. If the signal you input is not suitable for the setting, the display will start flashing "DIGITAL" and "FS" indicator. The FS means sampling frequency and it is only applicable to the SPDIF signal.
- * The digital signal used with the Slave Mode is solely for sync lock. If you want to record a digital signal, follow the procedure as described in sections "Digital Input Track Setting". For your information, the digital signal you set with the "Digital Input Track Setting" for recording will override and be prioritized over the external sync signal which you have chosen this mode.
- * The D-108 will mute audio for about two seconds when it locks/unlocks the external sync source if you have chosen the slave type to "SPDIF" or "adat". To avoid this problem, supply a reliable and stable digital source signal to the D-108.

Record Protect Setting ("Rec Protect ? ")

The D-108 carries a record prohibit function.

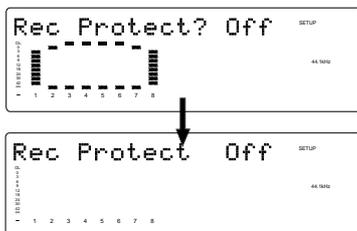
This function works as if you had removed the Record Protect tag from a conventional compact cassette tape. This mode allows you to choose either the ON or OFF function.

- * Initial setting : Off
- * Available setting : Off, On
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the power is off.
- * Make sure you choose the right program before setting up this mode.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display will stop flashing.

2. With the JOG dial, choose "Rec Protect?".
The "?" display will start flashing.

3. Press the EXECUTE/YES key.
The display will start flashing either "Off" or "On" of current setting. In the case of the initial setting, it will display "Off".



4. Choose either On or Off with the JOG dial.
If you choose "Off", there is no protection and you can record, paste, erase, etc. over it.
If you choose "On", there is protection and you cannot record, paste, erase, etc. over it.

<Note>

If you set this mode to record protect, the D-108 will not perform such functions as recording, pasting or erasing. And it will show "Disable REC" on the display for one second as a warning message. Change the protect mode setting to "OFF" in this situation.

5. Press the EXECUTE/YES key again to proceed.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit the SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

Digital Input Track Setting ("Digi. in ? ")

This mode sets up the incoming digital signal to assign the D-108 recording track you have chosen. Using this function to digitally record from external digital equipment.

The SPDIF stereo digital signal can assign D-108 tracks from track 1 to track 8 according to what pair you want. In the case of adat digital signal input, this mode will assign 8 track adat signals to either tracks 1 ~ 8. You need to set the D-108 sampling frequency to match the incoming digital signal sampling frequency. When making a digital recording, set [Clock Sel.?] (setup of the operating clock) according to the purpose of the recording.

- * Initial setting : L: - R: - (Nothing is assigned on Lch and Rch)
- * Available setting : Lch = 1 ~ 8, adat, - (No assign) Rch = 1 ~ 8, - (No assign)
- * This setting is commonly applicable to all the programs .
- * This setting cannot be saved or loaded.
- * The setting is memorized even when the power is off.

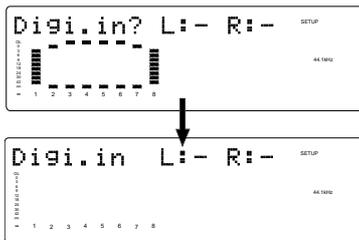
<Important>

Again, remember that you need to set the D-108 sampling frequency to match the incoming digital signal sampling frequency.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display will stop flashing.

2. With the JOG dial, choose "Digi. in?".
The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will show "L: - R: -".

3. Press the EXECUTE/YES key.
The current assign setting on the Lch will start flash asking you to choose the setting you want.



4-A. In the case of SPDIF signal input, enter whichever two tracks you want with the JOG dial.
Use either the HOLD/> key or SHUTTLE dial to move the flashing Channel display between Lch and Rch. Available track settings are tracks 1 ~ 8 and "-" which means no tracks are assigned.

<Note>
You cannot assign the same track to both Lch and Rch. If you accidentally do this, the later setting will be effective and the D-108 will automatically cancel the previous track assignment to "-". so that nothing is assigned there. The later setting will always be prioritized.

* The D-108 can also record only one channel from the stereo SPDIF signal. For example, if you assign Lch to track 4 and Rch to NIL, "L: 4 R: -", the D-108 will record only SPDIF Lch on track 4.

4-B. For an adat digital signal, enter "adat" with the JOG dial after making the Lch flash with either the HOLD/> key or SHUTTLE dial.
You cannot choose "adat" when the Rch is flashing.

* For analog input, you need to select nothing on either the Lch and Rch.

5. Press the EXECUTE/YES key to register the tracks you have chosen.
The display will go back to the display of item 2. When the D-108 recognizes an incoming digital signal correctly, the red "DIGITAL" display will stop flashing.

* If the red "DIGITAL" indication is flashing, check the connection and cable between D-108 and the external digital equipment.

<Notes>
* If you set up the wrong sampling frequency for the incoming SPDIF, the display will flash either 44.1k or 48kHz on the FS indicator as a warning message.
* For adat signal input, there is no warning message indication. Be careful of the frequency sampling setting.

6. Press the STOP button or EXIT/NO key to exit this mode.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode, or eventually return to the normal time base display.
* Vari Pitch function will be automatically OFF (No LED lights up), when you set up this digital input mode.

<Note>
While a track is assigned for digital input, you cannot use the same track for analog recording via the corresponding input jack. When you finish digital recording, set the "Setting digital input tracks" menu to [L: -, R: -] (no assign).
However, in other tracks not assigned for digital input, it is possible to record analog signals. For example, if tracks 1 and 2 (L: 1, R: 2) are selected for digital inputs, then digital signals in track 1 and 2, and analog signals in other tracks can be recorded, thus making it possible to simultaneously record digital and analog signals on all four tracks.
When the "Setup of the digital input track" is set to "adat," please note that tracks 1~8 will all be assigned to digital input and thus, analog signals cannot be recorded in any of the tracks.

Digital Output Track Setting ("Digi. out ? ")

This mode sets up the outgoing digital signal from the D-108 with what type and which recorded tracks. The D-108 can digitally transmit the recorded audio as it is to external digital equipment. When you use this function, set the identical sampling frequency on the external digital equipment as the D-108 sampling frequency.

- * Initial setting : adat
- * Available setting : adat, Lch 1 ~ 8, Rch 1 ~ 8
- * This setting is commonly applicable to all programs.
- * This setting cannot be saved or loaded.
- * The setting is memorized even when the power is off.

<Important>

Again, remember that you need to set the D-108 sampling frequency to match the incoming digital signal sampling frequency.

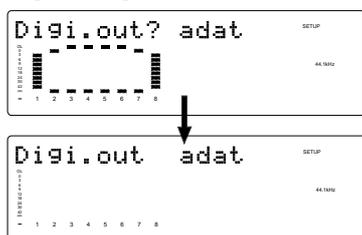
1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display will stop flashing.

2. With the JOG dial, choose "Digi.out?".

The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will show "adat".

3. Press the EXECUTE/YES key.

The current setting will start to flash which indicates it is ready to change setting.



4-A. If you want to choose an SPDIF digital signal, when the Lch display is flashing, choose the track you want with the JOG dial.

Then, use the HOLD/> key or SHUTTLE dial to move to the Rch. Using the same method for choosing the Lch, choose the track in the Rch. If you choose normal numerical pairs such as "L: 1, R: 2", "L: 3, R: 4", "L: 7, R: 8", a two channel stereo signal will be transmitted in SPDIF digital audio format. In this case, the odd channels will be directed to the Lch and even channels to the Rch accordingly.

<Note>

You cannot assign the same track to both Lch and Rch. If you accidentally do this, the Lch setting will be effective and the D-108 will automatically cancel the Rch track assignment to "-" as nothing is assigned. For example, if you chose channel 02 for both Lch and Rch and pressed the EXECUTE/YES key, the D-108 would automatically assign as "L: 2, R: -".

4-B. In the case that you want to choose an adat signal, when the Lch display is flashing, choose "adat" with the JOG dial.
As you cannot choose "adat" while the Rch display is flashing, use the HOLD/> key or SHUTTLE dial to move to the Lch. All 8 track signals will be transmitted in adat digital format.

5. Press the EXECUTE/YES key to register the tracks you have chosen.

The display will go back to the display of Item 2.

6. Press the STOP button or EXIT/NO key to come out of this mode.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

* All the analog output tracks are available regardless of the above settings.

Bar/Beat Resolution Mode Setting ("Resolution ? ")

This mode sets up the display resolution mode in either "ON" or "OFF".

If you set this mode to "ON", the D-108 will register the memory points rounding up or down so that clock digits are always kept at 00. This mode is only relevant when you choose Bar/Beat/Clock as a time base.

This function is very useful for edit functions such as copy paste or move paste when you use the Bar/Beat/Clock as the time base. For example, when you register a memory point that picks up a real time in play mode, you press the STORE button and then some memory keys. The position you choose will be automatically corrected based on the Bar/Beat resolution. The position will always register in clock accuracy. This setting is memorized even when the power is off.

- * Initial setting : Off
- * Available setting : Off, On
- * This setting is commonly applicable to all the programs.
- * This setting cannot be saved or loaded.
- * The setting is memorized even when the power is off.

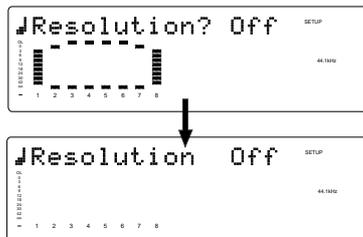
* For example, if you are to register 001 bar 1 beat 46 clock to the CLIP BOARD IN point and 002 bar 4 beat 51 clock to the CLIP BOARD OUT point, if the resolution mode is set, the actual memory will be corrected in the following key.
This example is mentioned based on the time signature of a 4/4 beat.

001 bar 1 beat 46 clock -> 001 bar 1 beat 00 clock : round down on clock
002 bar 4 beat 51 clock -> 003 bar 1 beat 00 clock : round up on clock

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display stops flashing.

2. With the JOG dial, choose "Resolution?".
The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will show "Off".

3. Press the EXECUTE/YES key.
The current setting will start flashing which indicates it is ready to change setting.



4. With the JOG dial, choose either "On" or "Off".
If you choose "Off", the slave function will not work.
If you choose "On", the clock will be rounded up or down always ending in 00.

5. Press EXECUTE/YES key after choosing the setting you want.
The display will go back to the display of item 2.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

MIDI Device ID Setting ("Device ID ? ")

This mode sets up the MIDI device ID number on the D-108.

The set ID applies to both receiving and transmitting when an external sequence software controls the D-108 via MMC or the Fostex system Exclusive Message. This mode is necessary to arm the slave machine record track selectors from the master machine.

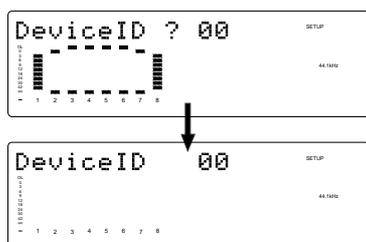
The available device ID is between 00 and 99. But, if the D-108 receives a message with ID No 7F, The D-108 will recognize it and follow the command regardless of the device ID setting.

- * Initial setting : 00
- * Available setting : 00 ~ 99
- * This setting is applicable to all programs.
- * This setting cannot be saved or loaded.
- * The setting is memorized even when the power is off.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display will stop flashing.

2. With the JOG dial, choose "Device ID?".
The "?" display will start flashing.
The display will also show the current setting. In the case of the initial setting, it will show "00".

3. Press the EXECUTE/YES key.
The current setting will start flashing "***" which indicates it is ready to change setting.



4. With the JOG dial, enter a required ID number.
The available setting is from 00 ~ 99.

5. Press the EXECUTE/YES key once again.
The setting will be registered and the display will go back to step 2.

* Press either the STOP button or EXIT/NO key to return from the second step to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

Sampling Frequency Setting ("Sample Rate ? ")

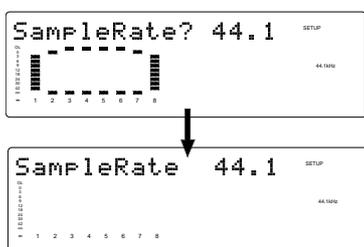
The D-108 can handle two types of sampling frequency, either 44.1k or 48 kHz.
This mode allows you to set either sampling frequency. The display will show the registered sampling frequency.

- * Initial setting : 44.1kHz
- * Available setting : 44.1kHz, 48kHz
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the power is off.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display stops flashing.

2. With the JOG dial, choose "Sample Rate?".
The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will show "44.1".

3. Press the EXECUTE/YES key.
The current setting will start flashing which indicates it is ready to change setting.



4. With the JOG dial, choose either "44.1" or "48" .

5. Press the EXECUTE/YES key to process.
The setting will be registered and the display will go back to step 2. Or If you are not changing the sampling frequency, press the EXIT/NO key or STOP button to quit the SETUP mode.

6. Press the STOP button or EXIT/NO key to come out of this mode.
The display will go back to the normal time base display.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

<Notes>

- * The total recording length will be shorter with 48kHz sampling than 44.1kHz sampling due to the hard disk space usage. The REMAIN time display will be shorter with 48kHz than 44.1kHz as well.
- * Except for certain special use, avoid changing the sampling frequency within a program . It is possible to set the D-108 to a different sampling frequency than its original song recording frequency. However, the play back speed will become different from the original and the registered memory key data will be come a different value.

The Operating Clock Setting ("Clock Sel. ? ")

The "The operating clock setting" menu is used to setup the D-108 operating clock. When digital recording is to be made from external digital equipment (DAT, adat, CD, MD, etc.), the input track is setup by the aforementioned [Digi.in?] (setup of the digital input track), and whether D-108 is to be operated by the internal clock or externally synchronized with a digital signal from an external digital equipment, must be selected. In the initial setting, it is specified for D-108 to be synchronized by its own clock (crystal installed in D-108: Internal) to external digital input signals. The setup content of this [Clock Sel.?] will change partially when the optional Model 8345 TC/SYNC card is installed in the D-108. For details, read the Model 8345 Operating Manual.

- * Initial setting : Int.
- * Items which can be set : Int. (internal clock)
: Opt I (Opt I will change to Opt O as long as digital signals are being
- * This setting is applicable song by song.
- * This setting can be saved or loaded as a part of the song data.
- * The setting is memorized even when the power is off.

< Notes at setup of [Clock Sel. ?] >

When a digital recording is to be made from external digital equipment (DAT, adat, CD, MD, etc) after setup of the digital input track, digital input signals from external digital equipment cannot be externally synchronized should the [Clock Sel.?] setting be maintained in its initial [Int.] setting. Therefore, in order to digital record by external sync, [Clock Sel.?] must be set to [Opt.]. If digital recording is made while remaining in the [Int.] setting, it could be the cause in sound deterioration. When D-108 is connected to a digital mixer, in a system which could create a digital loop depending on the input and output connections, it is recommended to be used with [Clock Sel.?] set to [Int.] to prevent this digital loop.

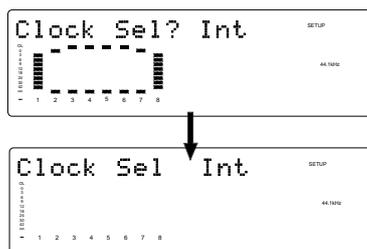
1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display stops flashing.

2. With the JOG dial, choose "Clock Sel.?"

The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will show "Int".

3. Press the EXECUTE/YES key.

A blinking [?] will extinguish by pressing the EXECUTE/YES key and the operating clock information that was lit will begin blinking.



4. With the JOG dial, choose either "Int" or "Opt" .

If [Int] (initial setting) is selected, the D-108 will operate using the internal clock.

If [Opt] is selected, the D-108 will sync to an external digital signal.

5. Press the EXECUTE/YES key to process.

The selected operating clock will register and [?] in Step 2, above, will blink.

When a digital input track is assigned and the operating clock set to [Int] (initial setting), if an external digital signal is correctly input, [DIGITAL] will light in the display. And, if the D-108 is set to [Opt], [DIGITAL] and [EXT SYNC] will both light when a digital signal is input. This indicates that the D-108 is in sync with the external signal.

6. Press the STOP button or EXIT/NO key to come out of this mode.

The display will go back to the normal time base display.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

Event Number Check on Each track ("NOs Of Event ? ")

This mode allows you to check event numbers on each recorded track individually. As we have described in the "Before Operation" section, each recorded track data (TRK 1 ~ 24) on a program is made up with the Audio Files and 0 Files. The event number is calculated by adding these two types of Files.

The D-108 is able to carry up to 512 events per track. When the event numbers exceed 508, the D-108 will no longer be able to record new data. This situation is called "event over".

For an ordinary song length, about 6 minutes, however intense the editing process is, you should never experience an event over problem. This is because the D-108 automatically tries to optimize the disk management system as much as possible so that the event numbers are always kept minimum.

However, you need to be careful in certain circumstances as:

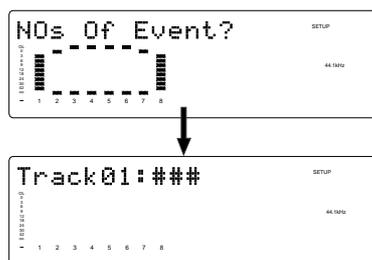
- * when recording short lengths of audio bit by bit in many separate places.
- * when taking advantage of a D-160 feature in which you can record wherever you like within the 24 hours in ABS.
- * when doing lot of editing on a very long mono track recording.

This mode is especially useful to check the data stored in the virtual tracks as the data transferred to virtual tracks cannot be seen.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display stops flashing.

2. With the JOG dial, choose "NOs Of Event?".
The "?" display will start flashing.

3. Press the EXECUTE/YES key.
The display will show the actual event number of track one.



4. By turning the JOG dial, the display will show the track numbers one after the other so that you can check the event number on each track.

5. Press the EXIT/NO key or STOP button to quit the SETUP mode.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

* For details on audio files and events, refer to "2. Audio File and Event" in "Before operating."

Current Drive Setting ("Drive Sel. ? ")

The meaning of current drive is that it is "the drive for real time record/play" and in D-108, the E-IDE hard disk or an external SCSI drive (removal or hard disk) can be used for the current drive. Normally, when power is switched ON with one of either type used for the current drive, the current drive presently in use will always start up. However, when the E-IDE hard disk and external SCSI drive are both used and power is switched ON to all units, D-108 will start up automatically with the E-IDE hard disk as the current drive and therefore, if the external SCSI drive is to be used as the current drive, it must be assigned by this [Drive Sel.?] menu. The following steps must be carried out at this new assigning of the drive (Please refer to the <Note> below).

< Note >

The following items are required when re-assigning a current drive. If you are using two types of current drives, one must be assigned prior to proceeding to the procedures below.

- * For record/playback in real time.
- * When editing (copy, paste, move-paste, punch-in/out, etc.) the recorded data.
- * When saving or loading song data in DAT, adat or a backup SCSI drive.

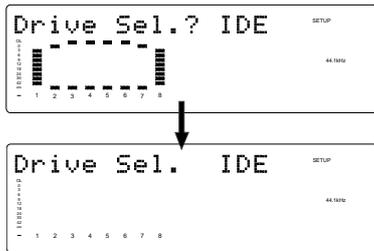
In order to switch to E-IDE from the current drive being used via SCSI, in addition to setup with the "current drive setup" menu, power to all units should be switched OFF and ON. Do this and E-IDE will start up as the current drive automatically.

- * Initial setting : IDE (E-IDE internal hard disk)
- * Available setting : IDE (E-IDE internal hard disk), SCSI (External SCSI current drive)
- * The setting will go back to "IDE" when you turn the power to off.

1. Press the DISP SEL key and choose the flashing SETUP mode on the display. Then, press the EXECUTE/YES key.
The SETUP display will stop flashing.

2. With the JOG dial, choose "Drive Sel.?"
The "?" display will start flashing. The display will also show the current setting. In the case of the initial setting, it will show "IDE".

3. Press the EXECUTE/YES key.
The current setting will start flashing which indicates it is ready to change setting.



4. With the JOG dial, choose either "IDE" or "SCSI" you want.

5. Press EXECUTE/YES key after choosing the setting you want.
The display will be as follows depending on the selected current drive.

* When the current drive is E-IDE (program display [P]).



* When the current drive is SCSI (program display [S]).



< Note >

When using either E-IDE or SCSI as the current drive, this setting will be ignored even though setup of the current drive is executed. For example, when using the E-IDE hard disk only, [IDE] and [SCSI#] will display alternately when the JOG dial is rotated as explained in the above Step 3.

Now, although the EXECUTE/YES key is pressed after selecting [SCSI], the setting will remain at [IDE]. The result will be the same at using SCSI only for the current drive. But, if E-IDE and SCSI are both used, the [SCSI] display which will allow switching to the SCSI drive will be [SCSI#] (# = ID number) and the SCSI drive ID number will be displayed.

* Press either the STOP button or EXIT/NO key to return from the second step menu to the first or to quit SETUP mode. The menu will go backwards each time you press either key so that you can correct the setting, choose some other SETUP mode or eventually return to the normal time base display.

(8 Track Digital Recorder)
Model D-108

MIDI Implementation Chart

Date:
Version: V1.00

Function.....	Transmitted	Recognized	Remarks
Basic Channel	Default Changed	× ×	
Mode	Default Message Altered *****	× × ×	
Note Number:	True voice *****	× ×	
Velocity	Note ON Note OFF	× ×	
After Touch	Key's Channel's	× ×	
Pitch Bend	×	×	
Control Change	×	×	
Program Change:	True # *****	× ×	
System Exclusive	○ (rem. 1)	○ (rem. 2)	
Common	: Quarter frame : Song Position : Song Select : Tune	○ × × ×	
System Real Time	: Clock : Commands ○ (rem. 3)	× ×	
Aux. Message	: Local ON/OFF : All Notes OFF : Active Sense : Reset	× × × ×	
Notes	rem. 1: MMC (Device ID=00~99, 127), MTC, Identity reply, FOSTEX Exclusive rem. 2: MMC (Device ID=00~99, 127), MTC, Inquiry, FOSTEX Exclusive rem. 3: START, STOP, CONTINUE		

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

○ : Yes
× : No

MMC Command List

Command List	Movement (Recorder)
01: STOP	STOP
02: PLAY	PLAY
03: DEFERRED PLAY	DEFERRED PLAY
04: FAST FORWARD	F FWD
05: REWIND	REWIND
06: RECORD STROBE	REC
07: RECORD EXIT	PUNCH OUT
09: PAUSE	STOP
40: WRITE	Refer to MMC Response/Information Field List
41: MASKED WRITE	Refer to MMC Response/Information Field List
42: READ	Refer to MMC Response/Information Field List
44: LOCATE	LOCATE to Setting Data
46: SEARCH	CUE/REVIEW (+/- 1~60 times)
47: SHUTTLE	CUE/REVIEW (+/- 1~60 times)
4C: MOVE	Refer to MMC Response/Information Field List
4D: ADD	Refer to MMC Response/Information Field List
4E: SUBTRACT	Refer to MMC Response/Information Field List

MMC Response/Information Field List	Command
01: SELECTED TIME CODE	READ/WRITE/MOVE/ADD/SUBTRACT
03: REQUESTED OFFSET	READ/WRITE
04: ACTUAL OFFSET	READ
08: GP 0	READ/WRITE/MOVE/ADD/SUBTRACT
09: GP 1	READ/WRITE/MOVE/ADD/SUBTRACT
0A: GP 2	READ/WRITE/MOVE/ADD/SUBTRACT
0B: GP 3	READ/WRITE/MOVE/ADD/SUBTRACT
0C: GP 4	READ/WRITE/MOVE/ADD/SUBTRACT
0D: GP 5	READ/WRITE/MOVE/ADD/SUBTRACT
0E: GP 6	READ/WRITE/MOVE/ADD/SUBTRACT
0F: GP 7	READ/WRITE/MOVE/ADD/SUBTRACT
48: MOTION CONTROL TALLY	READ
4C: RECORD MODE	READ/WRITE
4E: TRACK RECORD STATUS	READ
4F: TRACK RECORD READY	READ/WRITE/MASKED WRITE
51: RECORD MONITOR	READ/WRITE

Inquiry Message List

IDENTITY REQUEST: F0, 7E, <channel>, 06, 01, F7
IDENTITY REPLY: F0, 7E, <channel>, 06, 02, 51, 01, 00, 0D, 00, **, **, **, **, F7
51: Fostex ID
01, 00: Device family code
0D, 00: Device family number D-108
**, **, **, **: Software version

Fostex MIDI System Exclusive Message Format for D-108

<Note>

Following protocol is effective only in equipment which will reply by -
 Identity Reply=F0 7E<channel>06 02 51 01 00 0D 00 01 ** ** ** F7 (D-108)
 against the Inquiry Message=F0 7E<channel>06 01.

Fostex System Exclusive Message

General Structure=F0 51<device id><sub id 1>(<data>)F7

* Numbers are all expressed in hexadecimal units.

Table: <sub id 1> (<data>)

Command or Model Set Controller to D-108	Acknowledge or Status D-108 to Controller
Loop on/off 12 22 (<on/off>)	
Post locate 12 28 (<post locate mode>)	
Auto rec 12 2D (<on/off>)	32 2D (<edit message>)
Lock enable 12 41 (<lock enable>)	
Lock mode 12 42 (<lock mode>)	
Copy clip 12 45 (<count><mmc track>)	32 45 (<edit message>)
Copy paste 12 46 (<count=01><repeat count>) or 12 46 (<count><repeat count><mmc track>)	32 46 (<edit message>)
Erase 12 47 (<count><mmc track>)	32 47 (<edit message>)
Clipboard play 12 49	32 49 (<edit message><mmc track>)
Undo 12 4A	32 4A (<edit message>)
Redo 12 4B	32 4B (<edit message>)
Move clip 12 4D (<count><mmc track>)	32 4D (<edit message>)
Move paste 12 4E (<count=01><repeat count>) or 12 4E (<count><repeat count><mmc track>)	32 4E (<edit message>)
Move clip 12 4D (<count><mmc track>)	32 4D (<edit message>)
Move clip 12 4D (<count><mmc track>)	32 4D (<edit message>)
Move clip 12 4D (<count><mmc track>)	32 4D (<edit message>)
Move clip 12 4D (<count><mmc track>)	32 4D (<edit message>)
Digital in ch. 13 41 (<channel><channel>)	
Digital out ch. 13 42 (<channel><channel>) * Refer to Note.	
Move clip 12 4D (<count><mmc track>)	32 4D (<edit message>)
Program change 13 43 (<program>)	
Click on/off 13 44 (<on/off>)	
Resolution on/off 13 46 (<on/off>)	
Midi Sync out 13 47 (<nidi sync>)	
MTC offset mode 13 48 (<MTC offset mode>)	
Vari pitch 13 49 (<count=3><on/off><vari pitch>) or 13 49 (<count=1><on/off>)	
Signature set 14 01 (<signature map>)	34 00 (<edit message>)
Tempo set 14 02 (<tempo set map>)	34 00 (<edit message>)
Tempo map all erase 14 03	34 00 (<edit message>)
Preroll time set 14 04 (<mmc time>)	
Frame rate set 14 06 (<frame rate>)	
Fs rate set 14 07 (<fs rate>)	
Time base set 14 08 (<time base>)	

Status Request

Status request command Controller to D-108		Status reply D-108 to controller
Loop op. status	22 21	32 21 (<Loop op. mode = 12>)
Loop status	22 22	32 22 (<on/off>)
Post locate status	22 28	32 28 (<post locate status>)
Auto rec status	22 2D	32 2D (<edit message>)
Lock status	22 41	32 41 (<lock status>)
Lock mode status	22 42	32 42 (<lock mode>)
Copy clip status	22 45	32 45 (<edit message=01 or =14>)
Copy paste status	22 46	32 46 (<edit message=02><mmc time>) or 32 46 (<edit message=00>)
Erase status	22 47	32 47 (<edit message=02><mmc time>) or 32 47 (<edit message=00>)
Nondes. mode	22 4C	32 4C (<on/off>)
Move clip status	22 4D	32 4D (<edit message=01 or =14>)
Move paste status	22 4E	32 4E (<edit message=02><mmc time>) or 32 4E (<edit message=00>)
Digital in ch. st.	23 41	33 41 (<channel><channel>)
Adat in status	23 41	33 41 (<channel=7F><count><mmc track>)
Digital out ch. st.	23 42	33 42 (<channel><channel>)
Adat out status	23 42	33 42 (<channel=7F><channel=0>)
Program status	23 43	33 43 (<program>)
Click status	23 44	33 44 (<on/off>)
Level status	23 45	33 45 (<count=10><level data>)
resolution status	23 46	33 46 (<on/off>)
midi sync out status	23 47	33 47 (<midi sync>)
MTC offset mode status	23 48	33 48 (<MTC offset mode>)
vari pitch status	23 49	33 49 (<count=3><on/off><vari pitch>)
signature map	24 01(<event number>)	34 01 (<signature map>)
tempo set map	24 02(<event number>)	34 02 (<tempo set map>)
preroll time	24 04	34 04 (<mmc time>)
remain time	24 05	34 05 (<mmc time>)
frame rate status	24 06	34 06 (<frame rate>)
fs rate status	24 07	34 07 (<fs rate>)
time base status	24 08	34 08 (<time base>)

<Note 2>

There is a limitation on specifying the <channel><channel> setting. For details, refer to "Explanation on Command/Mode Set" mentioned in later pages.

<Allocation of GP0~GP7>

Edit point memory of this equipment is allotted to the response/information field of 08~0F (GP0~GP7) as shown below.

GP7 however, will be used as the work memory for small adjusting of the registered figure (Refer to Examples 4 and 5).

<Response/Information Field>

08 GP0 : locate memory	09 GP1 : clipboard in memory
0A GP2 : clipboard out memory	0B GP3 : start memory
0C GP4 : auto punch in memory	0D GP5 : auto punch out memory
0E GP6 : end memory	0F GP7 : reserved

[Example 1] <mmc time> is registered in the start memory (using the write command).

F0 7F <device ID> 06 <write = 40> <count> <GP3 = 0B> <mmc time> F7

[Example 2] Locate memory is recalled (using the read command).

F0 7F <device ID> 06 <read = 42> <count> <GP3 = 0B> <mmc time> F7

[Example 3] On-the-fly registering in the punch in memory (using the move command).

F0 7F <device ID> 06 <move = 4C> <count> <destination = 0C (GP4) > <source = selected time code = 01> F7

[Example 4] When + 1 frame is to be set in the punch in memory (using the add command).

* Time figure to be added is pre-registered in GP7 (Set 00h 00m 00s 01f in GP7).

F0 7F <device ID> 06 <add = 4D> <count> <destination = 0C (GP4)> <source #1 = 01 (GP4)> <source #2 = 0F (GP7)> F7

[Example 5] When -1 frame is to be set in the punch in memory (using the subtract command).

* Time figure to be subtracted is pre-registered in GP7 (Set 00h 00m 00s 01f in GP7).

F0 7F <device ID> 06 <subtract = 4E> <count> <destination = 0C (GP4)> <source#1 = 0C (GP4)> <source #2 = 0F (GP7)>F7

Data Type

<loop op.mode>	12=stop Indicates the next operating mode following locating to the start point (GP3) upon arriving at the end point (GP6) by the play mode. In D-108, 12=stop only is effective.
<post locate mode>	12=stop 15=play Specifies operating mode in which D-108 should enter upon completing the locate operation. Corresponds to the setting of AUTO PLAY ON ("15")/OFF ("12") on the main unit.
<count>	01~7F Specifies succeeding data byte numbers.
<mmc track>	Complies to the MMC (MIDI MACHINE CONTROL) standard track bit map. In D-108, you always need to specify two byte combinations of "r0" and "r1."
<edit message>	00 = no message 01 = completed (completion flag) 02 = active (execution flag) 02<mmc time> = Indicates unprocessed time by active (execution flag) and <mmc time>. 02<count><mmc track> = Indicates source track by active (execution flag) and <mmc track>. Used for clipboard play. 03 = cancel (execution stop) 05 = Indicates rehearsal (rehearsal mode of auto rec). Possible of undo. 06 = Indicates take (take mode of auto rec). Possible of undo. 10 = over value error 10 <mmc time> = Capacity shortage time is indicated by over value error (error by capacity shortage) and <mmc time>. In copy paste, it indicates capacity shortage time required for a minimum one time paste. 11 = Indicates in point error (incorrect in point). 12 = Indicates out point error (incorrect out point). 14 = Indicates void data (data necessary for paste does not exist). 18 = Indicates track select error (track necessary to execute copy/move or erase/cut is not correctly setup). 19<repeat count> = Indicates repeat number error and repeat numbers executable by <repeat count>. 1A = Indicates disable rec (record disable mode). 25 = Indicates can't undo rehearsal (rehearsal mode of auto rec). Impossible to undo. 26 = Indicates can't undo take (take mode of auto rec). Impossible to undo. 71 = Indicates on. 72 = Indicates off.
<mmc time> <on/off>	hr mn sc fr {ff/st} complies to the MMC standard time code. 70 = default 71 = on 72 = off
<repeat count>	01~F Especially when executing commands such as paste, the number of pasting times to be continuously repeated following the auto punch in point is specified.
<channel>	00~08, 7F Select recorder tracks 1~8. "00" in particular, is not specified (default setting). "7F" indicates input/output of Adat optical. For details, refer to explanation on setting the Command/Mode.
<lock enable>	00 = lock disable, chase disable 01 = lock enable, chase enable Corresponds to SLAVE ON ("01")/OFF ("00") in the main unit.
<lock status>	00 = lock disable, chase disable 01 = lock enable (unlocked), chase enable (unlocked) 11 = lock enable (locked), chase enable (locked)
<program>	01A`7F Indicates program numbers (P1~P99) on the main unit. However, D-108 can specify only 01 (corresponds to P01)~63H (corresponds to P99).
<lock mode>	40 = Free 42 = MTC 45 = S/P DIF 46 = Adat Indicates the slave mode when this equipment is set to slave ON.

<signature map>	<p>bar2, bar1, bar0, sign, sigd bar2: The 100th digit of the bar figure is expressed in BCD. bar1: The 10th digit of the bar figure is expressed in BCD. bar0: The 1 digit of the bar figure is expressed in BCD. sign: Numerator of the signature to be set is expressed in BCD. sigd: Denominator of the signature to be set is expressed in BCD. When specified as sign=00 and sigd=00, signature data of that bar position will be deleted. Also, bar2=bar1=bar0=sign=sigd=00 indicates "no corresponding data" (such as when a figure specified by <event number> do not exist at receiving the signature map request).</p>
<tempo set map>	<p>bar2, bar1, bar0, beat, tmp2, tmp1, tmp0 bar2: The 100th digit of the bar figure is expressed in BCD. bar1: The 10th digit of the bar figure is expressed in BCD. bar0: The 1 digit of the bar figure is expressed in BCD. beat: The beat figure is expressed in BCD. tmp2: Numerator of the tempo to be set is expressed in BCD. tmp1: Denominator of the tempo to be set is expressed in BCD. tmp0: The 1 digit of the tempo is expressed in BCD. When specified as tmp2=tmp1=tmp0=00, tempo data of that bar and meter position will be deleted. Also, bar2=bar1=bar0=sign=sigd=00 indicates "no corresponding data" (such as when a figure specified by <event number> do not exist at receiving the signature map request).</p>
<event number>	<p>When one data registered by <signature map> and <tempo set map> is declared as one event, the number of events from head of the tune (the umpteenth event counted from head of the tune) must be specified. <event number="00"> is the first event.</p>
<midi sync>	<p>00: OFF 01: MIDI CLOCK 02: MTC This corresponds to "MIDI SYNC OUT" of the SETUP menu.</p>
<vari pitch>	<p>Will be composed of two bytes (Q, P). Q: 0qqqqqqq (binary) -> <vari data> = "qqqqqqpppppppp" A 14 bit data of X0.1 P: 0qqqqqqq (binary) attached with a minus symbol. Vari-pitch must be specified, at +0.1% when MSB (q)=0 (Example: 0000000000001), and at -0.1% when MSB (q)=1 (Example: 1111111111111).</p>
<frame rate>	<p>00: 30nd 03: 25 04: 24 05: 30df Corresponds to selecting "FRAME" of the SETUP menu.</p>
<fs rate>	<p>00: 48kHz 01: 44.1kHz Corresponds to selecting "FS SET" of the SETUP menu.</p>
<MTC offset mode>	<p>00: ABS 01: signature Corresponds to selecting "MTC OFFSET MODE" of the SETUP menu.</p>
<time base>	<p>00: ABS 01: BAR BEAT 02: MTC Corresponds to selecting "TIME BASE SEL" of the SETUP menu.</p>
<level data>	<p>t1, t2 tn n: Indicates the track number. tn: Indicates absolute 8 bits of the Audio 16 bit data (Range: 00~7F).</p>

Explanation on the Command/Mode Set

12 22 (<on/off>): loop on/off command

The command for setting the "loop mode on/off" (=ON/OFF of AUTO RTN) of D-108. Default figure of the loop operation mode is "12=stop" and this cannot be changed.

12 28 (<post locate mode>): post locate command

The command for setting the "post locate mode" (=ON/OFF of AUTO PLAY) of D-108. It will stop after locating if "post locate mode=12." It will enter play after locating if "post locate mode=15."

12 2D (<on/off>): auto rec command

The command for setting "auto rec mode on/off" (=ON/OFF of AUTO PUNCH) of D-108. Upon receiving this command, D-160 will immediately reply the operating condition by sending "32 2D (<edit message>)"

12 41 (<lock enable>): lock enable command

The command for setting "slave mode on/off" (setup menu) of D-108.

12 42 (<lock mode>): lock mode command

The command for setup of the slave mode (setup menu) when this equipment is set to "slave mode on."

12 45 (<count><mmc track>) : copy clip command

When this command is received, D-108 will copy (multiple number of tracks can be copied simultaneously) the sound data, as data for copy paste, from the pre-registered clipboard-in point to the clipboard-out point in the track specified by <mmc track>. With completion of copying the data into the clipboard, D-108 will immediately reply with "32 45 (<edit message=01 (completed)>)". If copy cannot be executed due to improper figures of the pre-registered clipboard in/clipboard out points or incorrect track section, the corresponding <edit message> will be returned.

12 46 (<count=01><repeat count>): copy paste command

12 46 (<count><repeat count><mmc track>): copy paste command

When this command is received, D-108 will paste the sound data which has been copied into the clipboard, on the same track from the pre-registered auto punch in point as the starting point for the number of time specified by <repeat count>. However, if the sound data length in the clipboard is less than 10ms, the specifying the <repeat count> will be limited to "01." Also, by specifying <mmc track>, paste can be executed on other tracks in mono (in one track units) or stereo units (in combinations of tracks 1-2, 3-4, 5-6, 7-8).

Since time corresponding to length of the copy clipped sound data is required to complete the copy paste operation, D-108 immediately replies with "32 46 (<edit message=02 (active)>)" after receiving the command.

Successively upon completing the paste operation, "32 46 (<edit message=01 (completed)>)" is transmitted.

If paste cannot be executed due to improper figures of the pre-registered auto punch in point, insufficient disc capacity, no sound data in the clipboard, etc., the corresponding <edit message> will be replied.

12 47 (<count><mmc track>): erase command

When this command is received, D-108 will erase the data (writes in "0" data) in the section from the pre-registered auto punch in point through auto punch out point in the track specified by <mmc track>. Since time corresponding to length of the erase section is required to complete the erase operation, D-108 will immediately reply by "32 47 (<edit message=02 (active)>)" after receiving the command.

After the completion of erase operation, "32 47 (<edit message=01 (completed)>)" will be transmitted.

If erase cannot be executed due to improper figures of the pre-registered auto punch in point/auto punch out point, incorrect track section, etc., the corresponding <edit message> will be replied.

12 49: clipboard play command

When this command is received, D-108 will playback once from the head of the sound data copied in the clipboard by the copy clip and move clip commands.

Immediately after receiving the command, D-108 will reply with "32 49 (<edit message=02 (active)><count><mmc track>)." The sound data track number is indicated by (mmc track).

Upon completion of playback, "32 49 (<edit message=01 (completed)>)" is sent and clipboard play is ended. If there is no sound data in the clipboard, "32 49 (<edit message=14 (void data)>)" will be sent and clipboard play operation will be interrupted.

12 4A: undo command

Upon receiving this command, D-108 will revert to the condition prior to editing copy paste, erase, move paste, cut, redo operation. With completion of undo operation, D-108 will reply with "32 4A (<edit message=01 (completed)>)." If D-108 is not possible to undo, "32 4A (<edit message=00 (no message)>)" will be replied.

12 4B: redo command

When this command is received, D-108 will return to the condition prior to undo operation.

With completion of redo operation, D-108 will reply with "32 4B (<edit message=01 (completed)>)." If D-108 is not possible to redo, "32 4B (<edit message=00 (no message)>)" will be replied.

12 4D (<count><mmc track>): move clip command

When this command is received, D-108 will copy (multiple tracks can be copied simultaneously) the sound data from the pre-registered clipboard in point to the clipboard out point, as data for move paste operation. With completion copying the data into the clipboard, D-108 will immediately reply with "32 4D (<edit message=01 (completed)>)." If copy cannot be executed by the reason of pre-registered improper clipboard in/clipboard out point figures or incorrect track section, etc., the corresponding <edit message> will be replied.

12 4E (<count=01><repeat count>): move paste command

12 4E (<count><repeat count><mmc track>): move paste command

When this command is received, D-108 will paste the sound data which have been move clipped in the clipboard, for the number of times specified by <repeat count> on the same track from the pre-registered auto punch in point as the starting point. At the same time, the move clipped original sound data

will be erased (data "0" is written in). However, when sound data length in the clipboard is less than 10ms, specifying the <repeat count> will be limited to "01."

Also, by specifying the <mmc track>, paste operation can be executed on other tracks in mono (one track unit) or stereo units (tracks 1-2, 3-4, 5-6, 7-8).

Since time corresponding to length of the move clipped sound data is required to complete the move paste operation, D-108 will immediately reply with "32 4E (<edit message=02 (active)>)" after receiving the command.

Following completion of the move paste operation, "32 4E (<edit message = 01 (completed)>)" will be sent.

If paste cannot be executed due to improper figures of the previously registered auto punch in point, insufficient disc capacity, no sound data is in the clipboard, etc., the corresponding <edit message> will be replied.

12 4F (<channel><channel>): track exchange command (Exclusive command for FDMS-3.)

When the D-108 receives this command, the track can be exchange between the specified <channel><channel>. Especially, if the first <channel=00><channel=01>, then exchange by grouping will be executed between channel 1-8 and channel 17-24, and if the next byte <channel=00><channel=02>, then the exchange will be between channel 9-16 and channel 17-24. If it cannot be executed for some reason, an error message will be sent back.

12 50: all erase current program command (Exclusive command for FDMS-3.)

When the D-108 receives this command, all audio of the current program will be erased to return it to the initial state of compiling a new program.

As execution of all erase is completed in a comparatively short time, the D-108 will reply with "32 50 (<edit message=01 (completed)>)" immediately after completion of exchange.

If it cannot be executed for some reason, an error message will be sent back.

13 3E: product new program command (Exclusive command for FDMS-3.)

When the D-108 receives this command, a new program is compiled and the current program is transferred to the new program. As compilation of the new program is comparatively short time, it is replied with "33 3E (<edit message=01 (completed)>)" immediately upon completion of execution.

If it cannot be executed for some reason, an error message will be sent back.

13 3F: delete current program command (Exclusive command for FDMS-3.)

When the D-108 receives this command, the current program is deleted and succeeding programs moved up and renumbered. If the deleted program is the only tune existing in the track, a new program will be made automatically.

As this delete current program is executed in a comparatively short time, "33 3F (<edit message=01 (completed)>)" will be sent back immediately upon completing the execution.

If it cannot be executed for some reason, an error message will be sent back.

13 41 (<channel><channel>): digital in ch.select command

The audio signal input from SPDIF digital in to assigned to the

destination track specified by <channel>. The first <channel> shown in the command is the SPDIF L channel input, and the second <channel> the R channel input. "<channel=0> <channel=0>" indicates the normal analog input.

13 41 (<channel=7F><count><mmc track>): Adat in select command

Channel = 7F indicates that it is Adat In. Normally, it will be "<count=0>" and all channels will be inputs from Adat In.

If <count=0><mmc track> is indicates, then only the tracks selected will be Adat In inputs. "<channel=0><channel=0>" indicates the normal analog input.

13 42 (<channel><channel>): digital out ch.select command

The source channel for digital out is selected.

Normally, the first <channel> shown will be the SPDIF L channel data, and the second <channel> the SPDIF R channel output. (<00><00>) is the default setting. By FDMS-3 (D-108), any channel within "1 ~ 8" can be selected.

13 42 (<channel=7F><channel=0>): Adat out select command

In a device which can be switched between SPDIF and Adat, if the first display is <channel=7F>, then Adat Out can be setup.

13 43(<program>): program change command

The command for PROGRAM CHANGE of D-108. The present program number can be changed to the figure indicated by <program>.

13 44 (<on/off>): click on/off command

The command for setting the metronome on/off of D-108. When ON is set, the metronome signal will be fed to the track 8 output of D-108.

13 46 (<on/off>): Bar/Beat Resolution ON/OFF command

The command for ON/OFF of the bar/beat resolution function of this equipments' current program.

13 47 (<midi sync>): Midi Sync Out command

The setup command for MIDI Sync Out mode of this equipments' current program.

13 48 (<MTC offset mode>): MTC offset mode command

The setup command for MTC offset mode of this equipments' current program.

13 49 (<count=3> <on/off> <vari data>): Vari pitch command

13 49 (<count=1> <on/off>): Vari pitch command

The command for setting this equipments' vari pitch ON/OFF and pitch data.

Control of ON/OFF only is possible at <count=1> and both ON/OFF and pitch data can be set at <count=3>.

14 01 (<signature map>): Signature set command

The command for setting the meter of this equipment. If a new data is registered at the bar position where a data exists, the former data will be written over. When this command is received, this equipment will reply with "34 01 (<edit message>)." Upon completing the registration, <edit message> will reply with "01 (completed)," or with "10 (over value error)" if registration is attempted at a non-existing point or an erroneous figure is used.

14 02 (<tempo set map>): Tempo set command

The command for tempo set of this equipment. If a new data is registered in a bar/meter where data already exists, the former data will be written over. When this command is received, this equipment will reply with "34 02 (<edit message>)." Upon completing the registration, <edit message> will reply with "01 (completed)," or with "10 (over value error)" if registration is attempted at a non-existing point or an erroneous figure is used.

14 03 : Tempo map all erase command

When this command is received, this equipment will erase all meter and tempo data in the current program and thus return it to the default state (meter=4/4, tempo: =120). Also, when this command is received, this equipment will reply with "34 03 (<edit message>)." Upon completing the registration, <edit message> will reply with "01 (completed)," or with "10 (over value error)" if registration is attempted at a non-existing point or an erroneous figure is used.

14 04 (<mmc time>): Preroll time set command

The command for setting the current program preroll time at the figure indicated by <mmc time>.

14 06 (<frame rate>): Frame rate set command

The command for setting the current program frame rate at the figure indicated by <frame rate>.

14 07 (<fs rate>): Fs rate set command

The command for setting the current program fs (sampling frequency) at the figure indicated by <fs rate>.

14 08 (<time base>): Time base set command

The command for setting the current program time base of this equipment to that indicated by <time base>.

The Status Request Command

22 21: loop operation status request

The command inquiring the loop operation mode setup status. D-108 will reply with "32 21 (<loop op.mode=12>)."

22 22: loop on/off status request

The command inquiring the loop on/off (=ON/OFF of AUTO RETURN) setup status. D-108 will reply with "32 22 (<on/off>)."

22 28: post locate status request

The command inquiring the post locate mode (ON/OFF of AUTO PLAY) setup status. D-108 will reply with "32 28 (<post locate mode>)."

22 2D: auto rec status request

The command inquiring the auto rec mode setup status and this is replied by "32 2D (<edit message>)." Reply from D-108 against this status request will be either one of the following:

<edit message> =05: Possible to undo rehearsal mode.
=06: Possible to undo take mode.
=72: off

22 41: lock status request

The command inquiring the slave on/off setup status and the lock status. D-108 will reply with "32 41 (<lock status>)."

22 42 : lock mode status request

The command for inquiring the lock mode setup status and this is replied with "32 42 <lock mode>."

22 45: copy clip status request

The command inquiring the clipboard condition. If there is a copy paste data in the clipboard, D-108 will reply with "32 45 (<edit message=01>)." If data in the clipboard is for move paste or there is no valid data in it, it will reply will "32 45 (<edit message=14 (void data)>)."

22 46: copy paste status request

The command inquiring execution status of copy paste editing. When this command is received, D-108 will reply with either "32 46 (<edit message=02><mmc time>)" or "32 46 (<edit message=00>)." <mmc time> indicates unprocessed time until completion.

22 47: erase status request

The command inquiring execution status of erase. When this command is received, D-108 will reply by either "32 47 (<edit message=02><mmc time>)" or "32 47 (<edit message=00>)." <mmc time> indicates unprocessed time until completion.

22 4D: move clip status request

The command inquiring the clipboard status. If there is a move paste data on the clipboard, D-108 will reply with "32 4D (<edit message=01>)." If data in the clipboard is for copy paste or there is no valid data on it, "32 4D (<edit message=14 (void data)>)" will be replied.

22 4E: move paste status request

The command inquiring the move paste execution status. When this command is received, D-108 will reply with "32 4E (<edit message=02><mmc time>)" or "32 4E (<edit message=00>)." <mmc time> indicates unprocessed time until completion.

23 41: digital in channel status request

23 41: adat in channel status request
The command inquiring the digital in channel setup status. When this command is received, D-108 will reply with "33 41 (<channel><channel>)" or "33 41 (<channel=7F><count><mmc track>)."

23 42: digital out channel status request

23 42: adat out channel status request
The inquiring the digital out channel setup status. When this command is received, D-160 will reply with "33 42 (<channel><channel>)" or "33 42 (<channel=7F><channel=0>)."

23 43: program status request

The command inquiring the presently operating program number. When this command is received, D-108 will reply with "33 43 (<program>)."

23 44: click on/off status request

The command inquiring the metronome on/off status of D-108. When this command is received, D-108 will reply with "33 44 (<on/off>)."

23 45: level status request

The command inquiring the present output level data of the 1~8 tracks. In D-108 as the level data is updated about every 40msec., inquiry in 40msec. units is effective. When this command is received, D-108 will reply with "33 45 (<count=10><level data>)."

23 46: resolution status request

The command for inquiring the resolution on/off setup status. When this command is received, this equipment replies with "33 46 <on/off>."

23 47: midi sync out status request

The command for inquiring on status of the midi sync out setup condition. When this command is received, this equipment replies with "33 47 <midi sync>."

23 48: MTC offset mode status request

The command for inquiring the MTC offset mode setup status. When this command is received, this equipment replies with "33 48 <MTC offset mode>."

23 49: vari pitch status request

The command for inquiring status of vari pitch on/off and vari pitch data. When this command is received, this equipment replies with "33 49 (<count=3> <on/off> <vari data>)."

24 01 (<event number>): signature map request

The command for inquiring the meter setup. Order number counting from the leading tune must be specified in the event number (The first event is expressed as "event number=00." When this command is received, this equipment replies with "34 01 (<signature map>)."

24 02 (<event number>): Tempo set map request

The command for inquiring tempo data. Order number from the leading tune must be specified in the event number (The first event is expressed as "event number=00." When this command is received, this equipment replies with "34 02 (<tempo set map>)."

24 04: preroll time status request

The command for inquiring the preroll time setup status. When this command is received, this equipment replies with "34 04 (<mmc time>)."

24 05: remain time request

The command for inquiring the disk remaining time which is recordable. When this command is received, this equipment replies with "34 05 (<mmc time>)."

24 06: frame rate status request

The command for inquiring the frame rate setup status. When this command is received, this equipment replies with "34 06 (<frame rate>)."

24 07: fs rate status request

The command for inquiring the fs (sampling frequency) setup status. When this command is received, this equipment replies with "34 07 (<fs rate>)."

24 08: time base status

The command for inquiring the setup status of the time base shown in the display. When this command is received, this

equipment replies with "3408 (<time base>)."

Explanation on the Status Reply

32 21 (<loop op.mode>): loop operation mode status reply

This is the reply against the "22 21" loop operation status request command. <loop op.mode=12> is the only status data of D-108 and any other setting is not permissible.

32 22 (<on/off>): loop on/off status reply

This is the reply against "22 22" loop on/off status request.

32 28 (<post locate mode>): post locate mode status reply

This is the reply against "22 28" post locate status request. <post locate mode=12 or 15> is the only status data of D-108 and any other setting is not permissible.

32 2D (<edit message>): auto rec status reply

This is the reply against the "12 2D" auto rec command or the "22 2D" auto rec status request.

32 41 (<lock status>): lock status reply

This is the reply against the "22 41" lock status request.

32 42 (<lock mode>): lock mode status reply

This the reply against the "22 42" lock mode status request.

32 45 (<edit message>): copy clip status reply

This is the reply against the "12 45" copy clip command or the "22 45" copy clip status request.

32 46 (<edit message>): copy paste status reply

32 46 (<edit message><mmc time>): copy paste status reply

This is the reply against the "12 46" copy paste command or the "22 46" copy paste status request. <mmc time> indicates the unprocessed time until completion of copy paste editing.

32 47 (<edit message>): erase status reply

32 47 (<edit message><mmc time>): erase status reply

This is the reply against "12 47" erase command or "22 47" erase status request.

32 49 (<edit message><count><mmc track>): clipboard play status reply

This is the reply against the "12 49" clipboard play command. If there is no sound data in the clipboard, "32 49"(<edit message=14 (void data)>)" will be replied. <mmc track> indicates the sound data track number.

32 4A (<edit message>): undo status reply

This is the reply against the "12 4A" undo command. Either <edit message=01 (completed) or <edit message=14 (void data)> will be replied.

32 4B (<edit message>): redo status reply

This is the reply against the "12 4B" redo command. Either <edit message=01 (completed)> or <edit message=14 (void data)> will be replied.

32 4D (<edit message>): move clip status reply

This is the reply against the "12 4D" move clip command or "22 4D" move clip status request.

32 4E (<edit message>): move paste status reply

32 4E (<edit message><mmc time>): move paste status reply

The reply against the "12 4E" move paste command or the "22 4E" move paste status request. <mmc time> indicates the unprocessed time until completion of move paste editing.

32 4F (<edit message>): track exchange status reply

This is the reply against the "12 4F" track exchange command.

33 3E (<edit message>): product new program status reply

This is the reply against the "13 3E" product new program command.

33 41 (<channel> <channel>): digital in channel status reply

33 41 (<channel=7F> <count> <mmc track>): adat in status reply

This is the reply against the "23 41" digital in ch. st. request. The first <channel> indicates the track number assigned to the L channel of the digital audio signal (S/P DIF) from the DATA IN connector, and the second <channel> the track number assigned to the R channel. If digital in is set to "Adat," the reply for the first <channel> will be 7F and then <count> <mmc track>, in this order. In the <mmc track>, the track bit map which is the Adat input, is expressed by "1" (In this equipment, the reply will all be "1", or in other words, all tracks will be collectively converted to Adat inputs or analog inputs).

33 42 (<channel> <channel>): digital out channel status reply

33 42 (<channel=7F> <channel=00>): adat out status reply

This is the reply against the "23 42" digital out ch. st. request. The first <channel> indicates the track number assigned to the L channel output of the digital audio signal (S/P DIF) from the DATA OUT connector, and the second <channel> the track number as signed to the R channel output. If digital out is set to "Adat," the reply for the first <channel> will be 7F and that for the second <channel> will be 00.

33 43 (<program>): program status reply

This is the reply against the "23 43" program status request. <program> indicates the presently operating program number.

33 44 (<on/off>): click status reply

This is the reply against the "23 44" click status request. It indicates the on/off setting of the metronome function.

33 45 (<count=10><level data>): level status reply

This is the reply against the "23 45" level status request and it indicates the present track 1-16 output level data. In D-108, as level data is updated 40msec., it will be effective if inquiry is made in 40msec. units.

33 46 (<on/off>): bar/beat resolution status reply

This is the reply against "23 46" bar/beat resolution status request.

33 47 (<midi sync>): midi sync out status reply

This is the reply against "23 47" midi sync out status request.

33 48 (<MTC offset mode>): MTC offset mode status reply

This is the reply against "23 48" MTC offset mode status request.

33 49 (<count=3> <on/off> <vari data>): vari pitch status reply

This is the reply against "23 49" vari pitch status request and is indicating the vari pitch function on/off and the present vari pitch setup figure.

34 01 (<signature map>): signature map status reply

This is the reply against "24 01" (<event number>) signature map request. The signature map of the event indicated by the <event number> is replied. If there is no event specified (Example: Such as when <event number=5> is requested even though there is only 5 meters registered), it will be replied with all figures at 00 of the <signature map>.

34 02 (<tempo set map>): tempo set map status reply

The reply against "24 02" (<event number>) tempo set map request. Tempo set map of the event indicated by the <event number> is replied. If there is no event specified (Example: Such as when <event number=20> is requested although only 10 is setup for tempo), it will be replied with all figures at 00 of the <signature map>.

34 04 (<mmc time>): preroll set map status reply

This is the reply against "34 04" preroll time status request and this is replied with the presently set preroll time.

34 05 (<mmc time>): remain time reply

This is the reply against "24 05" remain time request, and is replied with the recordable disc remaining time.

34 06 (<frame rate>): frame rate status reply

This is the reply against "24 06" frame rate status request, and is replied with the presently set frame rate.

34 07 (<fs rate>): fs rate status reply

This is the reply against "24 07" fs rate status request, and is replied with the presently set fs (sampling frequency).

34 08 (<time base>): time base status reply

This is the reply against "24 08" time base status request, and is replied with the presently set time base (in the display).

Maintenance

Cleaning the exterior

*** For normal cleaning, use a soft dry cloth.**

For stubborn dirt, moisten a cloth in diluted detergent, wring it out firmly, and wipe the dirt off.

Then polish with a dry cloth. Never use solvents such as alcohol, thinner or benzene, since these will damage the printing and finish of the exterior.

Specifications

Input/Output

INPUT (1 ~ 8)

Connector : RCA pin jack (X 8)

Input impedance : 10k Ω or more

Input level : -10dBV

OUTPUT (1 ~ 8)

Connector : RCA pin jack (X 8)

Load impedance : 10k Ω or more

Output level : -10dBV

DATA IN/OUT

Connector : Optical (X 4)

Format : (1) IEC 958 Part 3 (=S/P DIF)
: (2) Alesis Proprietary Multi
Channel Optical Interface
(Either (1) or (2) is selected in
the Setup mode.)

MIDI IN/OUT/THRU

Connector : DIN 5PIN (X 3)

Format : MIDI standard

SCSI

Connector : D-sub 25 pin (X1)

PUNCH IN/OUT

Connector : \varnothing 6mm Phone jack (X 1)
(An optional FOOT SW Model
8051 can be connected.)

REMOTE

Connector : D-sub 15PIN (X 1)

Recording/reproducing

frequency : 20Hz ~ 20kHz

Dynamic range : 90dB

General

Dimensions : 482 (W) X 141 (H) X 381 (D)
mm, 3U size

* Including highest protrusion.

Weight : approx. 8.0kg (with REMOTE
controller)

Power supply : 120VAC 60Hz
: 230V~ 50/60Hz

Power consumption : approx. 33W

* Specifications and appearance are subject to
change without notice for product improvement.

* "Adat" and the  symbol are trademarks of
Alesis Corporation.

* FDMS-3: Fostex Disk Management System-3.

* FDIO-1 Ver.2: Fostex Data In Out-1 Ver.2

Recording/Reproducing

Recording medium : 3.5 inch, hard disk (E-
IDE type) or External SCSI
device

Recording format : FDMS-3*

Save/Load format : FDIO-1 Ver.2**

Sampling frequency : 44.1kHz/48kHz

Quantization : 16-bit linear
(Non expanded)

A/D: 20-bit 64-time, over sampling, Delta-Sigma

D/A: 20-bit 128-time, over sampling, Delta-Sigma

No. of recording track : 8 + 16 Additional tracks
(for 8track format)

Program No. : maximum 99 tunes

Crossfade : 10msec.

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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 and with the Low Voltage Directive (73/23/EEC) - Directive on approximation of member nation's ordinance concerning electric equipment designed to be used within the specified voltage range.

The Affect of Immunity on This Equipment

The affect of the European Specification EN50082-1 (coexistence of electromagnetic waves - common immunity specification) on this equipment are as shown below.

* In the electrical fast transient/burst requirements, radiate electromagnetic field requirements and static electricity discharging environment, this could be affected by generation of noise in some cases.

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