

# **YAMAHA**

**Digital Mixing Processor**  
**PROCESSEUR DE MIXAGE NUMERIQUE**  
**Digitaler Mischprozessor**

# **DMP7D**

*Operation manual*  
*Manuel d'utilisation*  
*Bedienungsanleitung*

***Congratulations on your acquisition of a Yamaha DMP7D Digital Mixing Processor.***

***The Yamaha DMP7D Digital Mixing Processor is an all-digital mixing and signal-processing system that offers direct digital interfacing to virtually all types of digital recording and processing equipment. It effectively integrates an 8 x 2 digital line-level mixer with sophisticated digital effects capability. Each and every parameter – from fader positions to effects and EQ settings – is fully programmable. Up to 30 complete system configurations can be stored in internal memory and recalled at the touch of a key for instant "scene" changes. External RAM cartridges provide an extra 67 memories. What's more, the DMP7D is MIDI compatible. MIDI program change commands from external equipment can be used to automatically switch scenes, or a MIDI sequence recorder can be used to store mixdown and effects change operations in real time. If 8 inputs aren't enough for your requirements, the DMP7D permits digital cascading of 2 or more units. The DMP7D is both a revolutionary production tool and "musical instrument" in its own right. In one compact, easy-to-use unit it offers more creative potential than has ever been offered in this field, and direct digital interfacing makes it a perfect match for the most advanced music and sound production applications.***

***In order to take full advantage of the tremendous potential offered by the DMP7D, we urge you to read this operation manual thoroughly, and keep it in a safe place for later reference.***

#### **FCC CERTIFICATION (USA)**

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna.  
Relocate the equipment with respect to the receiver.

Move the equipment away from the receiver.  
Plug the equipment into a different AC power outlet so that it and the receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to identify and Resolve Radio-TV interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

## DMP7D Features

- **Compatibility with All Digital Formats**

The DMP7D offers direct digital to virtually all types of professional digital recorders, processing units, and home-use DAT recorders. A range of interface units is available for broad input compatibility, while full output compatibility is provided directly via the DMP7D's output connectors.

- **A Wide Range of Options**

In addition for interface units which allow connection to virtually all types of digital recorders, Yamaha offers A/D and D/A converter units for full analog-digital compatibility.

- **Selectable 44.1 kHz/48 kHz Sampling Frequencies**

Switchable sampling frequencies provide compatibility with equipment that uses either frequency.

- **3 Digital Effects Systems**

The DMP7D provides 3 effect sends (loops), each of which contains a high-performance internal digital multi-effect processor. Effects Sends 1 and 2 each provide access to 17 different effects including reverb, gate reverb, delay, echo, flange, phasing, tremolo and symphonic. Individual parameters controlling each effect may also be programmed. Effect Send 3 can feed either a 5-effect internal system or external signal processing devices via effect send and return patch points on the rear panel.

- **Reliable Multi-function Motorized Faders**

The channel, master, effect return and data entry faders are all motorized and digitally controlled. Like all other DMP7D parameters, fader settings can be memorized and recalled as needed. The faders physically move to the programmed positions, allowing visual confirmation of the mix.

- **Versatile Digital EQ**

Each DMP7D channel offers a versatile 3-band digital equalizer. Each band permits frequency control, 15dB of boost or cut, and bandwidth (Q) adjustment over a broad 0.1–5.0 range. The high and low bands also offer peaking or shelving response selection.

- **Internal Stereo Compressor**

A separate digital stereo compressor system is internally provided for the stereo buss. Stereo compression of the master stereo signal is a must for many applications. With the DMP7D this capability is built-in.

- **Memory**

The DMP7D features 30 internal memory locations which can store all console parameters. You can program and store 30 completely different processing configurations or "scenes," and recall them instantly whenever necessary. A cartridge slot is provided for an external Yamaha RAM4 memory cartridge which can store 67 additional configurations.

- **MIDI Control Capability**

Stored configurations can be selected simply by sending the appropriate MIDI program change number to the DMP7D. It can even be connected directly to a MIDI sequence recorder for real-time storage and playback of mixing and processing operations. For complicated sequences involving simultaneous fades, EQ changes, etc., each operation can be individually overdubbed on the sequence recorder. Then you simply play back the sequence as you would with any other MIDI compatible musical instrument, and the entire mixing/signal processing sequence is recreated in fine detail.

- \* SOLO mode for individual channel monitoring.
- \* Programmable stereo panning control.
- \* Effect, channel and stereo master peak meters.
- \* 16 character x 2 line LCD display.
- \* 2-digit 7-segment LED memory number display.
- \* Memory protection.
- \* Foot-pedal output level control.  
( by optional FC7 )
- \* MIDI bulk dump capability.

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# PRECAUTIONS

## 1. AVOID EXCESSIVE HEAT, HUMIDITY, DUST AND VIBRATION

Keep the unit away from locations where it is likely to be exposed to high temperatures or humidity—such as near radiators, stoves, etc. Also avoid locations which are subject to excessive dust accumulation or vibration which could cause mechanical damage.

## 2. AVOID PHYSICAL SHOCKS

Strong physical shocks to the unit can cause damage. Handle it with care.

## 3. DO NOT OPEN THE UNIT OR ATTEMPT REPAIRS OR MODIFICATIONS YOURSELF

This product contains no user-serviceable parts. Refer all maintenance to qualified Yamaha service personnel. Opening the unit and/or tampering with the internal circuitry will void the warranty.

## 4. MAKE SURE POWER IS OFF BEFORE MAKING OR REMOVING CONNECTIONS

Always turn the power OFF prior to connecting or disconnecting cables. This is important to prevent damage to the unit itself as well as other connected equipment.

## 5. HANDLE CABLES CAREFULLY

Always plug and unplug cables—including the AC cord—by gripping the connector, not the cord.

## 6. CLEAN WITH A SOFT DRY CLOTH

Never use solvents such as benzine or thinner to clean the unit. Wipe clean with a soft, dry cloth.

## 7. ALWAYS USE THE CORRECT POWER SOURCE

Make sure that the power source voltage specified on the rear panel matches your local AC mains source.

U.S. & Canadian models : 120V AC (105~130V),  
60 Hz  
General model : 110-120/220-240V AC  
( $\pm 10\%$ ), 50/60 Hz

## 8. ELECTRICAL INTERFERENCE

Since the DMP7D contains digital circuitry, it may cause interference and noise if placed too close to TV sets, radios or similar equipment. If such a problem does occur, move the DMP7D further away from the affected equipment.

## 9. BACKUP BATTERY

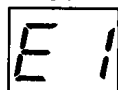
The DMP7D's internal memory is maintained by a long-life (approx. 5 years) lithium battery. Have the battery replaced by a qualified Yamaha service center when its voltage drops below 2.5 volts. See "BATTERY CHECK" on page 32 for details.

## 10. ERROR MESSAGES

A routine check of internal ROM and RAM operation is automatically carried out each time the DMP7D power switch is turned ON. If an error is detected during this operation, one of the following displays will appear on the memory number display. If one of these error messages appears after the DMP7D is turned ON, have it checked by qualified Yamaha service personnel.



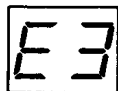
MAIN ROM ERROR



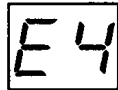
MAIN RAM ERROR (CPU INTERNAL)



MAIN RAM ERROR (CPU EXTERNAL)



SUB ROM ERROR



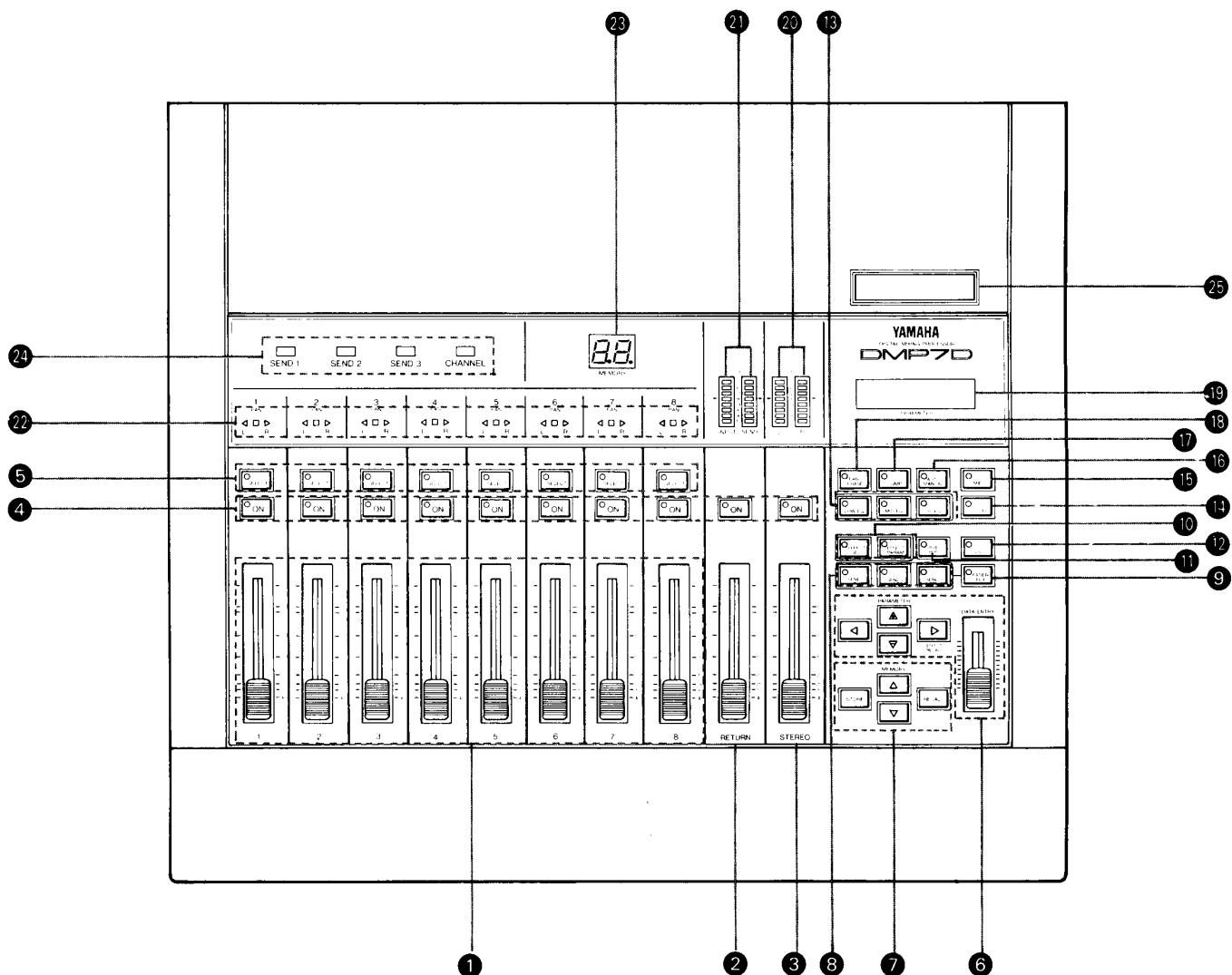
SUB INTERNAL RAM ERROR



SUB EXTERNAL RAM ERROR

# CONTROL PANEL AND CONNECTIONS

## CONTROL PANEL



### 1 Channel/Effect Send Faders

Depending on the selected mode, these 8 faders function as level controls for the DMP7D's 8 input channels, or as effect send level controls for the corresponding channels. The faders are high-reliability motorized types, with a sure, solid operational feel.

### 2 Effect Return Fader

Adjusts effect return level for the DMP7D's 3 effect systems. The active effect loop is selected by the Effect Send Select keys (8).

[Detailed instructions on page 17]

### 3 Stereo Master Fader

This is the main stereo program fader, controlling the overall level of the master stereo output buss.

#### 4 Channel ON keys

These keys function in the same way as channel ON/OFF keys on a conventional mixer, turning the corresponding channel ON or OFF. When the ON key LED is lit, that channel is ON. When the ON key LED is out, that channel is OFF and its signal will not be applied to the master stereo or effects busses. The ON keys on the effects return and stereo program strips function in a similar way. The stereo output ON key turns the mixer's stereo output ON or OFF, while the effects return ON key is used to individually turn the DMP7D's 3 effect loops ON or OFF.

[Detailed instructions on page 13]

#### 5 Channel Select Keys

The SELECT keys at the top of each input channel allow selection of a single channel for programming via the programming keys to the right of the control panel. A channel must be selected using its SELECT key in order to program PAN, PHASE, EQ, and other parameters.

#### 6 Parameter Keys & Data Entry Slider

The group of 4 PARAMETER keys and the DATA ENTRY slider are the DMP7D's main programming tools. These are used to select parameters for programming as well as to set the values of the selected parameters.

#### 7 Memory Keys

The group of 4 MEMORY keys allows selection of the DMP7D's 30 internal memory locations and 67 external RAM 4 cartridge locations for storage and retrieval of data.

[Detailed instructions on page 24]

#### 8 Effect Send Select Keys

These keys are used to select any one of the DMP7D's three effect send systems.

[Detailed instructions on page 16]

#### 9 Fader Flip Key

The FADER FLIP key switches the function of the 8 channel faders between channel level control and effect send level control. When the FADER FLIP key LED is off, the faders function as channel level controls. When the FADER FLIP key LED is ON, the faders function as effect send levels controls for their respective channels.

The status of the FADER FLIP function is also displayed by the Channel/Send mode indicators.

[Detailed instructions on page 16]

#### 10 Effect Type/Effect Parameter Select Keys

Pressing the EFFECT SEL key makes it possible to choose from among the range of effects available in the currently selected effects send system (selection is made using the PARAMETER keys or DATA ENTRY slider). Once the desired effect has been selected, the EFFECT PARAM key can be pressed, providing access to parameters within the selected effect which can then be modified as required.

[Detailed instructions on page 16 and 18]

#### 11 Effect Send Pre/Post Selector

This key permits selection of pre-fader or post-fader effects send position for each of the DMP7D's 8 channels.

[Detailed instructions on page 17]

#### 12 Solo Key

Pressing this key activates the SOLO monitoring system, permitting monitoring of specific input channel signals, effects send signal, or a group of input channel or effect send signals.

[Detailed instructions on page 24]

#### 13 EQ Select Keys

These keys access the low, middle and high-band equalizer parameters for the currently selected channel. Once selected, the EQ parameters are selected and modified using the parameter keys and data entry slider.

[Detailed instructions on page 15]

#### 14 Utility Key

The utility key accesses a list of utility functions including memory protection, title editing for the DMP7D memories, channel-to-channel data copying, battery check and others. Each press on the utility key advances to the next function on the list until the utility mode is exited after the last function has been called.

#### 15 MIDI Key

All the DMP7D's MIDI functions are contained in a list which is accessed by this key: program change number assignment, control number assignment, note number assignment, bulk dump, echo back and others.

#### 16 AUTO/MANUAL Key

This key selects the automatic or manual control mode. In the manual mode MIDI fader data can be overridden and the fader positions modified manually until the automatic mode is re-selected. In the automatic mode the faders will continue to travel to their programmed positions even if temporarily stopped manually.

[Detailed instructions on page 29]

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**17 COMP Key**

The DMP7D's internal stereo compressor is accessed and programmed using this key.

[Detailed instructions on page 23]

**18 PAN/PHASE Key.**

This key accesses both the panning and phase-reversal functions for the currently selected input channel. Panning is programmed in 17 discrete steps from full left to right, while phase can be set to either normal or reverse allowing phase-matching between input sources.

[Detailed instructions on page 14]

**19 Backlit LCD Data Display**

This 16-character × 2-line backlit LCD (Liquid Crystal Display) shows all parameters while programming and other information when necessary.

**20 Stereo Program Peak Meter**

This left and right-channel meter pair shows levels on the master stereo output buss.

**21 Input and Send Peak Level Meters**

The INPUT level meter shows the input level of the selected input channel. The effect SEND level meter shows the composite effect send level from the selected mixer channels.

**22 Channel Pan Indicators**

Three LEDs—two red arrows on either side of a central orange block—show approximate PAN position in 5 stages.

**23 Memory Number LED Display**

Shows the number of the currently selected memory location. A continuously lit number indicates the current active location, while a flashing number indicates that a memory location has been selected but not yet recalled (or the location cannot be recalled because it contains no data).

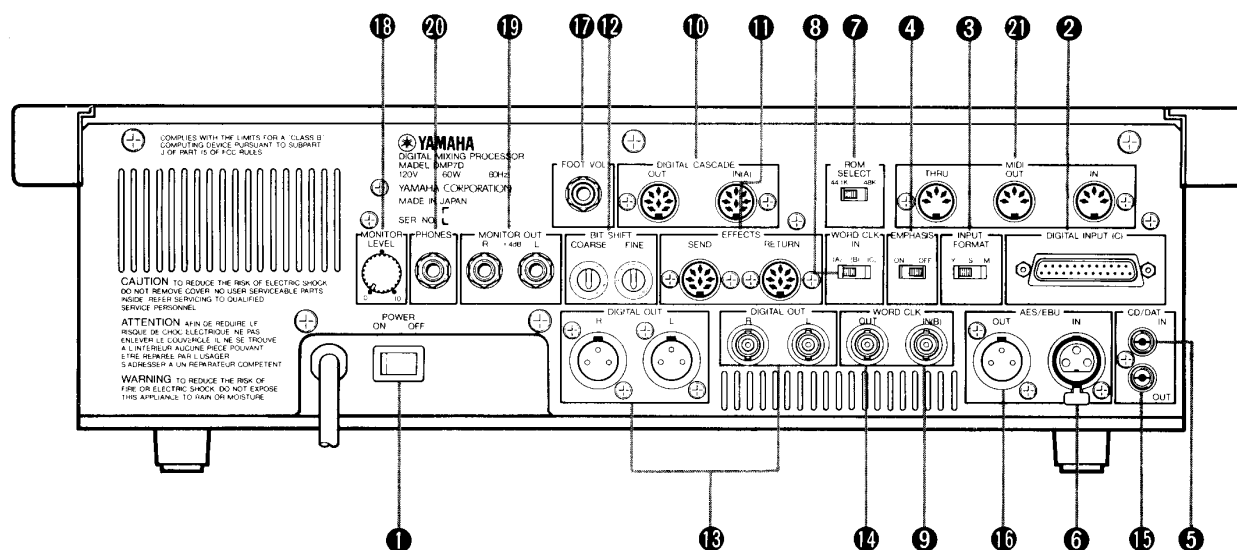
**24 Channel/Send Mode Indicators**

These display the selected mode for the 8 channel/effect send faders. The CHANNEL indicator lights when the faders are set to function in their normal channel level control mode (FADER FLIP LED OFF). When the FADER FLIP key is activated, either the SEND 1, SEND 2 or SEND 3 indicator will light, depending on which effect system is assigned to the faders. The Effect Send Select keys **8** are used to assign one of the effect systems to fader control.

**25 Cartridge Slot**

A Yamaha RAM-4 memory cartridge can be plugged in here to provide an extra 67 memory locations (memory numbers 31–97).

## CONNECTOR PANEL



U.S. & Canadian models

### 1 POWER Switch

This is main AC power switch. When switched ON all panel settings are restored to their status prior to the power being turned OFF.

### 2 DIGITAL INPUT Connector

This connector receives 8 channels of PCM audio, normally via one of the interface units (IFUs) available from Yamaha.\* The DIGITAL INPUT connector also receives the required word clock, bit clock and emphasis ON/OFF signals when applicable.

Sony PCM-3324 via the optional IFU2 interface unit, or from a Sony PCM-1610/1630 via the optional IFU3 interface unit, etc.

M — Mitsubishi format. Used when receiving input from the Mitsubishi X-850 or Otari DTR-900 via the optional IFU1 interface unit, etc.

\* See page 144 for information on the available interface units and other options, page 160 for output specifications, and page 135 for connection examples.

### 3 INPUT FORMAT Switch

This switch determines the type of digital audio signal format accepted via the DIGITAL INPUT connector. The INPUT FORMAT switch settings are as follows:

Y — Yamaha format. Used when receiving input from the AD808, etc.

S — Sony format. Used when receiving input from a

### 4 EMPHASIS Switch

Emphasis ON/OFF switching is carried out automatically when receiving from digital recorders or other equipment that transmits the emphasis ON/OFF code. The EMPHASIS ON/OFF switch is used for manual emphasis selection with equipment that does not transmit this code.\*

If the emphasis ON/OFF code is received, switching will be carried out automatically even if the EMPHASIS switch is set to OFF. With the EMPHASIS switch in the ON position, emphasis is forced ON even if an emphasis OFF code is received.

\* The X-850/DTR-900 DUB OUT connector, for example, does not transmit the emphasis ON/OFF code.

**Note:** The emphasis ON/OFF status applies to all DMP7D channels simultaneously – independent detection of emphasis ON/OFF channels is not performed. When ON, de-emphasis will be applied to the signal appearing at the analog outputs (MONITOR OUT, PHONES), and pre-emphasized data will be output as is via the digital outputs. It is therefore important to ensure that pre-emphasis is either ON or OFF for all channels of data received by the DMP7D.

#### 5 CD/DAT IN Connector

This input connector allows reception of digital audio from stereo CD players or DAT (Digital Audio Tape) players on DMP7D channels 7 and 8.

When a plug is inserted into this connector, channel 7 and 8 data received at the DIGITAL INPUT connector is ignored and the CD/DAT IN connector input data takes priority.

#### 6 AES/EBU IN Connector

This connector will receive both 0.5 V p-p and RS-422 level stereo digital signals from equipment having AES/EBU output connectors (professional PCM processors and DAT recorders.). Although essentially the same in function as the CD/DAT IN connector, this connector provides higher reliability with the types of equipment mentioned above.

When a plug is inserted into this connector, channel 7 and 8 data received at the DIGITAL INPUT connector, and data received at the CD/DAT IN connector is ignored and the AES/EBU IN connector input data takes priority.

#### 7 ROM SELECT Switch

This switch must be set to match the sampling rate of the equipment used with the DMP7D. The ROM SELECT switch is used to switch between different internal ROMs programmed to support the 44.1 kHz and 48 kHz sampling rates. The system will not function properly if the wrong switch setting is selected, and all equipment connected to the DMP7D must operate at the same sampling frequency.

#### 8 WORD CLK IN Switch

This switch determines which input connector (marked A through C) is to receive the word clock signal which is to function as the master clock.

A = DIGITAL CASCADE IN connector 10.

B = WORD CLK IN connector 9.

C = DIGITAL INPUT connector 2.

**Note:** When the CD/DAT IN connector is used, the word clock received at that connector takes priority and becomes the master clock. The AES/EBU IN connector takes the highest priority, and a word

clock received at this connector becomes the master clock even if the CD/DAT connector is active. In either of these cases, the WORD CLK IN switch setting is ignored.

#### 9 WORD CLK IN Connector

Receives the master word clock signal when the WORD CLK IN switch is set to "B" and neither the CD/DAT IN or AES/EBU IN connectors are used.

#### 10 DIGITAL CASCADE IN and OUT Connectors

These connectors are used to digitally "cascade" two or more DMP7D (or DMP7) units. The CASCADE OUT connector delivers the Yamaha-format digital stereo out signal, and the CASCADE IN connector receives this signal from another DMP7D (or DMP7) and applies it to the stereo "buss."

**Note:** Use the supplied 8-pin DIN connector cable for cascade connection.

#### 11 EFFECTS SEND and RETURN Connectors

This 2-out/1-in effect "loop" can be used for direct connection to Yamaha digital signal processors using the Yamaha DSP-LSI digital format.

The SEND signal is a mix of the DMP7D's 8 channel signals set up using the CH EFFECT SEND 3 LEVEL controls. The RETURN connector is only active when one of the EXTERNAL EQ effect programs for the EFFECT SEND 3 loop is selected.

**Note:** The external effect unit used must be synchronized to the word clock transmitted via the DMP7D EFFECT SEND connector.

**Note:** The supplied 8-pin DIN connector cable can be used for connection to the external effect device.

#### 12 BIT SHIFT Selectors

These selectors adds a precise amount of delay to the stereo output signal from the DMP7D, preventing read errors at the receiving device which can be caused by a shift in the timing of the stereo signal in relation to the word clock signal. This shift is caused by the inherent delay imposed by cables and the DMP7D's internal circuitry. The BIT SHIFT selectors are used to add further delay so that the stereo output signal is aligned with the following word clock pulse.

Normally, the COARSE selector should be set to "0." Refer to "BIT SHIFT ADJUSTMENT" on page 34 for details.

**Note:** The BIT SHIFT function applies only to the stereo signal delivered via the DIGITAL OUT connectors.

### **13 DIGITAL OUTPUT Connectors**

These connectors deliver the DMP7D's digital stereo output signal in Sony format. The XLR-3-32 type connectors provide RS-422 level output, while the BNC connectors provide TTL level output.

The XLR-3-32 connector pin assignment is as follows:

- Pin 1 = Ground
- Pin 2 = Hot
- Pin 3 = Cold

Refer to "INPUT/OUTPUT SPECIFICATIONS" on page 59, and "CONNECTOR COMPATIBILITY" on page 47.

**Note:** The DMP7D digital output signal is in Sony format, but direct connection to recorders such as the X-850, X-400 or DTR-900 is also possible.

### **14 WORD CLK OUT Connector**

The received master word clock signal is delivered via this connector for connection to other equipment.

### **15 CD/DAT OUT Connector**

The stereo output signal from this connector can be fed to the inputs of a home-use DAT recorder or similar equipment.

### **16 AES/EBU OUT Connector**

The stereo output signal from this connector can be fed to equipment having 0.5 V p-p or RS-422 level AES/EBU input connectors (professional PCM processors and DAT recorders.). Although essentially the same in function as the CD/DAT OUT connector, this connector provides higher reliability with the types of equipment mentioned above.

### **17 FOOT VOL Connector**

An optional Yamaha FC7 Foot Controller can be connected to this connector, providing convenient foot control of the stereo output signal appearing at all output connectors except the EFFECT SEND connector.

### **18 MONITOR LEVEL Control**

Adjusts the output level of the analog signal appearing at the MONITOR OUT **19** and PHONES **20** connectors.

### **19 MONITOR OUT R and L Connectors**

Deliver an analog version of the DMP7D stereo output signal for monitoring purposes.

### **20 PHONES Connector**

Delivers an analog version of the DMP7D stereo output signal for monitoring via standard stereo headphones.

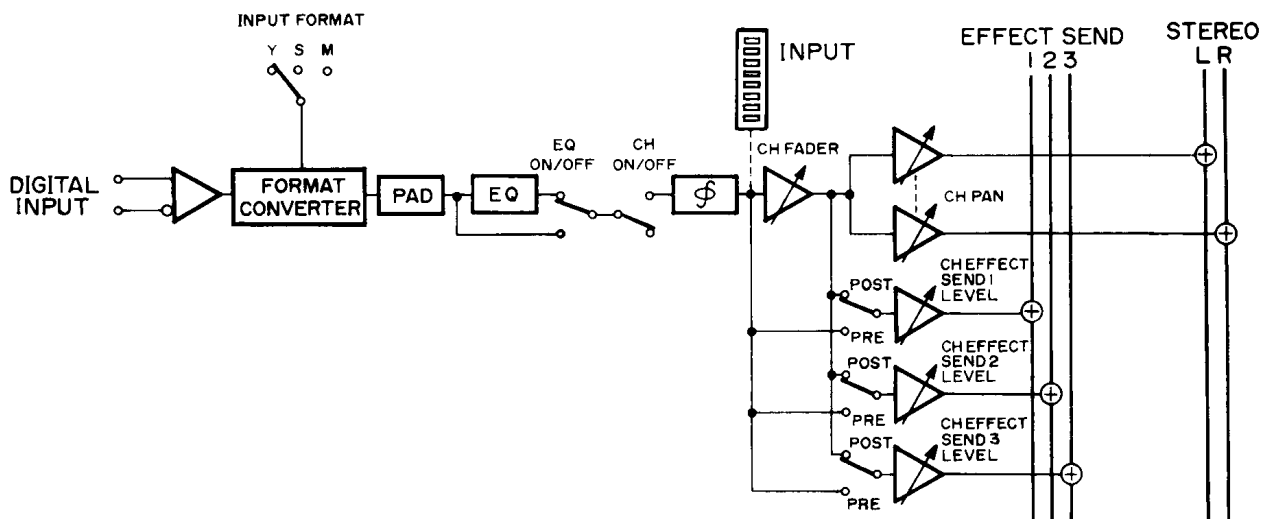
### **21 MIDI IN, OUT and THRU Connectors**

The MIDI IN terminal receives MIDI control data from external MIDI equipment, and the MIDI OUT terminal transmits MIDI data from the DMP7D which is to be stored in or otherwise used by external MIDI equipment. The MIDI THRU terminal re-transmits any data received at the MIDI IN terminal, allowing "daisy-chaining" to other MIDI equipment.

# SIGNAL FLOW AND FUNCTIONAL CONFIGURATION

Although the DMP7D is a "digital mixer" dealing entirely with digital signals, its basic signal flow and functional layout should be quite familiar to anyone who has worked with even simple audio mixing equipment. One aspect of the DMP7D which may be surprising, however, is its apparent lack of external control hardware (EQ controls, separate effect send controls, etc.) in relation to the number of functions it provides.

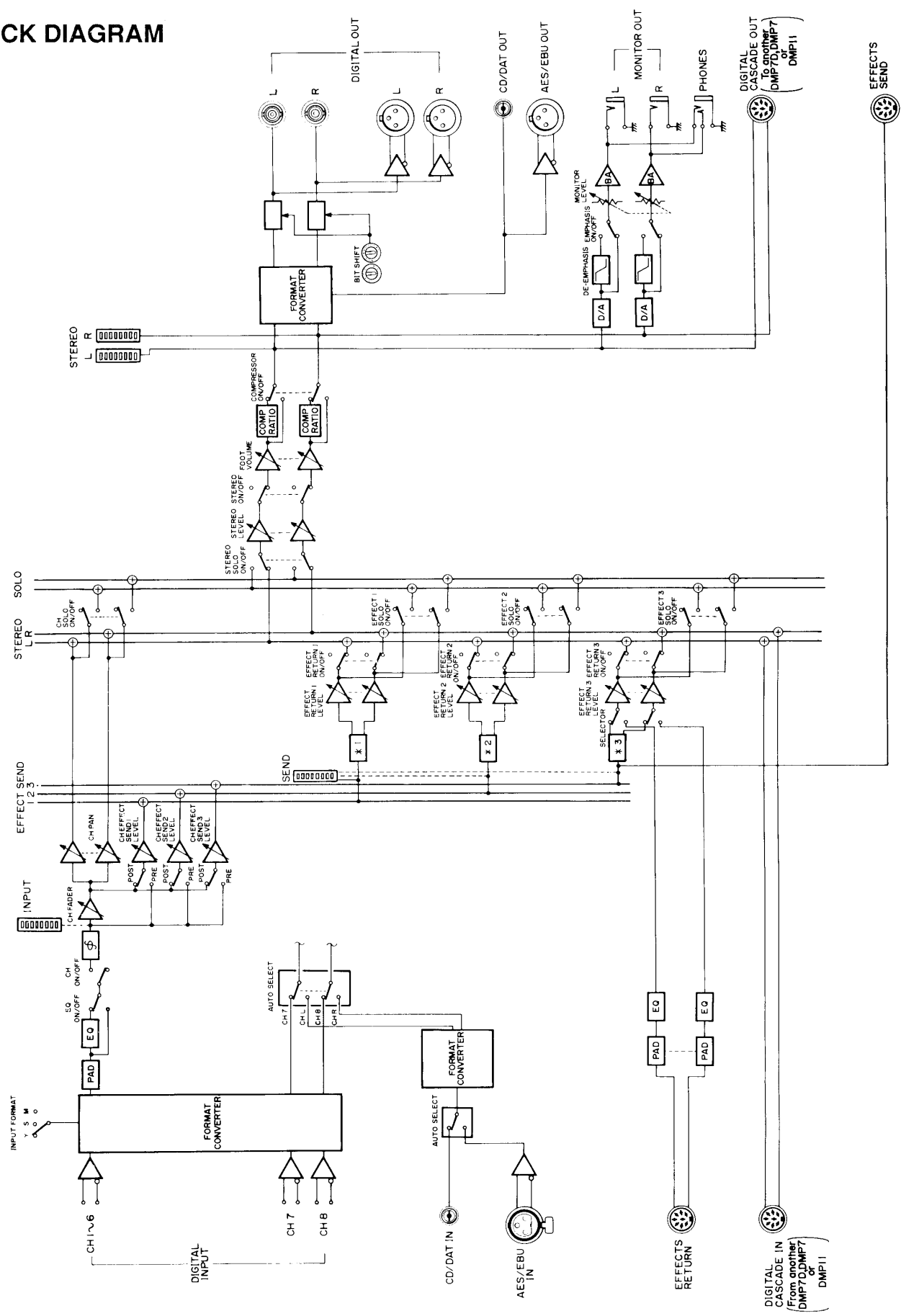
Digital operation allows significant functional streamlining of the system, assigning a number of related jobs to a single control or group of controls. Once you're familiar with the system, you'll find that it actually saves time and makes operation easier, allowing you to concentrate more fully on the results to be achieved rather than operating the equipment involved.



Referring to the single-channel block diagram above, input applied to one of the rear-panel digital input is first routed through a format converter which provides matching with the digital input signal format. The first stage following format conversion is a digital input pad which is followed by an EQ section, parametric equalization. This is followed by phase inversion, the main channel fader, and stereo pan system which feeds the master stereo program buss. Pre- and post-fader taps immediately before and after the channel fader, and stereo pan system which feeds the master stereo program buss. Pre- and post-fader taps immediately before and after the channel fader feed the DMP7D's three effect systems. Here it is important to note that the three effect send level control circuits are all controlled by what is normally the channel fader. The user selects one of the three effect sends, and the channel faders then function as the effect send level controls for the respective channels.

Each effect send level control is followed by a sophisticated digital signal processor: the processors in effect sends 1 and 2 each offer a selection of 17 different effects including reverberation, delay, phasing, flanging, chorus, gate reverb and others. Effect send 3 incorporates 5 internal digital effects, but can also be routed to the outside world via an EFFECT SEND connector permitting use of external effect and signal units. A single return level fader controls return from all three effect systems—its operation depends on the selected effect system. Stereo return capability is provided for external effect devices. The returned external signal is immediately routed through a stereo parametric EQ section specifically provided for this effect return, and applied to the master stereo output buss. The master stereo output buss feeds a variable-gain stage which can be controlled externally by a foot pedal, the main stereo master fader, and a digital stereo compressor. The compressor is immediately followed by stereo D/A converters and de-emphasis circuits which feed the DMP7D's MONITOR and PHONES output. The compressor output also feeds the output digital format converter and bit shift circuits for delay compensation.

BLOCK DIAGRAM



# SECTION 1: GENERAL OPERATION

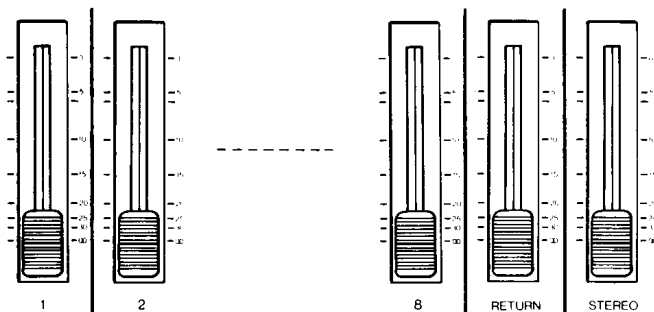
## THE FADERS

In terms of external appearance and operation, the DMP7D faders are exactly the same as those on any other mixer. There are, however, two significant differences: 1) the faders are motorized, and 2) they have more than one function.

Because the faders are motorized, they may feel slightly "heavier" than conventional types during manual operation. This, however, does not affect mixing precision or performance. These faders have, in fact, undergone extensive, severe testing, and have proven to be extremely reliable as well as of exceptionally high quality.

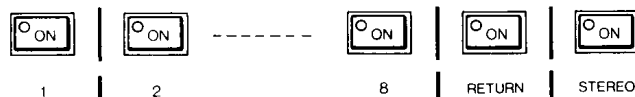
You'll notice that despite the fact that the DMP7D has three effect systems, and three effect sends for each channel, corresponding level controls are not provided on the panel. In the DMP7D, the jobs of controlling channel level and the three effect send levels have been assigned to a single fader for each channel. The four indicator lamps at the top left of the panel tell you which function the channel faders are currently performing: SEND 1, SEND 2, SEND 3 or CHANNEL. The effect RETURN fader individually controls return level for each of the three effect systems. The STEREO master output fader is motorized like the others, but does not have any secondary functions.

SEND 1    SEND 2    SEND 3    CHANNEL



## CHANNEL ON KEYS

The ON keys located immediately above each fader simply turn the signal related to the corresponding fader ON or OFF. These keys are alternate-action types, alternating between ON and OFF states each time the key is pressed. The key is ON when the red LED built into it is lit. The channel ON keys function like channel ON/OFF or MUTE switches on a conventional mixer. When OFF, the signal from that channel is shut off and will not appear at the stereo buss or any of the effect sends. The return channel ON key turns the return signal from any of the three effects systems on or off (depending on the selected send), and the stereo channel ON key turns the DMP7D's main stereo outputs ON or OFF.



## PAN

The DMP7D permits panning the signal from each input channel across the stereo buss in 17 discrete steps. The PAN display on the DMP7D's LCD shows two numbers: L=n and R=n, where "n" is an integer between 0 and 16. A setting of L=8 R=8, for example, corresponding to center pan positioning. With a setting of L=16 R=0 the signal would be panned full left, and setting of L=12 R=4 would place the signal approximately three-quarters right.

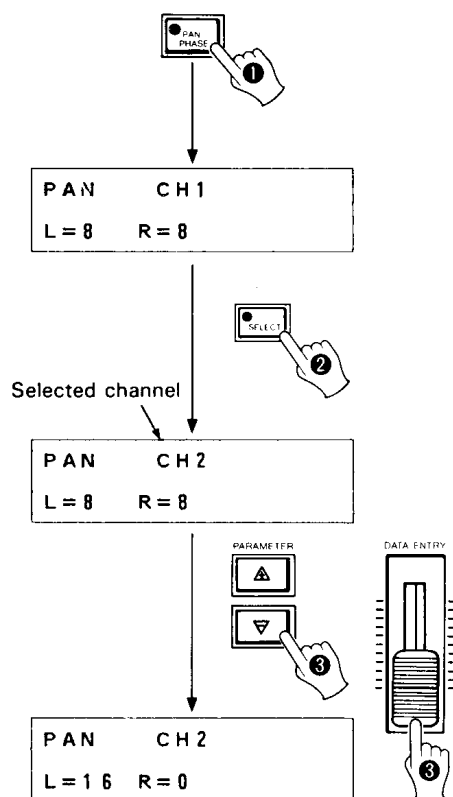
### PAN INDICATOR PAN SETTING

- ◀ ◻ ▶ L = 16, R = 0 (left-most)
- ◀ ■ ▶ L = 15, R = 1 ~ L = 9, R = 7 (left)
- ◀ ■ ▶ L = 8, R = 8 (center)
- ◀ ■ ▶ L = 7, R = 9 ~ L = 1, R = 15 (right)
- ◀ ◻ ▶ L = 0, R = 16 (right-most)

\*When PAN is controlled via MIDI, panning occurs in 128 discrete steps.

### SETTING PAN

- 1 Press PAN/PHASE key.
- 2 Press SELECT key for channel to be panned.
- 3 Use either DATA ENTRY slider or PARAMETER +/- keys to set desired degree of pan. PARAMETER </> keys can also be used to set PAN.

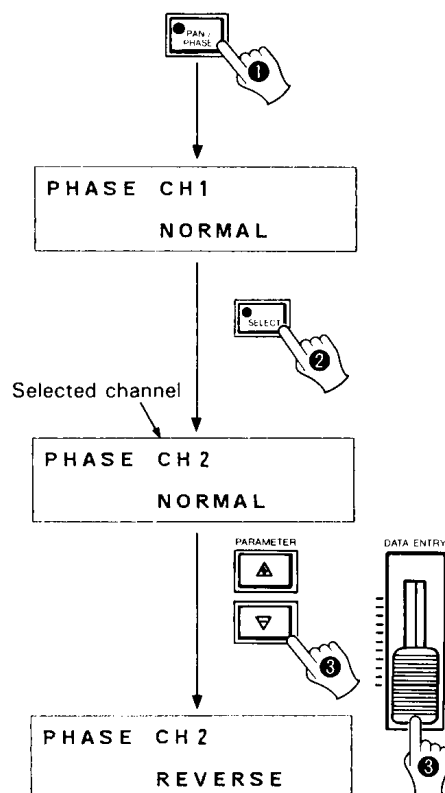


## PHASE

As in a conventional mixer, the phase inversion function on the DMP7D allows matching the phases of different sources to prevent level and response irregularities.

### SETTING PHASE

- 1 Press PAN/PHASE key twice (once if PAN mode is already selected).
- 2 Press SELECT key of channel for which PHASE is to be adjusted.
- 3 Use DATA ENTRY slider or PARAMETER +/- keys to select NORMAL or REVERSE phase.



## EQUALIZATION

The DMP7D offers a versatile 3-band parametric EQ system on each channel. The HI and LOW bands can be set to function as either peaking or shelving filters, while the MID band is always peaking type. In the peaking mode, all bands permit Q adjustment over a wide 0.1–5 range, permitting precise adjustment of a specific range of frequencies.

### SETTING EQ

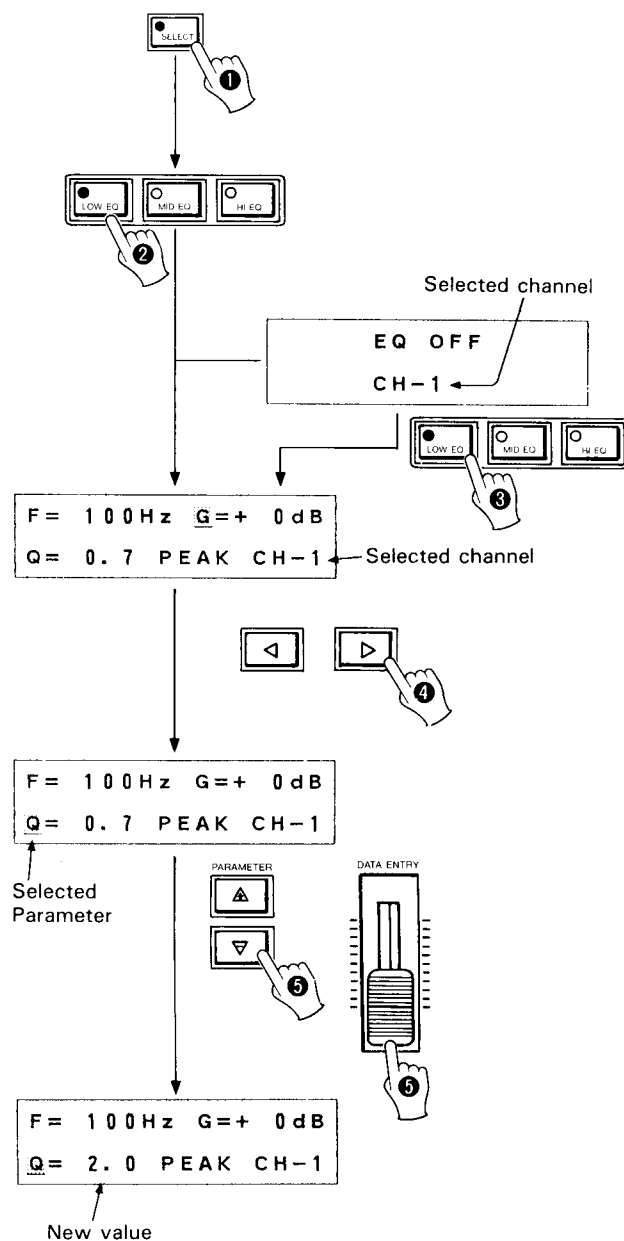
- 1 Press SELECT key on channel for which EQ is to be adjusted.
- 2 Press either the LOW EQ, MID EQ or HI EQ key to select the desired EQ range:

LOW EQ : 32 Hz–800 Hz  
 MID EQ : 250 Hz–8.0 kHz  
 HI EQ : 1.0 kHz–18 kHz

- 3 If the "EQ OFF" display appears, press the same EQ band selector a second time to turn that band ON. A band which is ON can be turned OFF by pressing its selector a second time.
- 4 Use the PARAMETER </> keys to select the parameter to be changed (block cursor flashes over first character of parameter):

"F" = Frequency  
 "G" = Gain (–15 dB–+15 dB)  
 "Q" = Bandwidth, or Quality Factor (0.1–5, only when "PEAK" filter mode is selected)  
 "PEAK" = Peaking EQ/"SHELV" = Shelving EQ

- 5 Use DATA ENTRY slider or PARAMETER +/– keys to set the value of the selected parameter.



## INTERNAL EFFECTS SEND

The DMP7D has three completely independent effect send/return loops, each of which access its own group of top-quality internal digital effects. SEND 1 and SEND 2 access the following 17 internal effects:

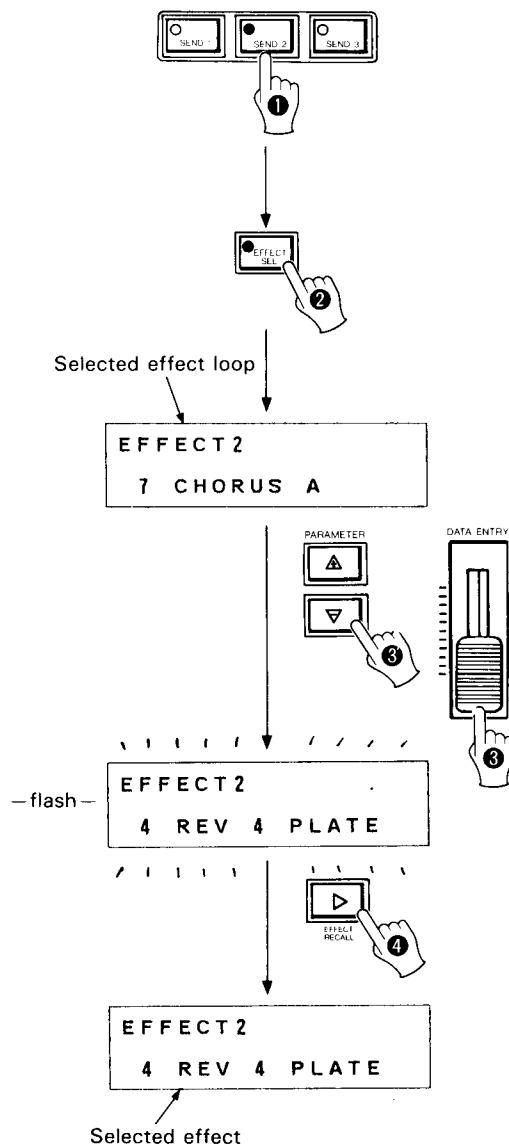
- |                |                  |
|----------------|------------------|
| 1. REV 1 HALL  | 10. TREMOLO      |
| 2. REV 2 ROOM  | 11. SYMPHONIC    |
| 3. REV 3 VOCAL | 12. EARLY REF. 1 |
| 4. REV 4 PLATE | 13. EARLY REF. 2 |
| 5. FLANGE A    | 14. GATE REVERB  |
| 6. FLANGE B    | 15. REVERSE GATE |
| 7. CHORUS A    | 16. DELAY L&R    |
| 8. CHORUS B    | 17. STEREO ECHO  |
| 9. PHASING     |                  |

SEND 3 offers 5 internal effects, and allows access to outboard effects units via the rear-panel EFFECTS SEND and EFFECTS RETURN connectors. When SEND 3 is used as an external loop, it provides a choice of 3 EQ bands (LO, MID or HI) in series with the EFFECT RETURN jacks. The effects provided for SEND 3 are:

- |                |                    |
|----------------|--------------------|
| 1. STEREO ECHO | 6. EXTERNAL LOW EQ |
| 2. FLANGE      | 7. EXTERNAL MID EQ |
| 3. CHORUS      | 8. EXTERNAL HI EQ  |
| 4. PHASING     |                    |
| 5. PANPOT      |                    |

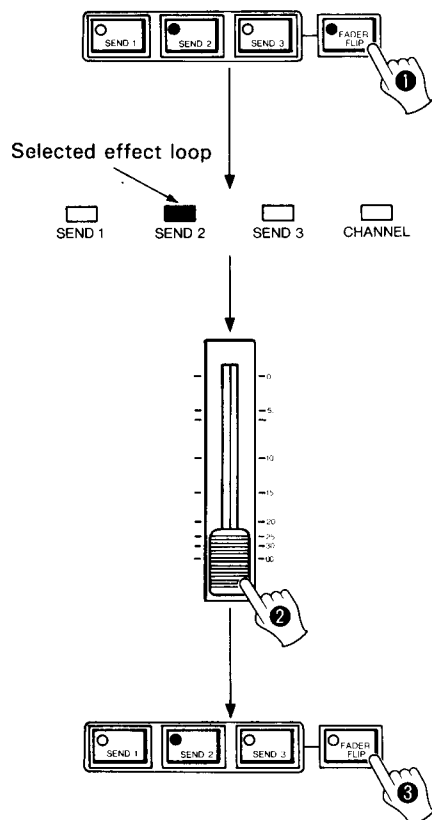
### SELECTING AN EFFECT LOOP AND EFFECT

- 1 Press either the SEND 1, SEND 2 or SEND 3 key to select the desired effect loop.
- 2 Press the EFFECT SEL key to enter effect selection mode.
- 3 Use the DATA ENTRY slider or PARAMETER +/– keys to select the desired effect (the effect name will flash on the LCD).
- 4 Press the EFFECT RECALL key to activate the selected effect (the effect name will stop flashing).



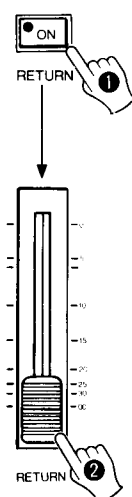
### SETTING SEND LEVELS TO THE SELECTED EFFECT

- 1 With the desired effect loop selected (SEND 1, 2 or 3), press the FADER FLIP key. The FADER FLIP key LED will light, the CHANNEL indicator at the top left-hand side of the display panel will go out and the SEND indicator corresponding to the currently selected effect loop will light. The channel faders now function as effect send level controls for their own channels.
- 2 Set up the desired effect send levels using the channel faders.
- 3 Press the FADER FLIP key again to return to the main channel fader level settings.



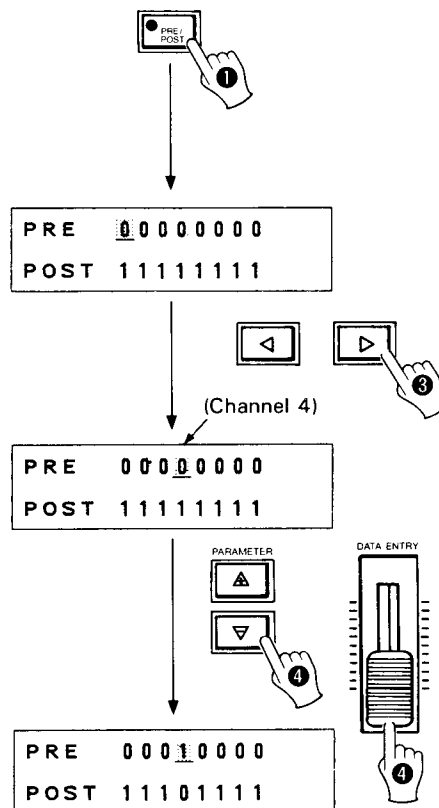
### SETTING THE RETURN LEVEL FROM THE SELECTED EFFECT

- 1 With the desired effect loop selected (SEND 1, 2 or 3), press the RETURN channel ON key to turn its LED ON (if it is not already ON).
- 2 Set the RETURN fader to the desired level.



### SELECTING PRE- OR POST-FADER EFFECT SEND

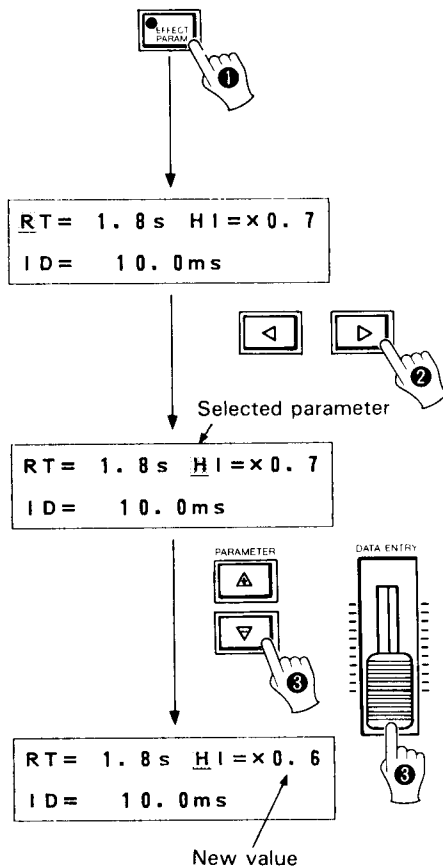
- 1 Press the PRE/POST key.
- 2 From left to right, the 8 columns of 0/1 digits that appear on the LCD represent input channels 1 through 8. "0" represents OFF, and "1" represents ON. If, for example, the first-column digit in the "PRE" (top) row is "0" and the digit below it in the "POST" row is "1," then the channel-1 effect send is set post-fader (this is the default setting for all channels).
- 3 Use the PARAMETER </> keys to select the desired channel send (the cursor will flash in the top row of the selected column).
- 4 Use the PARAMETER +/– keys or DATA ENTRY slider to set PRE or POST status for the selected channel.



\* This process must be carried out independently for each effect loop. As you switch from effect loop to effect loop (e.g. from SEND 1 to SEND 2, etc.,) the RETURN ON/OFF status and RETURN fader level memorized for the selected effect loop will be recalled.

## MODIFYING EFFECT PARAMETERS

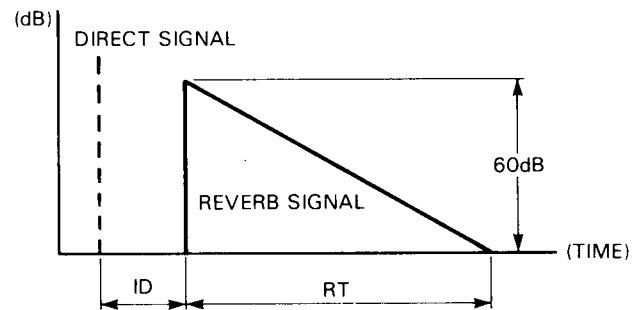
- 1 With the desired effect loop and effect selected, press the EFFECT PARAM key to activate the effect parameter edit mode.
- 2 Use the PARAMETER  $\triangleleft/\triangleright$  keys to select the desired parameter.
- 3 Use the DATA ENTRY slider or PARAMETER  $+/-$  keys to set the desired value for the selected parameter.



The following is a summary of the DMP7D's internal effects and their parameters:

## SEND 1 & SEND 2 EFFECTS & PARAMETERS

1. REV 1 HALL
2. REV 2 ROOM
3. REV 3 VOCAL
4. REV 4 PLATE



### Reverb Time (RT): 0.3–99 seconds

The length of time it takes for the level of reverberation at 1 kHz to decrease by 60 dB—virtually to silence. In a live setting, this depends on several factors: room size, room shape, type of reflective surfaces, and others.

### High Frequency Reverb Time Ratio (HI): $\times 0.1 - \times 1.0$

Natural reverberation varies according to the frequency of the sound. The higher the frequency, the more sound tends to be absorbed by walls, furnishings and even air. This parameter allows alteration of the high-frequency reverb time in relation to the overall reverb time.

### Initial Delay (ID): 0.1–1000 milliseconds

This parameter represents the delay between the direct sound of an instrument and the first of the many reflections that together form reverberation.

### High-pass Filter (HPF): THRU, 32 Hz–1000 Hz

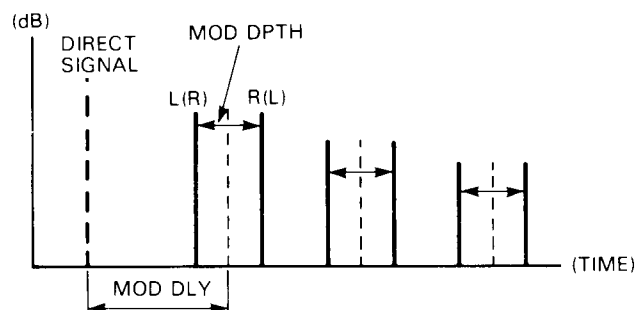
Permits rolling off the low-frequency content of the reverb signal below the set frequency. The HPF is OFF when set to THRU.

### Low-pass Filter (LPF): 1 kHz–18 kHz, THRU

Permits rolling off the high-frequency content of the reverb signal above the set frequency. The LPF is OFF when set to THRU.

## 5. FLANGE A

## 6. FLANGE B



### Modulation Frequency (MOD FREQ): 0.1 Hz – 20 Hz

Sets the speed of modulation, and hence the rate at which the effect varies.

### Modulation Depth (MOD DPTH): 0% – 100%

Sets the amount of delay time variation, thus adjusting the depth of the effect. At the maximum setting, the delay time is varied by  $\pm 4$  msec.

### Modulation Delay (MOD DLY): 0.1 ms – 100 ms

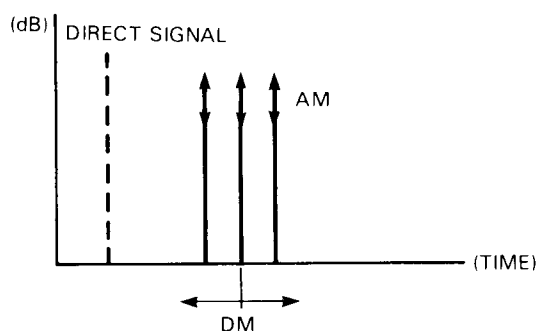
This sets the basic delay time from the initial direct sound to the beginning of the flange effect.

### Feedback Gain (F B GAIN): 0% – 99%

Determines the amount of flange signal which is fed back to the input of the processor for further modulation. More feedback increases the overall complexity, "strength" and decay time of the effect.

## 7. CHORUS A

## 8. CHORUS B



### Modulation Frequency (MOD FREQ): 0.1 Hz – 20 Hz

Sets the rate of modulation, and hence the speed at which the effect varies.

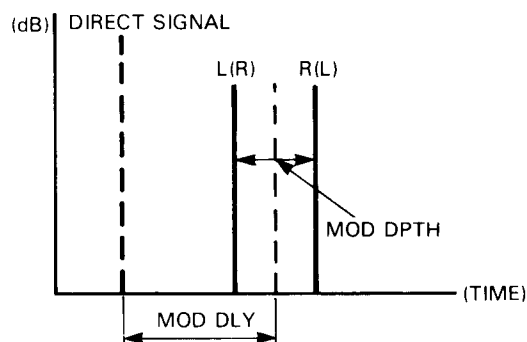
### Delay Modulation Depth (DM): 0% – 100%

This sets the amount by which the delay time of one delay signal is varied in relation to the other. At the maximum setting the delay time is varied by  $\pm 4$  msec.

### Amplitude Modulation Depth (AM): 0% – 100%

Sets the amount by which the amplitude (level) of the input signal is varied.

## 9. PHASING



### Modulation Frequency (MOD FREQ): 0.1 Hz – 20 Hz

Sets the modulation speed of the phasing effect.

### Modulation Depth (MOD DPTH): 0% – 100%

Sets the amount of delay time variation, thus adjusting the depth of the effect. At the maximum setting, the delay time is varied by  $\pm 4$  msec.

### Modulation Delay (MOD DLY): 0.1 – 5.8 milliseconds

This sets the delay time from the initial direct sound to the beginning of the phasing effect.

## 10. TREMOLO

### Modulation Frequency (MOD FREQ): 0.1 Hz – 20 Hz

Sets the modulation speed of the tremolo effect.

### Modulation Depth (MOD DPTH): 0% – 100%

Sets the depth (amount of amplitude variation) of the tremolo effect.

## 11. SYMPHONIC

### Modulation Frequency (MOD FREQ): 0.1 Hz–20 Hz

Sets the modulation speed of the Symphonic effect.

### Modulation Depth (MOD DPTH): 0%–100%

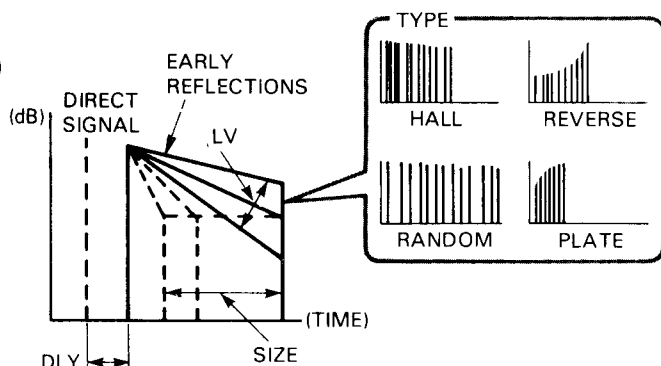
Sets the depth (amount of delay time variation) of the effect.

## 12. EARLY REF. 1

## 13. EARLY REF. 2

## 14. GATE REVERB

## 15. REVERSE GATE



### Early Reflection Pattern (TYPE): HALL/RANDOM/REVERSE/PLATE

The TYPE parameter selects one of four different patterns of early reflections. HALL produces a typical grouping of early reflections that would occur in a performing environment such as a hall. RANDOM produces an irregular series of reflections that could not occur naturally. PLATE produces a typical grouping of reflections that would occur in a plate reverb unit. REVERSE generates a series of reflections that increase in level—like the effect produced by playing a recorded reverberation sound backwards.

### Room Size (SIZE): 0.1–20

This parameter sets the time intervals between the early reflections—a feature of natural early reflections which is directly proportional to the size of the room.

### Liveness (LV): 0–10

“Liveness” refers to the rate at which the reflected sounds decay. An acoustically “dead” room is simulated by setting this parameter to zero. Increasing the value of this parameter creates an increasingly “live” sound, simulating an increasing area of reflective surfaces in the room.

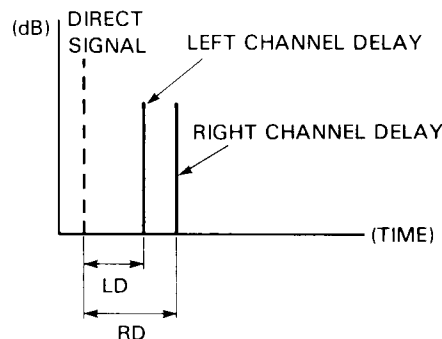
### Delay (DLY): 0.1–1000 milliseconds

The time delay between the direct sound of the instrument and the first of the early reflections.

### Low-pass Filter (LPF): 1 kHz–18 kHz, THRU

Permits rolling off the high-frequency content of the early reflection signal above the set frequency. The LPF is OFF when set to THRU.

## 16. DELAY L&R



### Left Channel Delay (LD): 0.1–1400 milliseconds

Sets the delay time between the direct sound of the instrument and the first repeat heard from the left channel.

### Left Channel Feedback Gain (LFG): 0%–99%

Sets the amount of the left-channel delay signal fed back to the input of the processor. The higher the feedback gain setting, the greater the number of delayed repeats produced.

### Right Channel Delay (RD): 0.1–1400 milliseconds

Sets the time between the direct sound of the instrument and the first repeat heard from the right channel.

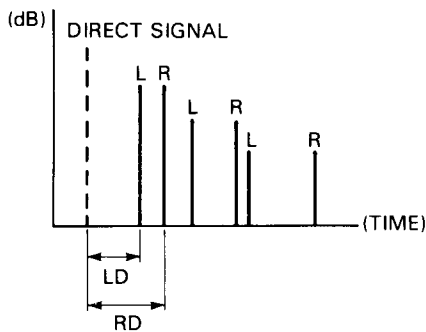
### Right Channel Feedback Gain (RFG): 0%–99%

Sets the amount of the right-channel delay signal fed back to the input of the processor. The higher the feedback gain setting, the greater the number of delayed repeats produced.

### High Frequency Feedback (HIGH): × 0.1–× 1.0

Controls the high-frequency content of the feedback signal. The amount of high-frequency feedback is reduced as the value of this parameter is decreased.

## 17. STEREO ECHO



### **Left Channel Delay (LD): 0.1 – 700 milliseconds**

After the delay set by this parameter, the first left-channel echo will appear. Subsequent echoes will appear at the same time interval, the number of echoes depending on the setting of the feedback gain setting for the corresponding channel.

### **Left Channel Feedback Gain (LFG): 0% – 99%**

Adjusts the number of echoes that follow the direct signal—from zero to a virtually infinite number of echoes at the maximum setting.

### **Right Channel Delay (RD): 0.1 – 700 milliseconds**

Same as Left Channel Delay, but affects the right channel only.

### **Right Channel Feedback Gain (RFG): 0% – 99%**

Same as Left Channel Feedback Gain, but affects the right channel only.

### **High Frequency Feedback (HIGH): $\times 0.1 - \times 1.0$**

Controls the high-frequency content of the feedback signal. The amount of high-frequency feedback is reduced as the value of this parameter is decreased.

## **SEND 3 EFFECTS & PARAMETERS**

### 1. STEREO ECHO

#### **Left Channel Delay (LD): 0.1 – 175 milliseconds**

After the delay set by this parameter, the first left-channel echo will appear. Subsequent echoes will appear at the same time interval, the number of echoes depending on the setting of the feedback gain setting for the corresponding channel.

#### **Left Channel Feedback Gain (LFG): 0% – 99%**

Adjusts the number of echoes that follow the direct signal—from zero to a virtually infinite number of echoes at the maximum setting.

#### **Right Channel Delay (RD): 0.1 – 175 milliseconds**

Same as Left Channel Delay, but affects the right channel only.

#### **Right Channel Feedback Gain (RFG): 0% – 99%**

Same as Left Channel Feedback Gain, but affects the right channel only.

#### **High Frequency Feedback (HIGH): $\times 0.1 - \times 1.0$**

Controls the high-frequency content of the feedback signal. The amount of high-frequency feedback is reduced as the value of this parameter is decreased.

### 2. FLANGE

#### **Modulation Frequency (MOD FREQ): 0.1 Hz – 20 Hz**

Sets the speed of modulation, and hence the rate at which the effect varies.

#### **Modulation Depth (MOD DPTH): 0% – 100%**

Sets the amount of delay time variation, thus adjusting the depth of the effect. At the maximum setting, the delay time is varied by  $\pm 4$  msec.

#### **Modulation Delay (MOD DLY): 0.1 ms – 100 ms**

This sets the basic delay time from the initial direct sound to the beginning of the flange effect.

#### **Feedback Gain (F B GAIN): 0% – 99%**

Determines the amount of flange signal which is fed back to the input of the processor for further modulation. More feedback increases the overall complexity, “strength” and decay time of the effect.

### 3. CHORUS

#### **Modulation Frequency (MOD FREQ): 0.1 Hz—20 Hz**

Sets the speed of delay time modulation, and hence the rate at which the effect varies.

#### **Delay Modulation Depth (DM): 0%—100%**

This sets the amount of delay time variation, thus adjusting the depth of the effect. At the maximum setting the delay time is varied by  $\pm 4$  msec.

#### **Amplitude Modulation Depth (AM): 0%—100%**

Sets the amount by which the amplitude (level) of the input signal is varied.

### 4. PHASING

#### **Modulation Frequency (MOD FREQ): 0.1 Hz—20 Hz**

Sets the speed of phase modulation, and thus the rate at which the effect varies.

#### **Modulation Depth (MOD DPTH): 0%—100%**

Sets the amount of delay time variation, thus adjusting the depth of the effect. At the maximum setting, the delay time is varied by  $\pm 4$  msec.

#### **Modulation Delay (MOD DLY): 0.1—5.8 milliseconds**

This sets the delay time from the initial direct sound to the beginning of the phasing effect.

### 5. PANPOT

#### **Modulation Frequency (MOD FREQ): 0.1 Hz—20 Hz**

Sets the speed of pan (the speed at which the signal sweeps from channel to channel).

#### **Modulation Depth (MOD DPTH): 0%—100%**

Sets the spatial depth of the pan effect: i.e. how far the signal apparently moves within the stereo sound field.

## EXTERNAL EFFECTS

When either effect 6, 7 or 8 (EXTERNAL LEQ, EXTERNAL MEQ or EXTERNAL HEQ, respectively) of SEND 3 is selected, the external effect loop becomes active and an external effect device connected between the EFFECTS SEND and EFFECTS RETURN jacks can be used. Note that it is not possible to simultaneously use the SEND 3 internal effects and an external effect. The three external effect settings provided offer a degree of EQ control over the returned effects signal. Only one EQ band can be set at a time.

### 6. EXTERNAL LEQ

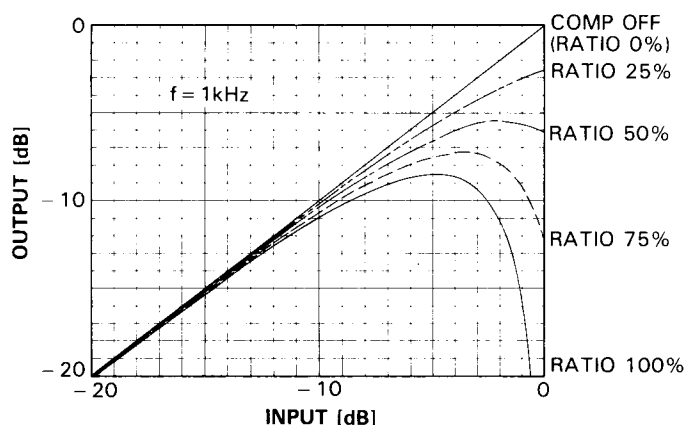
### 7. EXTERNAL MEQ

### 8. EXTERNAL HEQ

The external EQ band is selected and its parameters are accessed in exactly the same way as the other internal effects. The EQ parameters are exactly the same as those provided by the DMP7D's channel EQ system, described on page 15

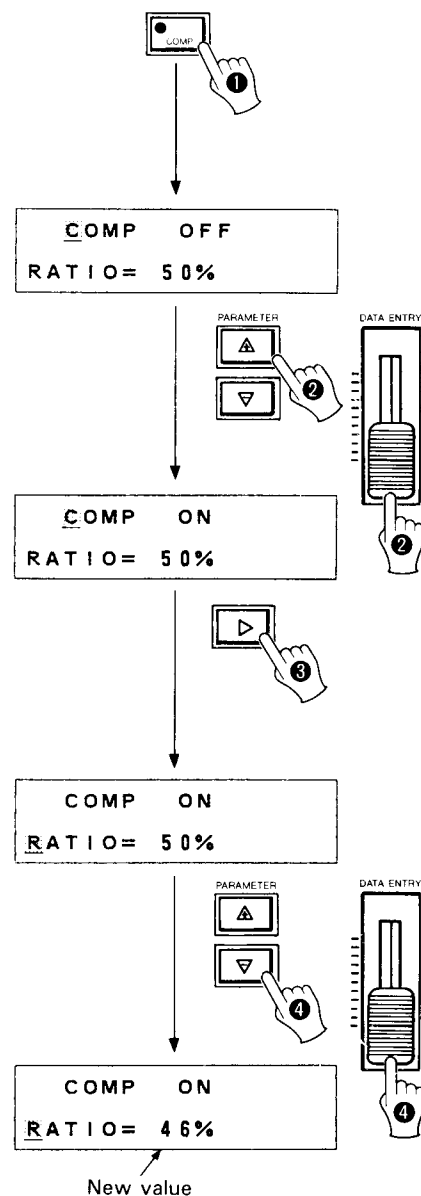
## STEREO COMPRESSOR

The DMP7D's digital stereo compressor permits compressing the overall stereo program to any desired degree, limiting dynamic range, for example, prior to recording the program on tape.



### SETTING THE COMPRESSOR

- ① Press the COMP key.
- ② Use the PARAMETER +/– keys or DATA ENTRY slider to turn the compressor ON or OFF.
- ③ Use the PARAMETER ▷ key to move the cursor to the "RATIO" parameter.
- ④ Use the PARAMETER +/– keys or DATA ENTRY slider to set the desired compression ratio (0%–100%). "0%" corresponds to no compression, "100%" represents maximum compression.

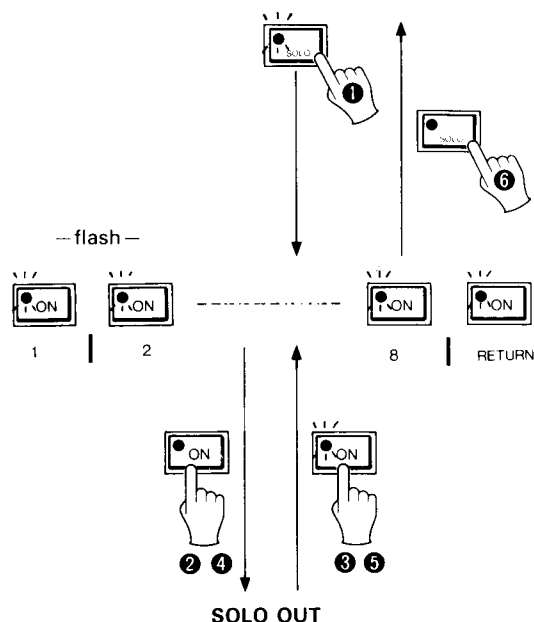


## SOLO

The DMP7D SOLO function permits monitoring of a specified input channel, group of input channels, or effect return signal via the stereo output buss.

### USING THE SOLO FUNCTION

- ① Press the SOLO key to activate the solo function. The SOLO key LED, eight channel ON key LEDs and RETURN channel ON key LED will flash.
- ② Press the ON key(s) of the channel(s) to be monitored. The ON key LEDs of the selected channel(s) will light continuously and the selected channel signals will be fed to the stereo program buss for monitoring.
- ③ Pressing the ON key of a selected channel a second time disengages the SOLO monitoring of that channel.
- ④ Press the RETURN channel ON key to monitor the effect return signal from the currently selected effect loop (SEND 1, SEND 2 or SEND 3).
- ⑤ Press the RETURN channel ON key a second time to disengage effect return SOLO monitoring.
- ⑥ Press the SOLO key a second time to disengage the solo function.



\* Channel signals may be monitored singly or in any combination, while the return signal for the selected effect loop is monitored for all channels assigned to that effect loop.

## MEMORY

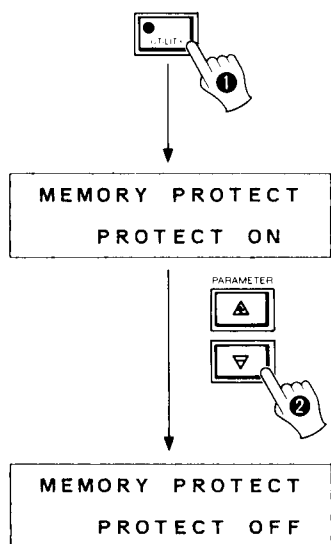
### INTERNAL AND CARTRIDGE MEMORY

The DMP7D has 30 internal RAM memory locations (1–30) which are capable of storing all DMP7D parameters. External Yamaha RAM4 cartridges (one piece included) provide an extra 67 memory locations. When a RAM4 cartridge is plugged into the DMP7D cartridge slot, memory numbers 31–97 correspond to the 67 locations provided by the cartridge. Memory numbers 31–97 are not usable unless a properly initialized RAM4 cartridge is plugged into the cartridge slot. There is also a memory location 0, and this is a read only memory location which contains the initial data for all DMP7D parameters. The data in this location cannot be rewritten or erased. The DMP7D memory system allows you to store entire “scenes” (a “scene” is a complete set of parameters: fader settings, effects, EQ, etc.) in each memory location. With an external cartridge plugged in that means you have a total of 97 different scenes “on-line,” ready for instant recall whenever they are needed.

### MEMORY PROTECT

The DMP7D has a memory protect feature which prevents unwanted alterations to the memory contents. When memory protect is ON, the memory store operation to the internal or cartridge memory can not be performed. Make sure memory protect is OFF prior to storing new memory data.

- ① Press UTILITY key. The memory protect function is the first called when the UTILITY key is pressed.
- ② Use the PARAMETER +/- keys to turn memory protect ON or OFF.

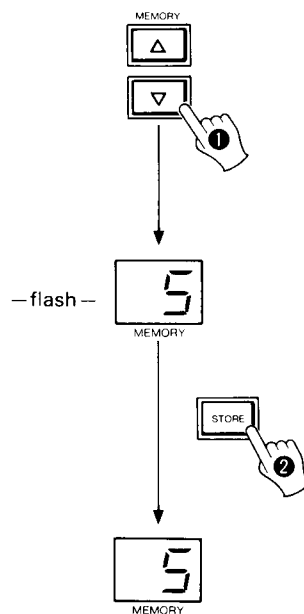


\* Please note that there is also a MEMORY PROTECT switch on RAM4 cartridge that must be turned OFF if you wish to store data to a cartridge memory location.

## MEMORY STORE

This function is used to store the scene (all parameters) currently set up on the DMP7D. Memory protect must be OFF prior to using the store function. You do not need a RAM4 cartridge to store data into memory locations 1–30, but a properly initialized RAM4 cartridge (with the cartridge memory protect switch turned OFF) must be plugged into the cartridge slot in order to store data in memory locations 31–97.

- Use the memory  $\Delta/\nabla$  keys to select the memory location into which you wish to STORE. The selected memory location is shown on the MEMORY LED display. Hold down either MEMORY  $\Delta/\nabla$  key to scroll quickly through the memory locations. The selected memory location number will flash on the LED display.
- Press the MEMORY STORE key to store all current DMP7D settings in the selected memory location. The memory location number will stop flashing if the STORE operation is successful.



\* The "MEMORY PROTECT!" display will appear and the STORE operation will be aborted if you attempt to STORE with the DMP7D memory protect function ON.

MEMORY PROTECT !

\* If you attempt to STORE to memory location 0, the display will read "MEMORY NO. 0 is READ ONLY!" and the STORE operation will be aborted.

MEMORY NO. 0 is  
READ ONLY !!

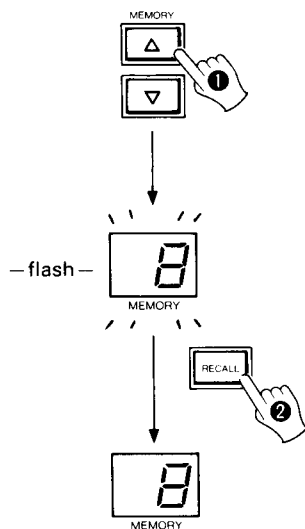
\* If you attempt to store to a cartridge memory location (31–97) while the cartridge memory protect switch is ON, the display will read "RAM CARTRIDGE PROTECT ON!" and the STORE operation will be aborted

RAM CARTRIDGE  
PROTECT ON !!

## MEMORY RECALL

This function allows you to recall an entire scene from a previously stored memory location.

- ① Use the memory  $\Delta/\nabla$  keys to select the memory location from which you wish to RECALL data. The selected memory location is shown on the MEMORY LED display. Hold down either MEMORY  $\Delta/\nabla$  key to scroll quickly through the memory locations. The selected memory location number will flash on the LED display.
- ② Press the MEMORY RECALL key to recall the stored scene from the selected memory location. The memory location number will stop flashing if the RECALL operation is successful, and the title of the recalled scene will appear on the top line of the LCD if one has been programmed using the MEMORY TITLE EDIT function (see "MEMORY TITLE EDIT," page 27).



- \* If the memory protect function is ON when a memory is recalled, "PROTECT" will appear on the bottom line of the LCD. The memory protect function being ON does not prevent memory recall.
- \* If you select a memory location which has not been previously stored, the display will read "This Memory Has NO DATA!". If you then attempt to RECALL this memory the display will read "\*\*\* CAUTION!!  
\*\*\*\*\* NO DATA \*\*\*\*\*" and the RECALL operation will be aborted.

This Memory Has  
NO DATA !!!!!

\*\* CAUTION !! \*\*  
\*\*\* NO DATA \*\*\*

- \* If you attempt to recall memory locations 31–97 with no cartridge plugged into the cartridge slot, the display will read "NO CARTRIDGE!!! PLEASE SET ONE".

NO CARTRIDGE !!!  
PLEASE SET ONE

- \* If a cartridge which has not been specifically initialized for use with the DMP7D is plugged in and you attempt to recall a cartridge memory location, the display will read "CAUTION!! WRONG CARTRIDGE" and recall will not be possible.

CAUTION !!!  
WRONG CARTRIDGE

- \* If any changes are made to any DMP7D settings after a memory has been recalled, an LED dot will light to the right of the second digit in the LED MEMORY number display, indicating that the recalled data has been changed.

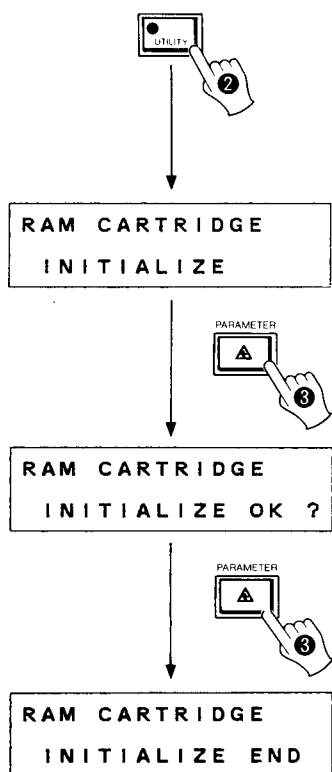


- \* The entire contents of the DMP7D memory can be cleared by first turning the power OFF, then turning the power back ON while holding both the FADER FLIP and PARAMETER  $\triangleleft$  keys.

## INITIALIZING NEW CARTRIDGES

***Yamaha RAM4 cartridges must be initialized by the DMP7D before they can be used with the DMP7D!***

- 1 Make sure a new Yamaha RAM4 cartridge (or an old one which you don't mind erasing) is properly inserted into the cartridge slot, and that the cartridge's memory protect switch is OFF.
- 2 Press UTILITY key a few times to call RAM CARTRIDGE INITIALIZE function (the RAM CARTRIDGE INITIALIZE function will NOT appear if a RAM4 cartridge is not installed).
- 3 Press the PARAMETER + key to begin initialization.

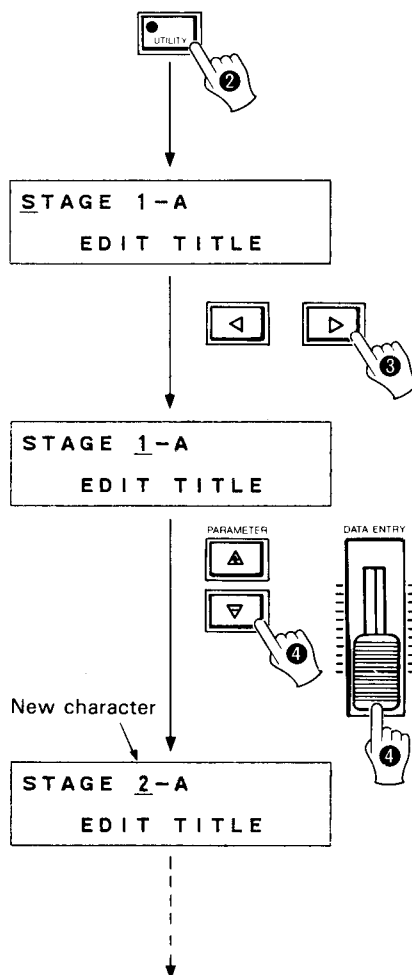


\* If the cartridge memory protect switch is ON when you attempt to initialize, the display will read "RAM CARTRIDGE PROTECT ON!!" and the initialization function will be aborted.

## EDIT TITLE

The EDIT TITLE function makes it possible to assign up to a 16-character (including spaces) title to each scene stored in the DMP7D memory. The assigned title appears in the LCD when the corresponding memory number is selected, facilitating identification.

- 1 Use the normal MEMORY RECALL procedure to recall the memory number to which you wish to assign a title.
- 2 Press the UTILITY key twice to call the EDIT TITLE function. The EDIT TITLE function cannot be accessed if memory number 0 is selected, or a cartridge memory is selected when no cartridge is installed.
- 3 A line cursor appears under the first character on the first line of the LCD. Use the PARAMETER </> keys to move the cursor to any character on the first line you wish to change.
- 4 Use the PARAMETER + / - keys or data entry slider to place a new character in the current cursor location.
- 5 Move the cursor to the next character to be edited and continue the process until your title is completed on the first line of the LCD.



\* The following characters can be selected using the PARAMETER ENTRY +/- keys or DATA ENTRY slider, in the following sequence:

0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z				
ä	ü	ö							
a	b	c	d	e	f	g	h	i	j
k	l	m	n	o	p	q	r	s	t
u	v	w	x	y	z				
space									
(	)	<	>	[	]	{	}	(@	+
-	*	/	=	.	,	•	'	"	:
;	!	?	&	#	\$	%	¥		
space									
ア	イ	ウ	エ	オ	カ	キ	ク	ケ	コ
サ	シ	ス	セ	ソ	タ	チ	ツ	テ	ト
ナ	ニ	ヌ	ネ	ノ	ハ	ヒ	フ	ヘ	ホ
マ	ミ	ム	メ	モ	ヤ	ユ	ヨ	ラ	リ
ル	レ	ロ	ワ	ヲ	ン	ャ	ュ	ョ	ッ
”	”	”	”	”	”	”	”	”	”
space									

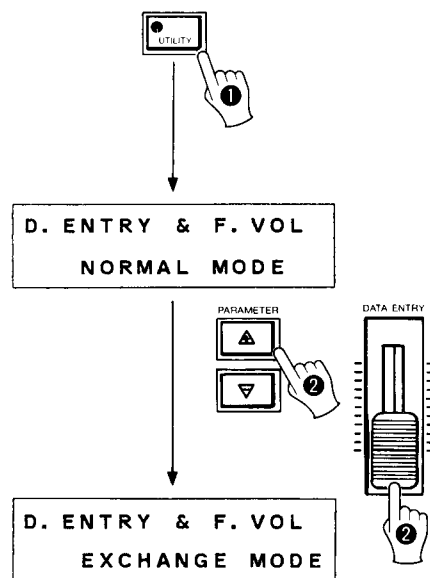
## FOOT CONTROL

An optional Yamaha FC7 Foot Controller plugged into the DMP7D's rear-panel FOOT VOL jack performs the same function as the master STEREO fader, controlling stereo output volume.

It is possible to exchange the function of the foot control unit with that of the DATA ENTRY slider, making it possible to control other parameters via the foot control. Foot control of equalization or effect parameters could be used for real-time expression control during a performance.

## EXCHANGING FOOT CONTROL AND DATA ENTRY FUNCTIONS

- 1 Press the UTILITY key several times to call the D. ENTRY & F.VOL function.
- 2 Use the PARAMETER +/- keys or DATA ENTRY slider to select the NORMAL MODE (foot controller volume, data entry parameters) or EXCHANGE MODE (foot controller parameters, data entry volume).



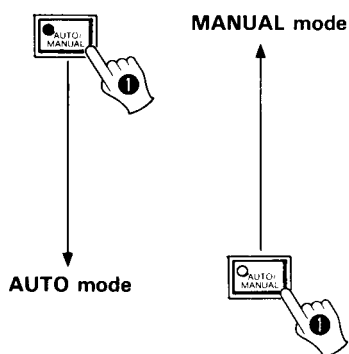
To use the foot controller for parameter control, simply call the parameter to be controlled to the LCD display in the same way as you would for normal programming. The value of the selected parameter will be controlled by the foot controller as long as the EXCHANGE MODE is set.

## AUTO/MANUAL

The AUTO/MANUAL key makes it possible to override external MIDI fader control so that fader positions may be changed manually while receiving MIDI data. This facilitates making "on-the-fly" modifications to a mixing program being received from a MIDI sequencer or similar device.

Refer to the "MIDI CONTROL" section for details on MIDI control.

- 1 Press the AUTO/MANUAL key to select either the AUTO or MANUAL mode. When the AUTO/MANUAL key LED is lit the AUTO mode is selected, and when the LED is out the MANUAL mode is selected.
- 2 In the MANUAL mode, the faders will not move under external MIDI control except that through program change and the user can move the faders freely regardless of external MIDI control. When changing scenes using program change, the faders may be stopped manually at any point during motorized travel.
- 3 In the AUTO mode the faders will continue to travel to their programmed destinations.



\* The AUTO/MANUAL key also functions in conjunction with the UTILITY mode FADER, PANPOT and EQ EDIT CHANNEL ASSIGNMENT functions. See page 41 for details.

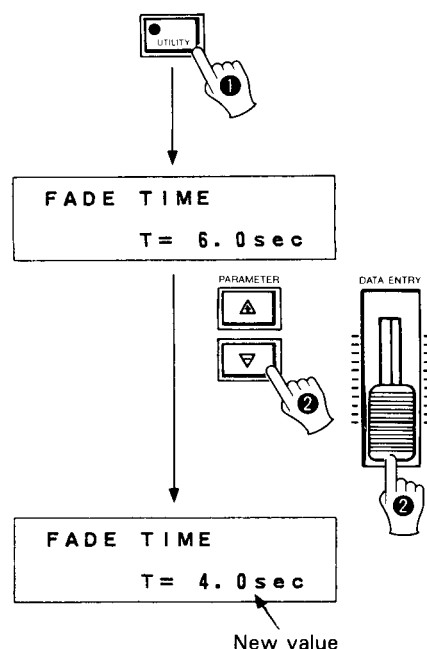
## OTHER UTILITY FUNCTIONS

### FADE TIME

This function sets the time it takes for the faders to travel their entire length, and the fade time when scenes are switched.

- 1 Press the UTILITY key several times until the FADE TIME function appears.
- 2 Use the PARAMETER +/- keys or DATA ENTRY slide to select the desired fade time:

0.1, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 7.0, 8.0, 10 sec.

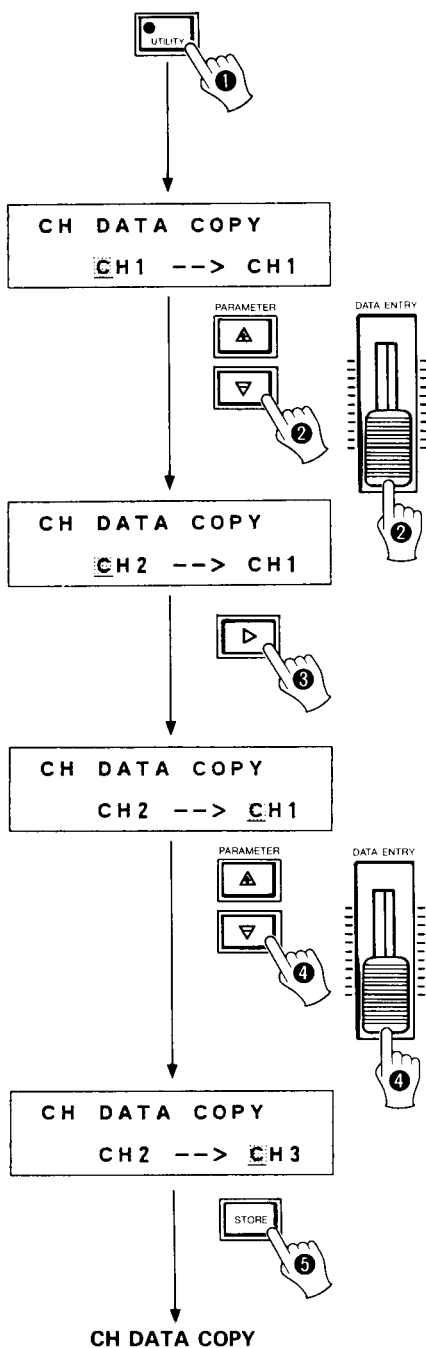


### CHANNEL DATA COPY

This function makes it possible to copy all the programmed data from one channel into any other channel. This can save considerable time when setting up similar complex parameters in a number of channels.

- 1 Press the UTILITY key several times until the CH DATA COPY function appears.
- 2 Use the PARAMETER +/- keys or DATA ENTRY slider to select the channel from which data is to be copied.
- 3 Press the PARAMETER > key to move the cursor to the next (rightmost) channel parameter.
- 4 Use the PARAMETER +/- keys or DATA ENTRY slider to select the channel to which the data is to be copied.

- 5 Press the MEMORY STORE key to execute the copy operation.



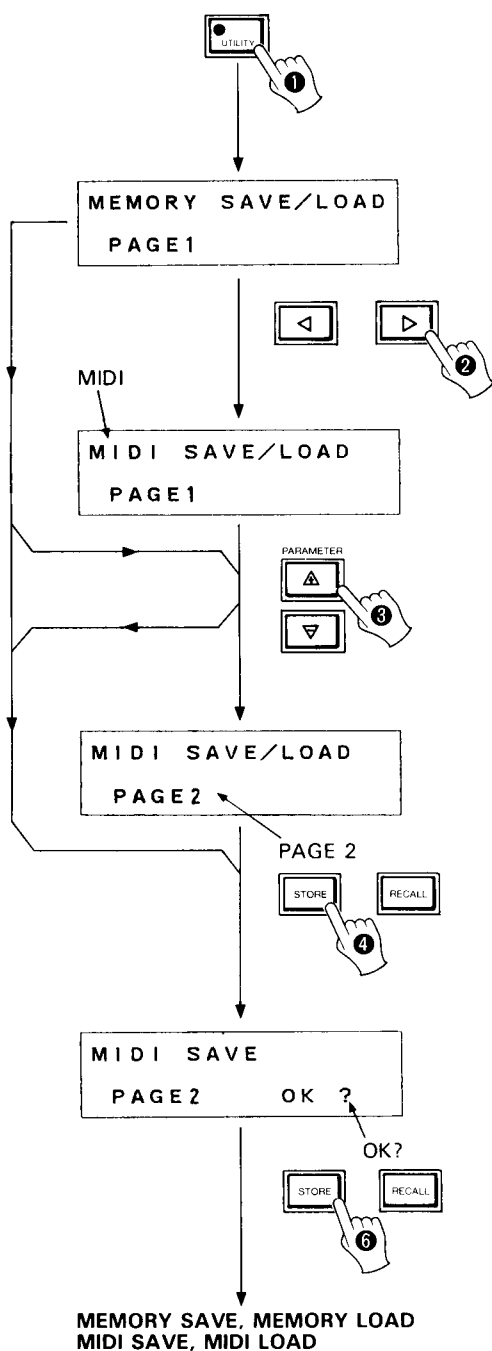
## MEMORY & MIDI SAVE/LOAD

The MEMORY SAVE function saves the entire contents of the DMP7D internal memory (memory numbers 1 through 30) in either "page 1" (memory numbers 31–60) or "page 2" (memory numbers 61–90) of an external RAM4 cartridge. The MEMORY LOAD function loads the contents of page 1 (31–60) or page 2 (61–90) of an external RAM4 memory into the DMP7D's internal memory.

When the MIDI SAVE or LOAD functions are selected, the MIDI program change assignment table is saved to or loaded from a RAM4 cartridge. Separate "hidden" areas of the RAM4 cartridge are used to store MIDI data, so a single cartridge can hold both memory (31–97) and MIDI data. See "MIDI CHANNEL & PROGRAM CHANGE ASSIGNMENT," on page 35.

- 1 Press the UTILITY key several times until the MEMORY SAVE/LOAD function appears (the MEMORY SAVE/LOAD function will NOT appear if a RAM4 cartridge is not installed).
  - 2 Use the PARAMETER </> keys to select either the MEMORY or MIDI mode.
  - 3 Use the PARAMETER +/- keys to select save/load to or from page 1 or page 2.
  - 4 Press the MEMORY STORE key to SAVE, or the MEMORY RECALL key to LOAD.
  - 5 "OK ?" will appear at the bottom right hand corner of the LCD, asking you to confirm your intention to save or load.
  - 6 Press MEMORY STORE or MEMORY RECALL a second time to execute the store or load operation, or any other key to abort.
- \* The MEMORY PROTECT function must be turned OFF to save or lead MEMORY data, but has no effect when saving or loading MIDI data.

\* Note that data is only copied to the work buffer and that a MEMORY STORE operation must be carried out to store the copied data in an internal or cartridge memory location.



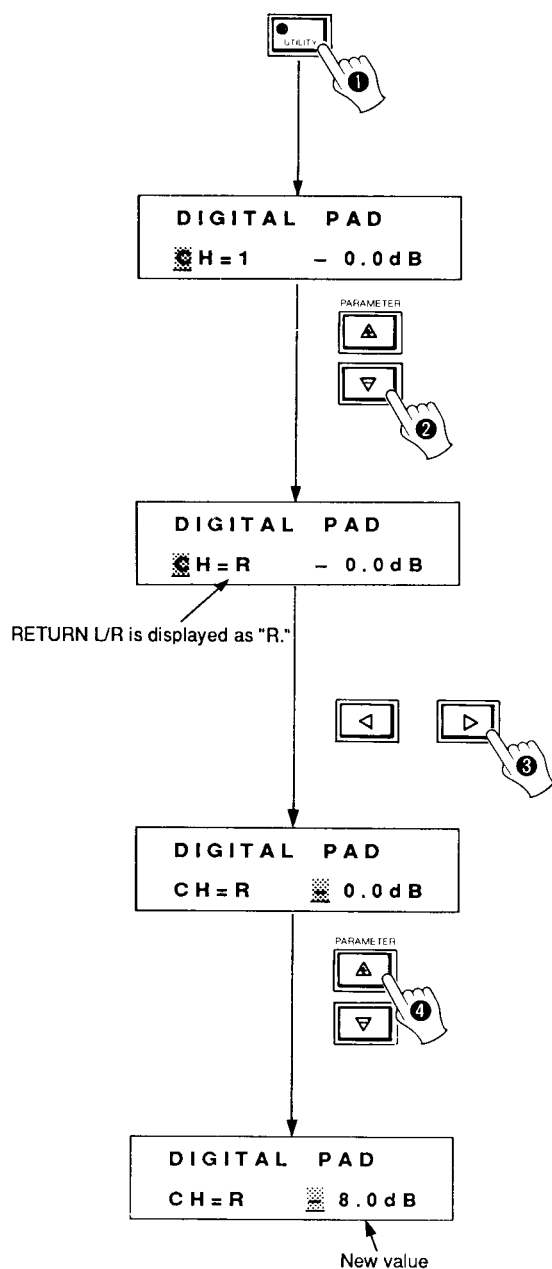
## DIGITAL PAD

Thus utility function allows setting between 0 dB and -24 dB attenuation for the 8 input channels and the EFFECT RETURN L/R inputs in 0.5 dB increments.

**Note:** Digital pad settings are not included in the DMP7D's mixing parameters, and can not be set independently for different memory locations. The digital pad setting applies to all memory locations.

- ❶ Press the UTILITY key a few times until the DIGITAL PAD function appears.
- ❷ Use the PARAMETER +/- keys to select the channel for which the pad setting is to be made.
- ❸ Press the PARAMETER > key to move the cursor to the attenuation setting.  
The PARAMETER < key can be used to move the cursor back to the channel setting.
- ❹ Using the PARAMETER +/- keys, set the required amount of attenuation.
- ❺ Repeat this process for as many channels as required.
- ❻ Exit the UTILITY mode.

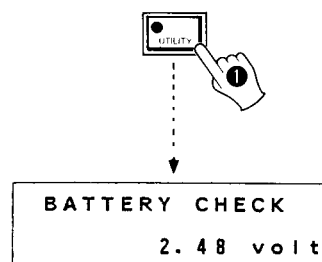
\* The word "EXECUTE" will appear on the bottom line of the LCD while the SAVE or LOAD operation is in progress. When completed, "END" will appear.



## BATTERY CHECK

This function provides a warning that the memory backup battery must be replaced. Always refer battery replacement to a qualified Yamaha service center. The internal memory backup battery should last for approximately 5 years.

- ① The BATTERY CHECK function is the last on the UTILITY function list, and will appear immediately after the CARTRIDGE INITIALIZE function only if the battery voltage is below 2.5 volts!
- ② The current battery voltage is displayed on the bottom line of the LCD.



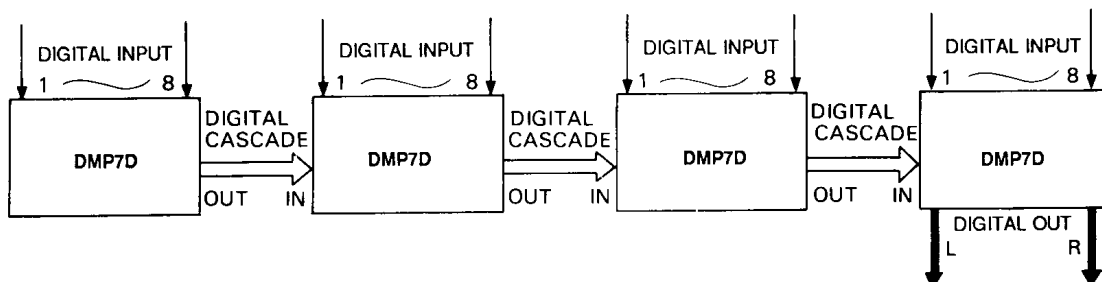
**REPLACE BATTERY IF BATTERY CHECK FUNCTION APPEARS!!**

## CASCADING

2 or more DMP7Ds can be "cascaded" to provide additional input channels feeding a master stereo output buss. Cascading between DMP7D units is fully digital, so no signal degradation occurs due to cascading.

The CASCADE OUT terminal of the first DMP7D in the cascade chain is connected to the CASCADE IN terminal of the next DMP7D, and so on. Output is taken from the DIGITAL OUT terminals of the last DMP7D in the chain.

Since the CASCADE OUT signal is taken after the master stereo fader, please note that the setting of the master stereo fader on each DMP7D in the chain will affect the total level of output from that DMP7D contributed to the final mix.



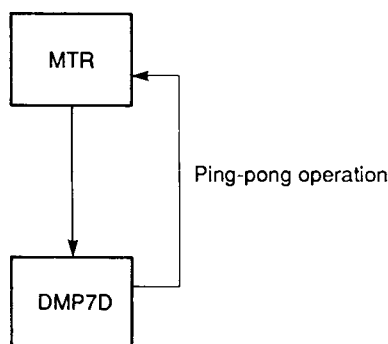
\*One cascade cable (3 m) is included with the unit.

## BIT SHIFT ADJUSTMENT

Since the word clock and data are routed through different cables and internal circuitry, the data may be delayed in relation to the word clock signal causing improper synchronization at the receiving device. This can cause noise, severe level fluctuations and other problems.

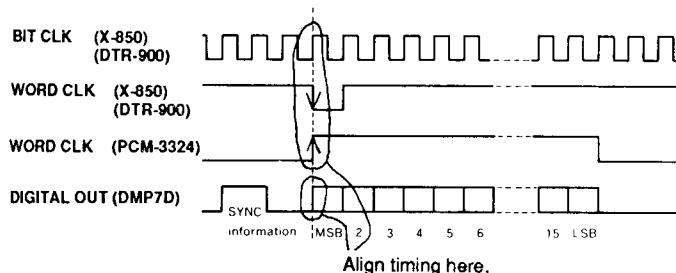
An example of a situation in which this problem can occur is given below.

- When the MTR is simply playing data which is fed to the DMP7D, no delay will occur since the MTR is controlled by its own master clock and the DMP7D receives the data and word clock signal over approximately equal-length cables. If, however, a ping-pong operation is performed the data returning to the MTR will be delayed in relation to the MTR's internal word clock signal.



In this case, the BIT SHIFT function should be used to align the ping-ponged data with the word clock signal (adjustment must be made so that the rising edge of the data MSB is no more than 0.25 "slots" misaligned from the word clock).

Adjustment can be carried out quite accurately by ear. If the data and word clock are even slightly misaligned the output will be extremely noisy. Simply adjust the COARSE and FINE BIT SHIFT selectors until normal sound is restored.



It is also possible to align the data and word clock signals visually using an oscilloscope. Observe the following points (referring to the case given above).

- The word clock signal should be derived from a point in the signal path as close to the MTR as possible.
- The data signal should be derived from a point as close as possible to the end of the signal path.
- A time-axis setting of 5  $\mu\text{s}/\text{div}$ , and a vertical-axis setting of 5V/div are appropriate (the word clock frequency is approximately 20.83  $\mu\text{s}$  with a sampling frequency of 48 kHz).
- The delay imposed by a standard cable is approximately 6 nanoseconds per meter.
- Make sure the data to be ping-ponged or a sine-wave data is being output from the DMP7D DIGITAL OUT connector during adjustment.
- If the DMP7D STEREO ON/OFF function is turned OFF, all data bits will be low making adjustment difficult.

### BIT SHIFT CHART

Combinations of COARSE and FINE BIT SHIFT selector settings produce the following delays (values in "slots").

		COARSE									
		0	1	2	3	4	5	6	7	8	9
FINE	0	0	0.25	4.25	8.25	12.25	16.25	20.25	24.25	28.25	32.25
	1	0	0.50	4.50	8.50	12.50	16.50	20.50	24.50	28.50	32.50
	2	0	0.75	4.75	8.75	12.75	16.75	20.75	24.75	28.75	32.75
	3	0	1.00	5.00	9.00	13.00	17.00	21.00	25.00	29.00	33.00
	4	0	1.25	5.25	9.25	13.25	17.25	21.25	25.25	29.25	33.25
	5	0	1.50	5.50	9.50	13.50	17.50	21.50	25.50	29.50	33.50
	6	0	1.75	5.75	9.75	13.75	17.75	21.75	25.75	29.75	33.75
	7	0	2.00	6.00	10.00	14.00	18.00	22.00	26.00	30.00	34.00
	8	0	2.25	6.25	10.25	14.25	18.25	22.25	26.25	30.25	34.25
	9	0	2.50	6.50	10.50	14.50	18.50	22.50	26.50	30.50	34.50
	10	0	2.75	6.75	10.75	14.75	18.75	22.75	26.75	30.75	34.75
	11	0	3.00	7.00	11.00	15.00	19.00	23.00	27.00	31.00	35.00
	12	0	3.25	7.25	11.25	15.25	19.25	23.25	27.25	31.25	35.25
	13	0	3.50	7.50	11.50	15.50	19.50	23.50	27.50	31.50	35.50
	14	0	3.75	7.75	11.75	15.75	19.75	23.75	27.75	31.75	35.75
	15	0	4.00	8.00	12.00	16.00	20.00	24.00	28.00	32.00	36.00

(Slots)

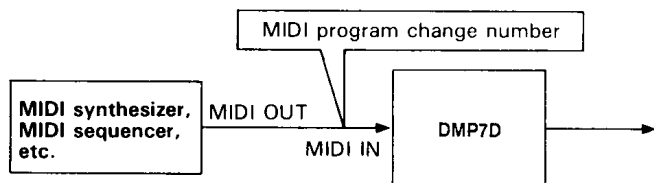
- \* 1 word clock = 32 slots.
- \* When COARSE is set to "0" no delay is produced regardless of the FINE setting.
- \* When COARSE is set to a value other than "0," the following equation applies:  $\text{BIT SHIFT} = (\text{COARSE} - 1) \times 4 + (\text{FINE} + 1) \times 0.25 \text{ slots.}$

# SECTION 2: MIDI CONTROL

## MIDI SCENE CHANGES

It is possible to change DMP7D scenes (select different memory locations) remotely under MIDI control. MIDI controlled scene changes are effected by sending an appropriate MIDI PROGRAM CHANGE NUMBER to the DMP7D MIDI IN terminal (for more detailed information on MIDI and the MIDI data categories, see Yamaha's "THE MIDI BOOK"). Any MIDI device that can transmit, or record and retransmit MIDI program change numbers can be used to change scenes on the DMP7D. A MIDI synthesizer such as the Yamaha DX7II, for example, transmits a program change number every time one of its voice select buttons is pressed. Pressing voice select button 1 transmits program change number 1, and so on, right up to program change number 64.

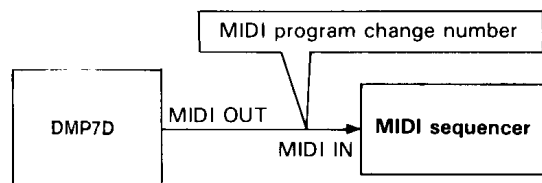
An alternative is to use a MIDI sequencer such as the Yamaha QX3 to record program change numbers with the appropriate timing, and then play back the program change numbers to change scenes on the DMP7D at just the right moment. Program numbers can be transmitted to and recorded in the sequencer from a synthesizer simply by pressing the appropriate voice selector keys, or directly from the DMP7D itself by calling up the scene changes.



\* NOTE: Appropriate MIDI channel and program change assignments must be programmed in the DMP7D before the MIDI scene change capability can be used. Refer to "MIDI CHANNEL & PROGRAM CHANGE ASSIGNMENT," below.

## RECORDING PROGRAM CHANGE NUMBERS FROM THE DMP7D

Each time a new memory location is selected on the DMP7D, the corresponding MIDI program change number is transmitted via the DMP7D's MIDI OUT terminal. If the DMP7D MIDI OUTPUT terminal is connected to the MIDI IN terminal of a MIDI sequence recorder such as the QX3, all you have to do is start the sequence recorder in the record mode and change scenes (select different memory locations) on the DMP7D at the appropriate times. When you play back the sequence recorder (the sequence recorder MIDI OUT terminal must be connected to the DMP7D MIDI IN terminal) the scenes will be selected on the DMP7D exactly as they were recorded.



## MIDI CHANNEL & PROGRAM CHANGE ASSIGNMENT

The DMP7D has 4 MIDI CONTROL "BANKS," each of which can be set to receive on a different MIDI channel and can be programmed with a completely different set of program change assignments. Program change assignments simply "pair up" specific MIDI program change numbers with specific memory location numbers on the DMP7D, so that when a given memory location is selected on the DMP7D the assigned program change number is transmitted via MIDI OUT, and when a program change number is received via MIDI IN, the memory location to which it is assigned is selected.

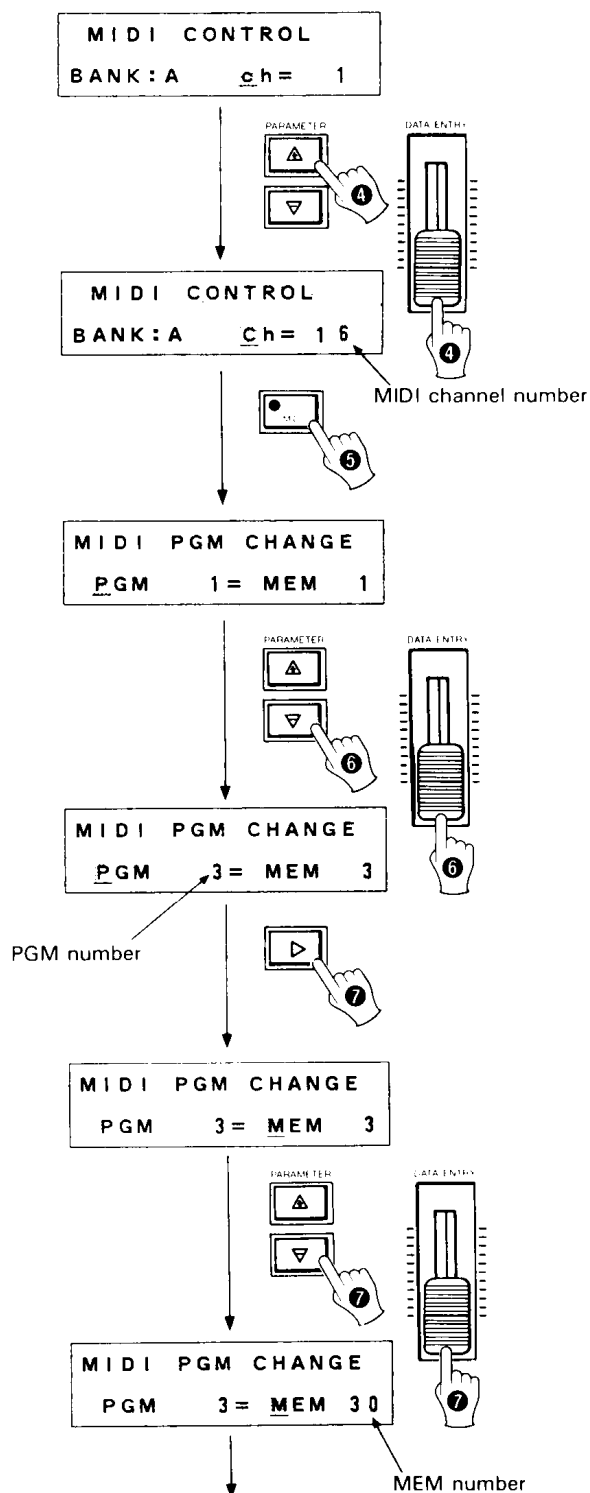
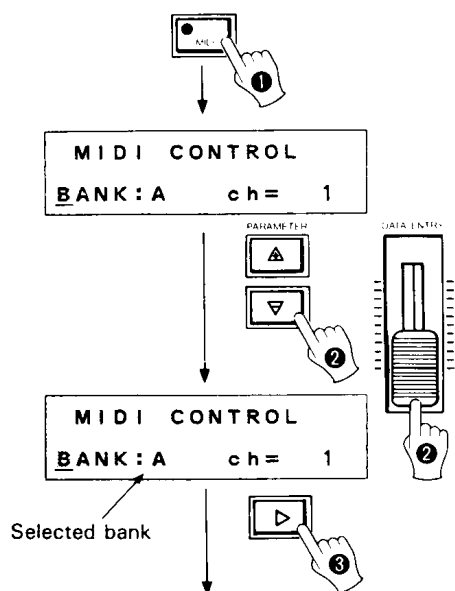
Note that the DMP7D can be set to receive and transmit on any or all MIDI channels. However, when OMNI is selected, the DMP7D transmits only on channel 1.

- 1 Press the MIDI key to select the MIDI CONTROL function.
- 2 With the cursor on the BANK parameter, use the PARAMETER +/- keys or DATA ENTRY slider to select the bank to be programmed (A, B, C or D).
- 3 Press the PARAMETER > key to move the cursor to the "ch" parameter (channel).

- 4 Use the **PARAMETER** +/- keys or **DATA ENTRY** slider to select the desired MIDI receive channel (1 – 16, OMNI or OFF). When the OMNI mode is selected MIDI data will be received on all 16 channels. When OFF is selected both MIDI transmission and reception are shut off.

\* This is all that has to be done if you simply want to set a new MIDI receive channel for a specific bank. To set program change assignments for the selected bank, continue:

- 5 Press the **MIDI** key again to select the **MIDI PGM CHANGE** function.
- 6 With the cursor on the **PGM** (program change number) parameter, use the **PARAMETER** +/- keys or **DATA ENTRY** slider to select the program change number to which a parameter will be assigned. The **PGM** parameter can be set to any program number between 1 and 128.
- 7 Use the **PARAMETER** > keys to select the **MEM** (memory number) parameter, and the **PARAMETER** +/- keys or **DATA ENTRY** slider to select the memory number to which the previously selected program change number will correspond. The **MEM** parameter can be set to any memory number between 0 and 97. **MEM** can also be set to 255, but this means that no memory number is assigned to the corresponding program change number.
- 8 Repeat steps 6 and 7 until all necessary program change assignments have been programmed.



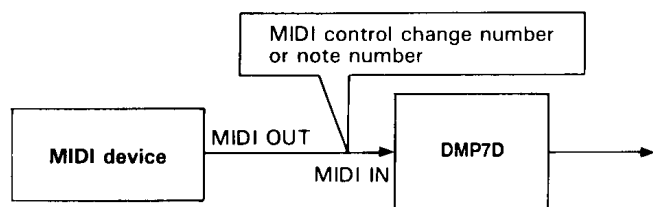
\* Remember that each **MIDI CONTROL BANK** (A, B, C and D) can be programmed with a completely different receive channel and set of program change assignments. Once the required number of banks have been programmed, all you need to do is select the bank containing the desired assignments after calling the **MIDI CONTROL** function via the **MIDI** key.

## REAL-TIME MIDI CONTROL

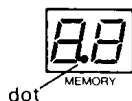
Real time control of all DMP7D parameters can be carried out remotely via MIDI, using MIDI CONTROL CHANGE and NOTE NUMBER data (for more detailed information on MIDI and the MIDI data categories, see Yamaha's "THE MIDI BOOK").

Each DMP7D parameter has a parameter number (see DMP7D PARAMETER CHART, below), and these may be individually assigned to any MIDI control change number or note on number. Since MIDI control change numbers and note on numbers have a value associated with them ("velocity" in the case of note on numbers), they can be used to both select and set variable parameters such as fader position, EQ frequency, reverb time, etc.

You may transmit the appropriate realtime parameter control data to the DMP7D from a computer fitted with a MIDI interface, or record the data from the DMP7D on a MIDI sequence recorder. When the DMP7D controls are operated or parameters changed, the corresponding MIDI control change or note on number data is transmitted via the DMP7D MIDI OUT terminal. This data can be recorded on a MIDI sequence recorder such as the Yamaha QX3 in the same way as performance data from a MIDI synthesizer can—in real time. When the sequence recording is played back, the entire mix, as "performed" while the sequence was recorded, will be recreated in fine detail. It is also possible to take advantage of the sequence recorder's overdubbing capabilities to create extremely complex mixdown sequences. Simply overdub the various mix operations and parameter changes as you would do with different musical parts when recording from a synthesizer.



\* If the LED dot to the right of the first digit in the LED MEMORY number display lights during reception of MIDI data, this indicates a MIDI RECEIVE ERROR.



## DMP7D PARAMETER CHART

NUMBER	PARAMETER
0-7:	INPUT [SOLO] ON/OFF (CHANNELS 1-8)
8:	PHASE (CHANNELS 1-4)
9:	PHASE (CHANNELS 5-8)
10:	PRE/POST FOR EFFECT SEND 1 (CHANNELS 1-4)
11:	PRE/POST FOR EFFECT SEND 1 (CHANNELS 5-8)
12:	PRE/POST FOR EFFECT SEND 2 (CHANNELS 1-4)
13:	PRE/POST FOR EFFECT SEND 2 (CHANNELS 5-8)
14:	PRE/POST FOR EFFECT SEND 3 (CHANNELS 1-4)
15:	PRE/POST FOR EFFECT SEND 3 (CHANNELS 5-8)
16-23:	PAN (CHANNELS 1-8)
24-31:	FADER (CHANNELS 1-8)
32-39:	EFFECT SEND LEVEL, SEND 1 (CHANNELS 1-8)
40-47:	EFFECT SEND LEVEL, SEND 2 (CHANNELS 1-8)
48-55:	EFFECT SEND LEVEL, SEND 3 (CHANNELS 1-8)
56-63:	EQ, LOW, FREQ (CHANNELS 1-8)
64-71:	EQ, LOW, GAIN (CHANNELS 1-8)
72-79:	EQ, LOW, Q (CHANNELS 1-8)
80:	EQ, LOW, SHLV/PEAK (CHANNELS 1-4)
81:	EQ, LOW, SHLV/PEAK (CHANNELS 5-8)
82-89:	EQ, MID, FREQ (CHANNELS 1-8)
90-97:	EQ, MID, GAIN (CHANNELS 1-8)
98-105:	EQ, MID, Q (CHANNELS 1-8)
106-113:	EQ, HI, FREQ (CHANNELS 1-8)
114-121:	EQ, HI, GAIN (CHANNELS 1-8)
122-129:	EQ, HI, Q (CHANNELS 1-8)
130:	EQ, HI, SHLV/PEAK (CHANNELS 1-4)
131:	EQ, HI, SHLV/PEAK (CHANNELS 5-8)
132:	EFFECT 1 RETURN LEVEL
133:	EFFECT 2 RETURN LEVEL
134:	EFFECT 3 RETURN LEVEL
135:	STEREO OUT LEVEL
136:	COMPRESSOR ON/OFF
137:	COMPRESSOR RATIO
138-145:	EQ ON/OFF (CHANNELS 1-8)
146:	SOLO MODE ON/OFF
147:	STEREO ON/OFF
148:	EFFECT RETURN 1 [SOLO] ON/OFF
149:	EFFECT RETURN 2 [SOLO] ON/OFF
150:	EFFECT RETURN 3 [SOLO] ON/OFF
151:	EFFECT 1 PARAMETER, TYPE
152:	EFFECT 1 PARAMETER 1, PARAMETER RANGE
153:	EFFECT 1 PARAMETER 1, PARAMETER VALUE
154:	EFFECT 1 PARAMETER 2, PARAMETER RANGE
155:	EFFECT 1 PARAMETER 2, PARAMETER VALUE
156:	EFFECT 1 PARAMETER 3, PARAMETER RANGE
157:	EFFECT 1 PARAMETER 3, PARAMETER VALUE
158:	EFFECT 1 PARAMETER 4, PARAMETER RANGE
159:	EFFECT 1 PARAMETER 4, PARAMETER VALUE
160:	EFFECT 1 PARAMETER 5, PARAMETER RANGE

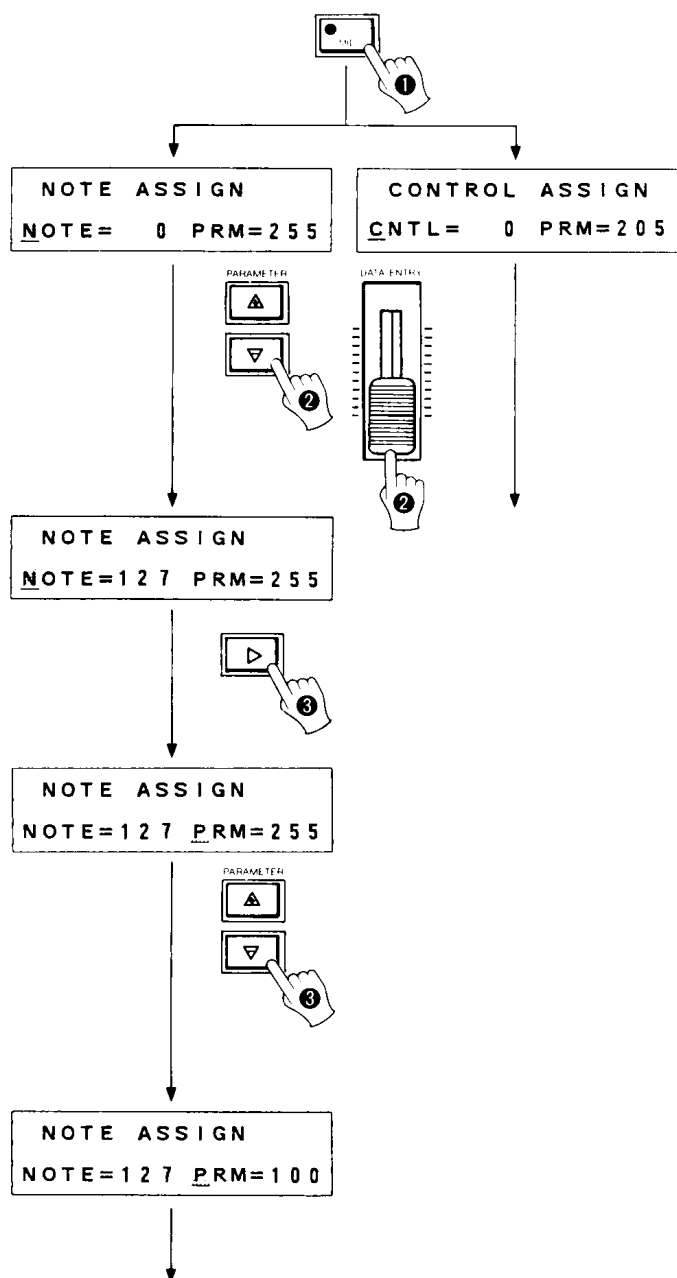
NUMBER	PARAMETER
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161:	EFFECT 1 PARAMETER 5, PARAMETER VALUE
162:	EFFECT 1 PARAMETER 6, PARAMETER RANGE
163:	EFFECT 1 PARAMETER 6, PARAMETER VALUE
164:	EFFECT 1 PARAMETER 7, PARAMETER RANGE
165:	EFFECT 1 PARAMETER 7, PARAMETER VALUE
166:	EFFECT 1 PARAMETER 8, PARAMETER RANGE
167:	EFFECT 1 PARAMETER 8, PARAMETER VALUE
168:	EFFECT 2 PARAMETER, TYPE
169:	EFFECT 2 PARAMETER 1, PARAMETER RANGE
170:	EFFECT 2 PARAMETER 1, PARAMETER VALUE
171:	EFFECT 2 PARAMETER 2, PARAMETER RANGE
172:	EFFECT 2 PARAMETER 2, PARAMETER VALUE
173:	EFFECT 2 PARAMETER 3, PARAMETER RANGE
174:	EFFECT 2 PARAMETER 3, PARAMETER VALUE
175:	EFFECT 2 PARAMETER 4, PARAMETER RANGE
176:	EFFECT 2 PARAMETER 4, PARAMETER VALUE
177:	EFFECT 2 PARAMETER 5, PARAMETER RANGE
178:	EFFECT 2 PARAMETER 5, PARAMETER VALUE
179:	EFFECT 2 PARAMETER 6, PARAMETER RANGE
180:	EFFECT 2 PARAMETER 6, PARAMETER VALUE
181:	EFFECT 2 PARAMETER 7, PARAMETER RANGE
182:	EFFECT 2 PARAMETER 7, PARAMETER VALUE
183:	EFFECT 2 PARAMETER 8, PARAMETER RANGE
184:	EFFECT 2 PARAMETER 8, PARAMETER VALUE
185:	EFFECT 3 PARAMETER, TYPE
186:	EFFECT 3 PARAMETER 1, PARAMETER RANGE
187:	EFFECT 3 PARAMETER 1, PARAMETER VALUE
188:	EFFECT 3 PARAMETER 2, PARAMETER RANGE
189:	EFFECT 3 PARAMETER 2, PARAMETER VALUE
190:	EFFECT 3 PARAMETER 3, PARAMETER RANGE
191:	EFFECT 3 PARAMETER 3, PARAMETER VALUE
192:	EFFECT 3 PARAMETER 4, PARAMETER RANGE
193:	EFFECT 3 PARAMETER 4, PARAMETER VALUE
194:	EFFECT 3 PARAMETER 5, PARAMETER RANGE
195:	EFFECT 3 PARAMETER 5, PARAMETER VALUE
196:	EFFECT 3 RETURN EQ, LOW, FREQ
197:	EFFECT 3 RETURN EQ, LOW, GAIN
198:	EFFECT 3 RETURN EQ, LOW, Q
199:	EFFECT 3 RETURN EQ, MID, FREQ
200:	EFFECT 3 RETURN EQ, MID, GAIN
201:	EFFECT 3 RETURN EQ, MID, Q
202:	EFFECT 3 RETURN EQ, HI, FREQ
203:	EFFECT 3 RETURN EQ, HI, GAIN
204:	EFFECT 3 RETURN EQ, HI, Q
205:	FADE TIME

## NOTE NUMBER & CONTROL CHANGE ASSIGNMENT

The DMP7D has a total of 206 MIDI-controllable parameters. The range of available MIDI note on numbers is 0–127, and the range of available MIDI control change numbers is also 0–127. If your real-time control application requires the use of less than 127 parameters, we strongly recommend that you use only control change numbers with sequencers such as the QX5 and QX7 since the NOTE OFF data transmitted by the DMP7D is recorded and played back as a NOTE ON message with zero velocity. If you need to control more than 128 parameters, then a combination of control change and note on number assignments will be required.

- 1 Press the MIDI key a few times to call the NOTE ASSIGN or CONTROL ASSIGN function, depending on your requirements.
- 2 With the cursor on the NOTE parameter (in the NOTE ASSIGN mode) or CNTL parameter (in the CONTROL ASSIGN mode), use the PARAMETER +/- or DATA ENTRY slider to select the note on number or control change number to be assigned.
- 3 Press the PARAMETER > key to move the cursor to the PRM (parameter number) parameter, and use the PARAMETER +/- keys or DATA ENTRY slider to select the parameter number to be assigned to the previously selected note on or control change number.
- 4 Repeat steps 2 and 3 until the required number of assignments have been made.



## CONTROL CHANGE & NOTE NUMBER SEND/RECEIVE SELECTION

This function permits independently enabling or disabling reception and transmission of control change and note on number data.

- 1 Press the MIDI key a few times until the following display appears:

CNTL	(R)	0	(S)	0
NOTE	(R)	0	(S)	0

On the top row, "CNTL (R)" corresponds to control change receive, "CNTL (S)" corresponds to control change send. On the lower row "NOTE (R)" is note on number receive and "NOTE (S)" is note number send.

- 2 Use the PARAMETER </> keys to place the cursor over the desired send or receive parameter.
- 3 Use the PARAMETER +/- keys or DATA ENTRY slider to set the digit immediately following the (R) or (S) parameter to "0" (disable) or "1" (enable).

If you will be sending and receiving control change data but not note on number data, then the display should be set as follows:

CNTL	(R)	1	(S)	1
NOTE	(R)	0	(S)	0

- \* Note that the send (S) parameters only enable or disable transmission of data internally generated by the DMP7D.

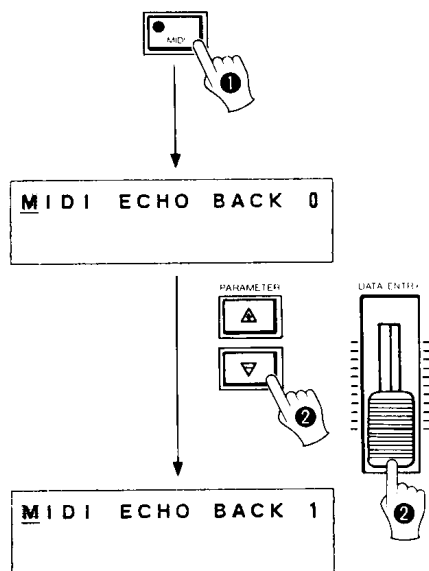
## MIDI ECHO BACK

When the MIDI ECHO BACK function is ON, MIDI data received at the DMP7D MIDI IN terminal is immediately re-transmitted via the MIDI OUT terminal in addition to MIDI data internally generated by the DMP7D. Refer to "CONTROL CHANGE & NOTE ON NUMBER SEND/RECEIVE SELECTION," above, for details about transmission of internally generated data. Referring to the same section, MIDI control change or note on data received at MIDI IN will only be re-transmitted via MIDI OUT if the corresponding receive (R) parameters are turned ON, and appropriate parameters are assigned within the DMP7D (see "NOTE ON NUMBER & CONTROL CHANGE ASSIGNMENT" on page 38).

\* The initial factory-programmed program change, note on number and control change number assignments can be restored by turning the DMP7D OFF, then turning the power back ON while holding both the FADER FLIP and MIDI keys. (See "INITIAL DATA CHART" on page 170.)

**CAUTION!!** Do not try other power-on key combinations. Software failure may occur.

- 1 Press the MIDI key a few times to select the MIDI ECHO BACK function.
- 2 Use the PARAMETER +/- keys or DATA ENTRY slider to set the digit at the end of the LCD line to 0 (MIDI echo back OFF) or 1 (MIDI echo back ON).



\* During normal operation MIDI ECHO BACK should be turned OFF (0).

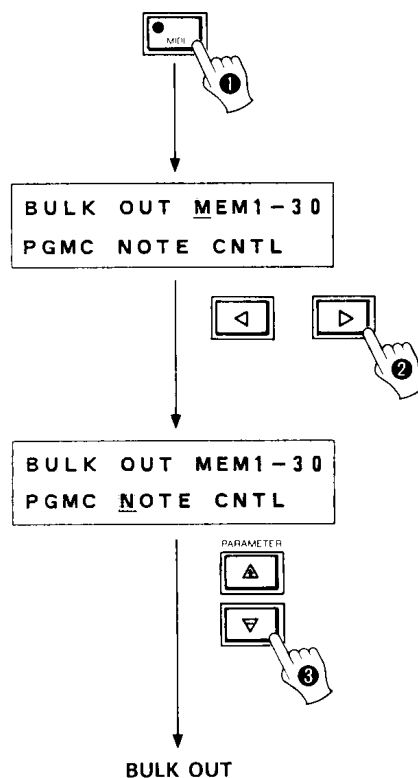
### MIDI BULK DUMP

The BULK OUT function permits initiating a bulk dump of any of the following four data groups via the MIDI OUT terminal:

1. MEM1-30: The contents of internal memories 1 through 30.
2. PGMC: The four program change assignment tables.
3. NOTE: The note on assignment table.
4. CNTL: The control change assignment table.

This data may be conveniently stored on a MIDI Data Recorder such as the Yamaha MDF1 MIDI Data Filer or the internal micro floppy disk drive of the DX7IIFD Digital Programmable Algorithm Synthesizer.

- 1 Press the MIDI key a few times until the BULK OUT function appears.
- 2 Use the PARAMETER </> keys to select the data group to be transmitted.
- 3 Press either the PARAMETER + or - key to initiate the bulk dump.



The following is a list of the number of data bytes transmitted for each data group:

MEM1-30:	6630 bytes
PGMC:	569 bytes
NOTE:	274 bytes
CNTL:	274 bytes

- \* Some EDIT TITLE characters are not transferred by the BULK OUT function. The main title characters (0~9, A~Z, a~z) are transferred.

## EDITING RECORDED MIDI SEQUENCE DATA

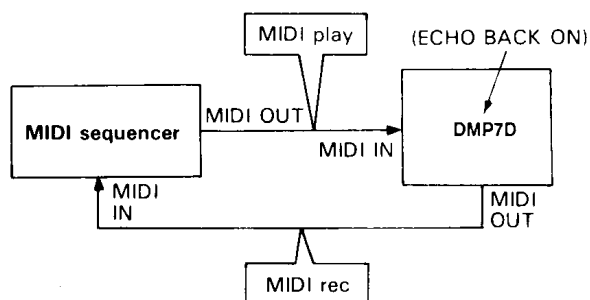
The method of recording real-time MIDI control data to a sequencer directly from the DMP7D has already been described in the "REAL-TIME MIDI CONTROL" section on page 37. Three functions are provided in the UTILITY group which allow editing a section of an already-recorded mixdown sequence:

1. FADER EDIT CHANNEL ASSIGN
2. PANPOT EDIT CHANNEL ASSIGN
3. EQUALIZER EDIT CHANNEL ASSIGN

This can be a great time-saver when programming long or complex real-time MIDI control sequences, since it eliminates the need to re-record the entire sequence if a change is required.

All three of these functions work in conjunction with the AUTO/MANUAL key. When a recorded sequence is played back and the AUTO mode is selected there is no effect, but when the MANUAL mode is selected only the assigned channels switch to manual operation and changes may be made by manual control.

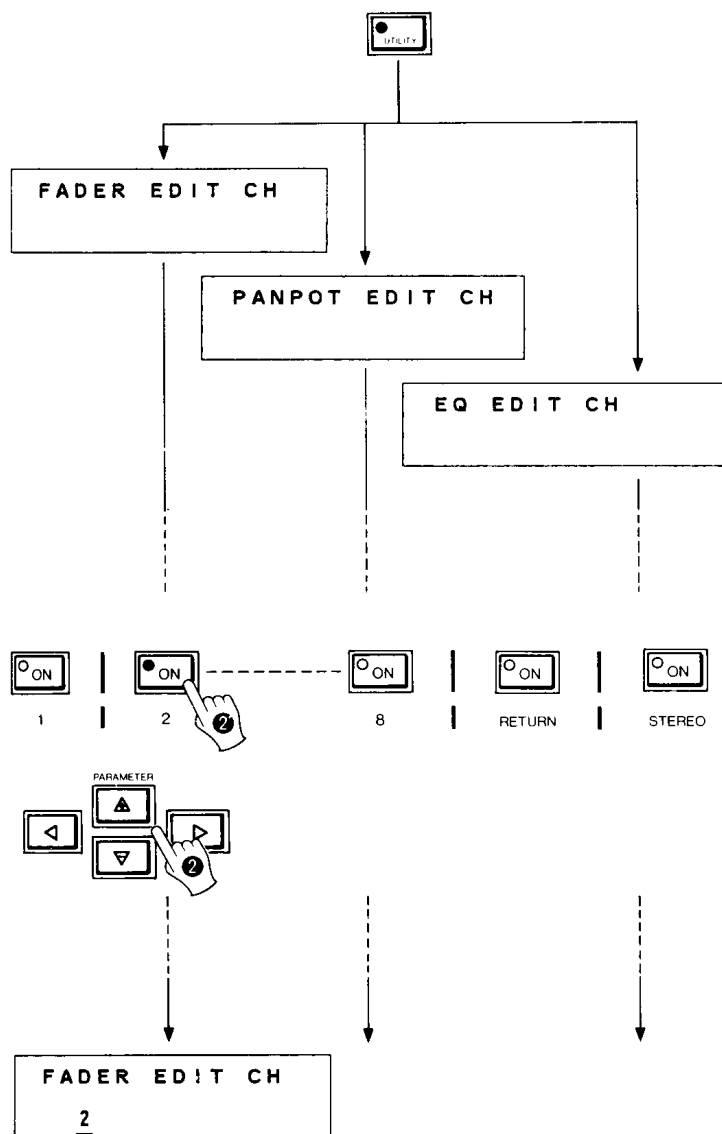
The setup to edit a sequence is as follows:



The MIDI OUT terminal of the DMP7D is connected to the MIDI IN terminal of the sequencer, and the MIDI OUT terminal of the sequencer is connected to the MIDI IN terminal of the DMP7D. The previously recorded sequence is moved to a non-recording track of the sequencer (in the case of the QX5, for example, track 2) and the recording track is set up to record (track 1 in the QX5). The DMP7D MIDI ECHO BACK function (see page 39) must be turned ON, and the DMP7D control change receive and send functions (see page 39) must be enabled. The note on receive and send functions must also be enabled if MIDI note on numbers are assigned to any of the DMP7D parameters.

The next step is to assign the channel(s) and parameter(s) to be edited:

- ① Press the UTILITY key a few times until the FADER EDIT CH function appears if you wish to edit a channel fader setting, the PANPOT EDIT CH function appears if you wish to edit a panpot setting, or the EQ EDIT CH function appears if you wish to edit an equalizer setting. Note that the EQ PEAK/SHLV parameter can not be edited.
- ② Press the channel ON key(s) for the channels you wish to edit for the selected parameter (channel fader, pan or EQ). The number of the assigned channel(s) will appear on the bottom row of the LCD. In the FADER EDIT CH function only the RETURN and STEREO channels may also be assigned for editing. These are indicated by an "R" and an "S," respectively. Channels may also be assigned using the PARAMETER </> keys to move the cursor to the position of the channel number. Then press the PARAMETER + key to assign the channel, or the PARAMETER-key to cancel the channel.



The entire edited sequence has now been re-recorded onto the recording track of the sequencer (track 1). The pre-edit version still resides on the non-recording track of the sequencer, so if a mistake was made, simply repeat the edit procedure.

The edit is then performed as follows:

- ① Press the AUTO/MANUAL key so that its LED turns ON (the AUTO mode is selected.)
- ② Start the sequencer in the RECORD mode.
- ③ At the beginning of the section you wish to edit press the AUTO/MANUAL key to select the MANUAL mode. When this is done the assigned channels will be released from MIDI control.
- ④ Make the required changes using the appropriate DMP7D controls.
- ⑤ Press the AUTO/MANUAL key at the end of the edit section to reselect the AUTO mode and allow the sequence to play through to the finish.

### **IMPORTANT NOTICE FOR THE UNITED KINGDOM**

#### **Connecting the Plug and Cord**

#### **WARNING : THIS APPARATUS MUST BE EARTHED**

IMPORTANT. The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW : EARTH

BLUE : NEUTRAL

BROWN : LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  $\equiv$  or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.