SONY

DIGITAL AUDIO RECORDER

PCM-800

REMOTE CONTROL UNIT

RM-D800

INTERFACE BOARD

DABK-801

OPERATION MANUAL English

1st Edition (Revised 1)

Serial No. 20001 and Higher (UC)

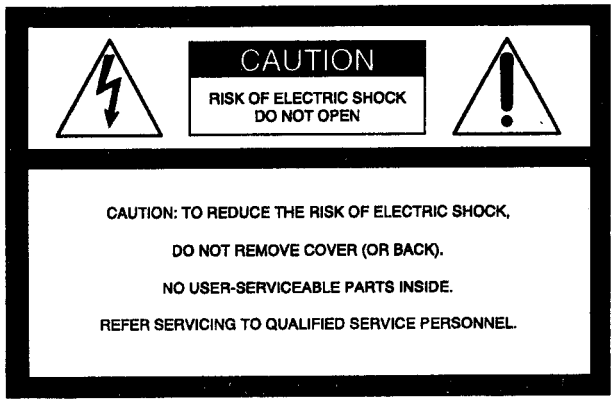
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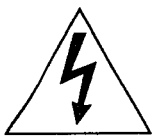
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WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.





This symbol 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.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For the customers in the USA
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

VORSICHT

Um Feuergefahr und die Gefahr eines elektrischen Schlages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.

Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur einem Fachmann.

For the customers in Europe

WARNING
This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Pour les utilisateurs en Europe

AVERTISSEMENT
Il s'agit d'un produit de Classe A. Dans un environnement domestique, cet appareil peut provoquer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre des mesures appropriées.

Für Kunden in Europa

Warnung
Dies ist eine Einrichtung, welche die Funk-Entstörung nach Klasse A besitzt. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.

Für Kunden in Deutschland
Dieses Produkt kann im kommerziellen und in begrenztem Maße auch im industriellen Bereich eingesetzt werden.

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Features of the DABK-801

- All SMPTE/EBU time codes supported : Drop 29.97 Hz, Non Drop 29.97 Hz, 30 Hz, 25 Hz (EBU), and 24 Hz (Film).
- Offset sync with subframe accuracy
- Automatic offset entry on the fly

Features of the RM-D800

- 99-point autolocator functions
- Jog/shuttle dial locating specific points on audio or video tapes at variable speeds
- Keypad-entered time points
- A variety of menu-selectable options, including the menus of synchronizer (the optional DABK-801) controls

1-2 Use of Capital Letters in This Manual

In general, we use all upper case type to designate a particular switch indicator, control or connector label, as follows:
Hold RECORD and press PLAY.

Chapter 1 Overview

1-1 Features 1-2
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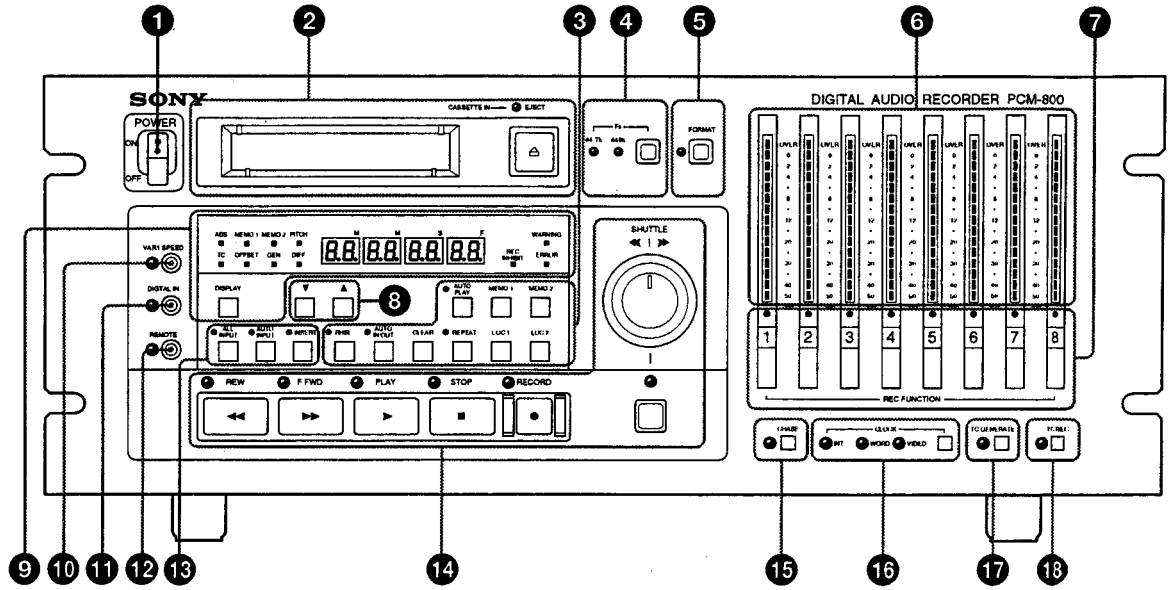
1-1 Features

The PCM-800 is Digital Audio Recorder designed for use in a variety of professional applications. It records 8 channels of digital audio data on a standard Hi8 video cassette tape, which is compact and easy to handle.
When the optional DABK-801 Interface Board is installed in the PCM-800, the PCM-800 can synchronize with a VTR, other digital audio machines and analog audio machines, based on SMPTE/EBU time code.
The optional RM-D800 Remote Control Unit functions as the heart of a production system of digital/analog and audio/video tapes. It allows you to control up to six PCM-800s. The RM-D800 also supports RS-422 interface.

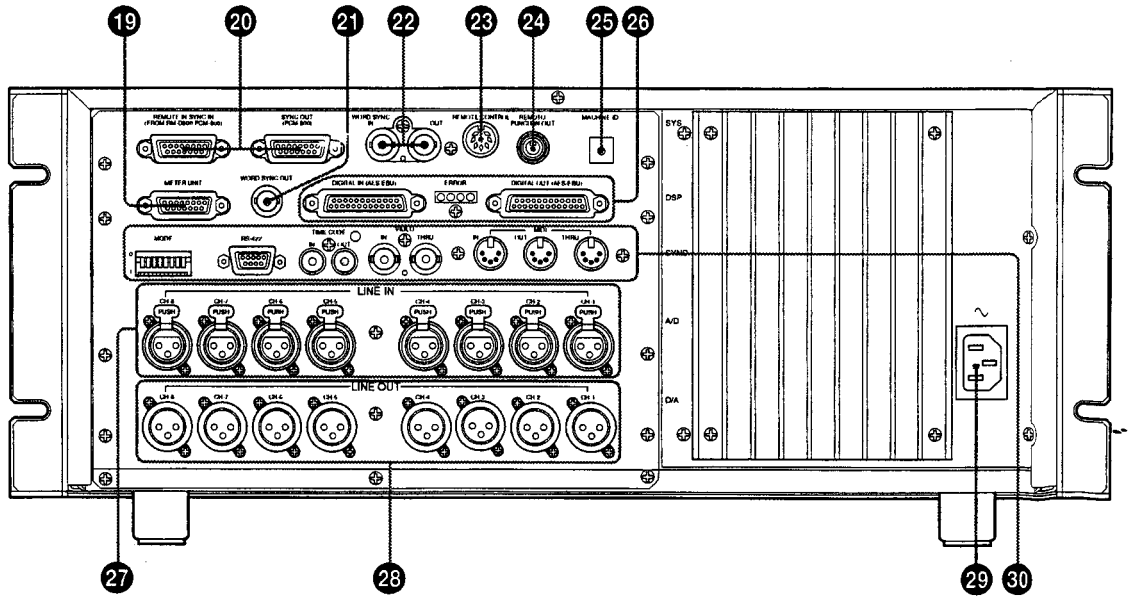
Features of the PCM-800

- Newly developed high performance/ high wear resistive rotary 4-head mechanism
- Synchronization of up to 16 PCM-800s for a setup of 128 tracks simply by connecting them in series, without any synchronizer-controller
- Synchronization with video or other audio recorders (analog or digital) under SMPTE/EBU time code control when the optional DABK-801 Interface Board is installed
- Sound equivalent to CD sound ensured by 16-bit linear quantization and 48 kHz/44.1 kHz sampling frequency
- Auto punch-in/out with rehearsal capability
- 2-point autolocator
- Variable speed playback (up to 6.0% in 0.1 % steps)
- Backup memory
  The following are retained in a backup memory each time the power is turned off (battery life is about 50,000 hours) :
  - MEMO 1 and 2 points
  - Pitch change
  - Offset time
  - Track delay time
  - Crossfade time
  - Punch-in and out points
  - Preroll time
  - DIGITAL IN on/off
  - Monitor selection (ALL INPUT, AUTO INPUT and INSERT)
  - CHASE on/off
  - CLOCK selection
  - DISPLAY mode

Front panel of the PCM-800



Rear panel of the PCM-800



2-1 Front Panel of the PCM-800

❶ POWER switch
Controls the power to the PCM-800.
See also page 1-2, "Backup memory."

❷ Tape loading section
Tape loading window

CASSETTE IN indicator
Lights when a cassette is inside the loading window.

EJECT key
When pressed, the cassette is ejected.
EJECT can operate during stop only.

❸ Tape locate and specific transport section
AUTO PLAY key
Activates playback at the end of each autolocation function.

MEMO 1 and MEMO 2 keys
Pressing MEMO 1 stores the current tape location into that register, to which the tape will be autolocated when pressing LOC 1. MEMO 2 is similar to MEMO 1, and is used to capture any point to which you can return by pressing LOC 2.

Note

- These keys are disabled during ABS time mode.
- The current MEMO 1 and MEMO 2 registers can be verified by pressing DISPLAY key ❾ (see page 2-4 "Display Section"). However, when the RHSL indicator is lit solid, "MEMO 1" displays the punch-in point, and "MEMO 2" shows the punch-out point (set during rehearsal setting mode). Note that these are display characteristics only, the actual MEMO 1/2 memory registers remain unchanged.

RHSL (rehearsal) key
Puts the unit into rehearsal mode which allows you to check the auto punch in and out points for accuracy.

AUTO IN/OUT key
Automates the punch-in sequence (preroll, punch in, punch out, and postroll) as you have set during rehearsal.

CLEAR key
Defeats the RHSL and AUTO IN/OUT functions.

REPEAT key
Repeats play between two MEMO points.

LOC 1 and LOC 2 keys
Pressing LOC 1 locates the tape to the MEMO 1 point, and LOC 2 to the MEMO 2 point.

❹ Fs (sampling frequency) keys
Toggles two sampling frequencies (or rates) for your choice. When formatting a tape you have to select 48 kHz or 44.1 kHz depending on the applications. During play the recorder will automatically switch to the frequency at which the recording was made, and either of the two indicators will light accordingly.

Note

If you attempt to record additional material to augment the original one, and the incoming sampling frequency is not the same as that is previously recorded on the tape, one of the Fs indicators will flash, warning you that recording cannot correctly be done.

❺ FORMAT key
When you format a tape the unit records it with subcode data, such as ABS (absolute) time. This ABS data is the elapsed time from the beginning of the tape, not from any
optionally selectable intermediate point: hence the name "absolute."

Formatting a tape erases whatever is previously recorded on it. To prevent formatting from starting accidentally, the FORMAT key is not actually activated unless you press it twice.

Chapter 2 Location and Function of Parts

Read this section of the manual to get an overview of the PCM-800 and RM-D800, that way you will be able to locate information whenever you need. It is not necessary to memorize all what is here nor to try to build up details into a systematic whole to get started. Functions available only when the optional DABK-801 Interface Board is installed are also explained here.

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2-2 Rear Panel of the PCM-800 2-7
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2-4 Rear Panel of the RM-D800 2-17

Note

Audio can be recorded while formatting. But it is advisable to format the tape from the beginning all the way to the end before recording audio. This insures against noise and discontinuity of absolute time data. If you want to record audio data and format a tape at one time, do not stop recording by stopping the tape with STOP or PLAY. Press REC FUNCTION instead, which allows the tape to be continuously formatted up to the end.

❻ Peak level meters

Register the signal levels being fed to the outputs, the levels coming either from the inputs or the tape, as shown on page 2-5.

❼ REC FUNCTION keys

Put the corresponding tracks into Record Ready mode, or directly into Record if RECORD and PLAY have previously been pressed.
The associated indicators flash to indicate Record Ready, and light during Record.

❽ ▼ and ▲ keys

Used to enter the following:

- Crossfade time (page 5-7);
- Offset time (pages 5-16 and 5-32);
- Track delay time (page 5-11);
- Pitch change (page 5-12);
- Preroll time (page 5-6).

The following can be trimmed or finely tuned with the ▼ and ▲ keys:

- MEMO points (page 5-13) ;
- Punch-in and out points (page 5-5).

The keys are also used together with DISPLAY to get access to:

- ABS time indication - if you hold DISPLAY and press ▲.
- Track delay time setting mode - if you hold ▲ and press DISPLAY.
- Crossfade time setting mode - if you hold ▼ and press DISPLAY.

When the DABK-801 is installed

These keys have multiple uses.

(1) They are used to enter the following:
- Offset time (frame or subframe accuracy)
- Start time of the internal TC generator (frame accuracy)

(2) The PCM-800 cannot normally store locate points (using MEMO 1/2 keys) if no time code has been recorded on the tape. In this case, when the display shows ABS time, hold either of the keys (▼/▲) and press the other. The display then switches to allow autolocating functions in ABS time mode. Pressing DISPLAY brings you back to ABS time display mode.

See page 5-14 for details.

(3) When the display is in TC mode, each time you press either key (▼/▲) while holding the other, the following time code options will switch in sequence:

See page 5-19 for details.

30, 29.97 Non-drop, 29.97 Drop, 25, and 24 frame formats.

Pressing DISPLAY brings you back to the normal TC display mode.

(4) The keys are also used to let the display show the type of time code being read off a tape inserted to the PCM-800. To do so:

1 Hold DISPLAY and press ▼. Time code numbers will increment in the display as the tape plays.

2 Hold either ▼ or ▲ and press the other. The display will switch to show the currently selected code format.

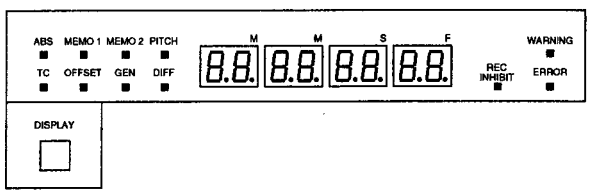
3 Press DISPLAY again.

- To switch the display back to its TC mode, press DISPLAY twice more.

(5) If the display shows a frame-accurate difference between the master and slave time code numbers ❾ and you press either key (▼/▲) while holding the other, the difference time at that moment is put into the offset memory ("auto offset" entry).

(6) If you hold down ▲ and press DISPLAY when the display is in the TC mode, the display is switched to show time code coming from the external equipment (TC indicator flashes). Pressing only DISPLAY again switches the display back to the internal TC mode.

❾ Display section



DISPLAY key
Each time you press this key, the following will appear in the digital display window in sequence, as confirmed by the corresponding indicators being lit next to the display:

(1) ABS (absolute) time (elapsed time from the beginning of the tape up to the current position)

(2) MEMO 1 point

(3) MEMO 2 point

(4) % of pitch change

Indications (5) to (10) are available only when the PCM-800 is ID- numbered "0" and the DABK-801 is installed into that machine.

(5) Time code from the PCM-800 tape

(6) Frame-accurate offset

(7) Subframe-accurate offset

(8) Time code from the internal TC generator

(9) Frame-accurate difference between the master and slave time code numbers

(10) Subframe-accurate difference between the master and slave time code numbers

Pressing only ▲ in the "subframe-accurate" DIFF mode brings you back to the "frame-accurate" DIFF mode.

In TC mode (5) you can select the desired type of time code.

The GEN mode (8) allows setting the generator start time.
If the generator is generating time code and this is feeding the TIME CODE OUT connector, the time code numbers will increment in the display, during which the generator start time cannot be set.

The frame-accurate DIFF mode (9) shows absolute difference between the master and slave time code numbers. Once locked together, the display shows relative difference (= absolute difference - offset value).

- To go back directly to the ABS time display mode, hold DISPLAY and press the ▲ key.
- To skip directly to the TC mode, hold DISPLAY and press the ▼ key.

Digital display window
Shows the ABS time, MEMO 1 point, MEMO 2 point, or amount of pitch change (or SMPTE time code when the optional interface board is installed), as selected by the DISPLAY key.

The display will also show error messages.
For details on them, see page A-8.

- The display can quickly be switched back to show ABS time when you hold DISPLAY and press ▲ at any time.

WARNING indicator
Flashes to warn you that trouble occurred. Error messages will then appear in the display too, specifying what is wrong.
See also page A-8.

REC INHIBIT indicator
Lights when the tape in use is write-protected. Check the write protect tab on the cassette.

ERROR indicator
Lights when errors occurred at so constraint a rate in digital data, that they cannot be corrected.

This indicator also lights to indicate that dirt accumulates on the heads or tape paths, or that the tape is damaged. If another tape is loaded and the indicator does not turn off, consult Sony or your nearest Sony dealer.

⑩ VARI SPEED key
When pressed, "PITCH" will appear in the display and you can use the ▼ and ▲ keys to change the play (or the record) speed up to +/-6.0 % in 0.1 % steps.

Note

The pitch change affects the record speed too. Check to see that the VARI SPEED indicator is turned off unless you are using the function intentionally.

⑪ DIGITAL IN key
Selects either the analog or the digital input signal. Pressing this key to turn on its indicator activates the DIGITAL I/O port. Turning off the indicator selects the analog inputs (LINE IN connectors) as the source of the recorder.

⑫ REMOTE key
When this key is pressed, and the associated indicator lights, the PCM-800 is submitted to the optional RM-D800 remote control unit, and all controls are disabled except DISPLAY ⑨, ▼ and ▲ ⑧, and STOP ⑭.

⑬ Output signal setting section
ALL INPUT key
When pressed to turn on its indicator, all the channels' outputs are switched to carry signals derived from the inputs, whatever the transport mode (primarily for alignment).

AUTO INPUT key
When this key and INSERT are both previously activated, the channel inputs selected by REC FUNCTION are automatically switched to directly feed the outputs whenever the unit is in rewind, fast-forward, shuttle, or stop mode. This allows the talent in studio to talk to the engineer in control room without having to change any settings on the mixer.

INSERT key
Lets you monitor tape during preroll and postroll for punch-in recording. See table below.

Relationships between the output signals, transport modes and key settings

Key settings				Transport modes and output signals			
All INPUT	REC FUNC-TION	INSERT	AUTO INPUT	PLAY	RECORD	SHUTTLE	STOP
ON	/	/	/	INPUT			
OFF	ON	ON	ON	TAPE	INPUT		
			OFF	TAPE	INPUT	TAPE	–
		OFF	/	INPUT			
	OFF	/	/	TAPE			–

⑭ Transport section
REW (rewind) key
Rewinds the tape at high speed.
Pressing REW during recording punches out and the tape is rewound.

F.FWD (fast forward) key
Winds the tape at high speed in the forward direction.
Pressing F.FWD during recording punches out and the tape is wound.

Note

When you press F. FWD or REW for the first time after turning on or replacing the tape, this will run at an intermediate speed for a few seconds before starting running at the expected high speed. During this interval the transport is detecting the tape characteristics.

PLAY key
Enables play mode; or, punches out of record if pressed during recording.

STOP key
Disables the current transport mode and stops any tape motion.

RECORD key
Pressing PLAY while holding RECORD initiates record on any track whose REC FUNCTION indicator is flashing to show Record Ready mode.

Pressing RECORD during play lets any "Ready" track punch into record.

SHUTTLE key and the dial
Pressing the key to let its indicator turn on allows you to use the dial to monitor the tape at variable speeds in search of a specific point. Turning the dial to the right of center rolls the tape in the forward direction, and turning it to the left of center provides reverse cueing. The further you turn it in either way, the higher the tape speed will be. The initial speed is 1/4 times normal play speed, and if you turn the dial all the way to the left or right, the tape will play at 8 times normal play speed.

Pressing the SHUTTLE key during recording gets you out of record, allowing you to begin to "shuttle" the tape immediately.

Shuttle function will automatically be disabled if you leave the dial at its center position for 10 seconds.

⓯ CHASE key
Lets the slave PCM-800(s) chase and lock to the same ABS time point as the master. Once locked up, they will play, record, or fast-wind in sync in response to the commands from the master.

The installation of the optional DABK-801 interface board allows the PCM-800 to run in sync with VTRs or other ATRs (digital or analog) under SMPTE/EBU-time code control .

⓰ CLOCK key
For the PCM-800 to function and achieve different tasks, it must be referenced to different clocks. The CLOCK key offers three options:

INT: The PCM-800 is referenced to its internal clock. Use this clock when making a copy from analog tape recorders.
WORD: The PCM-800 is referenced to the clock derived from its WORD IN, for syncing up to other digital audio machines, or for making digital copy from these onto the PCM-800. The optional DABK-801 interface board is required.
VIDEO: The PCM-800 is referenced to the clock derived from its VIDEO IN, for slaving the PCM-800 to your VTR or for making a copy of time code from VTR down to the PCM-800. The optional DABK-801 interface board is required.

⓱ TC GENERATE key
Lets the DABK-801's internal time code generator start generating time code.

⓲ TC REC key
Puts the time code track (subcode area) on the PCM-800 into Record Ready mode. The associated indicator flashes to show Record Ready, and lights as recording starts.

2-2 Rear Panel of the PCM-800

⑲ METER UNIT connector (D-sub 15-pin)

Carries the output of eight channels and the power for driving eight of the twenty-four meters.

⑳ REMOTE IN/SYNC IN and SYNC OUT connectors (D-sub 15-pin)

When two or more PCM-800s are hooked up, a sync signal and commands from the master's SYNC OUT connector are fed into the first slave's SYNC IN connector; and its SYNC OUT connector feeds the second slave's SYNC IN connector, and so on.

The optional RM-D800 remote control unit may alternatively be connected to the SYNC IN connector. The RM-D800 can control a maximum of 6 PCM-800s, separately.

Notes

- Use only the optional RCC-S1 sync cable for establishing the sync in and out connection.
- Use only Sony cables, as there are very specific cable requirements, these cables are specially configured for connection to REMOTE IN/ SYNC IN, SYNC OUT, METER UNIT, DIGITAL IN and DIGITAL OUT. (Do not use standard computer cables.)

㉑ WORD SYNC OUT connector (BNC type)

This connector outputs a WORD clock signal synchronized with one of the AES/EBU digital audio signals connected to DIGITAL IN connector ㉖. The DI audio signal to which WORD OUT ㉑ is synchronized to, is determined by internal DIP switches on the DIO board according to the following table.

No. 4	No. 5	Channel
ON[1)]	ON[1)]	Channels 1 and 2
OFF	ON	Channels 3 and 4
ON	OFF	Channels 5 and 6
OFF	OFF	Channels 7 and 8

1) Settings at factory.

Therefore, if it is desired to use one of the AES/ EBU digital audio signals as the clock reference, set the internal DIP switches as shown above, connect a BNC cable from WORD OUT ㉑ to WORD IN ㉒ and select WORD clock reference on the PCM-800 front panel CLOCK key ⑯.

㉒ WORD SYNC IN and OUT connectors (BNC type)

The PCM-800 can be based on to the reference signal derived from the WORD SYNC IN for it to be slaved to other digital tape machines. Inversely, it allows other digital tape machines to be slaved by letting them be based on the reference signal the PCM-800 transmits from its WORD SYNC OUT. (For the PCM-800 and other digital machines to be synchronized, the optional DABK-801 interface board is required.)

The word sync signal the WORD SYNC connectors carries may also be used when making a digital copy between the PCM-800 and other digital machines.

㉓ REMOTE CONTROL connector (DIN 8-pin)

For connection to the optional RM-D800 Remote Control Unit.

㉔ REMOTE PUNCH IN/OUT connector (Phone Jack)

For connection to footswitch.

㉕ MACHINE ID rotary switch

For two or more PCM-800s to be synchronized, they have to be given their own ID (identification) numbers. Assign "0" to the master, "1" to the first slave whose SYNC IN is directly fed with the master's SYNC OUT; and, in a similar way, assign "2" and upper numbers to the remaining slaves in sequence, in their order of SYNC IN/OUT connections. "11" and higher numbers are represented by letters; "11" by "A," "12," by "B," and so on.

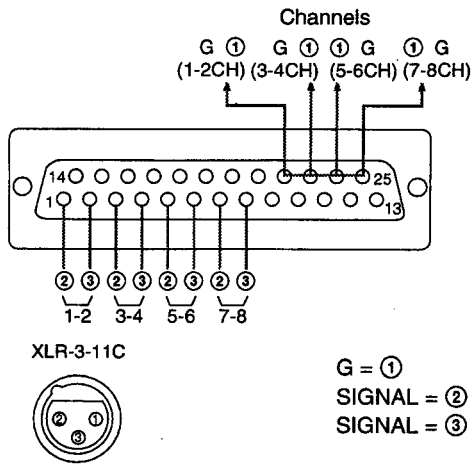
Notes

- Do not assign the same ID number to two or more machines. This may cause incorrect functions.
- When operating the MACHINE ID switch, make sure that the unit is turned off.

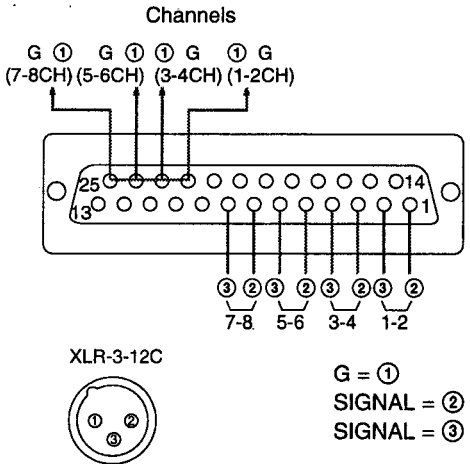
㉖ DIGITAL IN/DIGITAL OUT (AES/EBU) connectors (D-sub 25-pin) and ERROR indicator

Inputs and outputs the AES/EBU format digital audio signals. For the XLR conversion cable connecting to other equipment, see the figure below.

DIGITAL IN



DIGITAL OUT

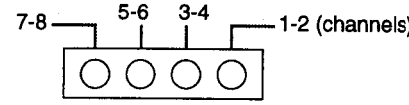


Emphasis on the PCM-800 is based on the signals input to the DIGITAL IN connector. To select the input channel which will determine the emphasis setting on the PCM-800, set the internal DIP switches as follows:

No. 1	No. 2	No. 3	Channel for the emphasis setting
ON[1)]	ON[1)]	ON[1)]	1
OFF	ON	ON	2
ON	OFF	ON	3
OFF	OFF	ON	4
ON	ON	OFF	5
OFF	ON	OFF	6
ON	OFF	OFF	7
OFF	OFF	OFF	8

1) Settings at factory.

ERROR indicators



Turns off when the signals are input to the DIGITAL IN connector correctly.
Turns on when the sampling frequency and the emphasis setting of the input signals do not match the setting on the PCM-800 or when no signal is input to the DIGITAL IN connector.

㉗ LINE IN connectors (XLR 3-pin)

CH1 to CH8 receive balanced analog sources.

㉘ LINE OUT connectors (XLR 3-pin)

CH1 to CH8 for connection to the balanced analog inputs of external equipment.

㉙ AC power input connector

Connect to an AC power source.

㉚ Interface board (DABK-801, optional)

MODE DIP switches

They are all factory-preset to their Down positions.

Bit 1. Video 75-ohm switch

1: Leave the switch at this position if nothing is input into the VIDEO THRU connector.
0: Set to this position when the VIDEO THRU connector is connected.

Bit 2. Serial in switch: Submits the PCM-800 to control signal from its RS-422 connector or MIDI IN connector.

1: Selects the RS-422 connector.
0: Selects the MIDI IN connector.

The RS-422 connector can be activated only when the PCM-800 is in its time code (as distinct from ABS time) controlled mode (page. 5-19).

Bit 3. Chase mode switch

1: "Rechase" mode: The DABK-801 reads and compares the master and slave time code numbers constantly to control the slave machine with respect to the master.
0: "Free" mode: The slave machine (PCM-800) is set free from the master once both are locked together, and starts playing independently of the master.

Bit 4. Rechase switch: Determines the threshold of rechase function (effective only when the Bit 3 chase mode switch is in its Down position).

1: Each time the difference between the master and slave time code numbers goes beyond 1 second, the slave machine will be got back into sync.
0: Selects a threshold of 2 seconds.

Bit 5. Time code out timing switch

1: Time code is sent out in time with respect to the analog audio output.
0: Time code is sent out in time with respect to the digital audio output.

Note

This switch must be set in accordance with the audio outputs you are actually using; e.g., if the analog outputs are in use, you have to set the switch to its Down position regardless of whether the PCM-800 is in Analog Output mode or in Digital Output (Digital Dubbing) mode.

Bit 6. MIDI time code source select switch

1: MTC (MIDI Time code) translated from SMPTE/EBU code read from the PCM-800 tape or generated from the DABK-801 is sent out the MIDI OUT connector.
0: The MIDI OUT connector is fed with MTC derived from the time code input. No compensation is applied to the signal.

Bit 7. Video sync playback switch: Determines, when the PCM-800 is slaved to a VTR, whether synchronization is achieved using time code or the PCM-800 locks to rising edges of the video frame ignoring the actual time code numbers.

1: For time code based chase and synchronization.
0: The PCM-800 locks to rising edges of the video frame.

Bit 8. Controller switch: Depending on the type of controller or editor connected to the ACCESSORY RS-422 connector, set this switch as follows:

1: Leave the switch at this position if your controller is capable of transmitting a chase command.
0: Set the switch to this position if your controller does not transmit any chase commands.

If switch Bit 7 is at Down position, switch Bit 8 has no effect whether this is set to Up or Down position.

RS-422 connector (D-sub 9-pin)
This connects to controllers or editors supporting the Sony 9-pin serial protocol (RS-422). If you are in doubt about the compatibility of a controller, consult Sony or the nearest Sony dealer.

Note

This port cannot be used at the same time as the MIDI connectors, and in ABS time (as distinct from time code) controlled mode.

TIME CODE connectors (BNC type)
IN: Time code from external equipment other than PCM-800 (audio or video) is connected here for the PCM-800 to be slaved to them. Similarly, when dubbing time code between PCM-800s, time code from the master is connected to the TIME CODE IN on the slave.
OUT: Carries time code coming from the tape inserted to the PCM-800 or from the built-in time code generator on the DABK-801.

The output level defaults to 2 Vp-p, and can be set for 0.6 Vp-p by removing a tiny plug inserted into Hi at Sony 9-pin serial on the SYNC PCB and reinserting it into Lo.

Note

This should be done only by a qualified service person.

VIDEO connectors (BNC type)
IN: Input composite video signals of your VTR.
THRU: Any signals input to the VIDEO IN connector will be output from this connector.

MIDI connectors

See MIDI diagrams in Appendixes.

2-3 Front Panel of the RM-D800

If you use the RM-D800 to control Sony analog machines or a VTR, see also "6-11 Controlling VTRs from the RM-D800". Some controls on the remote control unit provide different functions and some others cannot operate depending on the machine connected.

❶ REC FUNCTION keys
For selecting tracks to be recorded.
If you connect multiple PCM-800s to the RM-D800 in series, REC FUNCTION 1 to 8 will control tracks 1 to 8 of machine 1, REC FUNCTION 9 to 16 will control tracks 1 to 8 of machine 2, and so on.

The associated indicators flash to indicate Record Ready, and turn on solid during Record. To punch the desired track into record, press the corresponding key while its indicator is flashing. You cannot operate any REC FUNCTION key if ALL SAFE ❷ is activated.

❷ ALL SAFE/REC STDBY (stand-by) key
Pressing this key toggles the ALL SAFE indicator and REC READY indicator, putting all tracks of the PCM-800 currently under remote control into Safe mode or into Record Ready mode.

❸ Output signal setting section
ALL INPUT key
When activated, all outputs of the PCM-800 currently under remote control are switched to carry signals directly derived from the inputs (primarily for alignment).

Pressing the key again disables the function. Pressing the local ALL INPUT on any PCM-800 under remote control has also the same effect.

AUTO INPUT key
If this key and INSERT are previously activated, inputs to the channels corresponding to the tracks selected by REC FUNCTION are directly sent to the outputs whenever the PCM-800 currently under remote control goes into rewind, fast-forward or stop mode. This allows the talent in studio to talk to the engineer in control room without having to change any setting of the mixer.

AUTO INPUT is disabled when you press the key again. Pressing the counterpart on the PCM-800 currently under remote control has also the same effect.

INSERT key
When this key is previously pressed, the monitor will switch to input source signals at punch-in point, and will switch back to playback signals of tape at punch-out point.

INSERT is disabled when you press the key again. Pressing the counterpart on the PCM-800 currently under remote control has also the same effect.

Relationships between the output signals, transport modes and switch settings

Key settings				Transport modes and output signals			
All INPUT	REC FUNC-TION	INSERT	AUTO INPUT	PLAY	RECORD	SHUTTLE	STOP
ON				INPUT			
OFF	ON	ON	ON	TAPE	INPUT		
			OFF	TAPE	INPUT	TAPE	–
		OFF		INPUT			
	OFF			TAPE			–

❹ CLOCK key
Selects the clock to which machine 1 (i.e. the "0" ID-numbered PCM-800) will be referenced.

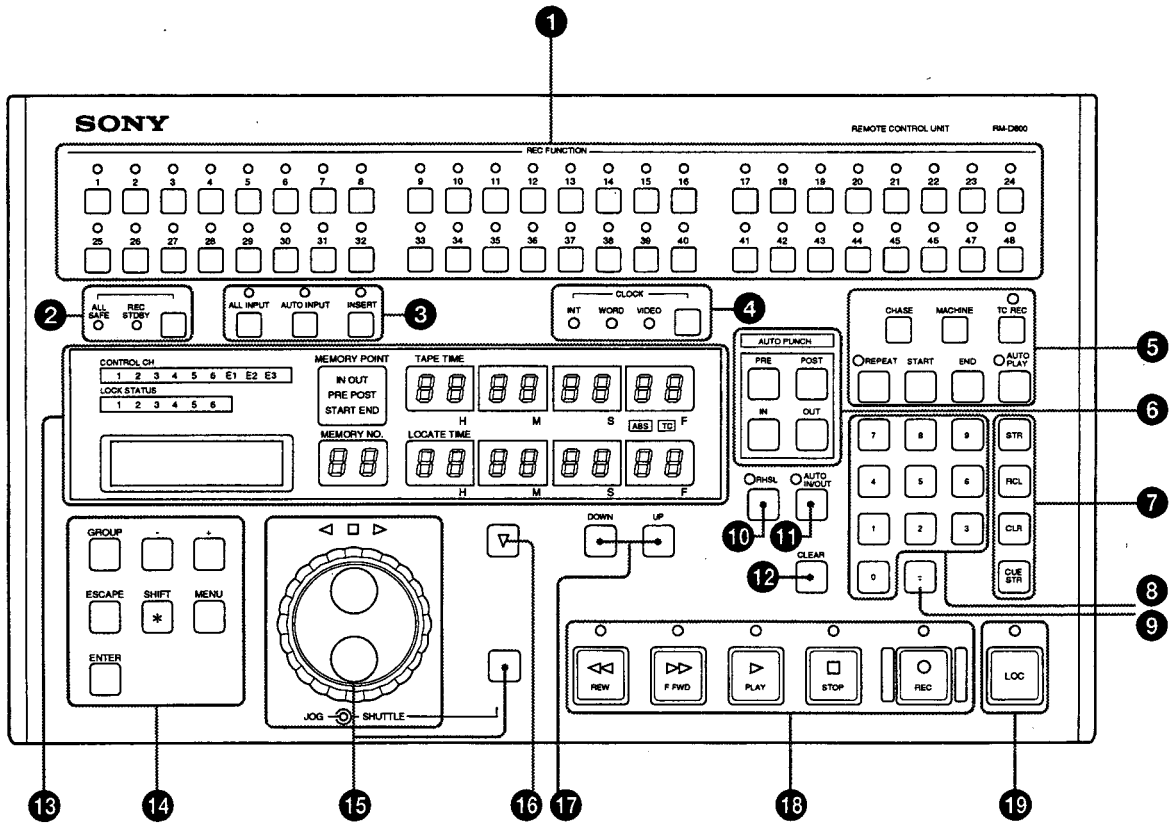
INT: Select this position when you use machine 1 as a stand-alone recorder, so it is referenced to its internal clock.

WORD: Machine 1 is referenced to the clock derived from its WORD SYNC IN connector. This must be selected when machine 1 is slaved to other digital machines than PCM-800 (the optional DABK-801 Interface Board is required) or when making dubbing from them to the PCM-800.

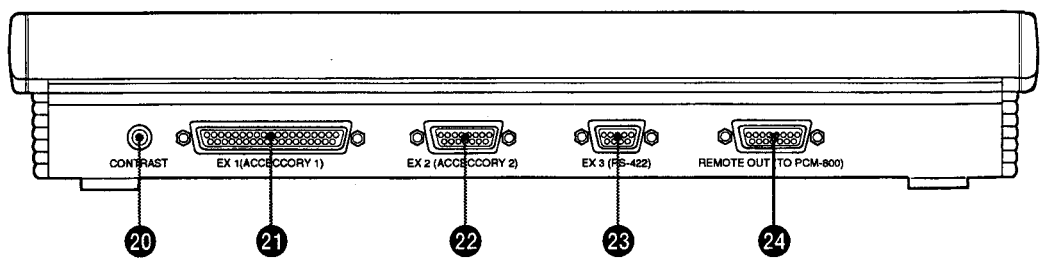
VIDEO: Select this for machine 1 to be slaved to a VTR by referencing to the clock derived from a composite video signal coming into the VIDEO IN connector on the optional DABK-801 Interface Board.

All other PCM-800s connected to machine 1 in series are referenced to the same clock as machine 1. The local CLOCK key on them cannot then operate.

Front panel of RM-D800



Rear panel of RM-D800



❺ Tape locate and specific transport section

CHASE key
When pressed, the LCD screen indicates "CHASE," asking you which of machines 2 to 6 you wish to chase machine 1.
If, for example, you press 2 on the keypad, machine 2 will then be autolocated to the same time point as machine 1.

For more information, see "6-8 Synchronizing Multiple PCM-800s".

For other digital audio machines to be chased, the optional DABK-801 Sync Board need be installed into machine 1.

MACHINE key
When pressed, "Select" appears in the LOCATE TIME window, and you can use the numeric keypad to specify which machine will be controlled from the RM-D800. You can select only one machine at a time.

TC REC key
Lets time code be recorded in the subcode area of the tape loaded on machine 1 as it is generated from the optional DABK-801 Interface Board installed into machine 1. Any DABK-801 installed into other machines (2 to 6) cannot be used to this effect.

This key is also used to copy time code at the same time as digital data from one PCM-800 to another PCM-800.

For more information, see page 6-22.

REPEAT key
Lets the selected machine play the portion between the START and END memory points repeatedly.

START and END keys
Pressing START after having pressed STR puts the current LOCATE TIME (which you may have entered with the ▼ key on the fly or with the numeric keys) into memory as the start point of repeat play. Likewise, pressing END after having pressed STR specifies the end point of your repeat play.

You can recall the start/end point into the LOCATE TIME window by first pressing RCL then pressing START/END.
Then you can finely adjust that time with the UP and DOWN keys. Pressing LOC locates the tape to the start or to the end point (whichever is currently displayed); so you can monitor that point to check for accuracy.

Pressing REPEAT lets the tape play repeatedly between the START and END points.

AUTO PLAY key
Causes the machine currently under remote control to start playing automatically each time it is autolocated to any time point shown in the LOCATE TIME window.

❻ PRE, POST, IN, and OUT key

PRE and POST: The desired pre- and postroll times for punch-in recording can be entered into the LOCATE TIME window with the numeric keys. Then pressing PRE/POST after having pressed STR stores that time into the PRE/POST memory.

The PRE and POST times require the unit of frame. Enter 00 in the F (frame) window (e.g. to enter 3 seconds, press 3, 0, 0).

IN and OUT: You do not need to go through the Rehearsal setting procedure (page 6-14) if you know in advance the exact time points where tracks should punch in and out of record. You can enter these points with the numeric keys then press IN/OUT after having pressed STR to store them into memory as the punch-in/out point.
The IN and OUT points can also be used as independent autolocating points.

❼ LOCATE TIME store/recall section

STR (store) key

This key is used to store time values into memory locations.

Pressing STR followed by a pair of numbers (from 00 to 99) will cause the value in the LOCATE TIME display to be stored in one of the 100 cue point registers. Similarly, pressing STR followed by either IN, OUT, START or END will cause the displayed value to be stored in the appropriate memory location.

RCL (recall) key

This key is used to recall the time values stored in memory locations into the LOCATE TIME display window.

Press RCL followed by a pair of numbers (from 00 to 99) to recall the time value stored in one of the 100 cue point registers into the LOCATE TIME display window. Similarly press RCL followed by either PRE, POST, IN, OUT, START or END to recall the time value stored in one of those memory locations into the LOCATE TIME display window. Press LOC to locate the tape to the time value displayed in the LOCATE TIME window.

CLR (clear) key

When pressed, the LOCATE TIME display is cleared and shows 00.00.00.00.

CLR also overrides STR and RCL key operation.

CUE STR (cue point store) key

Pressing this key captures the current TAPE TIME on the fly and directly stores it into memory. That time point is read into the LOCATE TIME window. Each time you press this key, a new cue point is stored into the next available memory, e.g. into memory 5 if the MEMORY NO. display showed "04" just before you press the key.

Remember, if you press this key when "99" shows in the MEMORY NO. window, your new cue point is stored into memory 01, erasing the previous cue point in that memory register.

❽ Numeric keys

Unless you press STR or RCL before pressing numbers on the keypad, entered numbers will appear on the LOCATE TIME window. Each time you enter one digit, the previously entered digits will shift to the left.

When STR or RCL is pressed, numbers you have entered will appear on the MEMORY NO window.

If, after having pressed STR, you notice that some figures in the LOCATE TIME numbers are wrong, then you can correct them with the UP and DOWN keys. Or, if you want to correct the hour or minute numbers, you'll have to clear the whole numbers by pressing the CLR key before entering the correct numbers.

When MACHINE is pressed and "Select" appears in the LOCATE TIME window, only one digit (1 to 9) can be entered.

❾ ± key

When the TAPE TIME display shows a Relative Reference time (page 6-12), if the current tape time is read into the LOCATE TIME window by pressing the ▼ key, that time number will be marked "-" or not, depending on whether the tape was running behind or ahead the 0 reference point. The + key is used to turn the - mark on or off to meet your requirements.

❿ RHSL (rehearsal) key

Rehearsal is the first stage of an automatic insert or punch-in recording. This key allows you to preview the punch-in recording before it is actually done on tape.

For more see pages 6-14 and 6-15.

⓫ AUTO IN/OUT key

Executes the punch-in recording on tape (page 6-15).

⓬ CLEAR key

This is used to disable the rehearsal and punch-in recording functions.

If you enter wrong numbers into the LOCATE TIME window, press the CLR key ❼.

⓭ Display section

CONTROL CH: Shows which machine is currently under remote control.

"1" refers to the PCM-800 whose MACHINE ID switch is set to "0," "2" to the PCM-800 whose MACHINE ID switch is set to "1," and so on. "E1" refers to the machine connected to the 37-pin EXT 1 (ACCESSORY 1) parallel port on the RM-D800, and "E3" to a VTR connected to the 9-pin EXT 3 port with the RS-422 protocol.

LOCK STATUS: When any slave machine is chasing the master, its number flashes. When they are locked up together, the number stops flashing and lights solid.

LCD screen: Shows menu-selectable options.

Note

The user does not need to be concerned with "ID NO," shown on the screen when selecting machine E1, E2 or E3.

MEMORY POINT: Identifies the register into which a tape location is stored, or the register from which it is recalled to the LOCATE TIME window.

IN and **OUT** will light when the respective keys are pressed after having pressed STR ❼ and LOCATE TIMEs (which you may have entered with the numeric keys or have captured on the fly with the ▼ key) are stored into memory as the punch-in and out points.

PRE- and **POST-** roll times are first entered with the numeric keys into the LOCATE TIME window, then they are stored into memory when the respective keys are pressed after having pressed STR ❼ (page 6-17).

START and **END** points may either be captured on the fly with the ▼ key or be specified with the numeric keys. Then they are stored into memory when the respective keys are pressed after having pressed STR ❼.

MEMORY NO.: Identifies the register into which you just stored a tape location either captured on the fly with CUE STORE or ▼, or entered with the numeric keys. For more, see page 6-7. This display also shows the register from which a tape location is currently recalled into the LOCATE TIME window.

TAPE TIME: Shows elapsed time from the beginning of the tape inserted in the machine currently under remote control, or time code numbers if available on that tape.
The TAPE TIME display can alternatively act as a tape counter, showing elapsed time from an optionally set reference point.

See page 6-12, "Relative Reference Time Indication."

ABS and **TC indicator:** ABS will light to show that the TAPE TIME display is showing elapsed time from the beginning of the tape. Or, TC will light when the display is showing time code numbers as read off the tape inserted to the machine currently under remote control.
When both indicators (ABS and TC) are turned off, the TAPE TIME display is showing a Relative Reference time (page 6-12).

LOCATE TIME: Every tape location you capture on the fly or enter with the numeric keys is displayed in this window. Tape locations recalled from memory are also displayed here.

⓮ Menu operation section

GROUP key
This brings you from one group of menus to another.

For more information, see charts on page 4-2.

– and + keys
These keys have multiple uses, depending on menu : they select options, enter numbers, move the cursor, etc.

ESCAPE key
Pressing this key gets you out of the Format menu.

For more, see page 6-4.

SHIFT key
Holding this key and pressing the -/+ keys moves the cursor on some specific menus such as the "Locate Preroll" (page 6-8).

MENU key
Each time you press this key, menus will switch in sequence on the LCD screen.

If you cannot get access to the desired menu no matter how you press MENU, consult charts on chapter 4.

ENTER key
Some menu-settings are stored into memory only when ENTER is finally pressed. The key is also used to select menu options.

⓯ JOG/SHUTTLE section

◄, ■, and ► indicators

"◄" and "►" will light to show the direction in which the tape is running as you rotate the JOG/SHUTTLE dial to the left or right. "■" will light solid when you release the finger from the dial and the tape stops running. It will flash when a local SHUTTLE dial is operated on the PCM-800 currently under remote control and the remote SHUTTLE dial is overridden.

JOG/SHUTTLE key and the dial

Pressing the key allows you to use the inner JOG dial and the outer SHUTTLE ring for locating and pinpointing a specific point on the tape inserted to the PCM-800 currently under remote control at continuously variable speeds determined by the amount of dial/ring rotation (from 1/16 up to 8 times normal play speed).

If you release the finger from the ring/dial, the tape will stop, then the unit going into Pause (Still) mode. Activating the JOG/SHUTTLE key during record, the unit will go into Pause (Still) mode, too.

⓰ ▼ key

When pressed, the TAPE TIME location at that moment is read into the LOCATE TIME window. The time location thus captured can then be stored into any of the 99 memories, as specified by entering a MEMORY NO. with the numeric keys.

TAPE TIMEs read into the LOCATE TIME window with the ▲ key can also be stored into the IN, OUT, START, and END registers by pressing the respective keys.

To store into memory whatever is read into the LOCATE TIME window, the STR key should first be pressed.

⓱ DOWN and UP keys

Time points currently recalled or read into the LOCATE TIME window will decrement or increment by 1 frame each time you press DOWN or UP, so you can finely adjust your punch-in/out points or other time points.

⓲ Transport controls

REW (rewind): Rewinds the tape at high speed.

F FWD (fast forward): winds the tape at high speed in the forward direction.

PLAY: lets the tape start playing. If pressed during record, the transport will punch out of record.

If you wish to send playback signals from the digital outputs, press MENU until the LCD screen indicates "Digital Dubbing Analog," then press the +/- key to change "Analog" to "Digital" (whether digital dubbing is intended or not). At "Analog" (disregard then the display "Digital Dubbing") a compensation circuit is activated to override the D/A-A/D conversion time (43 samples).

STOP: stops any tape motion.

REC (record): This is a master record key. When you hold this and press PLAY, the track or tracks whose REC FUNCTION indicator was flashing will enter Record mode.

If you press RECORD during play, the track(s) previously selected by the REC FUNCTION keys will punch into record.

⓳ LOC (locate) key

When pressed, the tape will quickly be located to the current LOCATE TIME point which may have been recalled from memory or just captured on the fly with the ▼ key or entered with the numeric keys.

2-4 Rear Panel of the RM-D800

There is no connector which accepts any control signal from the exterior.

⑳ CONTRAST knob
This controls the LCD display contrast in continuously variable degrees.

㉑ EXT 1 (ACCESSORY 1) connector (D-sub 37-pin)
Connect to the parallel port of analog tape machines.
Only the transport functions can independently be controlled from the RM-D800.

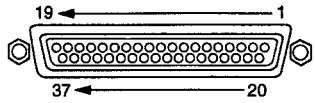
㉒ EXT 2 (ACCESSORY 2) connector (D-sub 15-pin)
Not used.

㉓ EXT 3 (RS-422) connector (D-sub 9-pin)
For connection to a VTR with the RS-422 protocol.

㉔ REMOTE OUT connector (D-sub 15-pin)
This connects to the Sony PCM-800 digital audio recorder. If you have multiple PCM-800s, connect the SYNC OUT of the first machine to the SYNC IN of the second, the SYNC OUT of the second to the SYNC IN of the third, and so on.
If you connect seven or more PCM-800s (up to 16) in this way, the remote CHASE key cannot control them. You have to press their local CHASE key.

Pin assignment

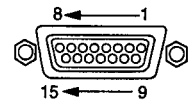
EXT 1 (ACCESSORY 1) connector



Pin number	Assigned Signal	
1	$\overline{\text{PLAY}}$	OUT
2	$\overline{\text{FF}}$	OUT
3	$\overline{\text{REW}}$	OUT
4	open terminal	
5	$\overline{\text{STOP}}$	OUT
6	$\overline{\text{REC}}$	OUT
7	open terminal	
8	open terminal	
9	open terminal	
10	open terminal	
11	$\overline{\text{PLAY}}$ TALLY	IN
12	$\overline{\text{FF}}$ TALLY	IN
13	$\overline{\text{REW}}$ TALLY	IN
14	$\overline{\text{STOP}}$ TALLY	IN
15	$\overline{\text{REC}}$ TALLY	IN
16	open terminal	
17	open terminal	
18	open terminal	
19	open terminal	
20	open terminal	
21	open terminal	
22	open terminal	
23	$\overline{\text{REC}}$ COMMANDIN	
24	open terminal	
25	open terminal	
26	open terminal	
27	open terminal	
28	open terminal	
29	open terminal	
30	open terminal	
31	open terminal	
32	GND	
33	open terminal	
34	open terminal	
35	open terminal	
36	open terminal	
37	open terminal	

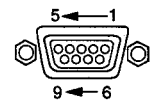
EXT 2 (ACCESSORY 2) connector

(Not used)



Pin number	Assigned Signal	
1	Shielded	
2	TX	
3	open terminal	
4	RX	
5	UP/$\overline{\text{DOWN}}$	IN
6	CP	IN
7	FREQ	OUT
8	GND	
9	open terminal	
10	open terminal	
11	open terminal	
12	open terminal	
13	INT/$\overline{\text{EXT}}$	OUT
14	GND	
15	open terminal	

EXT 3 (ACCESSORY 3) connector



Pin number	Assigned Signal
1	Shielded
2	RX+
3	TX-
4	GND
5	open terminal
6	GND
7	RX-
8	TX+
9	Shielded

Chapter 3 Preparations

This chapter describes the information and procedure needed before you start recording and playback.

3-1 Precautions **3-2**
3-2 Connection **3-4**
System Configuration 3-4
When the DABK-801 Interface Board is Installed 3-5

3-1 Precautions

Environmental conditions

The PCM-800 may be used in most area, but to maintain top performance and prolong operating life, observe the following environmental limitations :

- Nominal temperature should be 5 to 35 degrees Celsius (41 to 95 degrees Fahrenheit).
- Relative humidity should be 30 to 90% (non-condensing).
- Strong magnetic fields should not exist nearby.
  Install the unit in an area with proper ventilation.

Beware of Condensation

When the PCM-800 is moved from a cold to a warm place or used after sudden temperature change, there is the danger of condensation; water vapor in the air could condense on the internal mechanism, making correct operation impossible and causing damage to the tape. If condensation occurs, and you attempt to load a tape, this will automatically be ejected. To prevent this, if you are going to use the unit in a condition where condensation could occur, leave the unit for 1 or 2 hours with the power turned on, then turn the power off before turning it on again. Do the same when condensation has occurred too.

Note on tapes used

The PCM-800 senses the thickness of tapes inserted, and if you attempt to load longer tapes than P6-150/E6-150 (NTSC) or P5-120/E5-120 (PAL), they will automatically be ejected.

Available record/play time

When used with the PCM-800, Hi8 video tapes provide different record/play times depending on whether they are designed for the NTSC or the PAL broadcasting system, and therefore on the country where they are sold.

Labelled time	Actual available time	
	P6/E6 (NTSC)	P5/E5 (PAL)
20	18	25
30	27	37
45	40	56
60	54	75
90	81	113
120	108	—

P6/E6 or P5/E5 is labelled on the tape package.

Cleaning the heads

After long periods of use, the heads may become dirty. They should be cleaned after every 50 hours (or so) of operation.

Be sure to use a dry cleaning tape designed for 8 mm video.

First, if the machine is turned on, turn it off.

1 Press and hold both the ▲ and ▼ keys and press the POWER switch.
"CLEAning" will flash in the display to indicate that the machine is put into cleaning mode.

2 Insert your cleaning tape.
Cleaning will start and, about 15 seconds later, the tape will automatically be ejected, the machine quitting the cleaning mode.

Notes

- You cannot let the cleaning tape run by means of any transport control buttons. Never try to rewind it for reuse by any means. Use a new cleaning tape only once through.
- Excessive cleaning causes premature wearing of the heads. Do not repeat cleaning 5 times or more at a stretch.
- To maintain performance of the machine, besides head cleaning (50 hours), a routine maintenance check is recommended approximately every 500 hours.

Time code

- Be sure to record time code over the entire length of every tape.
- Set the time code starting time so that time code recording will be complete before overrunning the 24-hour point (24:00:00:00). Otherwise, time code is not correctly recorded.
- The same time code must be recorded on both the master and slave tapes or else erratic synchronization will occur. If a tape you intend to load on the master machine is prestriped with any time code, record this type of time code on the PCM-800 tape, too.

Recording

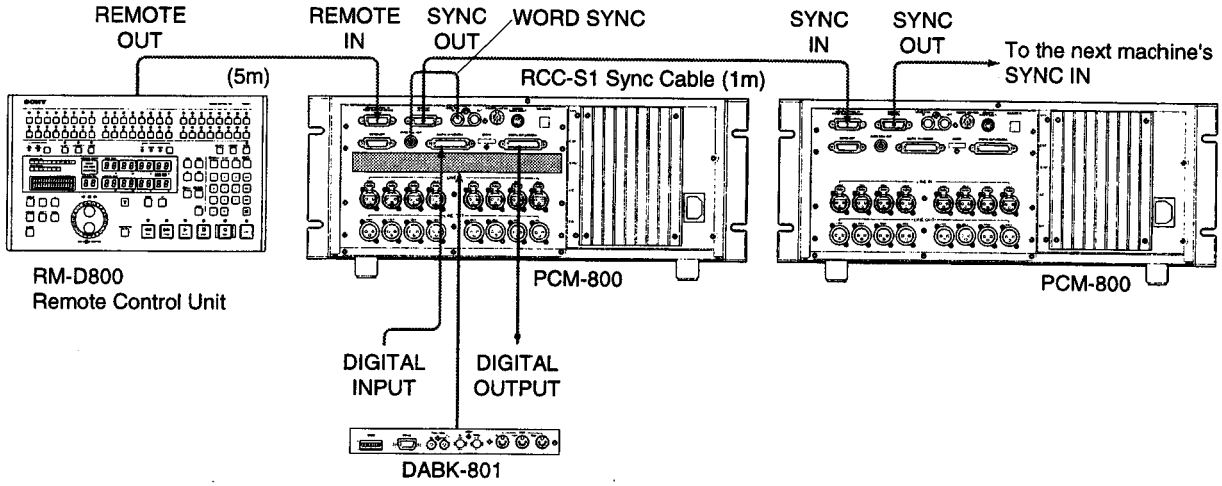
When recording program material, allow sufficient leader tape ahead of each of them. Similarly, allow a sufficient postroll time behind the end of the last program on a given tape.

3-2 Connection

System Configuration

Note

To prevent problems, before attempting any cable connections check to make sure all units involved in your system are turned off.

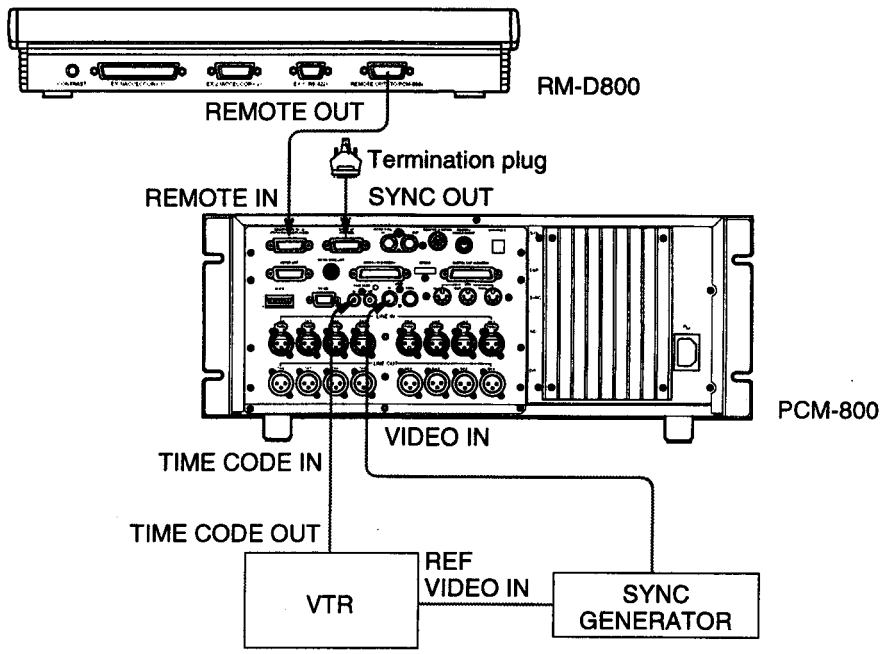


When the DABK-801 Interface Board is Installed

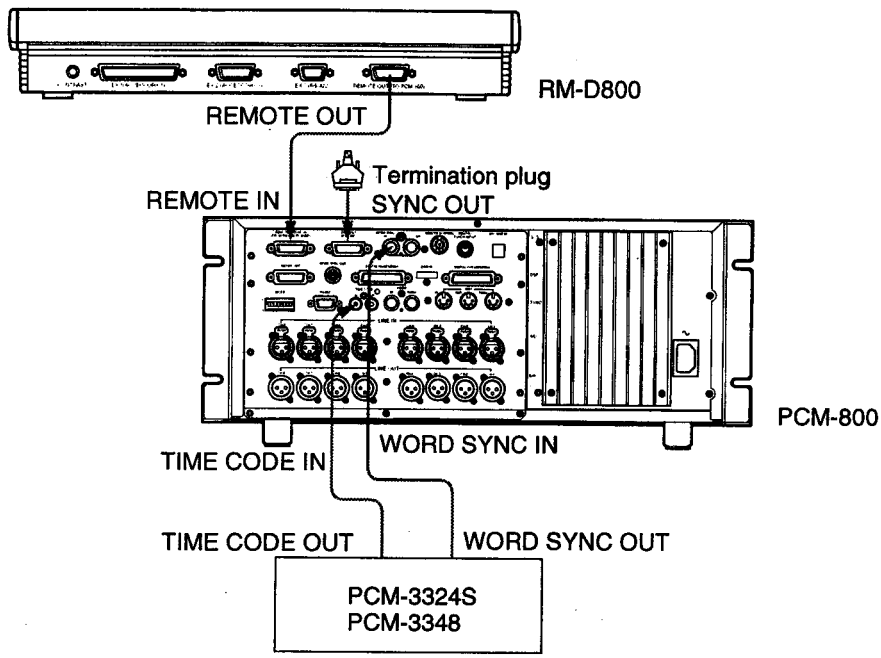
Notes

- Before attempting any cable connections, check to see that your whole system is turned off.
- Be sure to insert the provided termination plug into the last PCM-800's SYNC OUT connector. When only one PCM-800 is connected, the termination plug must be connected to its SYNC OUT connector, too.

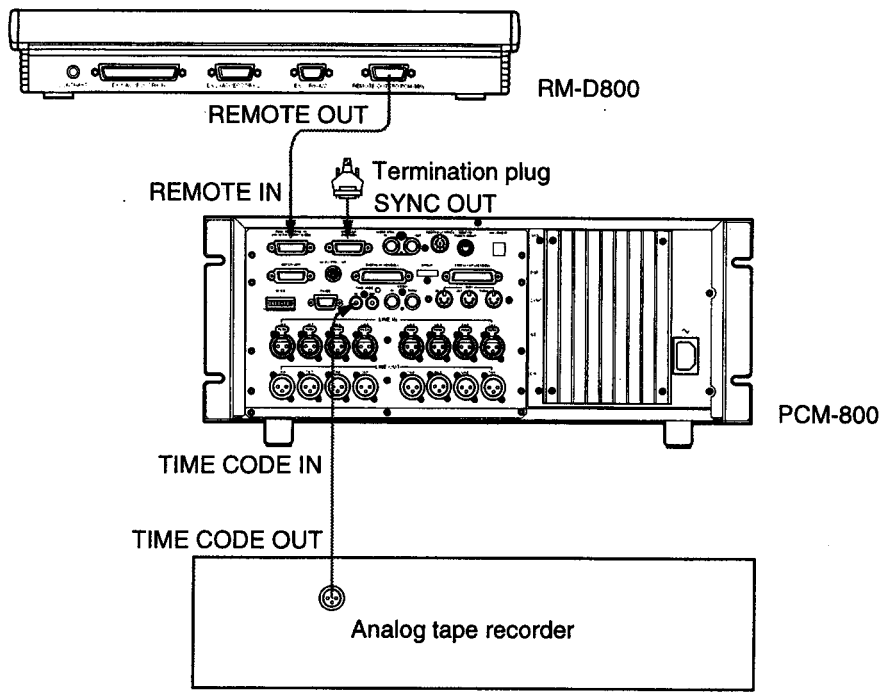
PCM-800 slaved to a VTR



PCM-800 slaved to a different digital audio machine



PCM-800 slaved to an analog tape recorder

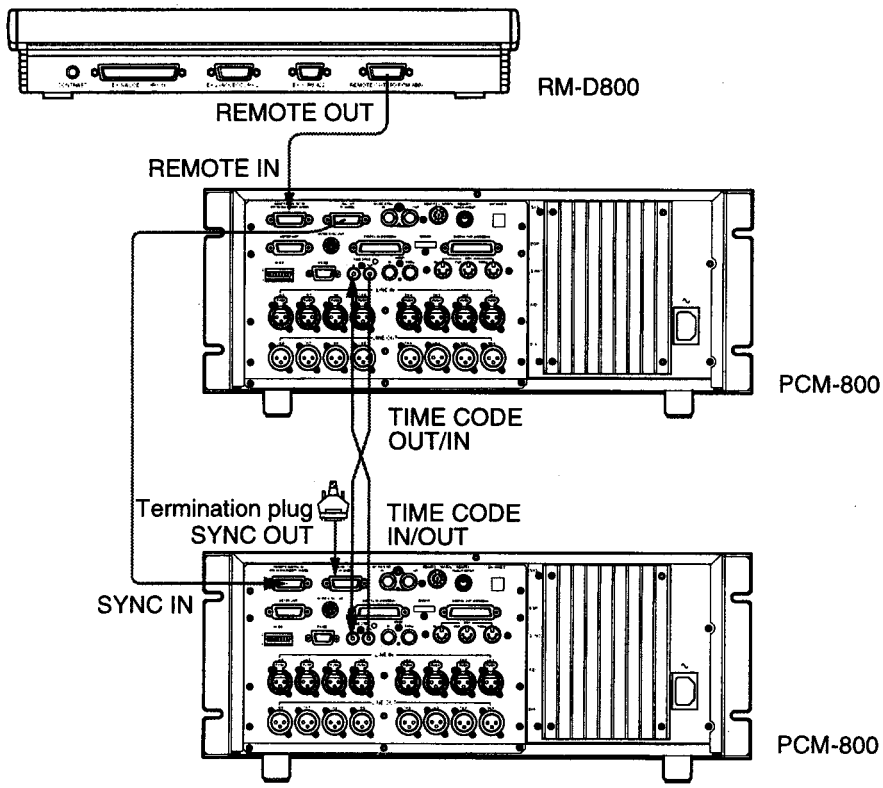


Syncing two PCM-800s

If the DABK-801 is installed into both the master and slave PCM-800s, program material can be dubbed along with time code at one time (pages 5-27 to 5-29).

Note

Set the DABK-801s MODE DIP switches to the appropriate positions by referring to paragraph 47, pages 2-8 and 2-9.



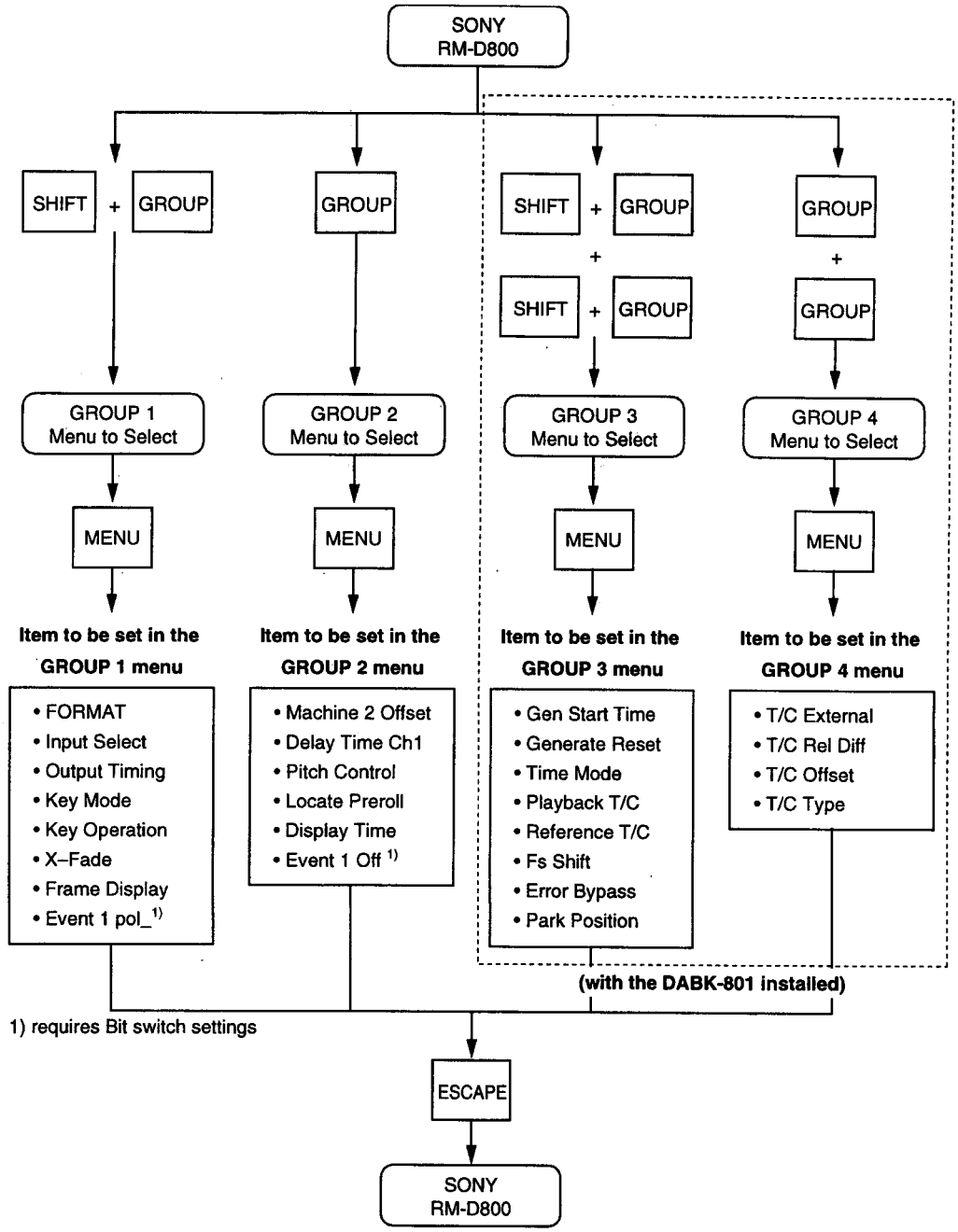
Chapter 4 Menu Flowchart (Using the RM-D800 Remote Control Unit)

This chapter explains the menu operation flowchart which is available using the optional RM-D800 Remote Control Unit.

4-1 Overview of the Menu Flowchart 4-2
4-2 Menus for Setting the Items of GROUPs 1 and 2 4-4
4-2-1 GROUP 1 Menu 4-4
4-2-2 GROUP 2 Menu 4-5
4-3 Menus for Setting the Items of GROUPs 3 and 4 4-6
4-3-1 GROUP 3 Menu 4-7
4-3-2 GROUP 4 Menu 4-8
4-4 Instant Access to the Menus 4-9
4-5 Menu for Resetting the Function 4-10
4-6 Menu for Selecting the Machine 4-11
4-6-1 Setting the RS-422 Control Mode 4-12

4-1 Overview of the Menu Flowchart

Main path of the menu displayed in the LOC screen of the RM-D800 is as follows:



In the explanation of the menu flowchart,

: indicates the menus appearing on the LCD screen, such as Pitch Control Fix 0.0% .

: indicates the key to be pressed, such as ENTER .

To reset the current setting

Pressing the plus (+) key at the same time as the minus (-) key at the following menu screens:

Machine Offset, Delay Time, Pitch Control, Locate Preroll, Generate Start Time, Park Time Setup, and Offset,

reset these parameters to the factory preset values.

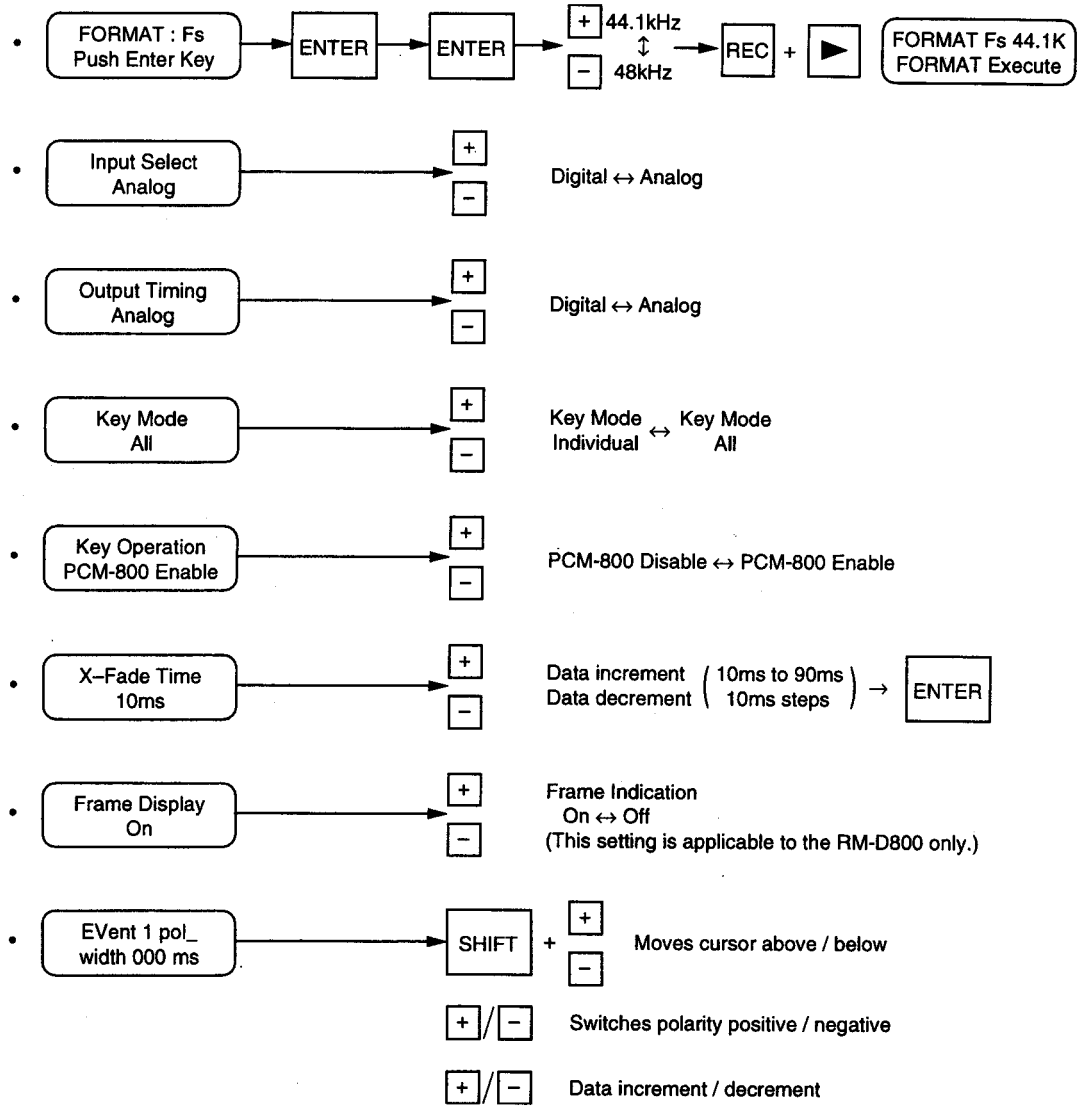
Direct return to menus

Each time you select another machine, the menu you were at is stored in a backup memory so you can promptly go back to that menu when selecting the machine again.

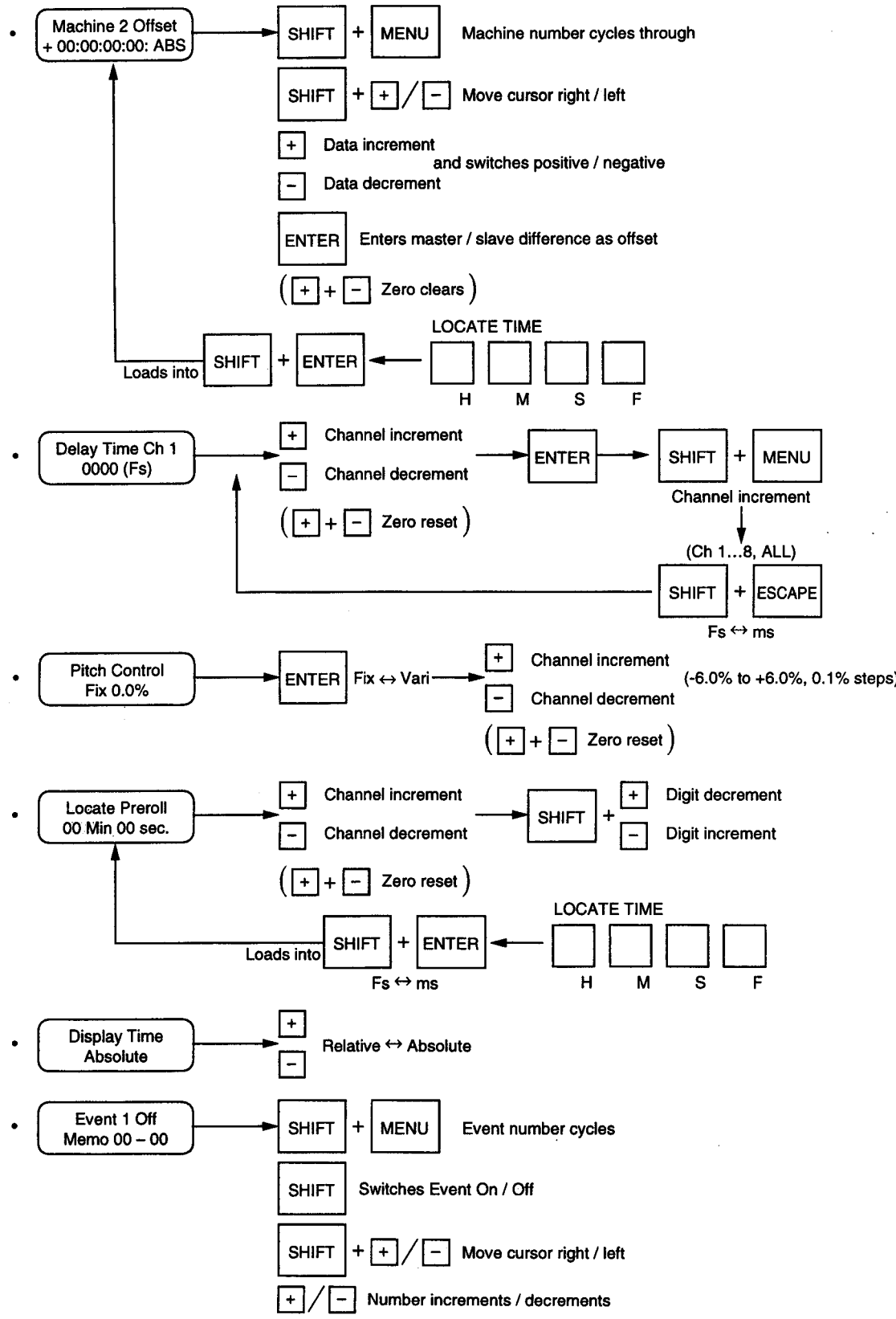
4-2 Menus for Setting the Items of GROUPs 1 and 2

GROUP 1 and GROUP 2 menus allow you to set the following items.

4-2-1 GROUP 1 Menu



4-2-2 GROUP 2 Menu



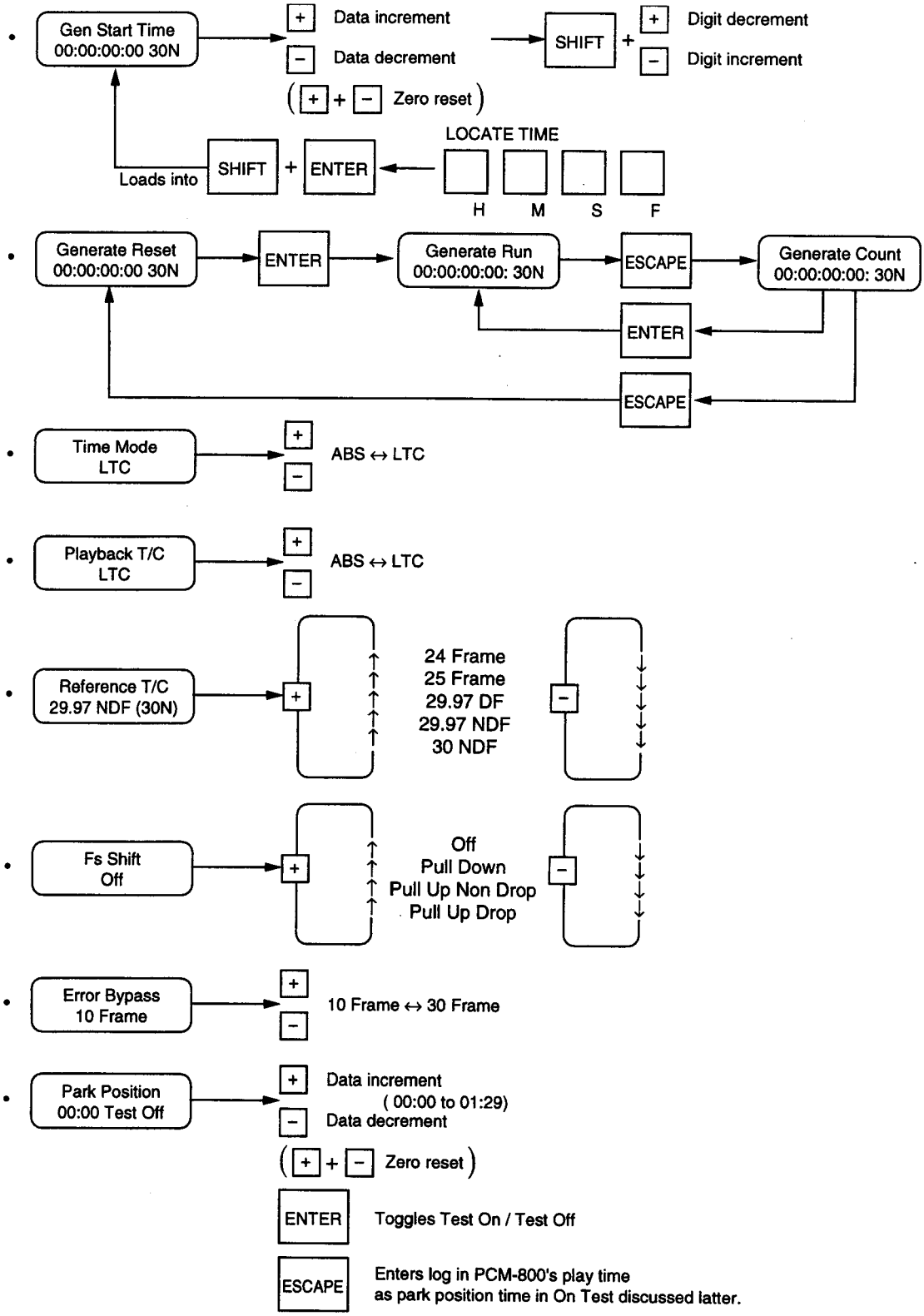
4-3 Menus for Setting the Items of GROUPs 3 and 4

When the DABK-801 is installed, you can set the following items in the GROUP 3 and GROUP 4 menus.

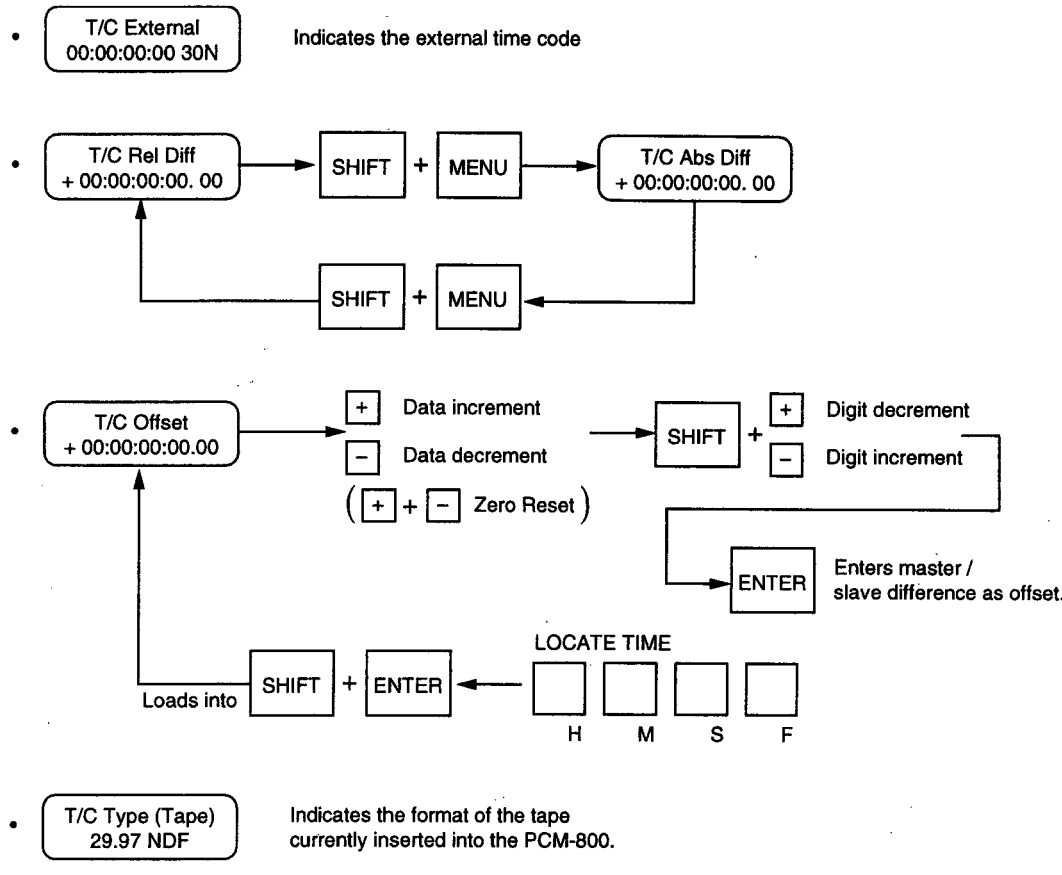
LOCATE TIME saved in memory

Each time you select another machine, the LOCATE TIME reading at that moment is stored in a backup memory. That reading is automatically read into the LOCATE TIME window from memory when you select the machine again.

4-3-1 GROUP 3 Menu

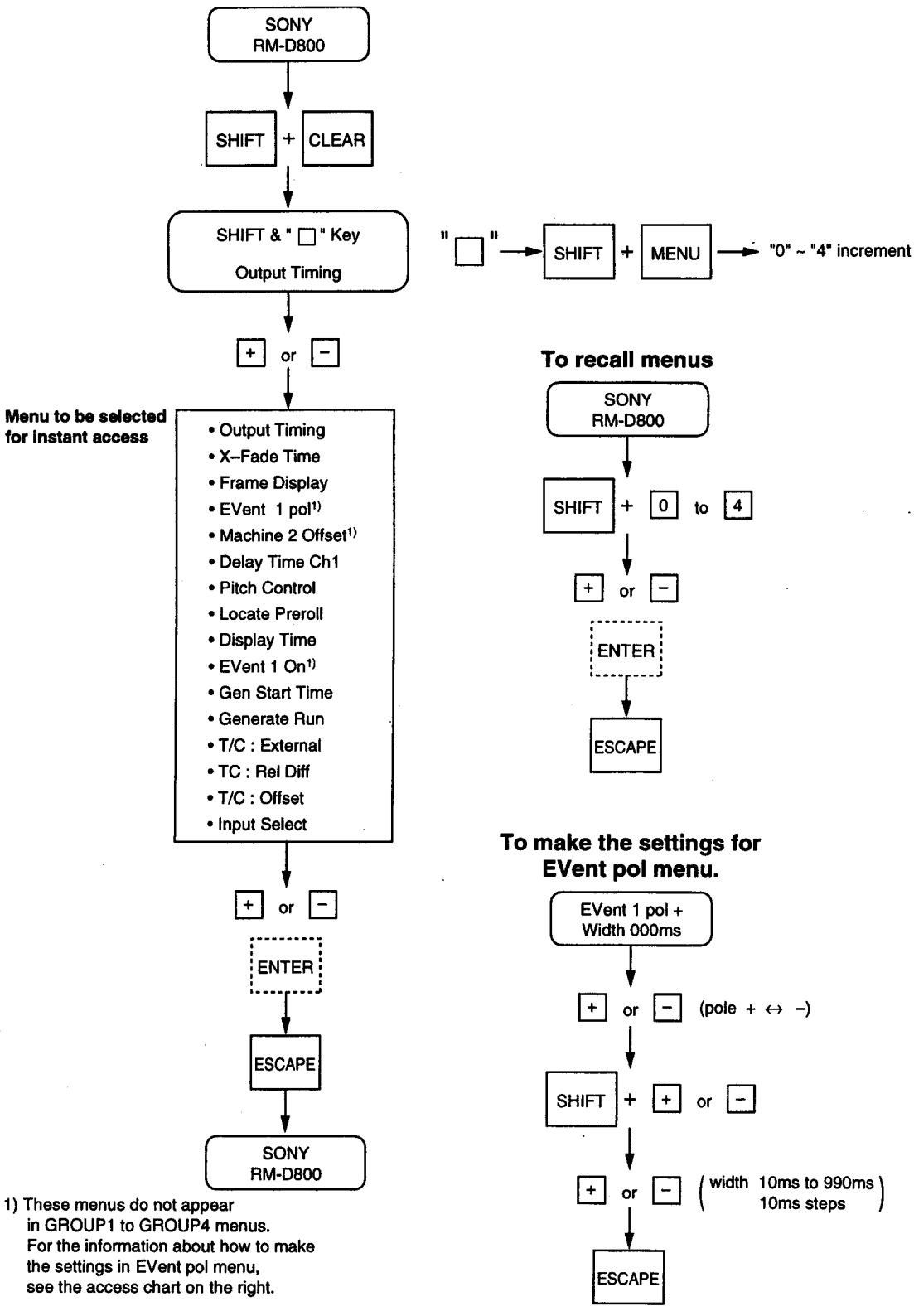


4-3-2 GROUP 4 Menu



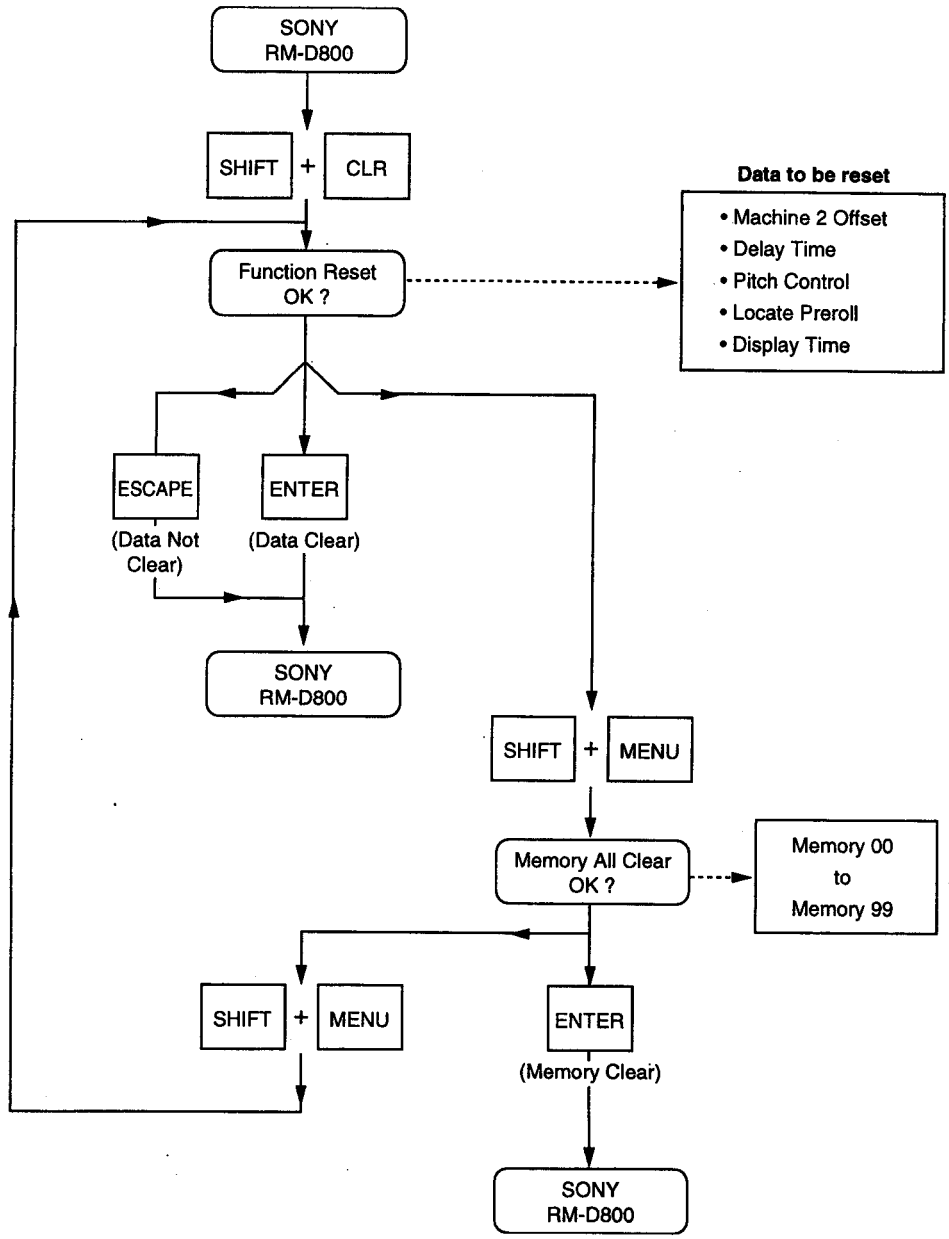
4-4 Instant Access to the Menus

You can store the frequently used menus. Up to five menus can be stored and recalled by pressing the SHIFT key and the numeric key simultaneously.

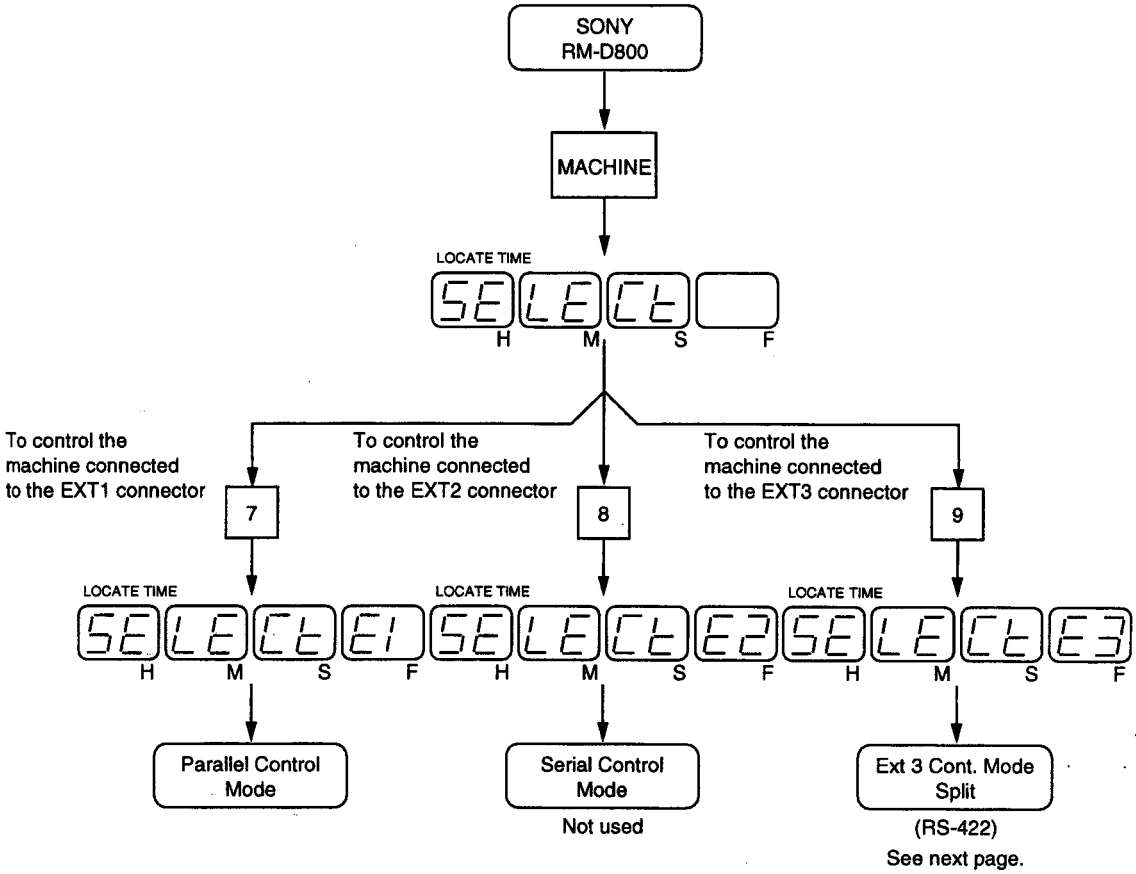


1) These menus do not appear in GROUP1 to GROUP4 menus. For the information about how to make the settings in EVent pol menu, see the access chart on the right.

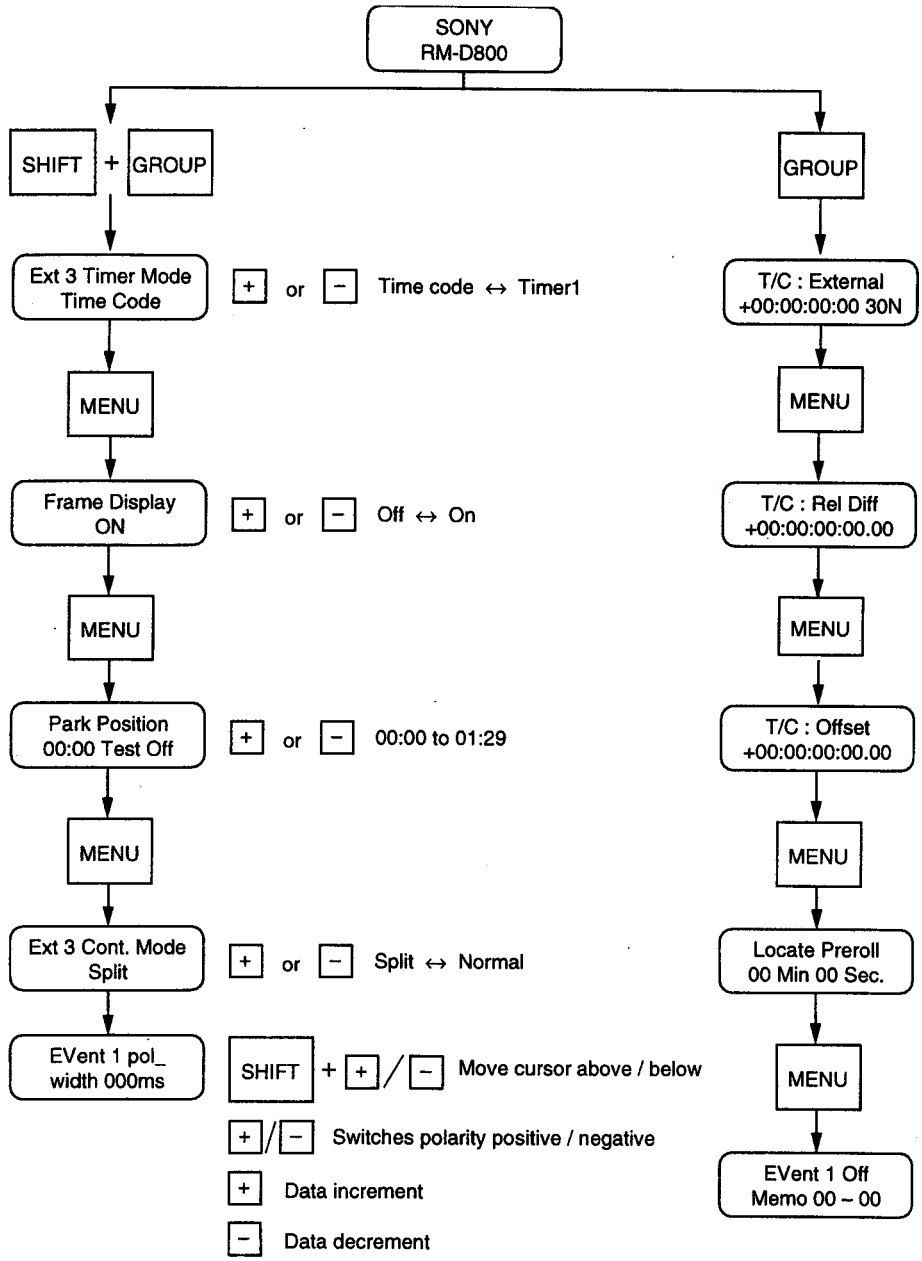
4-5 Menu for Resetting the Function



4-6 Menu for Selecting the Machine



4-6-1 Setting the RS-422 Control Mode



Chapter 5 Operation

This chapter describes the operation on the PCM-800 and the one available when the DABK-801 is installed into the PCM-800.
We leave the explanation of the operation using the RM-D800 Remote Control Unit to chapter 6. However, some of the operation with the RM-D800 are explained here because the synchronization using the DABK-801 requires two ways of operation.

5-1 Formatting a Tape 5-2
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5-11 Setting for Video Editing 5-41
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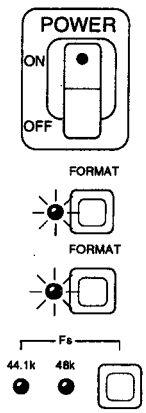
5-1 Formatting a Tape

Before starting to record any audio program on a new tape, it should be formatted, that is, it should be time-indexed and track and other subcode data should be recorded.

Notes

- Be sure to format from the very beginning of the tape.
- Once formatting starts, all transport control keys except STOP are disabled. If you stop the tape before formatting is complete, reformat it from the beginning.
- Tapes once used for video recording cannot correctly be formatted. Do not try to format such tapes.

To format a new tape



1 Turn on the PCM-800.

2 Load a Hi8 tape into the PCM-800.

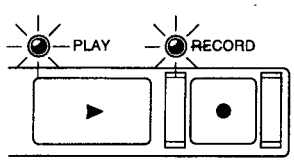
3 Press FORMAT. Its indicator will start flashing.

4 Press FORMAT again. Its indicator will turn on showing that the recorder is ready for formatting.

5 Press the Fs key to select either of the two sampling frequencies available. Select 44.1 kHz if the recording will be used as a digital master for CD production. Or, select the professional standard 48 kHz for other applications.

Note

Once formatting starts, you cannot change the sampling frequency. If you notice that a wrong frequency was selected after formatting starts, stop and rewind the tape to the beginning and select the correct frequency before re-starting formatting.



6 Hold RECORD and press PLAY to start formatting.

When the tape reaches the end and formatting is complete, it will be automatically rewound and stop at the beginning.

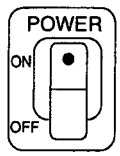
Pressing any REC FUNCTION key after formatting starts records audio signals on the corresponding track. However, to insure against noise and discontinuities of absolute time data, we recommend that you format all tapes all the way to the end before using them for audio recording.

Notes

- If you attempt to record additional material to augment the original and wish to format the tape from that intermediate point, be sure to sufficiently move back the tape beforehand to prevent an unformatted section being left in between.
- When the tape runs from the previously formatted part into the newly formatted part, there could be discontinuities of ABS time data. The transition could cause erratic synchronization if it happens when synchronizing. If audio data is present over the transition zone, noise could be heard. The best is format a tape from start to end without interruption.

5-2 Audio Recording

Initial Recording



1 Check to see that all connections are made correctly.

2 When all connections are OK, switch on power to the PCM-800 and other equipment of your system.

3 Load a Hi8 tape into the PCM-800.

Note

Other tape cannot be loaded on the PCM-800.

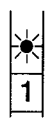
If the tape has not been already formatted, refer to the section "5-1 Formatting a Tape."



4 If you wish to record digital audio signal, press the DIGITAL IN key to let its indicator light.

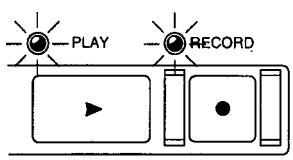
If you wish to record analog audio signal, the DIGITAL IN should be turned off.

5 Check to see that VARI SPEED is not activated. If its indicator is on, turn it off by pressing the key(s).

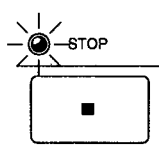


6 Select the track or tracks to record on by pressing their REC FUNCTION key.

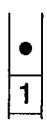
7 If you intend to record analog audio signal, start the playback of the source, and adjust its output level controls until the PCM-800's meter peaks at the reference level of "0". If the OVER indicator lights, it shows distortion occurred.
If you intend to record a digital audio signal, no level adjustment is required.



8 Hold RECORD and press PLAY to start recording.

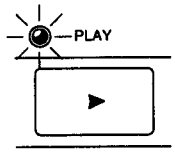


9 When recording is complete, press STOP.



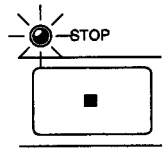
10 To prevent recording from being accidentally erased, put the track(s) into Safe mode by pressing their REC FUNCTION key again.

Playback



11 Check to see that the audio output signals are correctly connected to your monitor system.

12 Rewind the tape to the beginning of the recording you wish to play back, then press PLAY.



13 To stop playback, press STOP.

Output mode selection

To use the digital output signals, hold down ▲ and press DIGITAL IN when ABS indicator lights. "Digital" will appear momentarily on the display, showing the digital output mode is selected. Each time you press DIGITAL IN while holding down ▲, the output mode toggles "Digital" and "Analog." Set to the analog output mode when you use the analog output signals.

Punch-in (Insert) Recording

First check to see that the source is connected to the correct input connector. If you are punching into a track just recorded, there is no need for repatching.

Auto punch in and out

Rehearsal for auto punch in and out

During rehearsal, what you hear in the monitor mix and read on the level meters will be the same as during recording, but any signal will not be recorded on tape. So you can rehearse your punch-in as many times as you need without destroying the original take at all.

Initial setting of punch in and out points

1 Locate the tape to a point before the point where you want the track to punch into record.



2 Put the punch-in track into Ready mode by pressing its REC FUNCTION key.



3 Press the INSERT key to turn on its indicator.

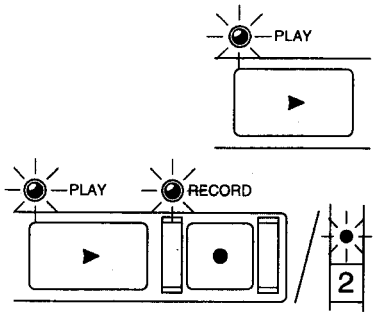


4 Press the RHSL key. Its indicator will start flashing.

Note

You cannot operate RHSL if the repeat function is activated.

(Continued)



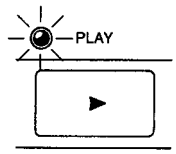
5 Press PLAY to start playback.

6 When the expected punch-in point is reached, press RECORD. This point on the tape is stored into memory.

You will continue to hear the tape. The monitor does not switch to the source (input) signal because you are still in rehearsal setting mode.

7 When the expected punch-out point is reached, press PLAY. This point on the tape is stored into memory. The flashing RHSL will turn on.

8 After 3 seconds of postroll, the tape will be automatically rewound, stopping at a point 5 seconds before the punch-in point you have specified in step **6**.



9 Press PLAY to check the punch in and out points for accuracy.

When the punch-in point is reached the monitor will switch to the source signal, and will switch back to the tape signal at the punch-out point. After 3 seconds of postroll, the tape will be rewound, stopping at the preroll start point.

About the preroll time

It defaults to 5 seconds. If you wish longer prerolls, hold ▲ or ▼ and press the other. The display will read "Pr. 00 05 00." Then, each time you press ▲, the display will increment by 1 second, up to 59 minutes, 59 seconds. To decrement the display, press ▼. You can hold the key to scroll through the numerals. After you have entered the desired time, press DISPLAY to switch the display back to its normal, ABS time display mode.

Note

You can use the ▲ and ▼ keys to get access to the "Pr" display only when the RHSL is flashing, or lights solid or the AUTO IN/OUT indicator lights solid, and ABS time appears and the tape is stopped.

About the postroll time

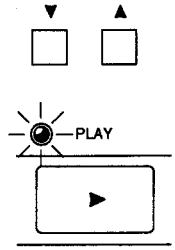
The postroll time is fixed to 3 seconds.
When the optional RM-D800 remote control unit is connected to the PCM-800, you can finely tune the postroll time as well.

Fine tuning of punch-in and out points



10 Press the DISPLAY key until the MEMO 1 indicator lights. The display then shows the ABS time of your punch-in point. Then press the ▲ key to increment the punch-in point time, or press the ▼ key to decrement it. Each time either key is pressed, the ABS time will increment or decrement by 1 frame.

To speed up the tuning, you can hold down either ▲ or ▼ and press DISPLAY. Each time you press DISPLAY, the next upper (left) two digits will fast increment.



11 Likewise, you can finely tune the punch-out point; first press DISPLAY to turn on the MEMO 2 indicator, then change the display with ▲ and ▼.

12 Monitor the new in and out points by pressing PLAY.

Repeat steps **10** and **11** until you are sure that the punch in and out points are correct.

Entering a Crossfade Time: It defaults to 10 msec. If you wish longer crossfades, hold the ▼ key and press DISPLAY. "C.FAdE 10" will be displayed.
Then, each time the ▲ key is pressed, the fade time will increment by 10 msec, up to 90 msec. The ▼ key decrements the time, down to 10 msec.
After you have entered the desired time, press DISPLAY again.

To reset the crossfade time to 10 msec: Hold ▲ or ▼ and press the other when "C.FADE" appears in the display.

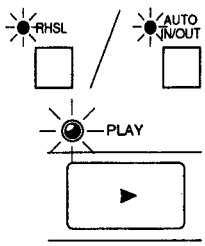
To check the current crossfade time: Hold ▼ and press DISPLAY at any time when ABS time is displayed.

Punch-in rehearsal

13 Practice the performance until you are sure that you will get it right when actually recording. Remember, once you punch-in recording overwrites existing material, that original signal is erased.

Actual auto punch in and out

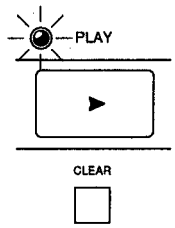
Once you are sure your performance and the in/out points selected are correct, you are ready to actually punch into record. The RHSL indicator should be turned on. All tracks should be in SAFE mode except the one you intend to record.



14 Press AUTO IN/OUT. Its indicator will start flashing.

15 Press PLAY.

The tape will punch into record, and punch out of record, as programed; and after 3 seconds of postroll, the tape will be rewound, stopping at the preroll start point, all as you have anticipated during Rehearsal.



Review

16 Press PLAY to check if the new recording sounds right.

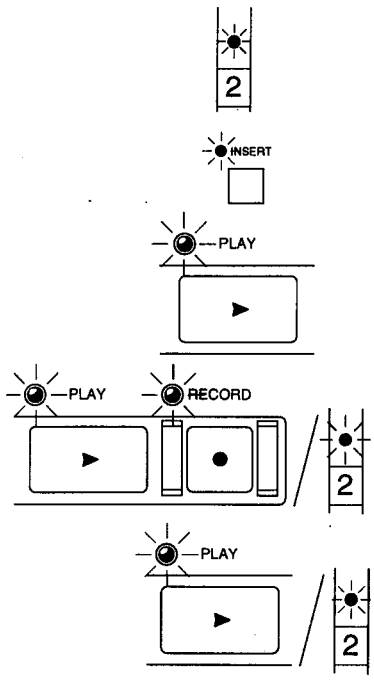
To exit auto in/out mode

Press CLEAR. The AUTO IN/OUT indicator will turn off, and the RHSL indicator as well.

Manual punch in and out

To accommodate various situations, the PCM-800 allows you to manually punch into and out of record, too.
There are three ways to punch into record mode.

RECORD-triggered punch-in



1 Locate the tape to a point a few seconds before the expected punch-in point.

2 Put the punch-in track into Ready mode by pressing its REC FUNCTION key.

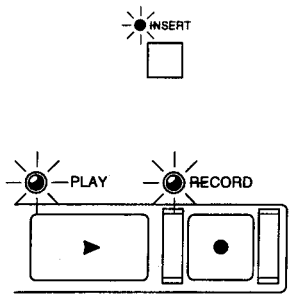
3 Press INSERT to turn on its indicator.

4 Press PLAY to start playing the tape.

5 At the desired punch-in point, press RECORD.
The REC FUNCTION indicator which was flashing will turn on.

6 Press PLAY to punch out of record.
The tape will resume playing and the REC FUNCTION indicator will start flashing as before.

REC FUNCTION-triggered punch-in

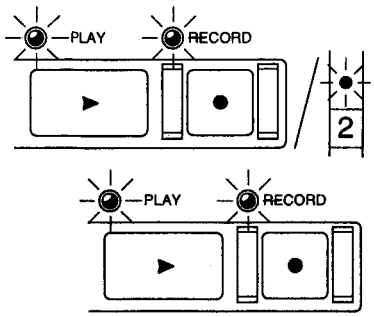


1 Check to see that all the REC FUNCTION indicators are off.

2 Press INSERT to turn on its indicator.

3 Locate the tape to a point a few seconds before the expected punch-in point.

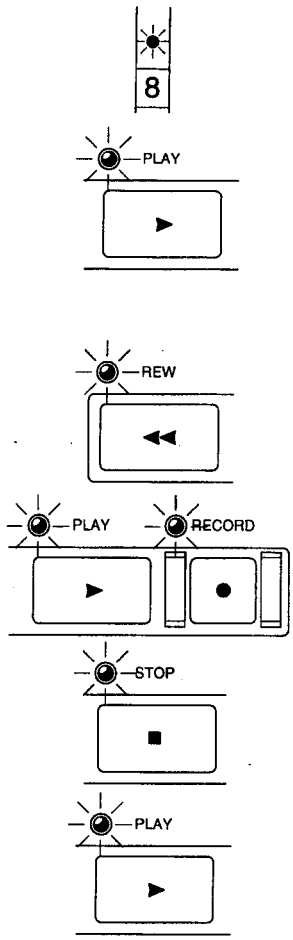
4 Hold RECORD and press PLAY to start playing the tape in Record Ready mode.



5 At the desired punch-in point, press the REC FUNCTION key on the punch-in track.

6 At the punch-out point, press the same REC FUNCTION key again. The transport will go into Play mode.

Copy Between Channels (Track Bouncing)



In this example, we will "bounce" or combine material from tracks 1-4 onto empty track 8.

1 Connect output signals of the tracks 1-4 of the PCM-800 to input channels 1-4 of your mixer, and connect the signal of the group out 1 of the mixer to input channel 8 of the PCM-800.

2 Set the mixer controls as required (assign channels 1-4 to group out 1, bring up the group 1 monitor level control, etc.).

3 Press the REC FUNCTION key for track 8 to put this into Ready mode. All other tracks should be in Safe mode.

4 Locate the tape to the beginning of the desired portion, then press PLAY.

5 Slowly increase the group 1 fader until meter 8 peaks at 0 dB. Use the channel faders (and EQ controls) to set the relative level on each track for the desired balance.

6 When the record level setting is complete, rewind the tape back to the beginning of the selection.

7 Hold RECORD and press PLAY.
Tracks 1-4 will be mixed into track 8.

8 At the end of-the desired portion, press STOP, and rewind the tape to the beginning of the portion where the recording has just been done.

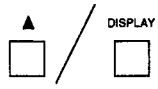
9 Put track 8 into Safe mode by pressing its REC FUNCTION key again, then press PLAY to monitor the mix on track 8. If track 8 does not sound right, make the necessary corrections and redo from the beginning.

Repeat track bouncing:
Once you are totally satisfied with the mix on track 8, you can record new material on tracks 1-4, then bounce them onto track 7 or any other empty track the same way you bounced onto track 8.

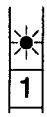
Entering a Track Delay Time

You can let the output of a specific track lag behind that of others by a maximum of 7200 samples (Fs). This is like an offset you may wish to enter so that one transport will synchronize to the master with a distance maintained between them.

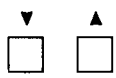
1 sample corresponds to 22.7 microseconds at 44.1 kHz, and to 20.8 microseconds at 48 kHz.



1 When the display shows ABS time, hold the ▲ key and press DISPLAY.
The display will read "d1. tr SEL," prompting you to select the track you wish to lag.



2 Press REC FUNCTION of the desired track.
The display will now read "tr 1 00 00" (if you pressed REC FUNCTION 1), prompting you to specify how many samples the track will lag.



3 Use the ▲ and ▼ keys to enter the desired numerals. Each time you press either key, the display will increment or decrement in 1 sample steps, up to 7200 samples/down to -200 samples. You can hold the key to scroll through the numerals.

Repeat steps **2** and **3** for other tracks if necessary.

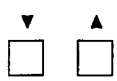


4 To complete the procedure, press DISPLAY.
ABS time will appear again.

To reset the current delay time

(1) When the display shows ABS time, hold the ▲ key and press DISPLAY.

(2) Press the REC FUNCTION key of the channel whose delay time you wish to reset.



(3) Hold either of the ▲ or ▼ keys and press the other.

The delay time for that channel is then reset.

To check the delay time entered
Hold ▲ and press DISPLAY, then press the REC FUNCTION on the necessary channel at any time when ABS time appears.

5-3 Variable Speed Playback

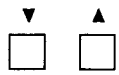
During play (or before starting it) you can change the tape speed up to +/- 6.0% in 0.1 % steps as follows.



1 Press the VARI SPEED to turn on its indicator.
"PITCH" will appear in the display.



2 Press the ▲ key to speed up the tape, or press the ▼ key to lower the speed.



To defeat all pitch changes, hold either ▲ or ▼ and press the other, during "PITCH" display mode.

5-4 Autolocation Controls

Setting locating points

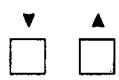
Two locating points (MEMO 1 and MEMO 2) can be specified on a given tape.



To set MEMO points
Press MEMO (1 or 2) at the desired point during Play, or during Stop if the tape is at the point you wish to specify as a locating point.

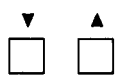


To check MEMO points
Press the DISPLAY key (when the tape stops or is running) until the MEMO 1 (or 2) indicator lights. The display is now showing the location stored into the corresponding register.

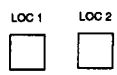


To finely tune MEMO points:
When the MEMO point you wish to finely tune is showing in the display, press ▲ to increment the numbers shown, or press ▼ to decrement them.

To speed up the tuning, you can hold down either ▲ or ▼ and press DISPLAY.
Each time you press DISPLAY, the next upper (left) two digits will fast increment.



To clear MEMO points
Hold either ▲ or ▼ and press the other. The locating point currently shown in the display is erased from memory, as confirmed by "00:00:00:00" appearing instead.

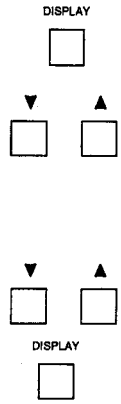


To autolocate the tape to MEMO points
Press LOC 1 to locate the tape to the MEMO 1 point. Press LOC 2 to locate the tape to the MEMO 2 point.
At the end of locating functions the tape will stop unless AUTO PLAY is previously pressed.

Notes

- The LOC keys cannot operate during rewind, punch-in/out process, or when two or more PCM-800s are hooked up and the slaves are chasing the master.
- The PCM-800 cannot normally capture a locating point if no time code is recorded on the inserted tape. In this case, "no t.codE" appears in the display when you press MEMO 1 or MEMO 2.
  To perform autolocate functions on an ABS time only tape (no TC), change the time mode to ABS as described on the next page.

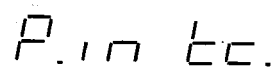
Changing the time mode on the PCM-800



To autolocate the tape where no time code is recorded, change the time mode on the PCM-800 as follows:

1 Press DISPLAY until the ABS indicator lights.

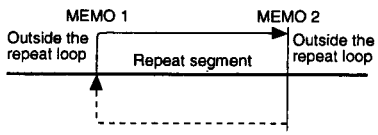
2 Press and hold either ▲ or ▼ and press the other.
The display looks like this:



3 Press ▲ or ▼ so that "P. in AbS" appears.

4 Press DISPLAY to go back to the original display.

Repeat Play



REPEAT indicator lights during repeat play.

Pressing REPEAT lets the tape play between MEMO 1 and MEMO 2 points repeatedly.

The PCM-800 recognizes the earlier MEMO point as the start point of loop, and the later point, as the end.

Note

There must be at least 5 seconds between the two MEMO points.

To interrupt momentarily repeat play
Press STOP. Press PLAY to resume play.

To exit repeat mode
Press REPEAT.

- If only either MEMO 1 or MEMO 2 point is specified, the tape will repeat between that MEMO point and the counter zero point.
- Pressing any transport control key during repeat play activates the function pressed, and repeat play will start again if you perform one of the following operations:
  - Press AUTO PLAY then LOC (whether 1 or 2) when the tape is at any point.
  - Press LOC when the tape is at any point, and when the tape stops at the beginning or end of loop, press PLAY.
  - Press PLAY when the tape is within the loop or at an earlier point than the beginning of the loop.

5-5 Multiple-PCM-800 System (Without the DABK-801)

Synchronization

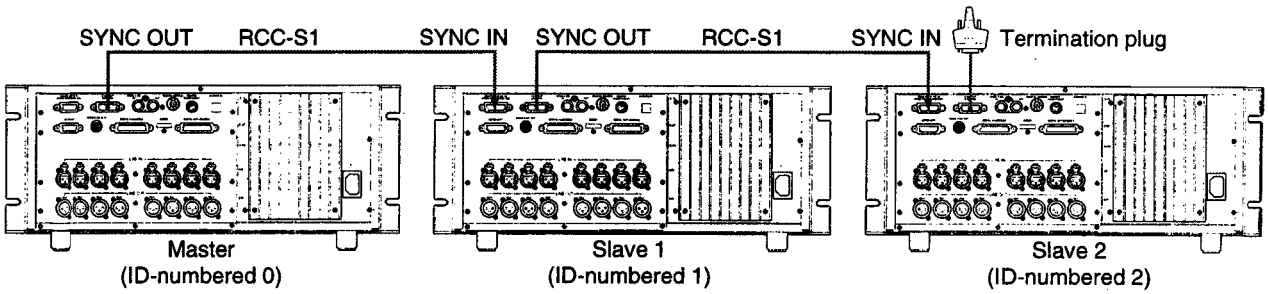
You can set up a maximum of 16 PCM-800s for 128 tracks to let them behave in synchronization with sample accuracy, one PCM-800 serving as the master, and all others as slaves, without having to use any external synchronizer, but simply by connecting their SYNC IN and OUT connectors in series.

Notes

- To synchronize multiple PCM-800s, it is imperative that tapes in use previously formatted and have ABS time data.
- You cannot synchronize tapes if they have been formatted for different sampling frequencies.
- When multiple PCM-800s are hooked up, be sure to keep all of them turned on, whether they are all actually in use or not. If some PCM-800s are in record or play and you turn any others on or off, the recording or playing tapes can run irregularly.

Connections

Before connections, check to see that all equipment of your system are turned off. Diagram shows a three-PCM-800 system as an example.



1 Connect one end of the optional RCC-S1 cable to the master's SYNC OUT, and the other end of the cable to the slave's SYNC IN.
If there are two or more slaves, connect the second slave's SYNC OUT to the third slave's SYNC IN, and the third slave's SYNC OUT to the fourth slave's SYNC IN, and so on.

Notes

- Use only the optional RCC-S1 cables to cascade multiple PCM-800s. Any other cables may seriously damage the machines.
- Use only SONY cables, as there are very specific cable requirements, these cables are specially configured for connection to REMOTE IN/SYNC IN, SYNC OUT, METER UNIT. (Do not use standard computer cables.)

Assigning ID (Identification) numbers

2 Insert the termination plug into the last PCM-800's SYNC OUT connector. This plug is supplied with the RM-D800/RCC-S1.

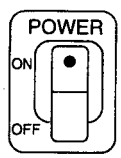
Note

Do not forget to attach the termination plug to the SYNC OUT connector of the last slave machine in multiple PCM-800 synchronization system, or correct operation is not ensured. In passing when hooking up only a single PCM-800 to the RM-D800, the plug must be inserted into that recorder.

3 Locate the MACHINE ID rotary switch on the rear panel of the master PCM-800, and set it to "0". Similarly, assign "1" to the first slave machine, "2" to the second slave, and so on, in their order of SYNC IN/OUT connections.

Note

Operating the MACHINE ID switch when the machine is turned on has no effect at all.



To let slaves chase and lock to the master

4 Turn on the PCM-800s (and other equipment as well as required).



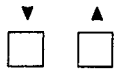
5 Press CHASE on each of the slave machines.
They will all be located to the same time point as the master.

6 Press a transport control key whatever on the master machine.
The slave transports will go into the same mode as the master.

Entering an offset

You can enter an offset so slave PCM-800s lead or lag the master, each by a different number of hours, minutes, seconds, and frames.



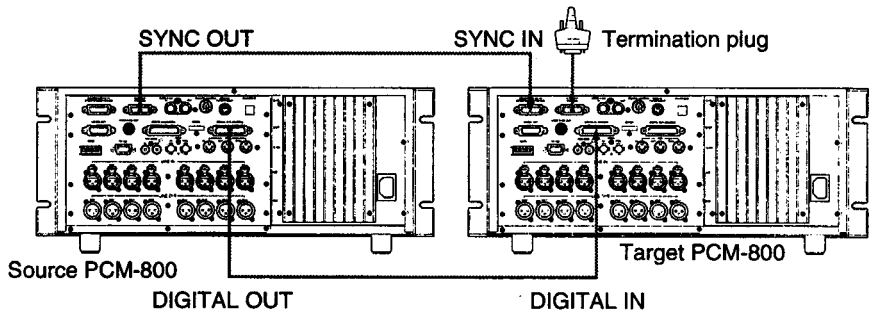


Press DISPLAY on your slave PCM-800 until "00000000" appears and the OFFSET indicator lights, then you can use its ▲ and ▼ keys to enter the desired offset time in 1 frame steps, up to +/-1 hour, 00 minute, 00 second, 00 frame.
To speed up the number entry, you can hold down either ▲ or ▼ and press DISPLAY. Each time you press DISPLAY, the next upper (left) two digits will fast increment.

To disable any offset you've entered, hold ▲ or ▼ and press the other.

Digital dubbing

With digital recording, no matter how many times dubbing is repeated, no hiss or distortion is added; you can copy important multitrack tapes as many times as you need to create work tapes or copies for distribution without having to worry about any deterioration.



To make a digital copy between PCM-800s, follow the procedure below.

1 Making sure that every equipment of your system is turned off, connect the source machine's DIGITAL output port to the target machine's DIGITAL input port by means of the digital cable.

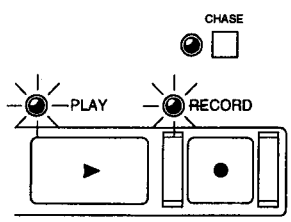
2 After having made the necessary connections, turn on the whole system.

3 Put the master (source) machine into the Digital output mode as described on page 5-5.

4 Load the master multitrack tape on the source machine, and an already formatted blank tape on the target machine.

5 Check to see that all the REC FUNCTION keys on the source machine are turned off.

6 Check to see that all the REC FUNCTION keys on the target machine are turned on.

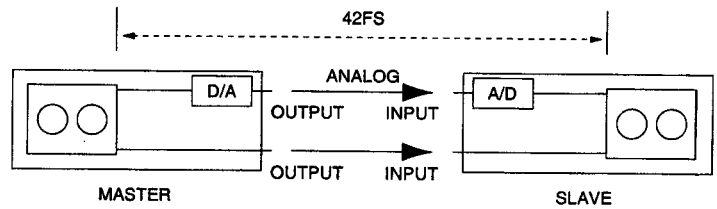


7 Press CHASE on the target machine, so its tape will be located to the same time point as the source machine.

8 Hold RECORD and press PLAY on the source machine to start playing the master multitrack tape. The target machine will automatically go into record mode, and the master tape will be copied on the target tape.

Whichever output mode you select (Digital or Analog), audio data is available at both the digital and analog outputs at one time. However, remember the following :

In the Analog output mode, the analog outputs are timed to compensate for the D/A conversion time as well as the anticipatory A/D conversion time (42 samples in total as shown). But this in turn disturbs the digital output timing. On the other hand, in the Digital output mode, the analog outputs will lag because this mode disables the compensation circuit so that the digital outputs are timed as it should.



5-6 Striping Time Code (With the DABK-801)

Preliminary

ABS-to-time code switching

The PCM-800/DABK-801 system defaults to ABS-time controlled mode. To switch the system to time code controlled mode, hold either the remote ▼ or ▲ key and press the other when the display is in its ABS time mode (ABS indicator lit).

If you are using the RM-D800, you can select the time code controlled mode at the "Time Mode Select" menu (page 4-7).

Once the system is switched to Time code mode, punch ins and outs or locating functions can also be controlled via time code.

Time code format selection

For the PCM-800 to be slaved and synchronized up to other audio machines (digital or analog) or to VTRs, the same type of time code as the master tape must previously be striped (recorded) on a track of the PCM-800. If your system includes any other units which function using time code, they should also all be set to the same type of time code.

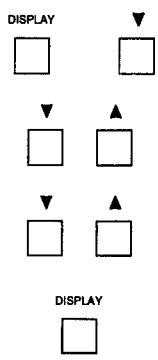
First, check to see that the MACHINE ID switch on the rear panel of your PCM-800 is set to "0."

Notes

- If the PCM-800 is not ID-numbered "0", you cannot select any time code formats or set any TC generator start times.
- The type of time code of both the master and slave machines should be the same. If not, the correct synchronization is not ensured.

The DABK-801 defaults to 29.97 drop frame format. To select other optional code formats, follow the procedure below.

Without the RM-D800



1 Hold DISPLAY and press ▼. The TC indicator will light.

2 Press and hold either the ▲ or ▼ key and press the other. The display will show the previously set code format.

3 Press the ▲ or ▼ key until the desired code format appears in the display.

4 Press DISPLAY three times to bring you back to the original display.
Pressing DISPLAY once shows the time code format of the previously played tape.

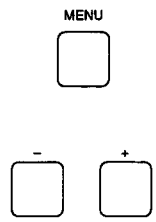
(Continued)

Pressing DISPLAY twice shows the format for outputting the time code.

With the RM-D800

Note

In the following we only say "Press MENU (...)" for simplicity. Actually, however, you cannot have access to all menus simply by pressing MENU. See also charts on chapter 4.



1 Press MENU until the LCD screen reads:

```
Reference T/C
29.97 DF
```

2 Press the +/- key until the desired code format appears.

Clock selection

Depending on the application or the master machine to which your PCM-800 is slaved, select the appropriate clock by pressing the CLOCK key (either on the RM-D800 or PCM-800) as many times as necessary.

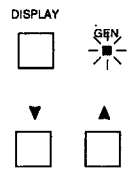
See the explanation of the CLOCK key on page 2-6.

Recording Time Code on the PCM-800

Using the time code generator built into the DABK-801

(1) Generator start time setting

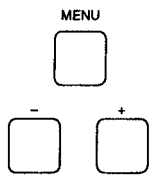
Without the RM-D800



1 Press DISPLAY until the GEN indicator lights.

2 Use the ▼ and ▲ keys to enter the desired time code point from where you wish the generator to start generating time code. To speed up the entry, you can hold down either ▼ or ▲ and press DISPLAY. Each time you press DISPLAY, the next upper (left) two digits will appear.

With the RM-D800



1 Press MENU to get access to the "Gen Start Time" menu.

2 Press the +/- key to enter the desired start time. To move the cursor, hold SHIFT and press the +/- key. Alternatively, you can use the numeric keys at the "Gen Start Time" menu to enter the desired starting time into the LOCATE TIME window, then hold SHIFT and press ENTER.

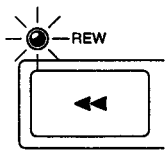
(2) Time code recording

Once the time code format and start time have been set to your requirements, you can lay down time code on a dedicated track (in the subcode area) of the tape inserted to the PCM-800.



1 Check to see that the VARI SPEED mode is not activated as confirmed by the associated indicator being off.

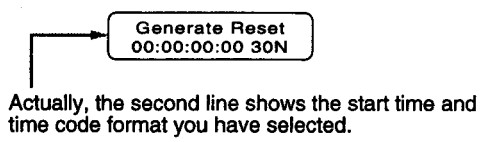
If you are using the RM-D800, you can also press MENU to get access to the "Pitch Control" menu to make sure that the menu is set to "Fix."



2 If the tape is not at the very beginning, press REW to rewind to the beginning.



3 With the RM-D800 only: press MENU until the LCD screen reads:



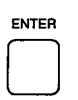


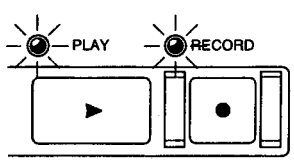
4 Press the TC REC key.
Its indicator will start flashing to indicate that the time code track is in Ready mode.



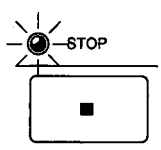
5 **Without the RM-D800**
Press the TC GENERATE key.
Its indicator will light and the internal time code generator will start generating time code.

With the RM-D800
Press ENTER. The lower line displays on the "Generate Reset" menu will increment.





6 Press and hold RECORD and press PLAY.
Time code starts being recorded.
Reverse steps **5** and **6** if you want time code to start being recorded exactly from the time point you have set. Ignore the "no t. codE" (No Time code) message you will see when putting the PCM-800 into record mode.



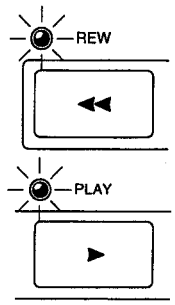
7 When the tape reaches its end, press STOP to leave the record mode. Or, if you are using the RM-D800, the tape will automatically stop.

(Continued)



8 To stop the time code generator, press the TC GENERATE key again (or press the remote ESCAPE).

Check



9 Without the RM-D800, press and hold DISPLAY and press ▼. The display will switch to TC mode.

10 Press REW to rewind the tape to the beginning.

11 Press PLAY to reproduce the time code just recorded.

Time code numbers advancing in the display (or in the remote TAPE TIME window) show a successful time code recording.

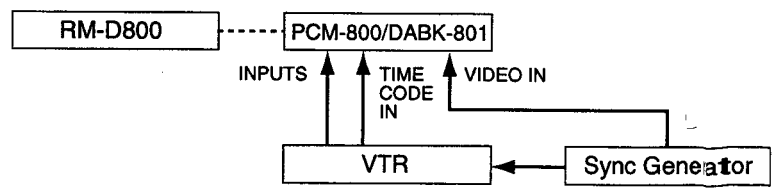
To resume time code recording from the interrupted time point, press ENTER after having stopped the tape with STOP, and the time code generator with ESCAPE.

Copying time code as well as audio from external units

Avoid copying time code from analog machines, or unstable synchronization will result. To copy audio from an analog machine, first stripe the tape you want to copy to by using the internal generator (see above), then let the PCM-800 record in synchronization with the analog machine.

Refer to "5-7 Syncing with the PCM-800 as Slave" on page 5-30.

(1) Dubbing time code and audio from VTRs



First, make sure the PCM-800 and your VTR are both turned off.

For connections, see also page 3-6.

1 Connect the time code from the VTR to the TIME CODE IN connector of the PCM-800.

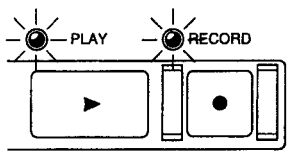
2 Connect composite video signals from your sync or pattern generator (or from the VTR if you are not using those generators) into the VIDEO IN connector of the DABK-801.

3 Connect audio signals from the VTR into the LINE IN connector of the PCM-800.

4 Turn on both the PCM-800 and the VTR.

5 On the part of the PCM-800 :

- Press CLOCK until the VIDEO indicator lights.
- Press TC REC. Its associated indicator will start flashing to show the time code track (in the subcode area of the tape) is in Ready mode.
- Put a track or tracks to record audio on into Ready mode by pressing their REC FUNCTION keys.

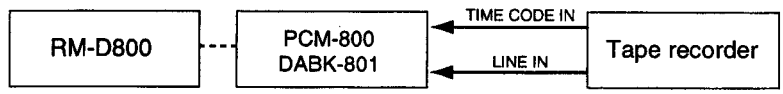


6 Start playing the VTR, and hold RECORD and press PLAY on the PCM-800.
The incoming time code and audio will be laid down on the record tape.
You can see the time code numbers as they are coming in and being copied if the display is in its TC mode.

Note

It is imperative that the time code on the VTR has been recorded so that its frames match exactly with the video frames.

(2) Dubbing time code and analog audio from analog or digital tape recorders



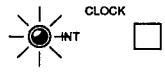
First, make sure both the PCM-800 and your source machine are turned off.
For connections, see also page 3-6.

1 Connect the time code from the source machine to the TIME CODE IN connector of the PCM-800.

2 Connect the audio from the source machine to the LINE IN connector of the PCM-800.

3 Turn on both the PCM-800 and the source tape recorder.

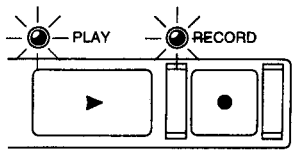
(Continued)





4 On the part of the PCM-800 :

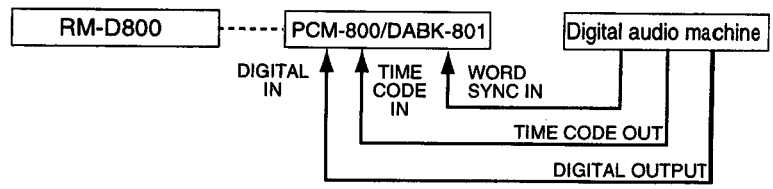
- Press CLOCK until the INT indicator lights.
- Press TC REC. Its indicator will start flashing to show the time code track (in the subcode area of the tape) is in Ready mode.
- Put a track or tracks to record audio on into Ready mode by pressing their REC FUNCTION keys.



5 Start playing the source tape.

6 Hold RECORD and press PLAY to put the selected tracks into Record mode. At the same time, time code also starts being copied.

(3) Dubbing from digital audio machines



First, make sure both the PCM-800 and your digital audio source machine are turned off.
For connections, see also page 3-6.

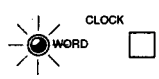
1 Connect the time code from the source machine to the TIME CODE IN connector of the PCM-800.

2 Connect the word sync signal from the source machine to the WORD SYNC IN connector of the PCM-800.

3 Plug digital audio from the source machine into the DIGITAL IN connector of the PCM-800.

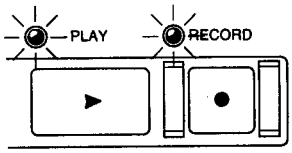
4 Turn on both the PCM-800 and the source digital machine.

5 On the part of the PCM-800 :





- Press CLOCK until the WORD indicator lights.
- Press TC REC to put the time code track (in the subcode area of the tape) into Ready, as confirmed by its flashing indicator.
- Select a track or tracks to record audio on.



6 Start playing the source machine.

7 Hold RECORD and press PLAY on the PCM-800 to start dubbing time code and digital audio.

Note

It is imperative that the clock to which the digital audio machine is currently referenced is the same as when its tape was striped with time code.

Recording Time Code on Other Audio Tape Recorders

Using the time code generator inside the DABK-801 allows you to record time code on other audio tape recorders.

Recording time code both on the PCM-800 and an analog tape recorder at one time



If your analog tape recorder provides no sync (time code) track, allocate one track on that machine to the time code (usually this is put on the bottom track).

Notes

- Noise reduction should be turned off on the track to record time code.
- To achieve optimum recording quality, the tape path must be thoroughly clean. Dirty heads can cause dropouts.

On the part of the analog tape recorder

1 First, connect the DABK-801's TIME CODE OUT signals to the input of the sync track of your analog tape recorder before turning on both machines.

2 If your analog tape recorder has a variable speed function, check to see that it is not activated. Time code should be recorded at fixed speed.

3 Rewind the analog tape to the beginning.

(Continued)

On the part of the PCM-800

4 Set the time code format and the generator start time as per instructions above (pages 5-19 and 5-20).



5 Press TC REC. Its indicator will start flashing to indicate Record Ready mode.



6 Start the time code generator by pressing TC GENERATE or the remote ENTER.

7 Adjust the analog tape recorder's input signal level for -10 dB to 0 dB as read on its meter (consult the manual for your machine if necessary).

8 To start time code recording, put both machines into record mode.

9 When time code is recorded all the way to the end of both tapes, stop them.



10 To stop the time code generator, press TC GENERATE (or the remote ESCAPE).

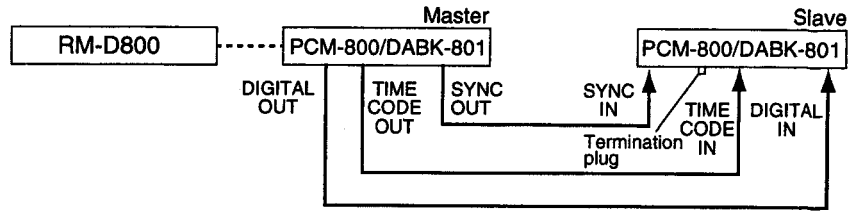
11 To check the result, follow steps **9** to **11** under "Recording Time code on the PCM-800" on page 5-22.

By skipping step **5** and putting only your analog tape recorder at step **8**, you can record time code on the analog tape recorder only.

Recording time code on other digital audio machines

Connect the TIME CODE OUT and WORD SYNC OUT from the DABK-801 to the TIME CODE IN and WORD SYNC IN of your digital audio machine, respectively. Then you can follow the same procedure as in recording time code on the PCM-800 (pages 5-20 to 5-22). Consult also the manual for your external machine as required.

Dubbing Audio and Time Code between PCM-800s at One Time



The original relationships between the audio, ABS times and time code numbers can be copied without any alterations whatever.

The DABK-801 should be installed in both the master (source) and slave (target) PCM-800s. The following optional cables are also necessary:

- RCC-S1 sync cable
- Digital cable

Synchronization in this application is ABS-time based (not time code based).

Pre-operating procedure

1 Check to see both PCM-800s are turned off.

2 Set the MACHINE ID switch on one PCM-800 to "0," and the switch on the other PCM-800 to any other number.

3 Connect one end of the optional RCC-S1 cable to the SYNC OUT connector of the source (master) PCM-800 (the one which is ID-numbered 0), and the other end of the cable to the SYNC IN connector of the other, target (slave) PCM-800.

4 Connect one end of the digital cable to the DIGITAL OUT connector of the source PCM-800, and the other end of the cable to the DIGITAL IN connector of the target PCM-800.

5 Connect the TIME CODE OUT connector from the source machine to the TIME CODE IN connector on the target machine with the appropriate cable.

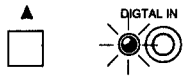
6 Turn on both PCM-800s.

Dubbing procedure

Without the RM-D800



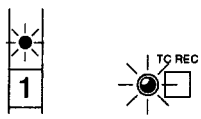
1 Press DIGITAL IN on the target PCM-800 to put this into Digital Input mode.



2 Hold the upward key (▲) and press DIGITAL IN on the source PCM-800. "DIGITAL" will flash in the display window.

3 Insert the master tape in the source machine, and a formatted record tape in the target machine.

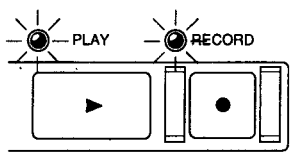
4 On the part of the source machine: check to see that all the eight REC FUNCTION indicators are off, and the TC REC indicator too.



5 On the part of the target machine: press the REC FUNCTION keys 1-8, to turn on the associated indicators, then press TC REC.



6 Press CHASE on the target machine.



7 Hold RECORD and press PLAY on the source machine, which causes the source machine to start playing and the target machine to start recording.
In this case, the source PCM-800 cannot go into record mode regardless of whether the source tape is record-protected or not. If it is record-protected, the RECORD indicator on the source PCM-800 does not light.

With the RM-D800

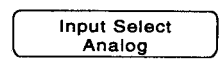


1 Press MACHINE.
"Select" will show in the LOCATE TIME window.

2 Press 2 on the keypad (if the target machine is ID- numbered "1"; or press 3 if it is numbered "2" and so on).



3 Press MENU until the LCD screen reads:





4 Press either the + or - key to change the "Analog" to "Digital."



5 Press TC REC. Its indicator will start flashing.

6 Press REC FUNCTION 9-16 (or others depending on the machine currently selected).



7 Press MACHINE again.
The LOCATE TIME display will read "Select" as before.

8 Press 1 on the keypad to select, this time, the source machine which must have been ID-numbered "0."



9 Press MENU to display "Output Timing" menu.



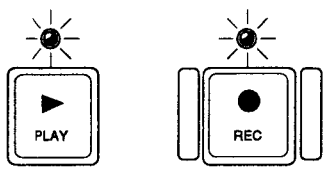
10 Press either + or - to change the "Analog" to "Digital."

11 Check to see that the REC FUNCTION 1-8 and TC REC keys are all off.



12 Press CHASE.
The LOCATE TIME display will read "CHASE" to show sync mode is entered.

13 Select the target machine again by pressing its machine number on the keypad as you did in step **2**.
The number pressed will start flashing in the LOCK STATUS window.



14 Hold RECORD and press PLAY on the remote, which causes the source machine to start playing and at the same time the target machine to start recording.

5-7 Syncing with the PCM-800 as Slave (With the DABK-801)

Once the same time code has been recorded on both the master and slave machines you can synchronize them.

Procedure for Synchronization

If the PCM-800 is referenced to its INT (ernal) clock and the CHASE MODE DIP switch is at its down/"Rechase" position, the DABK-801 reads the master and slave time code numbers, compares the two, and issues "speed-up" or "slow-down" commands to the PCM-800 continually in order to keep the two machines in sync ("resolving" or "phase lock").

If the PCM-800 is referenced to the WORD or VIDEO clock, the slave drops into "clock sync" when the difference between the master and slave time code numbers decreases to a certain degree.

Whatever the clock to which the PCM-800 is referenced, if the CHASE MODE DIP switch is set to its up/"Free" mode position, the PCM-800 goes into its normal play mode once synced up to the master.

Note

If you intend to perform a synchronized rehearse, do not press REHEARSAL before CHASE. Once REHEARSAL is pressed, CHASE cannot operate.

1 Make sure of the following :

- Your master machine is correctly connected to the PCM-800/ DABK-801 system.
- The PCM-800/DABK-801 system is referenced to the appropriate clock.

  Note

  If a VTR is the master and the CLOCK key is set to VIDEO, the VIDEO IN connector of the DABK-801 must be fed with a signal from which a clock can be derived regardless of VTR transport status – a signal from sync generators, pattern generators, etc. If for example, a video output signal is connected instead, and the VTR stops playing, no clocks are available; and, when play resumes, the system clock of PCM-800 does not stabilize in time.
- The PCM-800 is ID-numbered "0."
- The CHASE MODE DIP switch is set to the desired position.
- If you are in doubt about the type of time code in use on the tape inserted to the PCM-800, verify it as per instructions in (4) of page 2-3.



2 Press CHASE.

Without the RM-D800

The CHASE indicator flashes to indicate that the PCM-800 (slave) is "chasing," and it lights when the two machines are locked together.

With the RM-D800

"CHASE" will appear in the LOCATE TIME window. If you then press "1" on the keypad, the LOCK STATUS 1 indicator will flash, and light as both machines are locked together.

Once locked together, the slave will duplicate every action of the master automatically, such as rewind, normal play, fast-forward, or stop (unless the CHASE MODE DIP switch is set to its up/"free" mode position).

To see time code numbers as they are being read off the PCM-800 tape

Without the RM-D800



Hold down DISPLAY and press ▼, if the display is not in TC mode already.

With the RM-D800

The off-tape time code numbers show in the TAPE TIME display as the PCM-800 starts "chasing" the master.

To see the master (external) time code numbers

Without the RM-D800

When the display is in its TC mode, hold down ▲ and press DISPLAY. The TC indicator will flash to show the display is in its external time code mode.

With RM-D800

Switch the LCD screen to the "T/C External" menu.

To disable the synchronization

Without the RM-D800



Press CHASE again.

With the RM-D800



Press CHASE. The LOCATE TIME display will read "CHASE." Then, press 1 on the keypad. The LOCK STATUS 1 indicator will turn off.

Note

When both machines are running in synchronization, all transport controls on the PCM-800 (and on the remote too) are locked out except the STOP on the PCM-800.

Sync Offset

Offset can be entered up to a maximum of +12:00:00:00.00 or down to a minimum of -12:00:00:00.00, either before putting the slave (PCM-800) into "chase" mode or when the master and slave are syncing.

Manual entry

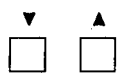
Note

Subframe numbers cannot be entered if CLOCK is set to VIDEO and MODE DIP switch bit 7 is set to its up position .

Without the RM-D800

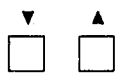


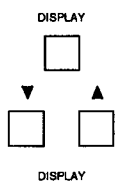
1 Press the DISPLAY key until the OFFSET indicator lights (either frame or subframe display mode depending on the offset accuracy you need).



2 If you want the PCM-800 to lead the master, first press and hold the ▲ key for a moment. Then, use the ▲ and ▼ keys to enter the desired offset time.

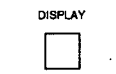
To enter the subframe value
After step **1**, proceed as follows:
Press and hold either ▲ or ▼ and press the other.
On the Master machine.





3 Press DISPLAY to show "Sub.F F" in the display.

4 Press ▲ or ▼ to enter the subframe value.



5 Press DISPLAY to go back to the original display.

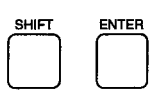
With the RM-D800



1 Press MENU to get access to the "T/C : Offset" menu.



2 To set the offset time, you have two options:
(a) Use the + and - keys to enter the desired offset time.
To move the cursor to the left, hold SHIFT and press the - key.
To change the + to – (or vice versa), move the cursor there, and press the – (or the +).



(b) Use the numeric keys to enter the desired offset time into the LOCATE TIME window. Then hold SHIFT and press ENTER.
The entered time will appear on the menu.
Negative numbers cannot be entered using the numeric keys. In this case first enter a positive number using the numeric keys, then change the + to – as explained above.

You can move the cursor to the right of the subframe first digit by means of the SHIFT and +/– keys. Then if you hold down the +/– key, the subframe numbers will increment fast. The same will occur to the frame, minute, and hour numbers if you continue to hold down the key.

To enter +12:00:00:00.00 (maximum offset time):
You cannot enter with the + and – keys. Use the numeric keys instead. When the numbers show in the LOCATE TIME window, hold SHIFT and press ENTER.

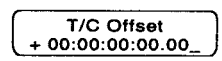
If the slave and master are syncing : The slave will directly be offset and synchronized keeping the offset time distance with respect to the master.

If CHASE has not been pressed yet: Press CHASE.

To disable the sync offset

Without the RM-D800
When the display is in its OFFSET mode, hold the ▼ or ▲ key and press the other, "00:00:00:00.00" will appear in the display. Until you reset the offset display, the slave remains being offset.

With the RM-D800



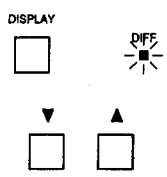


At the "T/C : Offset" menu, hold the + or – key and press the other. The offset display is reset to "00:00:00:00.00" Note, there is no way of temporarily switching off the offset sync function; until you reset the offset display, the slave remains being offset.

Auto offset entry (to frame accurate only)

You can capture the current difference between the master and slave time code numbers and put it into the offset memory on the fly.

Without the RM-D800



1 Press DISPLAY to switch the display to its DIFF mode.

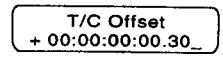
2 At the desired moment, hold the ▼ or ▲ key and press the other. The display looks like this:

AT. OFSET

With the RM-D800



1 Press MENU to get access to the "T/C : Offset" menu.





2 At the desired moment, press ENTER. The difference between the master and slave time code numbers at that moment will appear in the menu.

To finely adjust the offset value (with the RM-D800)

In the "T/C Offset" menu, move the cursor to the right of the subframe first digit by using the SHIFT and +/– keys. Then if you hold down the +/– key, the subframe numbers increment, and, after a while, overflow, causing the frame numbers to increment.

To see the time code numbers

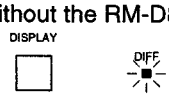
To see the time code numbers from the machine to which the PCM-800 is slaved, press MENU to get access to the "T/C : External" menu. (The time code format of the master tape also then appears in the LCD screen.)

With the RM-D800





Without the RM-D800



To check the offset value

To let the display show how far the slave tape is apart from the master, press the remote MENU until you have access to the "T/C : Rel Diff" menu; then, hold SHIFT and press MENU once more to have access to the "T/C : Abs Diff" menu. If you are not using the RM-D800, press the DISPLAY key until the DIFF indicator lights. The display can either be frame or subframe accurate as required. The frame-accurate DIFF mode shows the absolute difference between the master and slave time code numbers. Once locked together, the display shows the relative difference (= absolute difference – offset value). The subframe-accurate DIFF mode shows the absolute difference all the time.

About "Abs Diff" and "Rel Diff"

The "absolute" difference refers to the current difference between the master and slave time code number readings. So there will be no absolute difference between them when the slave is synced up to the master if no offset has been entered. If the slave is offset, it is synced up to the master keeping a distance corresponding to the entered offset value, so an absolute difference remains between the master and slave time code numbers. This difference is not any other than the offset, and will be read out in the LCD screen if this is in "Abs Diff" mode, or will not be read out if in "Rel Diff" mode.

ABS time to time code conversion facility

This makes it possible to slave the PCM-800 to external time codes without going to the trouble of striping time code on PCM-800 tapes .

The ABS time can be converted into any types of time code the DABK-801 supports. The 0:00:00:00 point of ABS time becomes the 0:00:00:00 point of time code. When selecting the 24, 25 or 30 frame/second format, the ABS time numbers match exactly with the time code numbers all the time (except the frame numbers). But, frame/second in the case of the 29.97 Non-Drop frame code, it will read about 59 minutes, 56 seconds when the ABS time counts up to 1 hour, and the discrepancy will become wider with time.

The converted time code is sent out from the TIME CODE OUT connector as with time codes read off tape or produced by the time code generator.

Advantages of this facility is as follows:

- There is no need for you to stripe PCM-800 tapes to sync them up to external time codes. Under some conditions, offsets will be necessary to be entered between the master and PCM-800 time code numbers.
- When work tapes copied from the same video tape are used as master tapes for audio sweetening in multiple studios where PCM-800s are used as slave machines, the final mixdown can be achieved simply by syncing PCM-800s via ABS time.

To convert the ABS time into time codes, proceed as follows.

Without the RM-D800



1 Hold DISPLAY and press ▼. The TC indicator will light.

2 Press and hold either ▲ or ▼ and press the other.

3 Press DISPLAY twice. The display will look like this :



4 Press ▲ or ▼ to change the "tc" to "AbS."

5 To switch the display back to the TC mode, press DISPLAY.

With the RM-D800



1 Press MENU until the LCD screen reads :



(Continued)



2 Press + or –. "ABS Time Mode" will appear.

For the TIME CODE OUT connector to carry time code directly from the PCM-800 tape or from the DABK-801 time code generator, switch the "Abs" back to "tc," or the "ABS Time Mode" back to "LTC Mode".

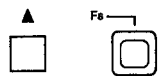
5-9 Fs Shift Select

The -Fs Shift Select feature meets the pull down and pull up requirements in specific NTSC environments.

Without the RM-D800



1 Hold down the DISPLAY key and press the down (▼) key.
The tape time code display mode is activated, as confirmed by the TC indicator being lit.



2 Hold down the up (▲) key and press the Fs key to enable the Fs Shift Select function.

3 Select the desired optional mode by means of the up and down keys.
The display will change as follows:

PULL OFF
▲ ▼
PUL UP. dF (pull up drop frame)
▲ ▼
PUL UP. nd (pull up non drop)
▲ ▼
PUL dN. (pull down)

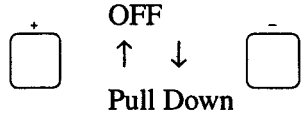
With the RM-D800



1 Press MENU to access the Fs Shift Select menu.
The screen will look like this:



2 Select the desired optional mode by means of the + (plus) and - (minus) keys.



OFF
↑ ↓
Pull Down
↑ ↓
Pull Up Non Drop
↑ ↓
Pull Up Drop

With or Without RM-D800

- When the Fs Shift Select function is enabled, the PCM-800/DABK-801 system is automatically referenced to:
  30 NDF—if in Pull Down mode.
  29.97 NDF—if in Pull Up Non Drop frame mode.
  29.97 DF—if in Pull Up Drop frame mode.
  You cannot select other frame codes arbitrarily.
- If you are using the RM-D800, the "T/C Frame Select" menu shows an asterisk (*), reminding you that this menu is locked out.
- When selecting either Pull Up mode, set the CLOCK key to INT for the tape to record or play at 0.1% "pulled up" speed.

Note

After cancelling the Fs shift function the time code format will automatically return to the recorded format of the current tape.

5-10 Setting a Park Position

You can have the slave PCM-800 transport park (pause) at the desired point for it to start playing to optimum timing with respect to the master.

Pre-setting procedure

First, have the slave PCM-800 lock to the master transport as follows:

1 Play the master.

2 Play the slave PCM-800.

3 Press DISPLAY on the slave as many times as necessary to active its frame accurate DIFF mode.

See page 2-3 if necessary.

4 To capture the current difference between the master and slave time code numbers, use the Auto Offset Entry feature by holding either the down (▼) or the up (▲) key and pressing the other.



5 Press CHASE on the slave.

6 When the slave locks to the master, stop both machines by pressing STOP on the master.

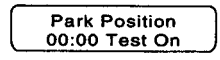
Measuring the current park position

7 Hold down the up (▲) key and press DISPLAY on the slave PCM-800, then press either the up (▲) or the down (▼) key to activate a park position measurement mode.
"tESt On" will appear in the display window.
(Each time you activate the park position measurement mode, all previously set points are reset to 00.)

8 Press DISPLAY to activate the frame accurate DIFF mode as before.

9 Play the master.
About 2 seconds later, the time numbers in the display will stabilize. The numbers show the time the slave takes to settle down in play mode. That is to say, a tight play start of the slave will be ensured by setting the park position of the slave the displayed time ahead of the current park position.

With the RM-D800



The current relative difference between the master and slave is displayed instead of the current park position time when you change the "On" to "Off" with the plus (+) key or the minus (–) key.

Automatic accommodation of the park position

10 Hold down either the up (▲) or the down (▼) key and press the other.
"At. P. PoSi" (At Park Position) will appear in the display window and a new park position will be set up for the lag shown to be compensated for.

When the setup is complete and the park position setting mode is disabled as a result, the "At. P. PoSi" display disappears and the slave PCM-800 goes into chase mode and is quick to lock to the master.

With the RM-D800

1 Marking sure that your VTR (machine 9) is under control, press CHASE to locate the PCM-800 to the same time code address as the VTR.

2 When the relative difference between the master and slave time code numbers becomes 00:00, as shown on the screen, start the VTR.

3 Press ESCAPE.
The lag in the play time on the PCM-800 will be entered into the Park Position screen, and the Test mode will switch "Off," automaticaly.

Note

ESCAPE has no effect if pressed when the slave is more than 2 seconds behind the master.

Manual position

The park position of the slave can also manually be set up or trimmed as follows:

1 Press DISPLAY as many times as necessary to activate the frame accurate DIFF mode.

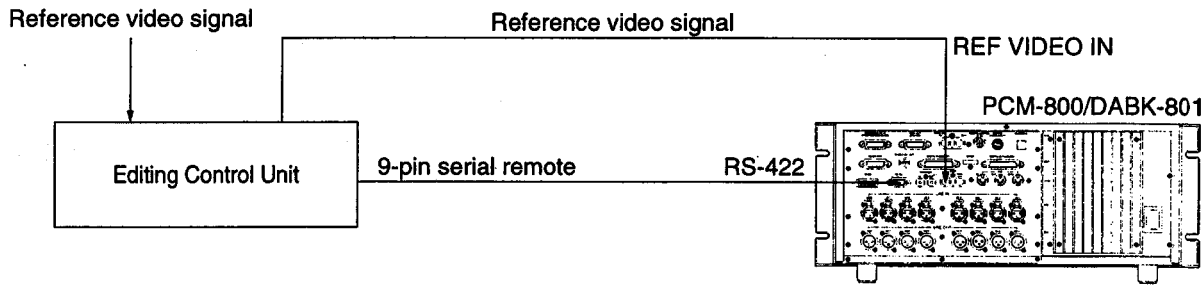
2 Hold down the down (▼) key and press DISPLAY to activate the park position setting mode. "P.PoS 010" will appear in the display window, showing that the slave will park 10 frames ahead of the otherwise "will be" point. To change this default setting, perform the following steps.

3 Each time you press the up (▲) or the down (▼) key the display will increment/decrement in 1 frame steps. You cannot enter 2 seconds or more. The minimum setting is 0 second.

4 When the desired numbers are displayed, press DISPLAY to switch the display back to its DIFF mode.

System Connection Using the BVE-9100/2000/910 and PVE-500 Editing Control Unit

Connection



Notes on video editing

- The DMC function cannot be used.
- Be sure to record time code on the tape prior to audio recording. First edit cannot be performed on the PCM-800 which does not support the assemble recording.
- When using the BVE-2000, set the channel A3 to the A3 key. No channel is assigned to the A3 key in the default setting.
- Set the preroll time to 7 seconds in sync play.

Setting on the BVE-9100/2000/910 Editing Control Unit

Set the TC SOURCE in the AUX mode to "LTC," " LTC+," "LTC: VITC" or "LTC: VITC+."
Set the VTR constants as follows:

Setup parameter for the BVE-910/BKE-904

	BYTE-1	BYTE-2	BYTE-3	BYTE-4	BYTE-5	BYTE-6	BYTE-7	BYTE-8
CONSTANT-1	70[1)]	03	00	96[2)]	02	02	02	80
CONSTANT-2	0A	05	FF	00	00	5C[3)]	FF	
AUDIO CH ASSIGN	A1	A2	A3	A4				
VTR CONFIG.	–							

1) NTSC: 70, PAL: 71 2) NTSC: 96, PAL: 7D 3) NTSC: 5C, PAL: 4C

Setup parameter for the BVE-2000

	BYTE-1	BYTE-2	BYTE-3	BYTE-4	BYTE-5	BYTE-6	BYTE-7	BYTE-8
CONSTANT-1	70[1)]	03	00	96[2)]	02	02	02	80
CONSTANT-2	0A	05	FF	00	00	5C[3)]	FF	
AUDIO CH ASSIGN	A1	A2	A3	A4				
	D1	D2	D3	D4				
VTR CONFIG.	–							

1) NTSC: 70, PAL: 71 2) NTSC: 96, PAL: 7D 3) NTSC: 5C, PAL: 4C

Setup parameter for the BVE-9100

	BYTE-1	BYTE-2	BYTE-3	BYTE-4	BYTE-5	BYTE-6	BYTE-7	BYTE-8
CONSTANT-1	70[1)]	03	00	96[2)]	02	02	02	80
CONSTANT-2	0A	05	FF	00	00	5C[3)]	FF	5A[4)]
AUDIO CH ASSIGN	00	01	–	03				
VTR CONFIG.	–							

1) NTSC: 70, PAL: 71 2) NTSC: 96, PAL: 7D 3) NTSC: 5C, PAL: 4C
4) NTSC: 5A, PAL: 4C

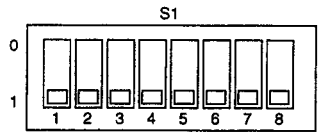
Setting on the DABK-801 for Video Editing

Video reference

When the DABK-801 is used with Video Editor mode, a video reference signal should be fed to both the DABK-801 and the video editor. After selecting "VIDEO" for the system clock source using the "CLOCK" key located on the front panel of the PCM-800, confirm that the PCM-800 is not displaying the "E. CLOC" error message.

MODE DIP switch on the DABK-801

Check the MODE DIP switch on the rear panel of the DABK-801 is set as follows:



"0" indicates that the lever is up and,
"1" indicates that the lever is down.

S1 - #1: 75 ohm termination switch for the video reference input
"1": on "0": off

S1 - #2: MIDI / 9-pin
"1": 9-pin "0": MIDI
Should be set to "1" (9-pin).

S1 - #7: Video sync playback on/off
"1": Video sync playback off "0": Video sync playback on
Should be set to "0" (video sync on) if in video editing mode.

S1 - #8: Time code output mode selection
"1": the output mode is "A"
"0": the output mode is "B"
A mode: When the tape is stopped (excluding the pause state), no time code is output. When in play mode, normal time code is output. In other states than above, physical TC speed is about the normal play speed, and frame address embedded in TC indicates current frame address, meaning that sometimes the address repeats in two or more consecutive frames if the tape is running in a slower speed than the play speed, or the address leaps if the speed is faster.
B mode: Only when the tape is running in a speed faster than play speed regardless of the tape direction, the frame address embedded in the TC increases one at each frame over 5 frames in a row. Physical TC speed is about the normal play speed. Otherwise, the TC output manner is identical to the A mode.

Settings necessary on the DABK-801

To make the settings for the DABK-801, consult your nearest SONY service facility.

S3

No. 1, 2 and 3: Device ID

These items determine how to reply to the device-ID-request-command.

			ID	
No. 1	No. 2	No. 3	Hexadecimal	Machine
OFF	OFF	OFF	7x03	PCM-800

Note: x=1 when time code frame mode is "25" (EBU)
x=0 when time code frame mode is DF, ND or 24 (SMPTE)

No. 4 and 5: Track Mapping

The video control protocol can specify four analog audio tracks and eight digital audio tracks independently.

The DABK-801 provides some patterns of mapping between tracks specified in the 9-pin commands and the PCM-800 tracks.

Note that this is not the mapping between the PCM-800 tracks and the user interface of the editor, but of the PCM-800 tracks and the command communication. The editor user interface may have "Audio track 1". Which track represented in the command communication corresponds to the Audio Track 1, should be determined in the side of the controller.

PCM-800 Track	No. 4="ON"		No. 4="OFF" (Pair mode)	
	No. 5="ON"	No. 5="OFF"	No. 5="ON"	* No. 5="OFF"
1	Analog 1 (A1)	Digital 1	Analog 1(A1)	Analog 1(A1)
2	Analog 2 (A2)	Digital 2	Analog 2(A2)	Analog 1(A1)
3	Analog 3 (A3)	Digital 3	Analog 3(A3)	Analog 2(A2)
4	Analog 4 (A4)	Digital 4	Analog 4(A4)	Analog 2(A2)
5	Digital 1	Digital 5	Analog 1(A1)	Analog 3(A3)
6	Digital 2	Digital 6	Analog 2(A2)	Analog 3(A3)
7	Digital 3	Digital 7	Analog 3(A3)	Analog 4(A4)
8	Digital 4	Digital 8	Analog 4(A4)	Analog 4(A4)

* Settings at factory

No. 6: FF/REW speed

When the DABK-801 receives a FF/REW command from the 9-pin connector, the PCM-800 enters:

shuttle mode with a speed 8 time the play speed if No. 6 =0, or FF/REW mode with maximum speed of 100 times if No. 6=1.
Setting at factory: No. 6=1

A controller may have two methods for locating on tape.

(a) It sends a locate command (cue up with data command).

(b) It sends FF/REW or shuttle commands

In case of (b), using 100 times FF/REW for locating tape will cause inaccurate result or repeating overshoots around the destination. This item is provided to prevent these problems. Set to "0" for type (b) locating.

To know which way is being used,

1 When the DABK-801 receives a locate command (meaning that the controller type is (a)), the time display on the PCM-800 front panel shows the destination time in a few seconds. While watching the display, let the controller enter a locate operation.

2 When the controller is locating the tape, the front panel indicator of the PCM-800 will:

In case of (a)

the FF/REW indicator flashes

In case of (b)

if No. 6=0: the Shuttle indicator flashes or

if No. 6=1: the FF/REW indicator lights or the Shuttle indicator flashes.

No. 7: Edit preset from the 9-pin connector

"0": edit preset from the 9-pin connector is enabled

"1": edit preset from the 9-pin connector is disabled

When this switch is set as "1", the edit preset command from the 9-pin will be ignored, meaning that the track selections from the PCM-800 front panel or the RM-D800 are always effective.

The "0" state does not disable the manual operation, but the result will be canceled if an edit preset command comes.

Chapter 6 Operation Using the RM-D800 Remote Control Unit

This chapter provides the information about how to operate the RM-D800, though the same operation item may have been already described in chapter 5.
In chapter 5, we only say "Press MENU until the LCD screen reads..." for simplicity. As a matter of fact, however, you may have to press GROUP to go from a group of menus to another to get access to a specific menu, as shown on charts on pages 4-2 to 4-11. Use them as guide maps when locating menus.

6-1 Formatting a Tape 6-2
6-2 Audio Recording 6-4
6-3 Autolocation Controls 6-6
6-4 Variable Speed Playback 6-10
6-5 Entering a Track Delay Time 6-11
6-6 Relative Reference Time Indication 6-12
6-7 Punch-in Recording 6-13
6-8 Synchronizing Multiple PCM-800s 6-17
6-9 Menus Available When a PCM-800 (Machine 1-6) is under Control 6-23
Instant Access to the Menus You Need Most Frequently 6-23
Function Reset Menu 6-24
6-10 Menus Related to Event 6-25
Event Output Facility 6-25
Menu for Setting Event 6-25
Menu for Enabling the Event Settings 6-26
6-11 Controlling VTRs from the RM-D800 6-27
6-12 Remote Functions Operative/Not Operative 6-33

6-1 Formatting a Tape

Note

The PCM-800 which is specified as the master by setting its MACHINE ID switch to "0" is recognized as machine "1" by the RM-D800. Likewise, the first slave which is ID-numbered "1" is recognized as machine "2" the second slave which is ID-numbered "2" as machine "3", and so on.

Before starting audio recording on a new tape, it must be striped with absolute time, ATF (automatic track finding) and other subcode data.

Notes

- Be sure to start formatting from the very beginning of the tape.
- Once formatting starts, all transport control buttons are locked out except STOP.
- Audio can be recorded while formatting if you press REC FUNCTION for the track(s) to be recorded before or after formatting starts. Pressing the same key(s) again stops audio recording, without stopping the tape, which allows formatting to continue to the end. To insure against noise and discontinuity of ABS time, we recommend that you format the tape from the beginning all the way to the end without recording any audio simultaneously.

1 Turn on the PCM-800 directly connected to the RM-D800.

"1" will light up in the MACHINE window above the LCD screen on the remote.

If you wish to use any of machines 2 to 6 for formatting a tape, select it by pressing MACHINE and entering its number into the LOCATE TIME window.

2 Insert a new Hi8 tape in the PCM-800.

Note

Do not use any Hi8 tape which was once used for video recording.



3 Press the MENU on the RM-D800. The display will read:



If you wish to exit the format mode, press ESCAPE. The LCD display will be switched to show its initial screen. Or, if you press MENU at any time before reaching step **6**, you will get access to the "Input Select" menu quitting the "Format" menu.



4 Press ENTER. The display will read :

FORMAT Fs:44.1K
Are You Sure?

The sampling frequency can be changed in the next step.

If you do not press ENTER within 5 seconds after having pressed MENU, the display will show "Push Enter Key" again.



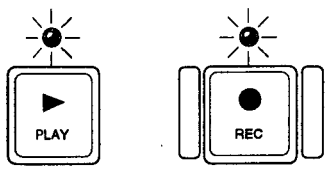
5 Press ENTER once again. The display will read:

FORMAT Fs:44.1K
Execute Ready



You can now toggle the sampling frequency between 44.1 and 48 kHz with the + and - keys. Remember, once formatting starts, you cannot change the sampling frequency.

If you wish to exit the format mode, press ESCAPE. You will go back to the "Push Enter Key" screen. Then you can press ESCAPE again to go back to the initial screen of the LCD display.



6 Hold RECORD and press PLAY to start formatting.

When the tape is formatted all the way to the end, it will automatically be rewound and stop at the beginning.

6-2 Audio Recording

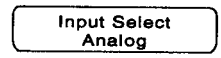
1 Check to see that all equipment of your system are correctly connected.

2 Turn on the PCM-800 if you have turned it off.
Check to see that the correct number lights up in the MACHINE window.

3 Insert a formatted Hi8 tape in the PCM-800.



4 Press MENU so the LCD screen reads:

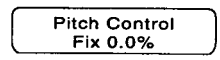


5 If you wish to record audio from digital inputs, press the + or - key. The screen will change to read "Digital." Pressing the key again will switch the screen back to "Analog."

If you have selected "Digital," the PCM-800 currently under remote control is automatically referenced to the clock derived from its WORD SYNC IN, as confirmed by the WORD CLOCK indicator being lit on the RM-D800.



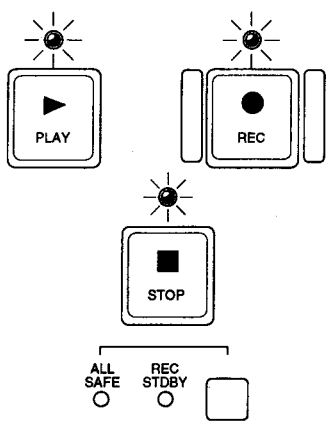
6 Press MENU once again and check to see that the screen reads:



If "Vari" appears, press ENTER to select "Fix."

7 Press REC FUNCTION for the tracks to be recorded.
The associated indicators will start flashing to show that the tracks are in Record Ready mode.

If you intend to record analog audio, adjust the output level controls of the source machine until the red OVER indicator in the meters on the PCM-800 does not light.



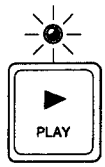
8 Hold RECORD and press PLAY to start audio record.

9 To terminate recording, press STOP.

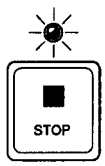
10 To insure against accidental erase, put the tracks into Safe mode by pressing their REC FUNCTION key again. Alternatively, you can press ALL SAFE.

11 Rewind the tape to the beginning of the recording just done.

Playback



12 Make sure that your monitor speaker system is correctly connected to the PCM-800, then press PLAY.



13 To stop play, press STOP.

6-3 Autolocation Controls

A maximum of 99 cue points can be stored into memory, to which you can autolocate the tape by pressing LOC.

Setting cue points

Cue (or autolocating) points can be specified on the fly or with the numeric keys.

A. On the fly

Auto storage

CUE STR

During play, press CUE STORE at the desired point.

The LOCATE TIME will show the time point just captured, and this time point is automatically and directly stored into memory. Each time you capture a new cue point, it is automatically stored into the next register, as confirmed by the MEMORY NO. display. If you capture a point when "99" appears, that point is stored into register 01 erasing the previous memory in that register.

Manual storage

▼

During play, press the ▼ key. The TAPE TIME at that point will be read into the LOCATE TIME window. Then press STR and specify a MEMORY NO. with the numeric keys. To enter numbers lower than 10, first enter "0." As soon as you enter two digits into the MEMORY NO. window, the captured tape time is stored into the memory register having the corresponding number.

B. With the numeric keys

1 Enter the desired tape points with the numeric keys on the LOCATE TIME window.

STR

2 Press STR.

3 Press two digits on the keypad. They will be entered into the MEMORY NO. window. To enter numbers lower than 10, first enter "0."

As soon as two digits are entered, the current LOCATE TIME is stored into that memory register.

Storing cue points without specifying any MEMORY No.

If, when no MEMORY NO. is displayed, press CUE STR during play.
The TAPE TIME display at that moment is stored into the lowest memory register available.
If a MEMORY NO. is displayed, say "02" for instance, the captured time is stored into the "03" memory register.

Checking cue points



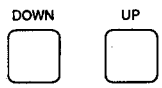
1 Press RCL.

2 Press two digits which represent the memory from which you wish to recall a cue point.

The cue point in that register will be recalled into the LOCATE TIME window as soon as you enter two digits.

Changing cue points

To finely tune a cue point recalled into the LOCATE TIME window



1 Press UP or DOWN until the display shows the correct time point.

2 Enter a two-digit MEMORY NO. to store the finely tuned cue point into memory.
The previous cue point in that memory is erased.

To entirely change any recalled cue point

Perform one of the "Setting cue points" procedures. Each time you store a new cue point into any MEMORY NO. register, the previous memory in that register is erased.

Advanced recalling

Pressing IN, OUT, START or END key will recall the corresponding points from memory and load it into the LOCATE TIME window. The corresponding indicator will also light.
Furthermore, if a preroll time is previously entered and you press PRE, the point where the preroll starts from is displayed in the LOCATE TIME window.
So you can be promptly locate the tape to that point using LOC.

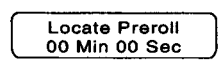
Autolocating to one of the 99 cue points

Before actually autolocating the tape to any cue point, note that you can autolocate the tape to a point optionally set time before any cue point you select. The length of this Locate Preroll time defaults to 0.

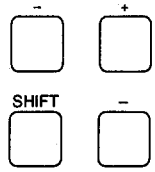
To enter a Locate Preroll time



1 Press MENU until the LCD screen reads :



(Continued)



2 Press the +/- key. The "Sec" number will change in 1 second increments.
To move the cursor to the "Min" number, hold SHIFT and press the - key.

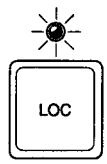
To autolocate the tape to a cue point



1 Press RCL.

2 Enter the desired MEMORY NO. with the numeric keys.

The cue point stored in that register will be recalled into the LOCATE TIME window.



3 Press LOC.

The tape will automatically be located to the time point currently shown in the LOCATE TIME window, or to a point optionally set time lower than that time point.
At the end of autolocation function, the tape will stop unless AUTO PLAY is previously activated.

Auto play



Pressing AUTO PLAY after or before LOC will start playing whenever any autolocation function is complete.

Repeat play between two memory points

Repeat play disregards whatever Locate Preroll Time has been entered.

To set a play loop



1 During play, capture the desired start point of loop by pressing the ▼ key. That time point will appear in the LOCATE TIME window.

You can alternatively enter the start time with the numeric keys.



2 Press STR.



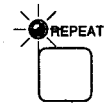
3 Press START to store the LOCATE TIME into memory as the start point of loop.



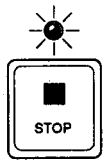
4 In a similar way, capture the end point, and store it into memory by pressing STR again then pressing END.

Note

There must be at least 5 seconds between the START and END points.



5 Press REPEAT to start repeat play.



To interrupt repeat play

Press STOP.
To resume repeat play, press PLAY.



To exit repeat play mode

Press REPEAT again.

If you press any transport control key during repeat play, the corresponding function is activated and repeat play will start again if you perform either of the following operation.

- Recall the START or END point into the LOCATE TIME window, and press LOC before or after AUTO PLAY (or, you can press PLAY after the LOC function is complete)
- Press PLAY if you are within the loop or at an earlier point than the start point.

Note

If no END point is specified, REPEAT cannot operate. If no START point is specified, repeat play will be from the beginning of the tape (00.00.00.00. ABS time) to your END memory point.

Frame Display menu (Group 1)

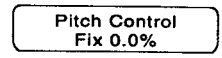
The frame display is hidden when you select "Off" at this menu. This allows you to enter seconds when using the numeric keypad. "00" is then automatically entered in the frame section though it remains hidden. This feature is not effective when machine 7 or 8 is under control.

6-4 Variable Speed Playback

The RM-D800 can control the play speed of machine 1 only.



1 During play (or before starting it), press MENU until the LCD screen reads :





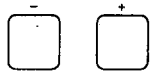
2 Press ENTER. The "Fix" will change to "Vari."



3 Each time you press the + key, the pitch will increase by 0.1%, up to a maximum of +6.0%. If you press the - key, the pitch will decrease by 0.1%, down to a minimum of - 6.0%. If you hold the key, the pitch will change fast.

To defeat the pitch change

Press ENTER after entering any pitch changes.
"Vari" will change to "Fix" to show that your pitch changes are defeated although the % figures will not be reset to "0.0%".



To clear the pitch memory

When the LCD screen reads "Pitch Control," hold the + or -key and press the other.

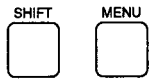
6-5 Entering a Track Delay Time

To eliminate time discrepancies between each track's beat:



1 Press MENU until the LCD screen reads :

Delay Time ch1
0000 (Fs)



The default time (0000) is displayed solid on the second line. When you enter any other numbers, they will flash. If you then press ESCAPE, your entry is cleared to the default steadily lit time.
To insert delay times in order tracks/channels, hold SHIFT and press MENU.



2 Press the + key. Each time you press the key, the display will increment in sample steps, up to a maximum of 7200 samples. To decrement the number, press the - key. You can enter a minimum of -200 samples.

1 sample (Fs) corresponds to 22.7 µs at 44.1 kHz, or to 20.8 µs at 48 kHz.



3 When the desired number has been entered, press ENTER.

The entered number will shift up to the upper line.

You can also enter track delay time in 1 millisecond steps within the limits of - 4 to 150 milliseconds (150 ms = 7200 Fs). If you like, hold SHIFT and press ESCAPE to change "Fs" to "ms." Then enter the desired time with the + and - keys, finally, press ENTER.

To set the same delay time for all tracks

First get to a "Delay Time CH1" menu as shown in Flowchart on page 4-5. Then hold down SHIFT and press MENU until the screen reads "Delay Time All", and enter the desired time with +/–, then press ENTER. When you have entered the same delay time for all tracks, the first line of "ALL" menu reads that number.

To defeat all delay time

When the screen reads "Delay Time All", hold the + or - key and press the other.

6-6 Relative Reference Time Indication

The TAPE TIME display can be switched to show elapsed time from an optionally specified point on the tape inserted in machine 1. Relative reference tine indication is available only when machine 1 is under remote control.



1 Press MENU until the LCD screen reads :

Display Time
Absolute



2 Press the +/- key.

"Relative Mode" will appear in place of "Absolute Mode."



3 Press the ▼ key when the tape reaches a point you wish to define reference point. The TAPE TIME at that moment will be read into the LOCATE TIME window. You can also enter the desired time with the numeric keys.



4 Press STR, then press 0 twice on the keypad.
"00" will appear in the MEMORY NO. window.

From now on the TAPE TIME display will give elapsed time from the time point you have just stored into the MEMORY NO. 00 register until you establish a new reference point or switch the display back to Absolute mode.

To locate the tape to your reference point

Press RCL, and press 0 twice to specify MEMORY NO. 00. The LOCATE TIME display will read 00.00.00.00. Then press LOC.

If a Locate Preroll time has been entered, the tape will be located to a point that time before your reference point.

To set a new reference point

Repeat the above procedure. Each time a new reference point is stored into memory, the previous memory is erased.

To switch the display back to Absolute time indication mode



Press MENU until the LCD screen reads:

Display Time
Absolute

Then press the +/- key to show "Absolute".

6-7 Punch-in Recording

First, check to see that the recording source is connected to the correct input connector on the rear of the PCM-800 which is currently under remote control, and in which the tape containing the portion to be corrected is inserted (i.e., into input channel 2 for punching in on track 2 etc.).

The RM-D800 can also control the punch-in recording on machine "E2" connected to the EXT2 connector.

Entering a crossfade time

Click-free punch in and out of record is ensured by a crossfade action which defaults to 10 milliseconds. If you like to have longer crossfades, follow the procedure below.



1 Press MENU until the LCD screen reads :



If any other crossfade time has locally been entered on the part of the PCM-800, that time will appear.



2 Enter numbers by pressing the + key. Each time you press the key, the number will increment by 10 ms, up to 90 ms.

To decrement the number, press the - key.

To reset the crossfade time to the default value
Press ESCAPE.



3 When the desired time is entered, press ENTER.

The entered time will shift up to the upper line.

Changing the crossfade time for all PCM-800 at one time

When "All" is selected at the "Key Mode" menu (Group 1) and you change the X-Fade Time when machine 1 is under control, the X-Fade time of all other machines is automatically changed to the same values.

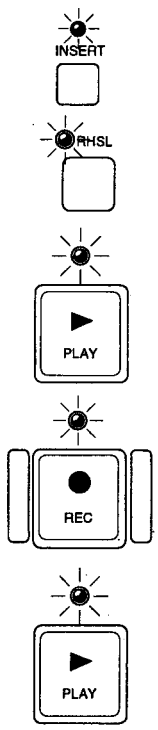
Rehearsal

Notes

- Check to see that REPEAT is not activated. If it is, press the key to turn its indicator off, or RHSL cannot operate.
- You can abort rehearsal by pressing CLEAR at any time when RHSL is flashing or lights.
- If you know the exact punch-in and out points, you can enter those time points with the numeric keys into the LOCATE TIME window, so they can be transferred to the IN and OUT memories. Otherwise, specify both points on the fly as instructed here.

1 Locate the tape to a point a few seconds before the point you want recording to start from.

2 Press REC FUNCTION of the punch-in track to flash the associated indicator, which show that the track is in Record Ready mode.



3 Press INSERT to turn on its indicator.

4 Press RHSL to flash its indicator, which shows that the selected machine is in Rehearsal Setting mode.

5 Press PLAY to start playing.

6 When the expected punch-in point is reached, press RECORD.

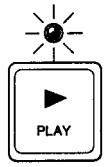
That point on the tape is stored into memory defined as the punch-in point.
Since you are in Rehearsal Setting mode, the monitor does not switch from tape to source (input).

7 When the punch-out point is reached, press PLAY.

That point on the tape is stored into memory defined as the punch-out point.

The RHSL indicator that was flashing will turn on to show that the machine is switched from Rehearsal Setting mode to Rehearsal mode.
After a 3-second postroll, the tape will be rewound and stop at a point 5 seconds before the punch-in point just set.

About the preroll and postroll time
The preroll time defaults to 5 seconds, and the postroll time defaults to 3 seconds. Both are optionally adjustable, as per instructions on the page 6-16. Note, the Locate Preroll Time (page 6-7) has nothing to do with the punch-in preroll time.



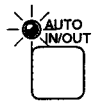
8 Press PLAY to check the punch-in and out points for accuracy.

The monitor will switch from tape to source (input) when the punch-in point is reached, and back to tape at the punch-out point. If the monitor does not switch exactly at the desired points, either repeat steps **4** to **8** or recall the punch-in/out point into the LOCATE TIME window by pressing IN/OUT after RCL, and finely tune it with UP and DOWN.

9 Practice the performance until you are sure that you will get it right when actually recording. Remember, once you punch in over existing material, that original signal is permanently erased.

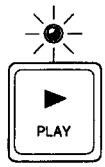
Actual, auto punch in and out

The INSERT and RHSL indicators should still light. All tracks should be in Safe mode except the ones you intend to record.



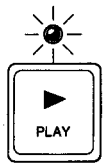
10 Press AUTO IN/OUT to flash its indicator.

The RHSL indicator that was turned on will turn off.

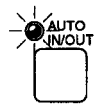


11 Press PLAY.

The tape will punch in and punch out of record at the preset points. After a 3-second (or optionally set time) postroll, the AUTO IN/OUT indicator that was flashing will turn on and the tape will be rewound and stop at the preroll start point.



To review the result
Press PLAY. The tape will play to the postroll end point, and be rewound, stopping at the preroll start point.

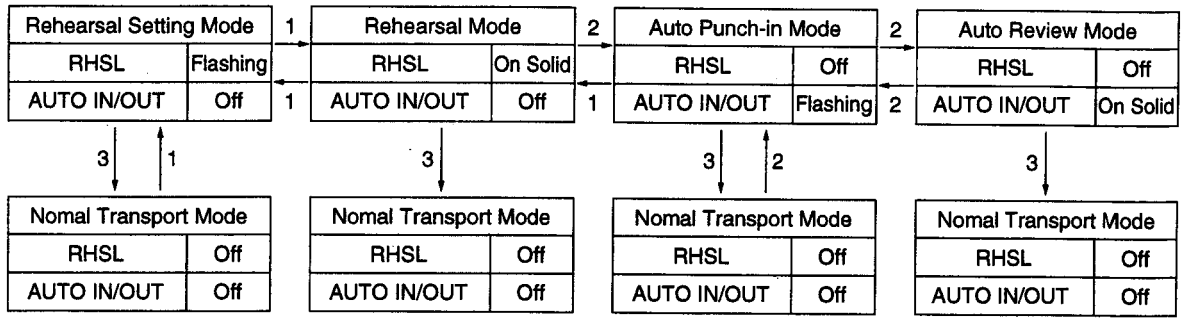


To record again using the same memory points
Press AUTO IN/OUT. Its indicator will start flashing as before, then press PLAY.



To exit AUTO IN/OUT mode
Press CLEAR.

Relationships between the punch-in related modes and the RHSL and AUTO IN/OUT indicators



1 = Press RHSL.
2 = Press AUTO IN/OUT.
3 = Press CLEAR.

Setting preroll and postroll times

The preroll time defaults to 5 seconds, and the postroll time defaults to 3 seconds.

Note

You may only enter longer times than the factory preset times, shorter times cannot be entered (i.e., you cannot enter a preroll time of 4 seconds or less or a postroll time of 2 seconds or less.)

1 Enter the desired time into the LOCATE TIME window with the numeric keys.

The pre- and postroll times can be set with second accuracy, not with frame accuracy. So, press 5, 0, 0 to enter 5 seconds. Effective entries are up to a maximum of 59 minutes, 59 seconds.



2 Press STR.



3 Press PRE (or POST) to store the time just entered into memory as the preroll (or postroll) time.

6-8 Synchronizing Multiple PCM-800s

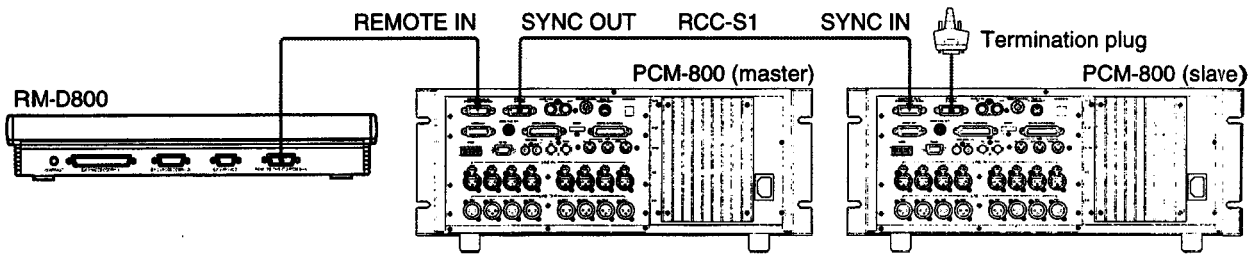
You can hook up a maximum of 16 PCM-800s and can handle a total of 128 tracks in sync without using the optional DABK-801 Interface Board or any external synchronizer/controller. .

Connections

Making sure that your whole system is turned off, connect the REMOTE OUT connector on the RM-D800 to the REMOTE IN connector on the first PCM-800, its SYNC OUT connector to the SYNC IN connector on the second PCM-800, its SYNC OUT connector to the SYNC IN connector on the third PCM-800, and so on, as shown below.

Note

Be sure to insert the provided termination plug into SYNC OUT connector on the last PCM-800.



Machine ID (identification) numbers

After having hooked up multiple PCM-800s and before turning them on, locate the MACHINE ID switch on the rear of the first PCM-800 and set it to "0"; and set the second PCM-800's switch to "1", the third PCM-800's switch to "2", and so on, in their order of sync in and out connections.

Synchronization

1 After you have appropriately connected all components of your system and numbered the machines, turn on the system.

Note

Be sure to turn on all the slave PCM-800s before the master.

CHASE

2 Press CHASE on the RM-D800.

"CHASE" will appear in the LOCATE TIME window.

(Continue)

3 Specify the machine you want to slave to machine 1 (ID-numbered 0) with the numeric keys.

If "CHASE" goes out before you enter numbers, press CHASE again.

The entered number will start flashing in the LOCK STATUS window, and the machine just selected will be autolocated to the same time point as machine 1.
If you want any or all of machines 2 to 6 to slave to machine 1, repeat steps **2** and **3** for each machine.

For other PCM-800s connected in series to be slaved, press their local CHASE key.

4 Pressing any transport key on the RM-D800 will cause the master and slaves to trigger the same function.

The LOCK STATUS number (s) will light to show the slave (s) are locked up to the master.
The LOCK STATUS number indication flashes rapidly when the slave is being located to the same time point as the master; and flashes slowly once the slave is parked at the same address as the master.

To put all slaves into chase mode, at one time

Just press CHASE and 0.
If the lowest numbered slave is not in chase mode at that moment, it will go into chase mode, and so will all other slaves. Or they will all exit the chase mode if the lowest numbered slave is in chase mode.

To disable the sync function



1 Press CHASE on the RM-D800 again. "CHASE" will again appear in the LOCATE TIME window.

2 Press a number on the keypad. The number pressed will go out from the LOCK STATUS window to show that corresponding machine can move independently of the master.

Repeat steps **1** and **2** for other slaves are required.

Controls having effect on the machine 1

When any of machine 2 to 6 is under control and in chase mode, the following controls have offset on machine 1:

STOP, PLAY, F. FWD, REW, REC, LOC, and JOG/SHUTTLE.

Consequently, the indicators associated with the those controls show the status of the master transport.

Entering an Offset



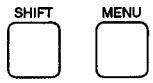
1 Press MACHINE.
"Select" will appear in the LOCATE TIME window.

2 Press 1 to select machine 1 as the master.

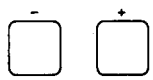


3 Press MENU until the LCD screen reads:

Machine 2 Offset
±00:00:00:00 ABS



Each time you press MENU while holding SHIFT, the machine number will change in sequence (2 to 6).



4 Enter the desired time with the + and - keys.



To move the cursor, hold SHIFT and press the +/- key.
To change the + (ahead) to - (behind) or vise versa, shift the cursor there, then press the +/- key.
If there are other machines you want to lock up to the master with offset, repeat procedure for each machine.



5 Once you have entered the desired offset time(s), press CHASE and enter the slave machine number to autolocate it to the same time point as the master. Repeat this for each slave.

From now on all your slave machines will run in sync the entered offset times ahead or behind the master, as you operate the remote transport control buttons .

To finely adjust the offset value



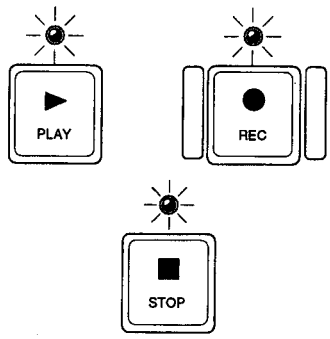
In the "Machine Offset" menu you can move the cursor to the right of the frame first digit by means of the SHIFT and +/- keys.

Machine 2 Offset
±00:00:00:00 ABS

Then if you hold down the +/- key, the frame numbers increment, and after a while, overflow, causing the second numbers to increment. Unless you release the key, the minute numbers and then the hour numbers will increment likewise.

To upload the offset time from the LOCATE TIME window

Any numbers you enter into the LOCATE TIME window using the numeric key will be uploaded to the Machine Offset menu when you hold SHIFT and press ENTER. Needless to say, you have to be at the Machine Offset menu when you press ENTER.



9 When the LOCK STATUS indicator stops flashing and lights, press MACHINE and enter 1 to put machine 1 (the source machine) under remote control. .

10 Hold REC and press PLAY on the RM-D800. The source machine will start playing, and the target machine will automatically start recording.

11 When dubbing is complete, press STOP.

To copy time code as well

(The DABK-801 Interface Board must be installed into both the source and target machines.)
Connect the time code output from the DABK-801 in the source machine to the time code input of the target machine. And before reaching step **10** above, press TC REC on the target machine.

6-9 Menus Available When a PCM-800 (Machine 1-6) is under Control

Instant Access to the Menus You Need Most Frequently

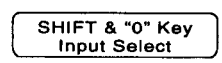
A maximum of 5 menus can be stored so you can directly access them by pressing SHIFT at the same time as a numeric key (0-4). This feature can be used when machine 1 or 9 is under control.

You can select the menus among the following:
Group 1: Input Select, Output Timing, X-Fade, Frame Display*, and Event Setting*.
Group 2: Machine Offset, Delay Time, Pitch Control, Locate Preroll*, Display Time, and Event On/Off *.
Group 3: Generate Start Time, and Generate Time
Group 4: External Time*, Abs/Rel Difference*, and Offset*

Menus marked with asterisk can be handled when either machine 1 or 9 is under control. All other menus can be handled only when machine 1 is under control.

Storing menu

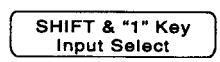
1 At the initial RM-D800 screen, press SHIFT and CLEAR (not CLR).
The screen will change to look like this:



2 Each time you press the plus (+) key, the menu names specified above will be displayed in order on the second line. To go back to the previous menu name, press the minus (–) key.

3 When the desired menu name is displayed, press ESCAPE.
You will go back to the initial RM-D800 screen.
If you have pressed ESCAPE when "Input Select" was displayed, then you can press SHIFT and 0 to directly access that menu.

4 To select another menu name, press SHIFT and MENU. The screen will change to look like this:

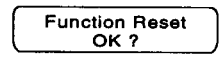


5 Repeat the procedure outlined in steps **2** and **3** above.

Function Reset Menu

Resetting the function parameters

1 Press SHIFT and CLR (not CLEAR) at the RM-D800 screen.
The display will change to look like this:

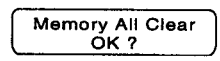


2 Press ENTER.
The following settings for the machine 1 to 6 under control are reset to their factory preset values at once:
Machine 2 Offset, Delay Time, Pitch Control, Locate Preroll and Display Time.

To cancel resetting
Press ESCAPE.
You will then go back to the RM-D800 screen.

Clearing all cue points in memory

1 Press SHIFT + MENU at the Function Reset screen above.
The display will change to look like this:



2 Press ENTER.
Every cue point stored in memories 00 to 99 for the machines 1 to 6 under control is cleared.

To cancel clearing
Press ESCAPE.
You will go back to the RM-D800 screen.

To go back to the Function Reset menu
Press SHIFT and MENU again.

6-10 Menus Related to Event

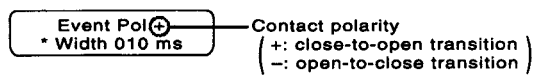
Event Output Facility

Note

To use this facility, DIP switch located inside the RM-D800 should be set properly. Consult your nearest SONY service facility.

5 Event output ports can be available using PLAY, FF, REW, STOP and REC output pins of EXT 1 connector (#1, 2, 3, 5 and 6). Each port can output a one-shot pulse twice.
Event point (time) can be selected from MEMO 01 to 99.
Event pulse width can be set from 00 to 990 ms (milliseconds) in 10 ms steps.

Menu for Setting Event



The asterisk on the second line shows that Event 1 is enabled at the Event 1 On/Off menu and that you cannot change the current Pol and Width settings. If you wish to change the current settings, go to the Event On/Off menu screen first, and select "Off".

Event setting

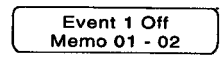
1 Specify all the parameters using the + and – keys.
To move the cursor, hold down SHIFT and press + or –.

2 When the screen is satisfactory, press ENTER.
Each time you press MENU, you have access to the next Event menu.

3 To go to another setting screen, press SHIFT and MENU as many times as required.

4 Repeat the steps **1** and **2** for that Event.

Menu for Enabling the Event Settings



1 Using the plus(+) and minus(–) keys, enter a first shot point into where the 01 is currently displayed, and a second shot point into where the 02 is currently displayed.
The event pulse corresponding to the MEMO registers specified will be output.

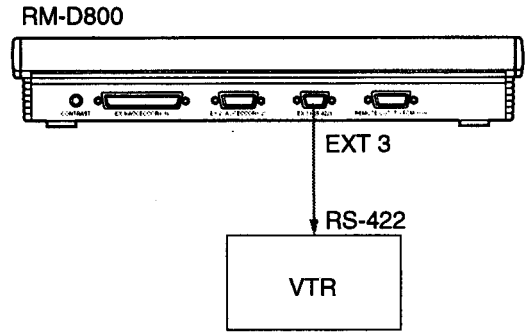
2 Press ENTER to change the "Off" to "On". (Pressing the key one more time reverts the display to "Off".)

6-11 Controlling VTRs from the RM-D800

Connections

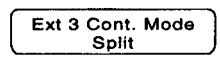
You can connect any VTR following the 9-pin serial protocol.

First, check to see that your VTR is turned off.
Then, connect the RS-422 connector on the VTR to the remote EXT 3 connector.



Machine selection

Press MACHINE. Then press 9 on the keypad.
"E3" will light up in the MACHINE window, and the LCD screen will read:



In the Split mode you can put the PCM-800 into the record mode from the RM-D800 while your VTR is also controlled from the RM-D800 except for the record function and record keys.

If you do not need this function, press + or -. The "Split" will change to "Normal".

Notes for both in split and normal modes

- Once an IN or OUT point has been stored, if you press IN or OUT, the corresponding indicator will light up in the MEMORY POINT window and that point is read into the LOCATE TIME from memory.
- If, when no MEMORY NO. is displayed, you press CUE STR during play, the TAPE TIME display at that moment is stored into the lowest memory register available.
  If a MEMORY NO. is displayed, say "02" for example, the captured time is stored into the "03" memory register.
- You can jog the VTR from the RM-D800 but at a maximum of normal play speed.
- Settings at the "Locate Preroll" menu are effective on the VTR as well.

- AUTO PLAY acts as a Timer 1 Reset key. If pressed, when the TAPE TIME display is in Timer 1 mode, the display is cleared and shows zero.

Operation in the split mode

1 Select the PCM-800 track to be recorded by pressing the REC FUNCTION key. The associated indicator starts flashing.

2 Start the playback on the VTR from the RM-D800 by pressing PLAY.
It lets the PCM-800 lock to the VTR. The LOCK STATUS "1" indicator will light when the PCM-800 is locked.

3 Press only RECORD.
Record-enabled track enters the record mode. The REC FUNCTION indicator which was flashing turns on. The VTR will play continuously.

4 To exit the record mode, press RECORD again.

Notes

- Instead of steps **1** to **3**, you can press RECORD then the desired track's REC FUNCTION.
- "Ext 3 Timer Mode" menu: This allows you to toggle the TAPE TIME display between Time Code and Timer 1 modes by pressing the + or – key.

Punch-in recording referenced to a picture

1 Select machine EXT 3 by pressing "MACHINE" then "9" on the numeric keypad.

2 Press SHIFT and GROUP to access the "Ext 3 Cont. Mode" menu, and select "Split".

3 Press MENU to access the "EXT 3 Timer Mode" menu, and select "Time Code".

4 Press GROUP then press MENU as many times as necessary to access the "Locate Preroll" menu, and enter the desired preroll time.

5 If an offset is necessary, get the "T/C: offset" menu with MENU, and enter the desired offset value.

6 Press CHASE then 1.
The PCM-800 (machine 1) will be located to the same time code point as the VTR.

Setting punch-in and out points

7 Use one of the following three procedures:

A. By cueing up the VTR

(1) Use the JOG/SHUTTLE dial to locate the VTR to the point where you want the PCM-800 to drop into record.

(2) Hold IN and press STR.
The cued-up time code point (displayed in the TAPE TIME window) is stored in the VTR, as well as in the PCM-800.

(3) Use the JOG/SHUTTLE again to locate the desired punch-out this time.

(4) Hold OUT and press STR to store the cued-up point.

B. Using the RECORD key

(1) Check to see that no REC FUNCTION key is pressed.

(2) Press PLAY to let the VTR start to play.

(3) Watch the video picture, and at the desired moment, press RECORD.
The time code point shown in the TAPE TIME window at this moment is stored as the punch-in point, both in the PCM-800 and VTR.

(4) Press RECORD again at the desired moment to select the punch-out point.

C Using the numeric keypad

Use this procedure if the necessary punch-in and out points are known to you.

(1) Enter the desired punch-in point into the LOCATE TIME window using the numeric keypad.

(2) Press STR, then IN.
The entered point is stored both in the PCM-800 and VTR.

(3) Enter the desired punch-out point on the numeric keypad.

(4) Press STR, then OUT to store the point.

(Continued)

Selecting a punch-in track

8 Once the punch-in and out points are stored, press the REC FUNCTION key that corresponds to the punch-in track.
The track will be record-enabled, as confirmed by the associated flashing indicator.

Rehearsal

9 Press INSERT, then RHSL.
The RHSL indicator will flash and the VTR will be fast-forwarded on its way to the punch-in point.

10 Once the LOCK STATUS "1" indicator stops flashing rapidly and starts to flash slowly, press PLAY to start the VTR. The PCM-800 will then start to run in rehearsal mode, allowing you to monitor the punch-in and out points for accuracy.
If you are not satisfied with the current punch-in and out points, press RHSL to turn off its indicator, then go back to step **7**.

Actual recording

11 Press AUTO IN/OUT.
Its indicator will start to flash, and the VTR will be fast-forwarded on its way to the punch-in point.

12 Only when the LOCK STATUS "1" stops to flash rapidly and starts to flash slowly, press PLAY to have the VTR to start to play.
The PCM-800 will automatically drop into and out of record at the selected points.

While in Split Mode the following keys have effect on machine 1:
ALL INPUT, AUTO INPUT, INSERT, RHSL, AUTO IN/OUT, ALL SAFE, REC READY, CLOCK, and TC REC.

Numbers you enter into the LOCATE TIME window with the numeric keys are also stored in the PCM-800 when you press STR then IN or OUT.

Operation in normal mode

- Pressing RECORD on the RM-D800 drops the VTR into Audio Insert record mode only.
- If you hold IN or OUT and press STR, the RM-D800 transmits an in or out entry command to the VTR.
  Each time you press the UP/DOWN key, the corresponding point stored in the VTR moves forward or backward in 1 frame increments.
- The REC FUNCTION 1 and 2 keys put the VTR into its Audio 1 and 2 Insert modes, respectively.

T/C mode menu

This menu allows you to switch the RM-D800 to the same frame rate as your VTR. Each time you press the + or - key in this menu, the frame rate will change as follows in sequence:

- 30 Frame
- 29.97 Drop Frame
- 25 Frame
- 24 Frame

Remote functions changed/limited

REC FUNCTION keys

34 : Puts the VTR into Assemble mode.
36 : Puts the machine into Video Insert mode.
37 : Puts the machine into Audio 1 Insert mode.
38 : Puts the machine into Audio 2 Insert mode.
48 : If pressed, when the TAPE TIME display is in Timer 1 mode, the display is cleared and shows 00.00.

Note

Keys 36, 37 and 38 cannot operate when key 34 is activated. Inversely, key 34 cannot operate when key 36, 37 or 38 is activated.

All other REC FUNCTION keys has no effect.

ALL SAFE/REC READY key

Toggles Standby mode on and off on the VTR.

ALL INPUT key

Toggles FULL EE mode on and off on the VTR.

AUTO INPUT key

Toggles SEL EE mode on and off on the VTR.

AUTO INPUT can operate only when REC FUNCTION key 34, 36, 37 or 38 is activated.

JOG/SHUTTLE key
Puts your VTR into Still mode, and allows you to use the JOG/SHUTTLE dial.

DOWN/UP keys
When your IN memory point is recalled in the LOCATE TIME window, each time you press UP while holding IN, the memory point will increment by 1 frame. To decrement the memory point, press DOWN while holding down IN. Your OUT memory point can also be finely tuned in a similar way.

RHSL key
Puts the VTR into Preview mode.

Note

This key has no effect on Sony BVU-800 series machines.

AUTO IN/OUT key
Puts the VTR into Auto Edit mode.

Note

This key has no effect on Sony BVU-800 series machines.

REPEAT key
Puts the VTR into Review mode.

Pressing this key again after once Review starts, your VTR will switch to Out Point Monitor.

CLR key
When pressed, the LOCATE TIME display is cleared and shows 00.00.
If you hold IN/OUT and press CLR, the auto in/out point memory is cleared.

6-12 Remote Functions Operative/Not Operative

When SONY VTRs are put under remote control, the following cannot operate unless otherwise noted:

Keys on the RM-D800	VTR
±	YES
+/–	YES
▼	YES
ALL INPUT	YES [1]
ALL SAFE/REC READY	YES [1]
AUTO INPUT	YES [1]
AUTO PLAY	NO
CLEAR	NO
CLOCK	NO
CUE STR	YES
DOWN/UP	YES
END	NO
ENTER	NO
ESCAPE	NO
GROUP	NO
IN	YES
INSERT	NO
JOG/SHUTTLE key	YES
JOG/SHUTTLE dial	YES
MENU	NO
OUT	YES
POST	NO
PRE	NO
REC FUNCTION	YES [1]
SHIFT	NO
START	NO
T/C REC	NO

YES [1] : Operative, but functions limited or changed, as specified in the section "Controlling VTRs from the RM-D800"

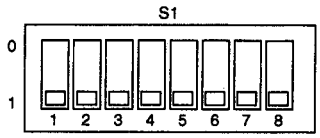
Appendixes

DABK-801 Setting for MIDI Control A-2
MIDI Diagrams A-5
Error Messages A-8
Specifications A-9

DABK-801 Setting for MIDI Control

Note

The user should not attempt to adjust any DIP switches or other parts inside the enclosure.
For all internal adjustment, consult qualified service personnel.



S1: on the rear panel of the DABK-801

"0" indicates that the lever is up and,
"1" indicates that the lever is down.

S2

"0": the side of the switch marked "ON"
"1": the other side

MTC output

S2-8 determines the MTC output mode.
S2-8 = 1: the DABK-801 does not output MTC
S2-8 = 0: the DABK-801 outputs MTC
This is the initial condition at the power is on. If an MIDI TIME CODE COMMAND comes later, the MTC output status will be changed.

Commands

09: PAUSE

The PCM-800 enters the STOP mode as well as when it receives an MMC Stop command.

4A: GENERATOR COMMAND

The DABK-801 can operate 00: Stop and 01: Run, while it cannot operate 02: Copy/Jam.

Information fields

4C: RECORD MODE

The RECORD MODE setting affects only MMC record commands. Record commands from PCM-800 front panel or the RM-D800 will not be affected.

51: RECORD MONITOR

Relations between each mode and the PCM-800 status are shown below.

	PCM-800 Status	
Mode	AUTO INPUT	INSERT
00	OFF	ON
01	ON	ON
02	ON	OFF

55: PLAY SPEED REFERENCE
Cannot be set via MIDI.
Returned data for a READ command will be
00 when the PCM-800 clock source is Internal, or
01 when the PCM-800 clock source is Word or Video.

59: RESOLVED PLAY MODE
Cannot be set via MIDI.
Returned data for a READ command will be
00 (Normal) when S1 bit No. 7 is "1", or
01 (Free Resolve mode) when S1 bit No. 7 is "0".

5A: CHASE MODE
Cannot be set via MIDI.
Returned data for a READ command will be
00 (Absolute Standard mode) when S1 bit No. 3 is "1", or
01 (Free Resolve mode) when S1 bit No. 3 is "0".

5C: GENERATOR SETUP
The "Frame Sync Reference for Run mode" cannot be set via MIDI.

5E: MIDI TIME CODE COMMAND TALLY
The initial condition at the power up is determined by the DIP switch. If an MIDI TIME CODE COMMAND comes later, the MTC output status will be changed.

S2-8 = 1 mm=00 the DABK-801 does not output MTC
S2-8 = 0 mm=02 the DABK-801 outputs MTC

5F: MIDI TIME CODE SETUP
MTC flags
a= "Transmit while stopped"
The initial condition is
"1" (Continue transmission) when S2-6 = 0, or
"0" (No MTC output while stopped) when S2-6 = 1.
Can be changed via MMC.
b= "Stopped" data type
Always "1" (full message).
Cannot be changed.
c= "Transmit while fast"
"1" (Continue transmission) when S2-7 = 0, or
"0" (No MTC output while stopped) when S2-7 = 1.
Can be changed via MMC.
d= "Fast" data type
Always "1" (full message).
Cannot be changed.
e= "Transmit user bits"
Always "0" (Inhibit).
Cannot be changed.

f= "MMC Response cable mute"
Always "0" (MTC will be transmitted on the MMC Response cable).

Time Code Source
Cannot be changed via MIDI.
Returned data for a READ command will be as follows.
When the generator on the DABK-801 is stopped,
01 (Selected Time code) if S1 bit No. 6=1, or
02 (Selected Master code) if S1 bit No. 6=0
or when the DABK-801 generator is running,
06 (Generator Time Code).

Device Numbers

To yield the DABK-801 to controllers with MMC standard, you have to number the DABK-801 the same as on the part of the controller in use.

Device numbers (also called channel numbers, device ID numbers or others) you can assign to the DABK-801 is from 1 to 16 depending on the setting of the internal switch of the DABK-801.

If the device numbers your controller can handle start from 0 (not from 1), add 1 to the device number you assigned to the DABK-801 on the part of your controller. The sum is the device number selected by the internal switch (e.g. if you assign 1 to the DABK-801 on the part of the controller, the DABK-801 must be numbered 2 on the part of the DABK-801.

If you use a single controller to control multiple units with MMC standard, each of them must have a different device number. The same is also true for the same model units (e.g. if two or more DABK-801s are connected to your controller, you have to assign a different number to each of them as you will do on the part of the controller).

Through its MIDI connectors the DABK-801 can:

- Send MTC for interfacing SMPTE/EBU code-based units to MIDI units.
- Send and receive MMC commands for the PCM-800/DABK-801 system to be controlled from units following MMC standards.

Bit map array of MMC commands

Byte	Bit 7	Bit 6 (40H)	Bit 5 (20H)	Bit 4 (10H)	Bit 3 (08H)	Bit 2 (04H)	Bit 1(02H)	Bit 0(01)
c0	- 0	(06) RECORD STROBE	(05) REWIND	(04) FAST FORWARD	(03) DEFERRED PLAY	(02) PLAY	(01) STOP	(00) reserved
c1	- 0	(0D) MMC RESET	(0C) COMMAND ERROR RESET	(0B) CHASE	(0A) EJECT			(07) RECORD EXIT
c2	- 0	(14)	(13)	(12)	(11)	(10)	(0F)	(0E)
c3	- 0	(1B)	(1A)	(19)	(18)	(17)	(16)	(15)
c4	- 0	- 0	- 0	- 0	(1F)	(1E)	(1D)	(1C)
c5	- 0	(26)	(25)	(24)	(23)	(22)	(21)	(20)
c6	- 0	(2D)	(2C)	(2B)	(2A)	(29)	(28)	(27)
c7	- 0	(34)	(33)	(32)	(31)	(30)	(2F)	(2E)
c8	- 0	(3B)	(3A)	(39)	(38)	(37)	(36)	(35)
c9	- 0	- 0	- 0	- 0	(3F)	(3E)	(3D)	(3C)
c10	- 0		(45) VARIABLE PLAY	(44) LOCATE	(43) UPDATE	(42) READ		(40) WRITE
c11	- 0	(46) SEARCH	(4C) MOVE		(4A) GENERATOR COMMAND			(47) SHUTTLE
c12	- 0	(54) DEFERRED VARI.PLAY		(52) GROUP	(51) EVENT	(50) PROCE-DURE		
c13	- 0	(5B)	(5A)	(59)	(58)	(57)	(56)	(55) REC STROBE VARIABLE
c14	- 0	- 0	- 0	- 0	(5F)	(5E)	(5D)	(5C)
c15	- 0	(66)	(65)	(64)	(63)	(62)	(61)	(60)
c16	- 0	(6D)	(6C)	(6B)	(6A)	(69)	(68)	(67)
c17	- 0	(74)	(73)	(72)	(71)	(70)	(6F)	(6E)
c18	- 0	(7B)	(7A)	(79)	(78)	(77)	(76)	(75)
C19	- 0	- 0	- 0	- 0	(7F) RESUME	(7E)	(7D)	(7C) WAIT

Bit map array of responses/information fields

Byte	Bit 7	Bit 6 (40H)	Bit 5 (20H)	Bit 4 (10H)	Bit 3 (08H)	Bit 2 (04H)	Bit 1(02H)	Bit0(01)
r0	- 0	(06) GENERATOR TIME CODE	(05) LOCK DEVIATION	(04) ACTUAL OFFSET	(03) REQUESTED OFFSET	(02) SELECTED MASTER CODE	(01) SELECTED TIME CODE	(00) reserved
r1	- 0	(0D) GP5	(0C) GP4	(0B) GP3	(0A) GP2	(09) GP1	(08) GP0/LOCATE POINT	
r2	- 0	(14)	(13)	(12)	(11)	(10)	(0F) GP7	(0E) GP 6
r3	- 0	(1B)	(1A)	(19)	(18)	(17)	(16)	(15)
r4	- 0	- 0	- 0	- 0	(1F)	(1E)	(1D)	(1C)
r5	- 0	(26) Short GENTOR TIME CODE	(25) Sh't LOCK DEVIATION	(24) Sh't ACTUAL OFFSET	(23) Sh't REQ'D OFFSET	(22) Short SEL'D MASTER CODE	(21) Short SEL'D TIME CODE	(20) reserved
r6	- 0	(2D) Short GP5	(2C) Short GP4	(2B) Short GP3	(2A) Short GP2	(29) Short GP1	(28) Short GP0 LOCATE POINT	
r7	- 0	(34)	(33)	(32)	(31)	(30)	(2F) Short GP7	(2E) Short GP6
r8	- 0	(3B)	(3A)	(39)	(38)	(37)	(36)	(35)
r9	- 0	- 0	- 0	- 0	(3F)	(3E)	(3D)	(3C)
r10	- 0		(45) VARIABLE PLAY	(44) CMD ERROR LEVEL	(43) COMMAND ERROR	(42) RESPONSE ERROR	(41) UPDATE RATE	(40) SIGTURE
r11	- 0	(4D) RECORD STATUS	(4C) MOVE			(49) VELOCITY TALLY	(48) MOTION CTL TALLY	
r12	- 0				(51) RECORD MONITOR	(50) GLOBAL MONITOR	(4F) TRACK REC READY	(4E) TRACK REC STATUS
r13	- 0	(5B) GENERATOR CMD TALLY	(5A)	(59) RESOLVED PLAY MODE				(55) PLAY SPEED REFERENCE
r14	- 0	- 0	- 0	- 0				(5C) GENERATOR SETUP
r15	- 0	(66)	(65) FAILURE					(60) PROCEDURE RESPONSE
r16	- 0	(6D)	(6C)	(6B)	(6A)	(69)	(68)	(67)
r17	- 0	(74)	(73)	(72)	(71)	(70)	(6F)	(6E)
r18	- 0	(7B)	(7A)	(79)	(78)	(77)	(76)	(75)
R19	- 0	- 0	- 0	- 0	(7F) RESUME	(7E)	(7D)	(7C) WAIT

DABK-801
MIDI implementation chart

Function...		Transmitted	Recognized	Remarks
Basic	Default	×	×	
Channel	Changed	×	×	
Mode	Default	×	×	
	Messages	×	×	
	Altered	**********	×	
Note		×	×	
Number:	True voice	**********	×	
Velocity	Note ON	×	×	
	Note OFF	×	×	
After	Key's	×	×	
Touch	Ch's	×	×	
Pitch Bend		×	×	
Control Change		×	×	
Prog		×	×	
Change:	True #	**********	×	
System Exclusive		○	○	*1
	: Song Pos	×	×	
Common	: Song Sel	×	×	
	: Tune	×	×	
System	: Clock	×	×	
Real Time	: Commands	×	×	
	: Local ON/OFF	×	×	
Aux	: All Notes OFF	×	×	
Messages	: Active Sense	×	×	
	: Reset	×	○	
Notes		*1 MMC RP Ver 1.00 (T, R) Identity Request (R), Identity Reply (T) MTC Quarter Frame Message (T)		
(T) : Transmitted (R) : Recognized				

Mode 1: OMNI ON. POLY Mode 2: OMNI ON. MONO ○ : YES
Mode 3: OMNI OFF. POLY Mode 4: OMNI OFF. MONO × : NO

Error Messages

E.CLOC	No clock is coming in. Or, the CLOCK key is not set to match an incoming clock. Check also if the slave machines (ID-numbered 1-15) are correctly connected in series through their SYNC IN/OUT connectors, and if the master is ID-numbered 0.
E.t.cut	The tape has broken. The only remedy is replacement of the tape .
E.d io	The DIGITAL IN/OUT port is accidentally unplugged.
E.dE	Condensation occurred on the head drum. Leave the machine for 1 or 2 hours with the power switched on until it stabilizes at the temperature of its operating environment.
E.HI-8.t	A different tape from the Hi8 is inserted. Use Hi8 tapes only.
E.th in.t	The tape inserted is too thin (less than 8μm). Use P6/E6-120 (or P5/E5-90) or shorter tapes.
S-Err 8	This shows the incident of error in the mechanics (the "8" is variable). If this message appears, switch the power off, then switch it on again. If the message does not go out, repeat the on/off switching or try ejecting and reinserting the tape several times. If all attempts are of no avail, please contact Sony or your nearest Sony dealer.

With the DABK-801 installed

E.t.codE	A different time code than your selection is coming in. Either select or input the matching time code, depending on the situation.
no.t.codE	No time code is coming in. Check if time code is correctly connected and the external machine is sending time code.
no.Abs-t	You tried to record time code on an unformatted tape or in an unformatted section. Time code recording is automatically disabled.

WARNING indicator

This indicator lights to indicate the following:

- Condensation on the head drum
- Tape has broken
- DIGITAL IN/OUT port accidentally disconnected
- External clock not coming in correctly
- No time code input (when the optional DABK-801 is installed)
- Time code setting not matched the type of incoming code (when the optional DABK-801 is installed)

If the indicator lights, check to see whether error messages specify the problem in the display.

Specifications

General

Power requirements	
USA/Canada	120 V AC, 60 Hz
Europe	230 V AC, 50 Hz
Power consumption	90 Watts
Dimensions (W × H × D)	482 mm × 197 mm × 377 mm (19 × 7 3/4 × 14 3/16 inches)
Mass	14 kg (31 lb)

Transport section

Recording format	4-rotary head digital recording
Tape used	Hi8 video tape
Number of channels	Eight plus subcode area
Recording time	108 minutes using P6/E6-120 tape 113 minutes using P5/E5-90 tape
Tape speed	15.9 mm per second
Fast forward /rewind time	Less than 90 seconds at P6/E6-120 tape (100 times play speed)
Shuttle speed	1/4 to 8 times play speed

Inputs and outputs

Digital input	25-pin D-sub × 1
Digital output	25-pin D-sub × 1
Word sync output	BNC connector × 1
Analog input	XLR connector × 8, +4 dBm (+19.5dBu max.), 10k ohms (balanced)
Analog output	XLR connector × 8, +4 dBm (+19.5dBu max.), 75 ohms (balanced)
Sync input	15-pin D-sub connector × 1
Sync output	15-pin D-sub connector × 1
Word sync input	BNC connector × 1
Word sync output	BNC connector × 1
Remote input	8-pin DIN connector × 1
Remote punch in/out	1/4" phone jack × 1

Audio characteristics

Sampling frequency	44. 1kHz/48 kHz
Quantization	16-bit linear
Pitch control	+/-6% in 0.1 % increments
Frequency response (record and play)	20 Hz to 20 kHz, +/-0.5 dB
Dynamic range	More than 92 dB (at 1kHz, maximum input level)
Wow and flutter	Less than measurable limits
Total harmonic distortion	0.007% (at 1kHz, –0.5 dB full bit)

Supplied accessories

Power supply cable
Cleaning cassette
Operation manual

DABK-801 inputs and outputs

General

Type	Slot-in mount

Input and output

Time code input (RCA jack)

Impedance	10k ohms
Level	0.2 Vp-p to 5.0 Vp-p
Formats supported	SMPTE 30, 29.97 Drop, 29.97 Non Drop, EBU 25, and Film 24 Frames/second

Time code output (RCA jack)

Impedance	1k ohms
Output level	2 Vp-p (can be set for 0.6 Vp-p)
Formats supported	SMPTE 30, 29.97 Drop, 29.97 Non Drop, EBU 25, and Film 24 Frames/second

Video Input/Thru BNC connectors

Type	NTSC or PAL; Negative sync composite video or sync composite video signal
Level	1 Vp-p, +/-0.2

MIDI input/output/thru	5-pin DIN connector × 3
RS-422	9-pin D-sub Conforms to RS-422 specifications

Supplied accessories

Shield panel
Screws
Operation guide

RM-D800

General

Dimensions	372 × 63 × 220mm (w/h/d) (14 5/8 × 2 1/2 × 8 11/16 inches)
Mass	2.5kg (5 lb 8oz)

Interface connectors

EXT 1	37-pin D-sub × 1
EXT 2	15-pin D-sub × 1
EXT 3	9-pin D-sub × 1 Conforms to RS-422 specifications
REMOTE OUT	15-pin D-sub × 1

Supplied accessories

Remote control cable (5m)
Termination plug
Operation guide

Design and specification are subject to change without notice.

RM-D800

General

Dimensions	372 × 63 × 220mm (w/h/d) (14 5/8 × 2 1/2 × 8 11/16 inches)
Mass	2.5kg (5 lb 8oz)

Interface connectors

EXT 1	37-pin D-sub × 1
EXT 2	15-pin D-sub × 1
EXT 3	9-pin D-sub × 1 Conforms to RS-422 specifications
REMOTE OUT	15-pin D-sub × 1

Supplied accessories

Remote control cable (5m)
Termination plug
Operation guide

Design and specification are subject to change without notice.

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