

Digital Delay Unit

Operating Instructions

DPS-D7

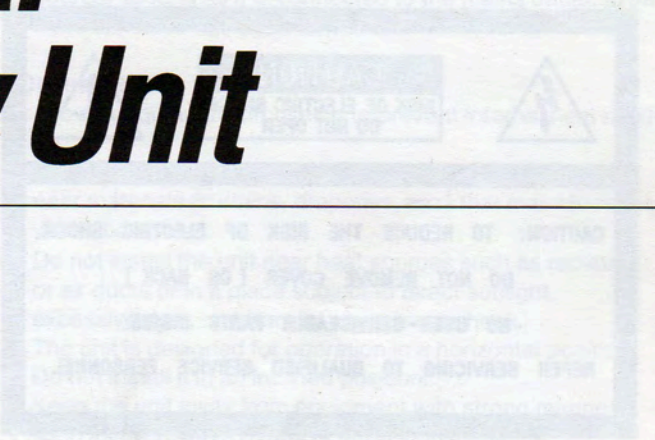
FOR CUSTOMERS IN THE UNITED STATES

Owner's Record

The model and serial numbers are located on the left side of the front panel. Please record these numbers in the space provided on this page. Please do not write on the product. Write only in the space provided. This record is for your reference only. It does not constitute a warranty. It provides a record of the product's history.

WARNING

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



CAUTION

To prevent electric shock, do not use this unit with an extension cord, receptacle, or other outlet unless the blades can be fully inserted to prevent blade exposure.

WARNING

This symbol is intended to alert the user to the presence of dangerous voltage within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION

This symbol is intended to alert the user to the presence of instructions in the literature accompanying the appliance.

CAUTION

Do not attempt to repair or replace any part of the unit unless you are qualified to do so. If you are not qualified, contact a qualified service technician.

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WARNING

FOR CUSTOMERS IN THE UNITED STATES

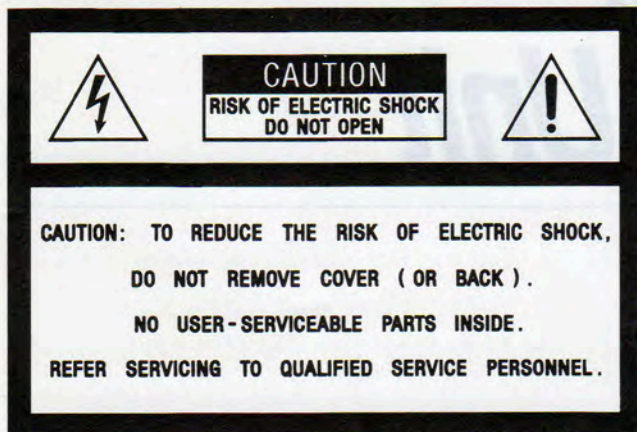
Owner's Record

The model and serial numbers are located on the left side. Record these numbers in the spaces provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. DPS-D7 Serial No. _____

WARNING

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



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



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

For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS".

INFORMATION

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 outlet so that equipment and 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.

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

FOR CUSTOMERS IN CANADA

CAUTION:
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

FOR CUSTOMERS IN THE UNITED KINGDOM

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 \perp 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.

On Safety

- To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
- Before connecting the unit to the power source, check to confirm that the operating voltage of your unit is the same as the local power line voltage. The operating voltage is indicated on the nameplate on the left side of the unit.
- Should anything fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- If the unit will not be used for an extended period, unplug it from the wall outlet. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- The unit is not disconnected from the mains (AC power source) as long as it is connected to the mains outlet, even if the unit itself has been turned off.

On Installation

- Allow adequate air circulation to prevent internal heat build-up.
- Do not place the unit on a surface (rugs, blankets, etc.) or near materials (curtains, draperies, etc.) that may block the ventilation holes.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit away from equipment with strong magnets, such as microwave ovens or large loudspeakers.
- Do not place any heavy object on the unit.

On Operation

- When the unit is not in use, turn the power off to conserve energy and to extend its life.

On Cleaning

- Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth slightly moistened with a mild detergent solution.
- Do not use any type of solvents, such as alcohol or benzene, which might damage the finish.

On Repacking

- Do not throw away the carton and packing materials. They make an ideal container to transport the unit.

If you have any questions about the unit, contact your Sony service facility.

CAUTION!

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

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Overview of the DPS-D7

The DPS-D7 is a digital delay unit equipped entirely with Sony's digital and audio technology at its highest level of sophistication which was released before with the Digital Reverberator, DRE-2000 and MU-R201 and has received much praise.

Quality-conscious design – A/D and D/A high performance converter

The DPS-D7 converts the incoming analog signal to a digital signal, passes it through various effects, then re-converts it to an analog signal before output. The determinant to the sound quality is the conversion mechanism that adopts the 18-bit oversampling stereo A/D converter and the pulse D/A converter of 49,152 MHz. These account for highly accurate, less deteriorated effects.

User-friendly and comfortable operation

The large size backlit LCD of 40 characters by 2 lines makes it possible to proceed with smooth operation while viewing the operating condition in real time. Moreover, the LCD display incorporates an on-line manual (in English) which displays information required for operation.

Abundant preset memory settings

The unit has a hundred variations of the effects created by musicians, sound mixers and acoustic engineers around the world in its preset memory. This will help you select and replay immediately the desired effects for a particular purpose.

Sound creation of any kind

The EDIT function allows you to modify the presets or to create some individual effects. Besides the preset memory for a hundred effects, the unit has a so-called user memory where you can save up to 256 effects you are going to create. Using this memory allows more varicolored play of effects.

Wide range of effects

The DPS-D7 is equipped with 7 types of algorithms in the Delay block; Stereo delay, Feedback delay, Double delay, Tap delay, Long tap delay, Panpot tap delay and Multi-delay. In addition, it is provided with the Equalizer block and the Auto panner block.

By using these blocks and algorithms, the DPS-D7 can create the wide range of effects which no other existing delay unit can achieve.

Remote control

The remote commander (not supplied) makes it possible to remotely control the unit.

2 types of I/O connectors are provided

The DPS-D7 has XLR connectors (balanced-type) and phone jacks so that it can be connected to instruments, recording equipment or PA (public address) equipment.

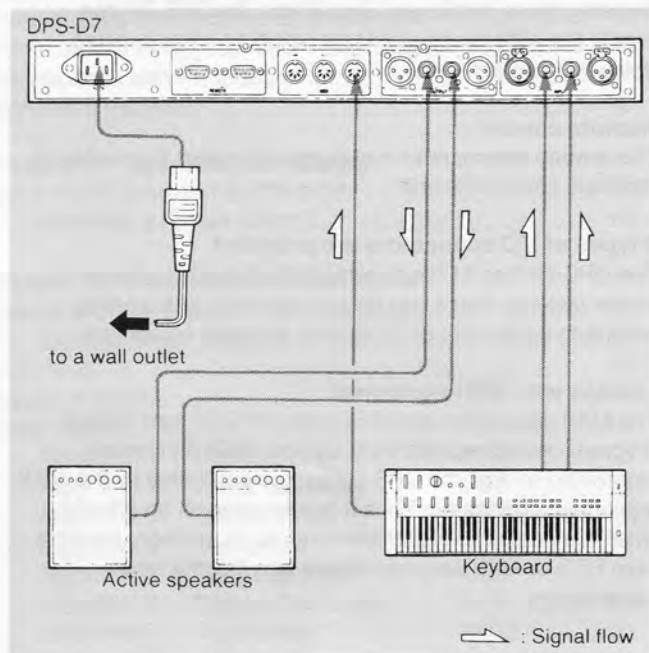
Linkage with MIDI equipment

The MIDI device incorporated in the DPS-D7 can receive program change signals from another MIDI equipment connected so that the DPS-D7 can be controlled by the MIDI equipment connected. Thus it can function as an effector when connected to digital instruments. In addition, controls from PC's or MIDI sequencers are very helpful for composition.

Hooking Up a System

Turn all the power off before making connections, and connect the AC power cord last.

Fundamental Connections as an Effector



1. Connect a keyboard to the INPUT jacks, or the MIDI IN connector.
2. Connect active speakers to the OUTPUT jacks.
3. Insert the AC power cord firmly into the AC IN jack.
4. Connect the AC power cord to a wall outlet.

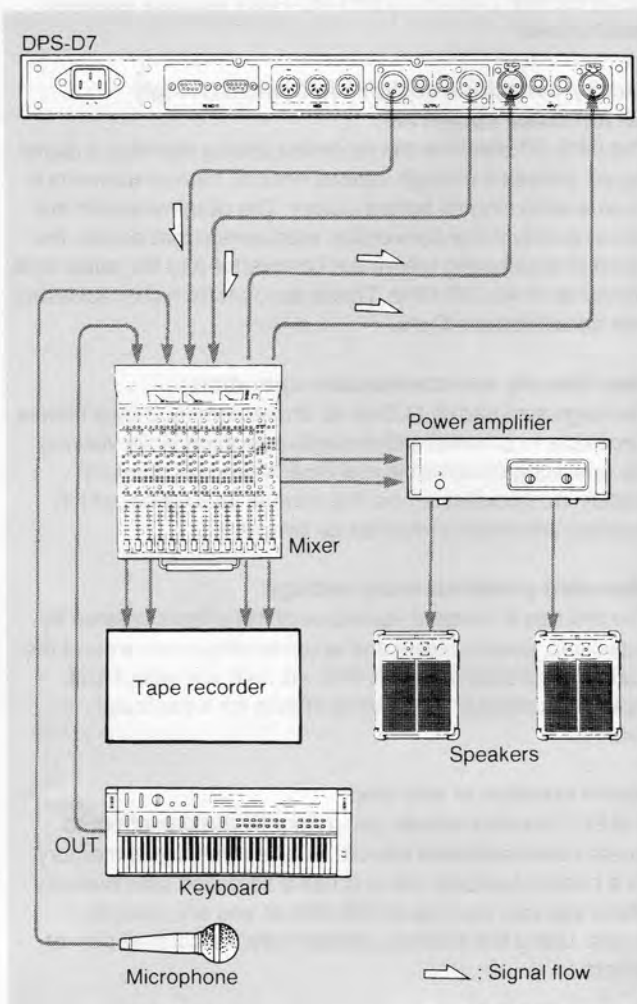
For models equipped with a voltage selector

Check to confirm that the voltage selector is set to the local power line voltage. If not, set the selector to the correct position before connecting the AC power cord to a wall outlet.

Notes:

- Be sure to insert the plugs firmly into the jacks. Loose connection may cause hum and noise.
- Leave a little slack in the connecting cord to allow for inadvertent shock or vibration.
- Connect the AC power cord last.
- Connections with some equipment of which the output capacity is very high may result in sound distortion. When this happens, turn the INPUT control to lower the input level, or turn down the output level of the equipment connected to the DPS-D7.

Fundamental Connections for Recording



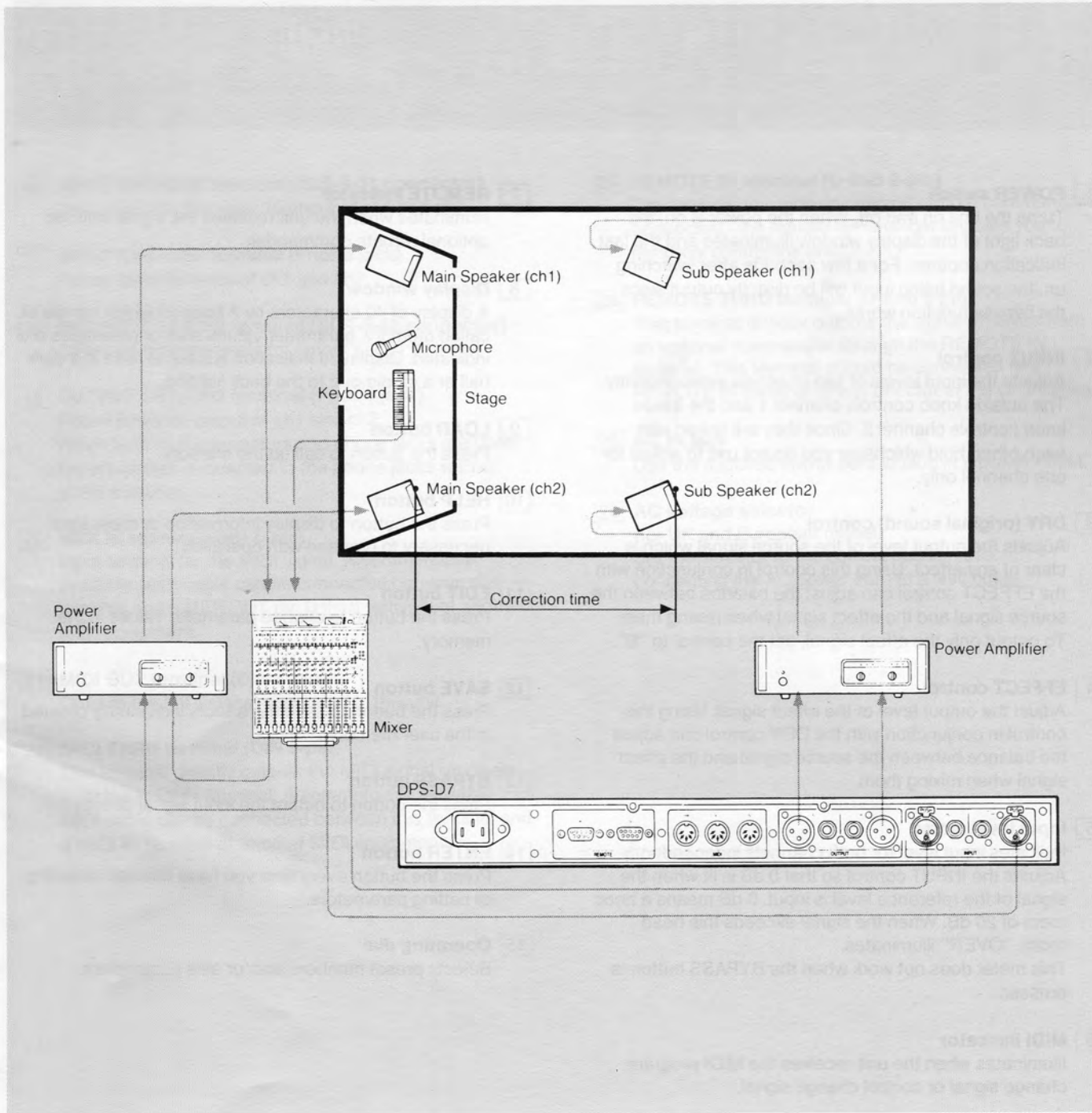
Notes:

- If only one channel is used, connect it to the INPUT CH1 and set the input mode in the System block to "mono". See page 25. This allows you to obtain the same result as you do when the mode is set to "stereo" and the same signal is input both to the INPUT CH1 and INPUT CH2.
- Be sure to input the signal with the reference level of +4 dB to the XLR-3-31 connector.
- Since the reference level of phone jack is set at -10 dB, any input signal exceeding the maximum input level of +10 dB causes clipping to the amplifier located before the input volume and sound may be distorted.
- An optional remote commander RM-DPS7 can be connected to the REMOTE IN connector to remotely control this unit.

Connections with PA facilities

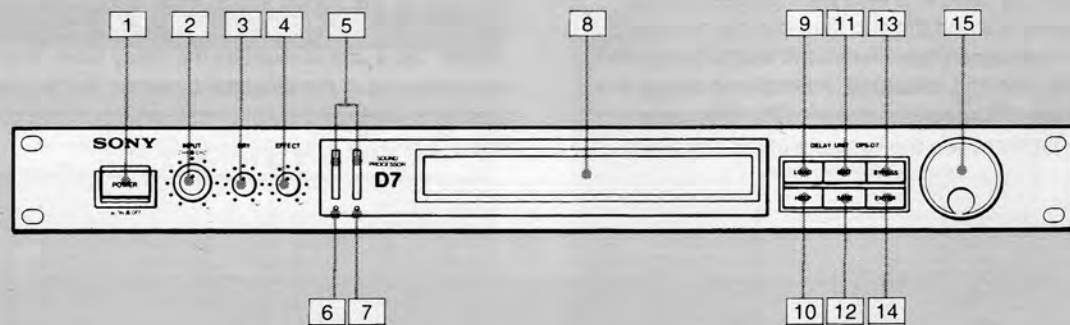
When PA facilities are used in a wide hall, sounds coming from the main speakers and the sub speakers do not reach any one point at the same time. The sound image generated may sound unfocused and unnatural. A delay unit delays the sound from a set of the speakers closer to the listener to correct the time lag between the two sets of the speakers.

This makes the sound image exist where players are standing. In particular the unit allows you to select the "meter" as a unit to express the delay time. Therefore you can simply input the distance between the two sets of speakers (main and sub) for calculation of the correction time.



Identifying the Parts

Front panel



- 1 POWER switch**

Turns the unit on and off. When the power is on, the back light of the display window illuminates and the last indication appears. For a few seconds after switching on, the sound being input will be directly output since the bypass function works.
- 2 INPUT control**

Adjusts the input levels of two channels independently. The outside knob controls channel 1 and the inside knob controls channel 2. Since they are linked with each other, hold whichever you do not use to adjust for one channel only.
- 3 DRY (original sound) control**

Adjusts the output level of the source signal which is clear of any effect. Using this control in conjunction with the EFFECT control can adjust the balance between the source signal and the effect signal when mixing them. To output only the effect signal, set the control to "0".
- 4 EFFECT control**

Adjust the output level of the effect signal. Using this control in conjunction with the DRY control can adjust the balance between the source signal and the effect signal when mixing them.
- 5 Input level meter**

Indicates input level for both channels independently. Adjusts the INPUT control so that 0 dB is lit when the signal of the reference level is input. 0 dB means a head room of 20 dB. When the signal exceeds this head room, "OVER" illuminates. This meter does not work when the BYPASS button is pressed.
- 6 MIDI indicator**

Illuminates when the unit receives the MIDI program change signal or control change signal.
- 7 REMOTE indicator**

Illuminates when the unit receives the signal from an optional remote commander.
- 8 Display window**

A display of 40 characters by 2 lines on which names of called memory, parameter values and/or messages are indicated. Displayed indication is easy to read in a dark hall or a studio due to the back lighting.
- 9 LOAD button**

Press the button to call up the memory.
- 10 HELP button**

Press the button to display information or messages necessary to proceed with operation.
- 11 EDIT button**

Press the button to change parameter values in the memory.
- 12 SAVE button**

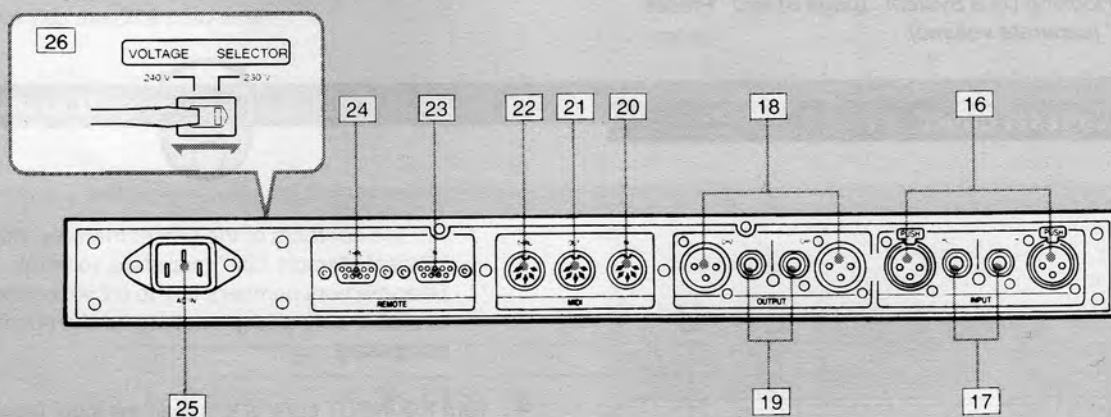
Press the button to save the effects individually created in the user memory.
- 13 BYPASS button**

Press the button to output the input signal directly.
- 14 ENTER button**

Press the button every time you have finished selecting or setting parameters.
- 15 Operating dial**

Selects preset numbers and/or sets parameters.

Rear panel

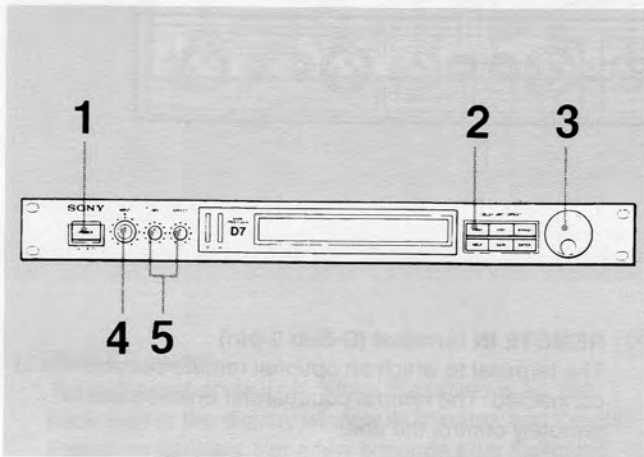


- 16 INPUT CH1/CH2 terminal (XLR-3-31 connector)**
Balanced-type terminals for input of ch1 and ch2.
- 17 INPUT CH1/CH2 terminal (Phone jack)**
Phone jacks for input of ch1 and ch2.
- 18 OUTPUT CH1/CH2 terminal (XLR-3-32 connector)**
Balanced-type terminals for output of ch1 and ch2
- 19 OUTPUT CH1/CH2 terminal (Phone jack)**
Phone jacks for output of ch1 and ch2.
When both XLR connectors and phone jacks are used, the equipment connected to the phone jacks will be given a priority.
- 20 MIDI IN terminal (DIN 5-pin)**
Input terminal for the MIDI signal. A commercially available MIDI cable can be connected between this terminal and a MIDI OUT (or THRU) terminal of another MIDI equipment.
- 21 MIDI OUT terminal (DIN 5-pin)**
Outputs the MIDI signal generated in this unit.
- 22 MIDI THRU terminal (DIN 5-pin)**
This terminal directly outputs the MIDI signal received from the MIDI IN terminal. A commercially available MIDI cable can be connected between this terminal and a MIDI IN terminal of another MIDI equipment.
- 23 REMOTE IN terminal (D-Sub 9-pin)**
The terminal to which an optional remote commander is connected. The remote commander enables you to remotely control the unit.
- 24 REMOTE THRU terminal (D-Sub 9 pin)**
This terminal directly outputs the signal received from an optional commander through the REMOTE IN terminal. This terminal should be connected to a REMOTE IN terminal of any effector of the DPS series.
- 25 AC IN jack**
Use the supplied power cord to plug in a power outlet.
- 26 AC voltage selector**
(for UK and European model)
Set the selector to the correct position before connecting the AC power cord to a wall outlet.

Let's Try to Operate Your DPS-D7

The DPS-D7 has a hundred effects stored in the preset memory. Now first, listen to these effects one by one, referring to "Hooking Up a System" (page 6) and "Preset Memory List" (separate volume).

Selecting a Preset Effect



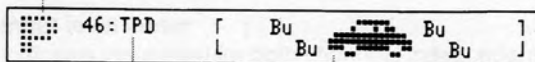
1. Turn on the power.



2. Press the LOAD button.



LOAD mode indication
(P = Preset memory, U = User memory)



Algorithm name

Memory name

3. Turn the dial to select a desired preset number (P1 to P100*, U1 to U256**)



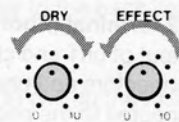
* For the contents of the preset memory, refer to the "Preset Memory List" (separate volume).

** User memory numbers (U1 to U256) become available only after presetting for the numbers are completed.

4. Turn the INPUT control to adjust the input level.



5. Turn the DRY and EFFECT controls to adjust the balance between source signals and effect signals to obtain a desired sound.



Before turning on the power of connected equipment

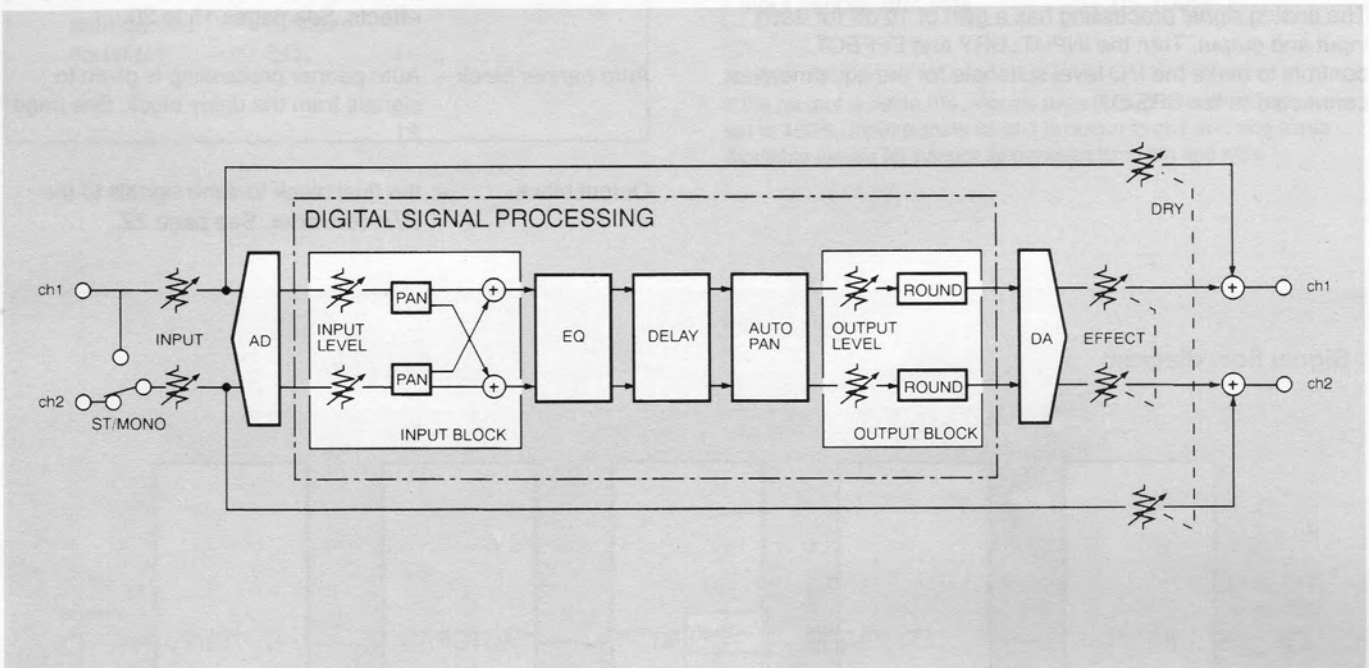
Turn down the volume of each equipment to prevent unexpectedly high sound from occurring.

To output the input signals directly

Press the BYPASS button. The input signals will be directly output. To release the bypass function, press the button again.

The digital signal converted by the A/D converter is then processed through Input, Equalizer, Delay, Auto panner and Output blocks sequentially. Then it enters into the D/A converter

General Block Diagram



Note:
When using the bypass function, signals input to ch1/ch2 bypasses the electric circuit and are directly output to the output terminals. When switching off the unit, the system automatically actuates the bypass function.

Overview of the Signal Processing Blocks

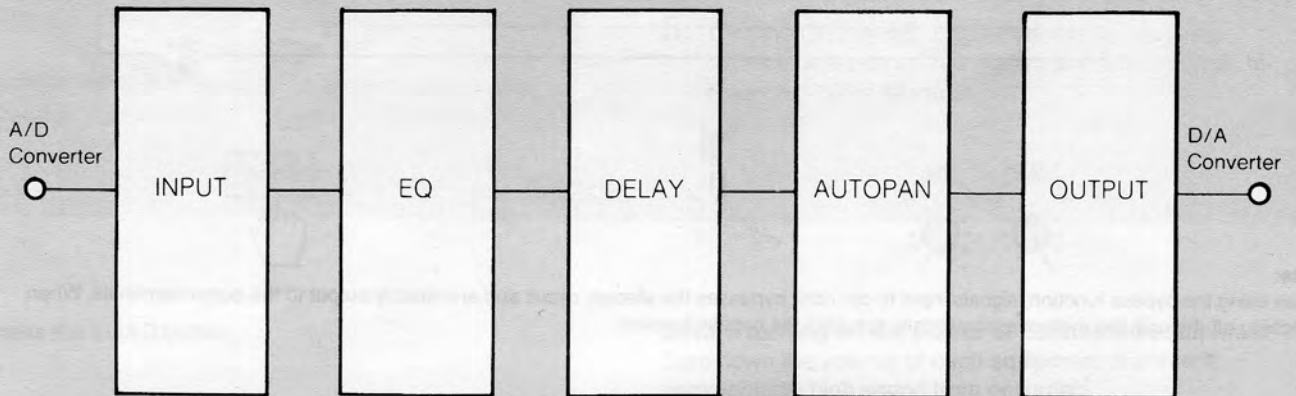
Since the digital signal processing has a 12 dB margin against the full-bit output signal from the A/D converter, the signal level raised within 12 dB by EQ (equalizer) parameters in the digital signal processing blocks can be regulated by simply changing the output level to prevent clipping. If the signal is to be raised more than 12 dB in the digital processing blocks, lower the input level.

The analog signal processing has a gain of 10 dB for each input and output. Turn the INPUT, DRY and EFFECT controls to make the I/O level suitable for the equipment connected to the DPS-D7.

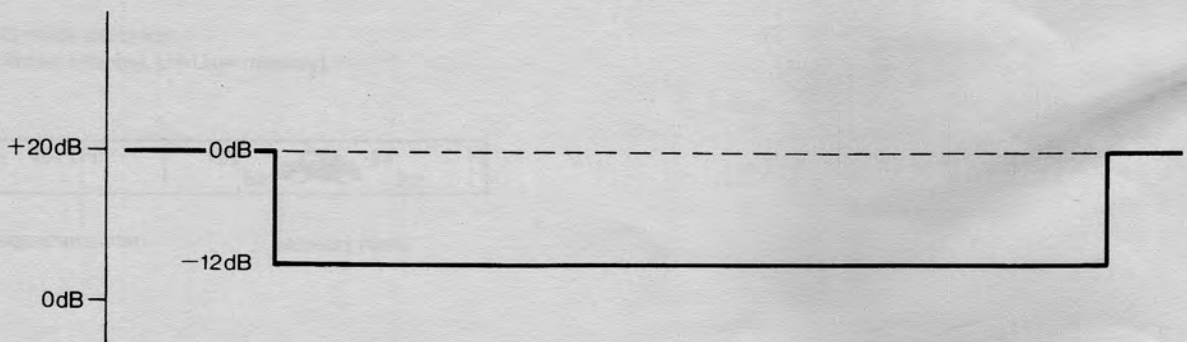
What can be done with each block?

- Input block** – the first block to receive digital signals. See page 13
- Equalizer block** – digital equalization takes place in this block. See page 14.
- Delay block** – the most important block in creating effects. See pages 15 to 20.
- Auto panner block** – Auto panner processing is given to signals from the delay block. See page 21.
- Output block** – the final block to send signals to the D/A converter. See page 22.

Signal flow diagram



Analog level-digital level diagram



Input Block

This block receives the signals from the A/D converter for level, phase and panpot processing.

Abbreviations of parameter names

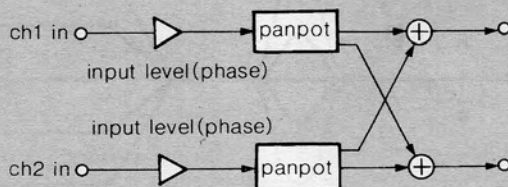
The parameter name shown in this manual may be abbreviated from time to time as shown below

auto panner → autopan
 equalizer → EQ

Parameters	MIN and MAX
input level	0 – 100%
input phase	normal/inverse
input panpot	0 – 100%
input panpot limit min	0 – 100%
input panpot limit max	0 – 100%

Note:

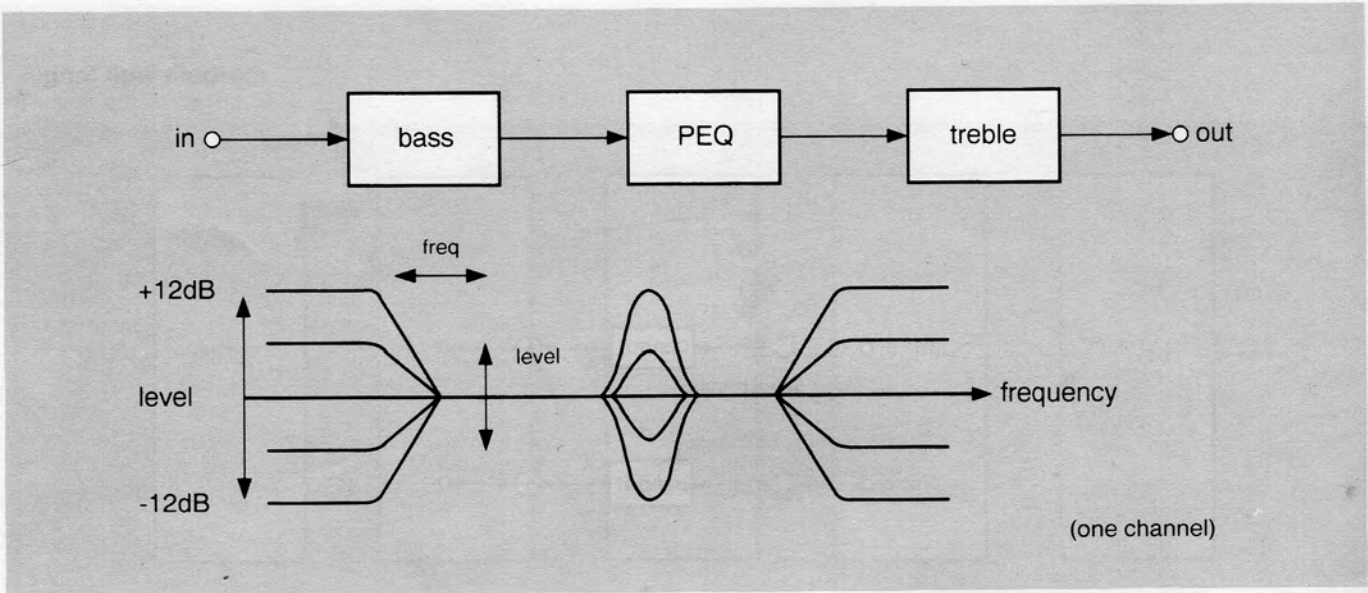
If the panpot is set to 0%, signals pass through the block and if it is set to 100%, input signals for ch1 is output to ch2 and vice versa. Available values for panpot lie between limit min and max.



Equalizer Block

This block receives the signals from the Input block for digital equalization processing. It consists of a 3 band equalizer (bass, treble and peaking) independently operated for ch1 and ch2.

Parameters	MIN and MAX
EQ on/off	off, on
bass level	- 12 - + 12 dB
bass freq	16 Hz - 6.3 kHz
treble level	- 12 - + 12 dB
treble freq	400 Hz - 20.0 kHz
PEQ level	- 12 - + 12 dB
PEQ freq	63 Hz - 20.0 kHz
PEQ q	0.267, 0.667, 1.414, 2.145, 4.319, 8.651, 17.31, 34.62



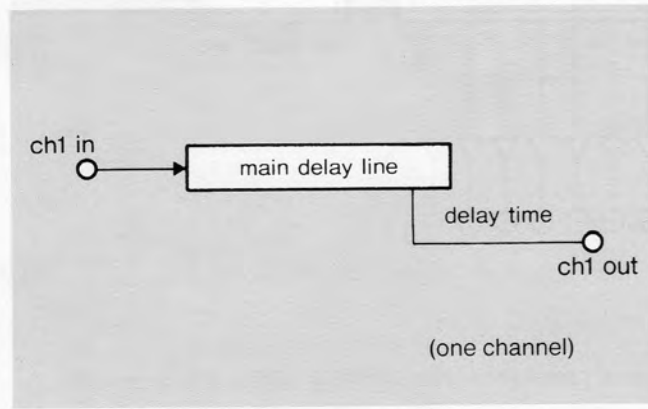
This block processes the incoming signals from the Equalizer block and then sends them to the Auto panner block. Signal processing in this block uses 7 types of specific algorithms for the preset memories.

When editing a preset memory, check which algorithm is used in the preset memory. Parameters also vary as the algorithm changes.

Algorithm 1 Stereo Delay STD

A dual channel delay only used for time shift. Only one parameter, delay time, is used for time adjustment of sound and image, or time alignment of the speakers.

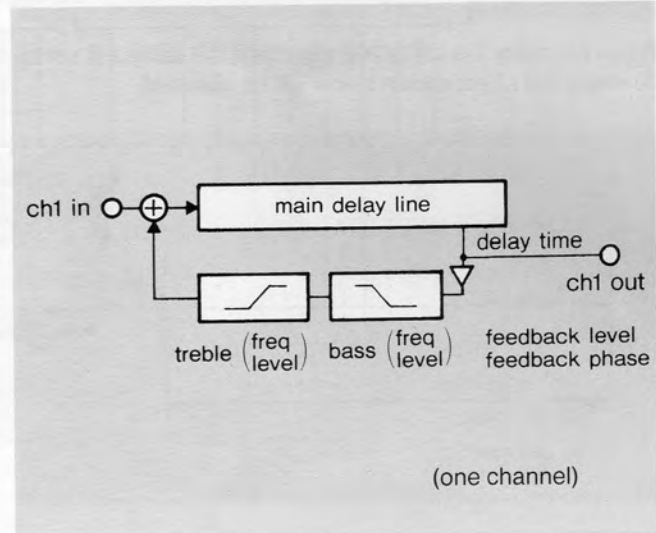
Parameters	MIN and MAX
delay time	0 – 1365.31 msec.



Algorithm 2 Feedback Delay FBD

A simple dual channel delay with feedback, suitable for use as a general echo. When the gain of feedback parameters exceeds 100%, (including a feedback EQ), the DC component can continue to be added to prevent sound generation. It is recommended to be used below 100%.

Parameters	MIN and MAX
delay time	0.021 – 1365.21 msec.
feedback level feedback phase	0 – 100% normal/inverse
feedback bass level feedback bass freq	– 12 – + 12 dB 25 Hz – 6.3 kHz
feedback treble level feedback treble freq	– 12 – + 12 dB 400 Hz – 20.0 kHz

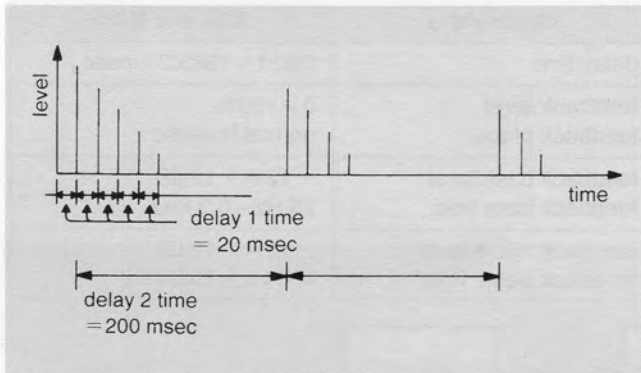


Algorithm 3 Double Delay

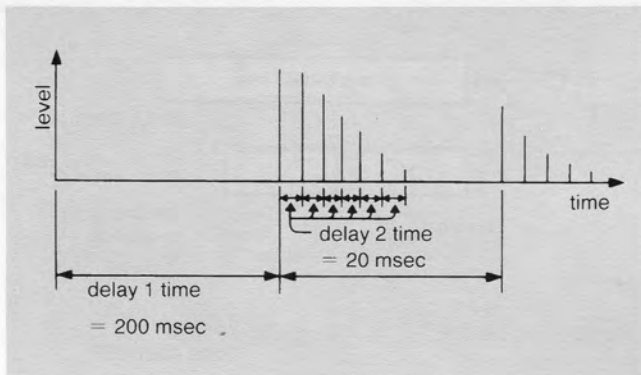
DBD

Two delays equipped with bass and treble tone controls are connected in series.

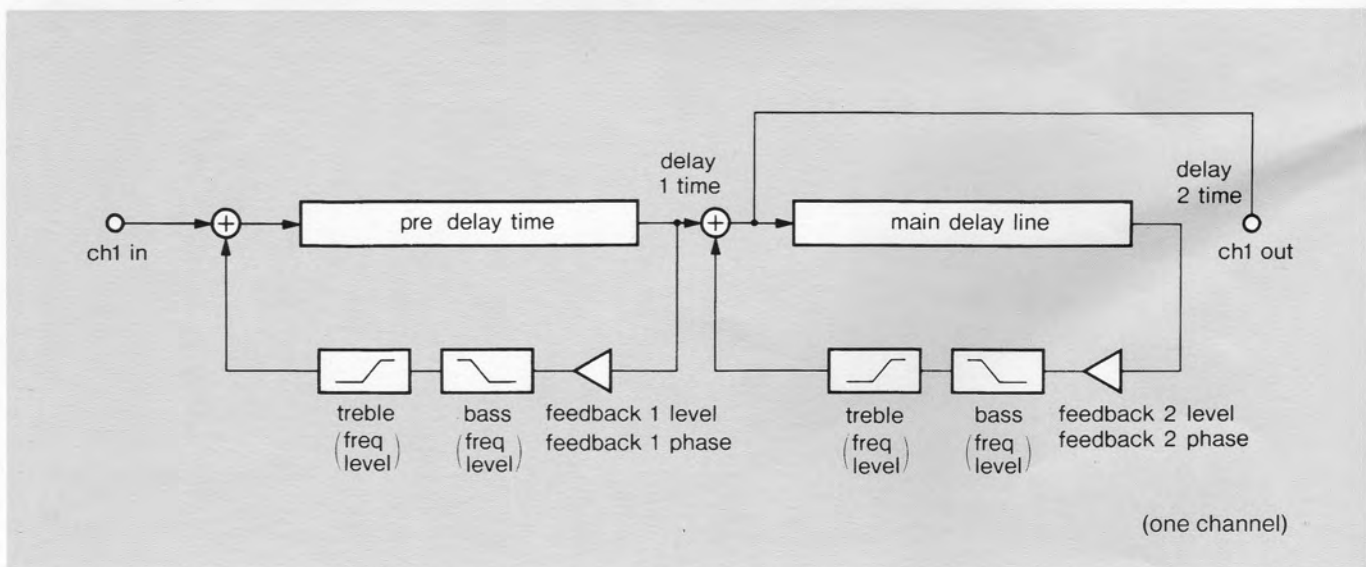
For example, when the delay 1 is set to 20 msec and the delay 2 is set to 200 msec, the effect shown below will be obtained.



When the delay 1 is set to 200 msec and the delay 2 is set to 20 msec, the effect shown below will be obtained.



Parameters	MIN and MAX
delay 1 time	0.021 – 682.63 msec.
delay 2 time	0.021 – 682.44 msec.
feedback 1 level feedback 2 level	0 – 100%
feedback 1 phase feedback 2 phase	normal/inverse
feedback 1 bass level feedback 2 bass level	-12 – +12 dB
feedback 1 bass freq feedback 2 bass freq	25 – 6.3 kHz
feedback 1 treble level feedback 2 treble level	-12 – +12 dB
feedback 1 treble freq feedback 2 treble freq	400 Hz – 20.0 kHz



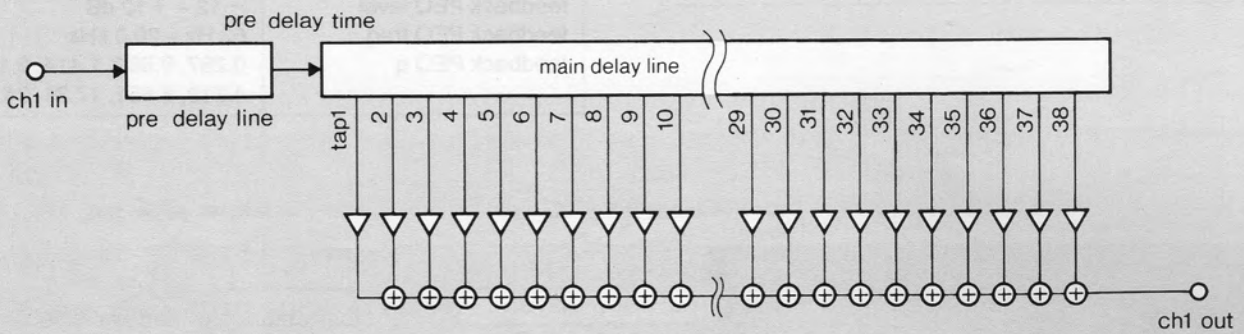
(one channel)

Algorithm 4 Tap Delay

TPD

This algorithm has two channels of the delay with 38 taps for each of which pre-delay time is variable. Since you can define the delay time and level for each tap, this algorithm is available as a reflection simulator.

Parameters	MIN and MAX
pre delay time	0.021 – 99.98 msec.
tap 1 – 38 time	0 – 1265.31 msec.
tap 1 – 38 level	0 – 100%
tap 1 – 38 phase	normal/inverse



*Every tap is provided with time, level and phase parameters.

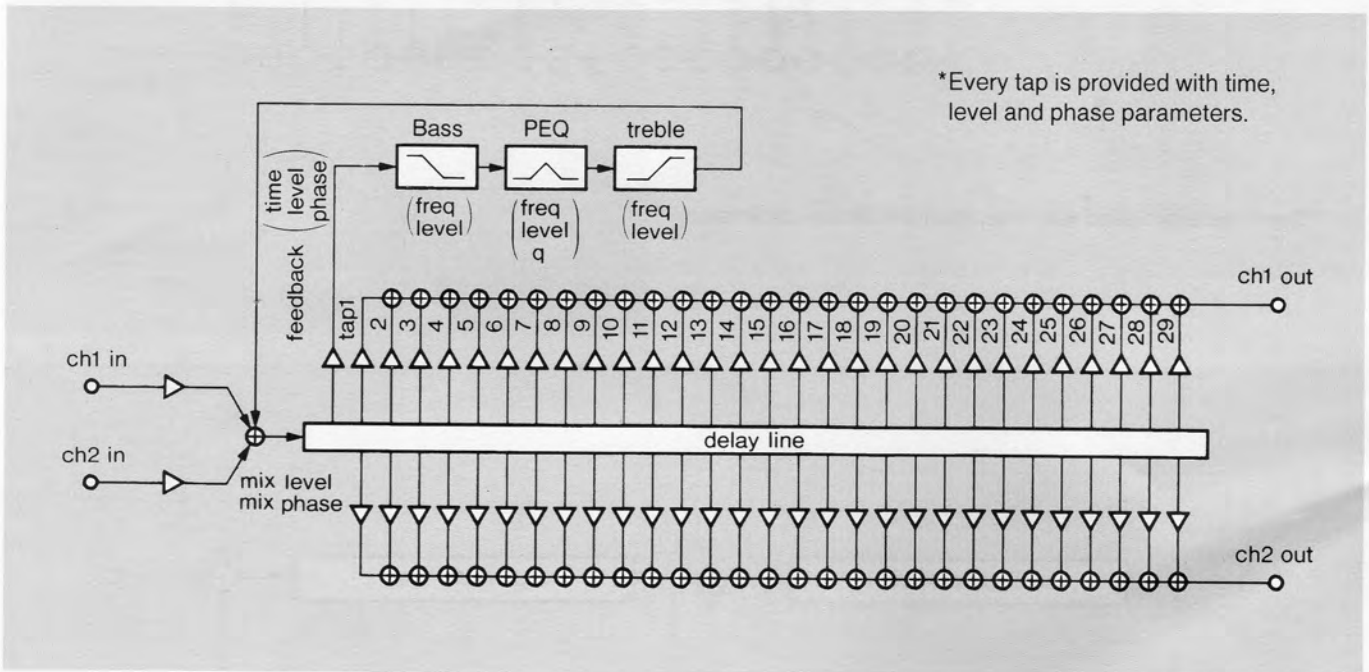
(one channel)

Algorithm 5 Long Tap Delay

LGD

This algorithm has a single delay line enabling a long delay. It has a 3 band equalizer in the feedback circuit and allows the output of 29 taps for each channel.

Parameters	MIN and MAX
mix level	0 – 100%
mix phase	normal/inverse
tap 1 – 29 time	0.021 – 2730.44 msec.
tap 1 – 29 level	0 – 100%
tap 1 – 29 phase	normal/inverse
feedback time	0.021 – 2730.44 msec.
feedback level	0 – 100%
feedback phase	normal/inverse
feedback bass level	– 12 – + 12 dB
feedback bass freq	25 Hz – 6.3 kHz
feedback treble level	– 12 – + 12 dB
feedback treble freq	400 Hz – 20.0 kHz
feedback PEQ level	– 12 – + 12 dB
feedback PEQ freq	63 Hz – 20.0 kHz
feedback PEQ q	0.267, 0.667, 1.414, 2.145 4.319, 8.651, 17.31, 34.62

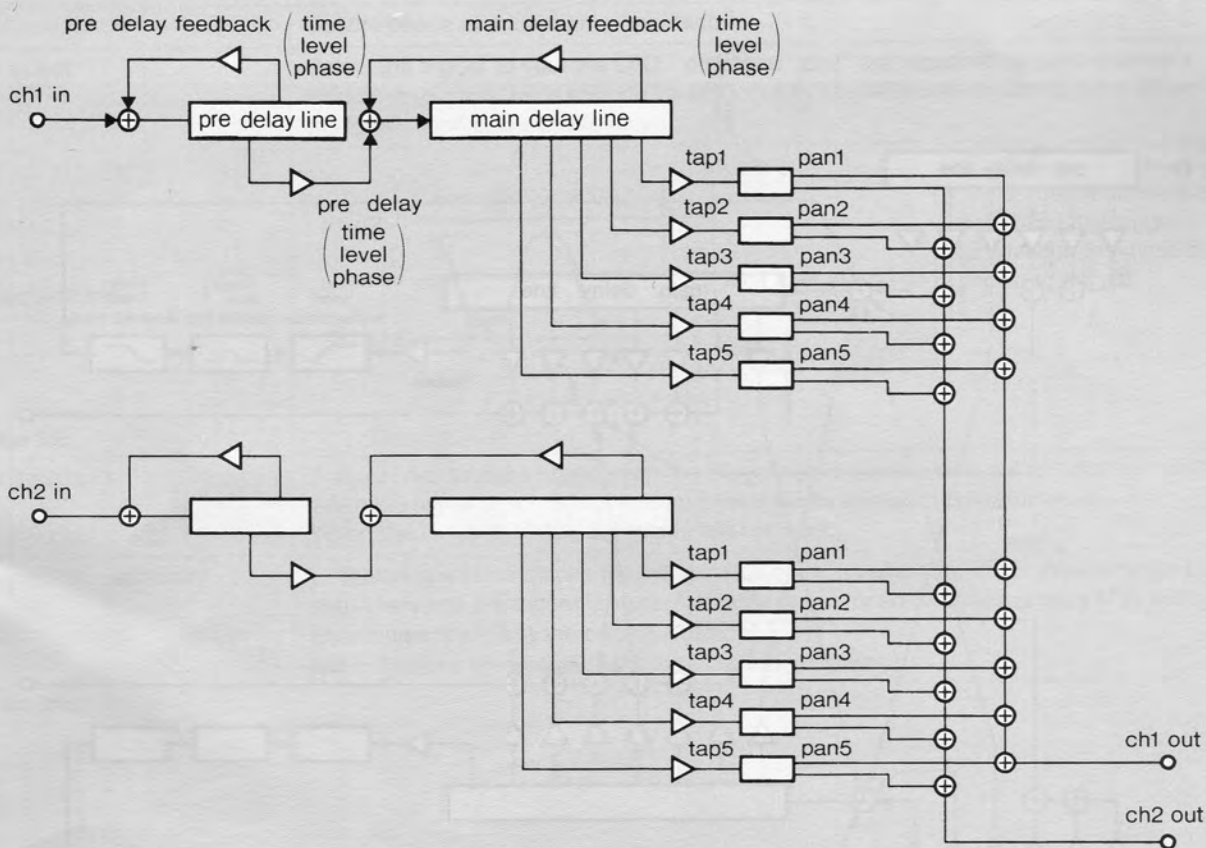


Algorithm 6 Panpot Tap Delay

PTD

This algorithm creates a delay which gives a panpot to each tap output.
By using panpots, the sound image seems to be moving.

Parameters	MIN and MAX
pre delay time	0 – 682.60 msec.
pre delay level	0 – 100%
pre delay phase	normal/inverse
pre delay feedback time	0.021 – 682.60 msec.
pre delay feedback level	0 – 100%
pre delay feedback phase	normal/inverse
tap 1 – 5 time	0 – 682.65 msec.
tap 1 – 5 level	0 – 100%
tap 1 – 5 panpot	0 – 100%
tap 1 – 5 phase	normal/inverse
main delay feedback time	0.021 – 682.65 msec.
main delay feedback level	0 – 100%
main delay feedback phase	normal/inverse



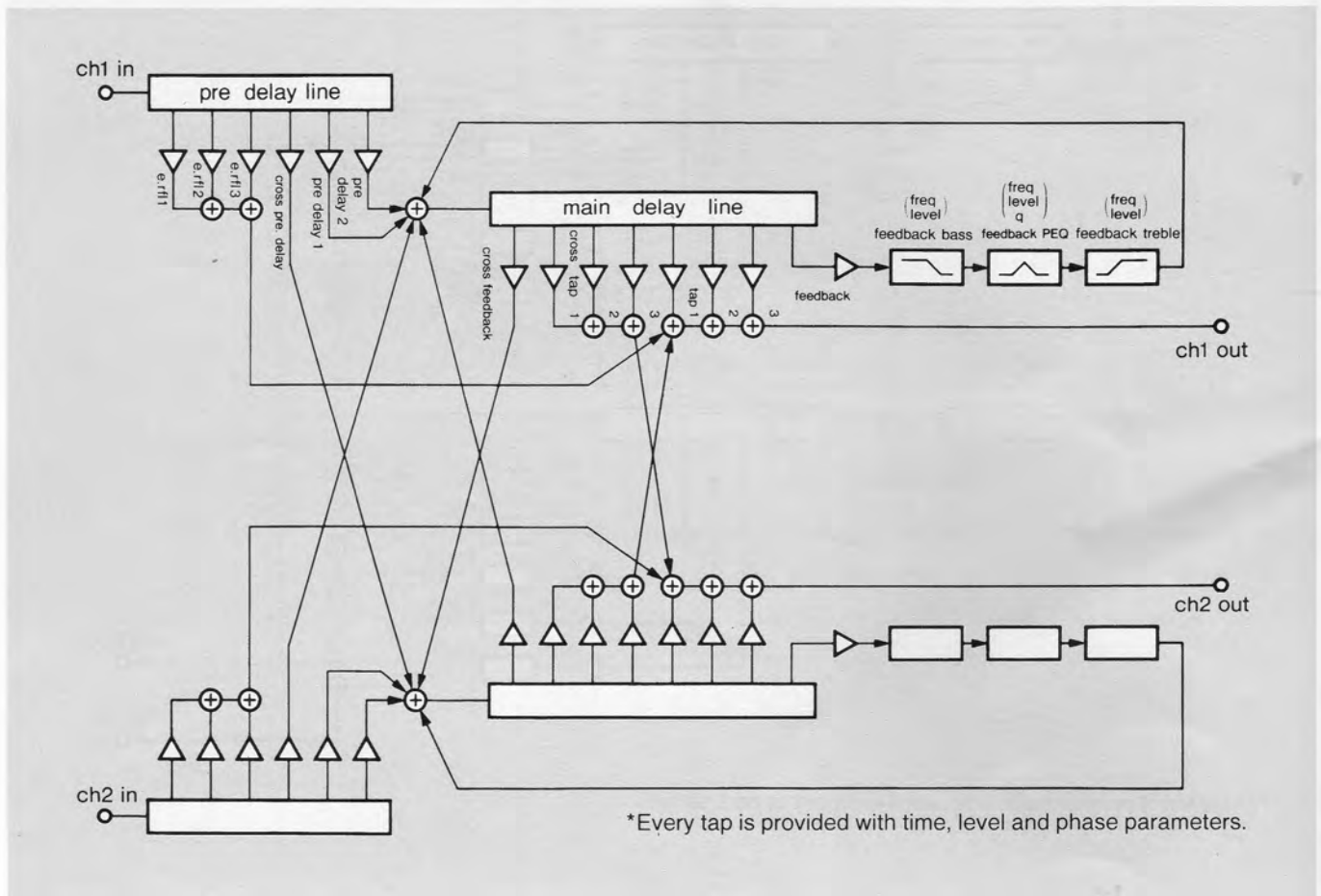
*Every tap is provided with time, level and panpot parameters.

Algorithm 7 Multi-Delay

MTD

This creates a delay which allows complicated interconnecting between the channels. It has pre-delay and main delay lines from which several taps are output.

Parameters	MIN and MAX	Parameters	MIN and MAX
early rfl 1 – 3 time early rfl 1 – 3 level early rfl 1 – 3 phase	0 – 682.44 msec. 0 – 100% normal/inverse	feedback time feedback level feedback phase	0.021 – 682.65 msec. 0 – 100% normal/inverse
pre delay 1, 2 time pre delay 1, 2 level pre delay 1, 2 phase	0 – 682.44 msec. 0 – 100% normal/inverse	feedback bass level feedback bass freq	-12 – +12 dB 25 Hz – 6.3 kHz
cross pre delay time cross pre delay level cross pre delay phase	0.021 – 682.44 msec. 0 – 100% normal/inverse	feedback treble level feedback treble freq	-12 – +12 dB 400 Hz – 20.0 kHz
tap 1 – 3 time tap 1 – 3 level tap 1 – 3 phase	0 – 682.65 msec. 0 – 100% normal/inverse	feedback PEQ level feedback PEQ freq feedback PEQ q	-12 – +12 dB 63 Hz – 20.0 kHz 0.267, 0.667, 1.414, 2.145 4.319, 8.657, 17.31, 34.62
cross tap 1 – 3 time cross tap 1 – 3 level cross tap 1 – 3 phase	0.021 – 682.65 msec. 0 – 100% normal/inverse	cross feedback time cross feedback level cross feedback phase	0.021 – 682.65 msec. 0 – 100% normal/inverse

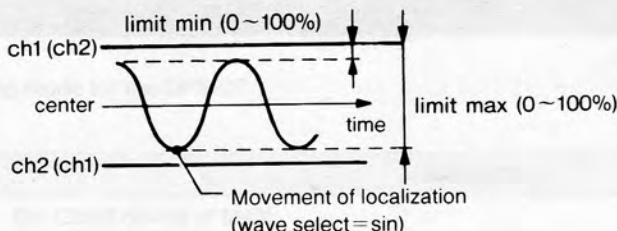


*Every tap is provided with time, level and phase parameters.

Auto Panner Block

This block receives signals from the Delay block to give them stereo auto panner processing in stereo.

Parameters	MIN and MAX
autopan on/off	off, on
wave select	sin, triangle, special1, special2
autopan freq	0.1 – 20 Hz
phase	normal/inverse
trigger select	off, ch1, ch2, MIDI note on
limit min	0 – 100%
limit max	0 – 100%
trigger threshold	0 – 100%
LFO step	1 – 360°
LFO start point	0 – 359°

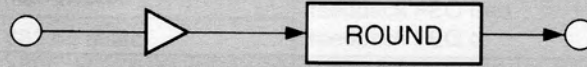
Parameters	Meanings
autopan on/off	Turn on/off the auto panner function.
wave select	Select the waveform of LFO (Low Frequency Oscillator) that moves the localization.
autopan freq	Set the frequency for LFO.
phase	Set the phase of auto panner operation.
trigger select	Select the trigger to start the LFO. "ch1" and "ch2" are triggered by each channel's volume level, and "MIDI note on" is triggered by the MIDI note on information. When "off", the localization continues to move.
limit min, limit max	 <p>These are parameters to determine the range of the localization movement as shown to the left.</p>
trigger threshold	Auto panner function starts when the trigger select parameter is set to "ch1" or "ch2" and when the signal which is higher than a level set by this parameter comes in. When this is set to 100%, the trigger will not work.
LFO step, LFO start point	LFO start point determines the initial status of the localization, which moves by the LFO step everytime the trigger is input. Available range for an LFO step is from 1° to 360° (the localization returns to the original position). Note: Trigger is not accepted while the localization is moving.)

This block receives the signals from the Auto panner block for level and phase and round processing. A level control in this block is useful when correcting differences in the level among each memory. Round processing executes rounding in converting the 32-bit signals generated within the DSP into the 18-bit signals to send them to the D/A converter.

Note:

Adjust the round parameter according to the source so that you can gain sufficient listening condition. Normally the round parameter is set to "on".

Parameters	MIN and MAX
output level	0 – 100%
output phase	normal/inverse
round	off, on



output level (phase)

(one channel)

Memory Block

This block edits the user memory.

Parameters	Meanings
memory compare	<p>For comparative listening with the original memory. The following selections are available.</p> <ul style="list-style-type: none"> • edit/memory • edit/parameter • edit/parameter/memory • edit/parameter/block/memory <p>edit : Normal editing mode parameter : Only the currently displayed parameter has a value before changing. block : Only the currently displayed block is original. memory : Original data</p>
protect	Turn on/off the memory protection for a designated user memory.
move	Move a user memory to a different number.
copy	Copy a designated preset memory and/or user memory to a different number.
delete	Delete a designated user memory.
exchange	Exchange the two specified user memories.
remaining area	Displays the remaining capacity of the user memory.

SYS.MIDI Block

This block specifies the MIDI operating mode for the DPS-D7.

Parameters	Meanings
OMNI	Set OMNI on/off of MIDI. When OMNI is set to "on", MIDI data is received disregarding the MIDI channel setting.
MIDI ch	Select the MIDI channel from 1 to 16 ch.
bulk dump transfer	<p>Transfer the memory data system information through MIDI. The following information can be transferred.</p> <ul style="list-style-type: none"> • all(all the user memories, system information and MIDI information). • all user's memory (all the user memories). • system (all the system information). • all MIDI(all the MIDI information). • user's memory (one designated user memory).
program change no.1 – 128	Assign the MIDI program change numbers (1 to 128) to the memory numbers (P1 to P100, U1 to U100, and BYPASS).

LCL. MIDI Block

LCL.(LOCAL) MIDI is used when changing tones in real time using MIDI equipment. It is not intended for rewriting data in the preset/user memory, but it temporarily changes only the tones based on the data in memory.

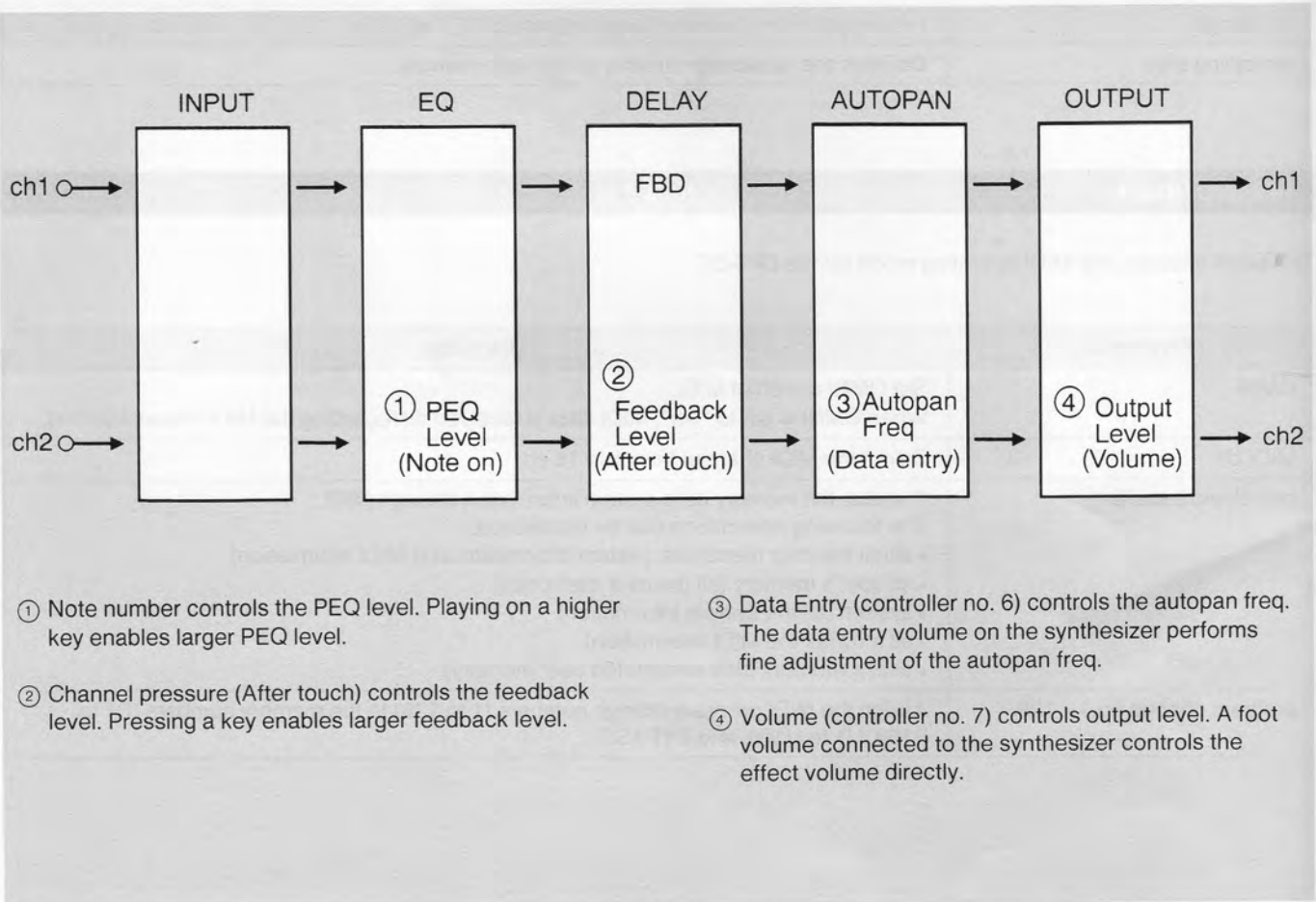
Parameters	Meanings
control no. 1 – 4	Enter the MIDI control change number. Available values are off, 0 – 120 or Key velocity, Channel key pressure and Note number.
parameter name 1 – 4	Select the parameter controlled by the number you enter in “control no. 1 – 4”.

Applications for LCL. MIDI

LOCAL MIDI is a pioneering function that allows real time control of internal parameters by means of external MIDI information such as control change number 0 – 120, key velocity, channel key pressure and note numbers, etc. Moreover, it enables the simultaneous setting of up to 4 parameters on a memory basis. All the internal parameters, except “time scale” are controllable.

<Sample Application>

The DPS-D7 is connected with a synthesizer.



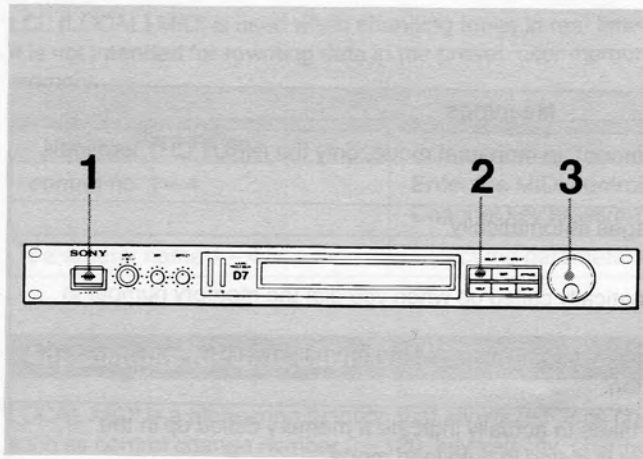
System Block

This block specifies the operating mode for the DPS-D7.

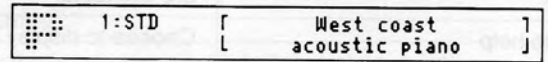
Parameters	Meanings
input mode	Select the input mode (stereo/mono). In monaural mode, only the INPUT CH1 terminals are available.
auto help	Choose to display HELP messages automatically.
load from	Select auto load or enter load. auto load – a memory is automatically called up when you dial the memory number in load mode. enter load – a memory is not called up until you dial the memory number in load mode and then press the ENTER button.
load time	Specify the time which the unit takes to actually indicate a memory called up in the display after the memory number is dialed in auto load mode. The available range is from slow/medium/fast
unit(time)	Specify the unit for time information such as Early Reflection Time and Predelay Time. The available units are word/msec/m/↓. • m indication adopts the calculation in which 1 sec is equal to 340 m • word represents the number of samples.
unit(level)	Specify the unit for level information from %/dB.
unit(q)	Specify the unit for q of EQ from q/oct.
remote ch	Specify the remote channel from 1 to 15 ch.
remote baud rate	Specify the baud rate of remote control from 9600 to 31250 bps.
clock set	Set the calendar and clock. You can move the cursor with the EDIT button. When the parameter menu is displayed, you can examine the clock.
user's name	Enter your name. you can move the cursor with the EDIT button.
date of birth	Enter your birthday. You can move the cursor with the EDIT button.
key protect	This function inhibits any operation even if operation buttons are pressed. This is to prevent any other person from operating the unit by mistake. To release the "key protect", press both the EDIT button and the ENTER button at the same time, then turn the dial counterclockwise.
battery check	Check the battery necessary for maintaining the user memory.
self check	You can verify the software version.

Calling Up a Memory (LOAD)

This operation calls up an effect stored in memory.



3. Turn the dial and select a desired memory number.



The effect of the selected memory number is automatically called up. When selecting "enter load" for "load from" in the System block, press the ENTER button after selecting the number. (If you select a number different from that of the currently called memory, P or U blinks.)

1. Turn on the power.



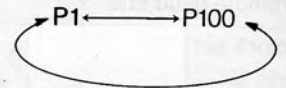
Memory Numbers

A hundred preset settings are stored in the preset memory in the factory. By turning the dial, these preset settings (P1 to P100) are displayed continuously in order when originally created settings are stored in the user memory, they will be inserted between P100 and P1.

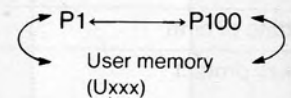
2. Press the LOAD button.



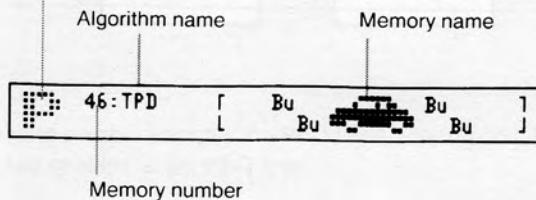
Initial factory setting:



After user memory is stored:



LOAD mode indication
(P = Preset memory, U = User memory)

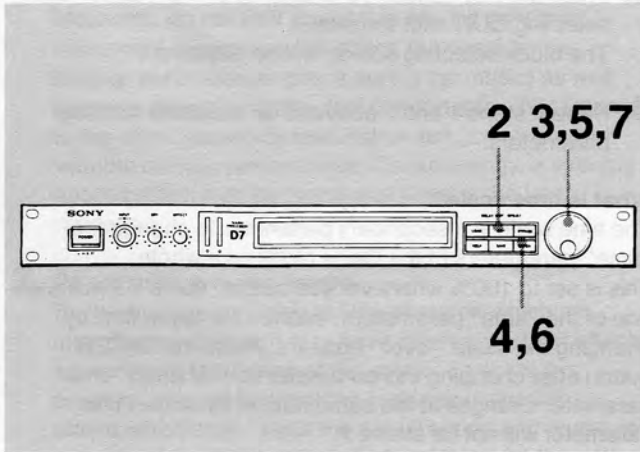


Changing the Effects (EDIT)

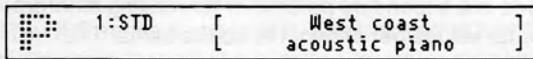
To be continued ▶

This function allows you to edit the effects saved in memory to create individual ones.

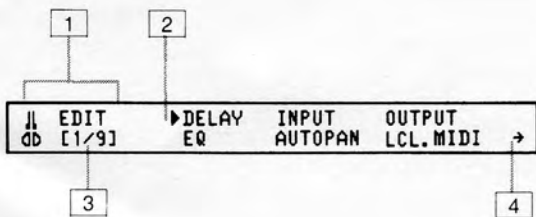
Example : Changing the "delay time" of the Stereo delay algorithm



1. Call up the memory number to be changed.



2. Press the EDIT button so that the block selecting screen will be displayed.

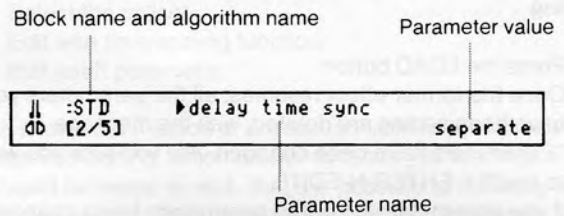


- 1 EDIT mode indication
- 2 Displayed on the left side of the currently selected item.
- 3 This shows there are 9 selections and the first of these is selected.
- 4 This means there are more items following. If not, "←" appears.

3. Turn the dial and select the block to be changed.



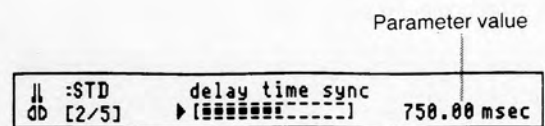
4. Press the ENTER button so that the parameter selecting screen will be displayed.



5. Turn the dial and select the parameter to be changed.



6. Press the ENTER button so that the parameter setting screen will be displayed.



The bar graph changes according to the parameter values.

7. Turn the dial and change the parameter value.



Changing the Effects (EDIT)

To compare the result with the former effect

Press the EDIT button.

This allows you to execute comparative listening in the order you have set with the "memory compare" parameter of the Memory block. By pressing the EDIT button for the second time, the former parameter value will resume.

To change other parameters in the same block

1. After changing the parameter, press the ENTER button. The parameter selecting screen will be displayed.
2. Repeat steps 3 to 7 on the previous page to change other parameters as well.

To abort the operation and restore the former memory setting

1. Press the LOAD button.
Once the former effect resumes, all the parameters you have been setting are deleted, with the message "Parameters have been changed. Are you sure you want to load? Y-ENTER N-EDIT".
If you accept deletion of the parameters being changed, press the ENTER button. Otherwise press the EDIT button to store the effect you have created by using the SAVE function. (See page 30.)
2. Press the ENTER button.
The former memory resumes.

To enter the date and user information in the System block.

Press the EDIT button to move the cursor.

To change other parameters in other blocks

1. After changing a parameter, press the EDIT button. The parameter selecting screen will be displayed.
2. Press the EDIT button (or press the ENTER button after selecting QUIT with the dial). The block selecting screen will be displayed.
3. Repeat steps 1 and 2 above to do the same for other parameters.

What is time scale?

The time scale is a secondary parameter to change the "time" parameters of the Delay block as a whole. This is set to 100% whenever you select "scale". If at least one of the "time" parameters reaches the upper limit by changing the scale, "over" appears. Press the ENTER button after changing this parameter so that each "time" parameter changes at the same ratio in its scale. (This parameter will not be stored.)
This is typically used to change the reflection pattern with respect to the size of a room or the tempo of music.

What is "ch sync"?

The sync is a secondary parameter for making different parameter values per channel to be the same. The parameter name is followed by "ch sync". If ch1, ch2 and center are given different values, executing "ch sync" forces them to have the same value.

Changing units

Normally the System block is used to select a unit. However, you can also change units while setting a parameter by pressing the ENTER and HELP buttons at the same time.

Important Points for Editing

1. Input the actual sound you are going to use.

When creating sounds, there is no way besides actually listening to and processing the sounds you actually use. Moreover, do not limit yourself to playing only one instrument to examine the effect, but consider the backup performance (play it during the music) as well, because though you may feel comfortable while listening to the effect played by one instrument, it may not last with the backup performance. Consequently, a strongly applied effect may be found well fitted in the later rendering.

2. Pay attention to the tempo.

Such effectors as Delay or Reverberator, which are intended for time shift may have diverse grade of effects according to the tempo of the music. To solve this problem, you will find that the instruction given in 1 above which says "Input the actual sound and music you are going to use." is critical. That is to say, let the delay time go along with the tempo of the music so that you can apply an effect without destroying the rhythm of music (Of course there may be cases where you prefer to destroy the rhythm on purpose.)

The DPS series has a tempo direct indication function that adopts the unit of a quarter note, (how many quarter notes are permitted within one minute) as well as the unit of time (msec) to express the delay time. By gracefully utilizing this function, it becomes easier for you to play music maintaining linkage with the tempo of equipment such as a sequencer.

* The delay time will be 1 sec. when ♩ = 60
and 500 msec, when ♩ = 120.

The number you specify should be an integer and a multiple of the tempo.

3. Use the Time Scaling Function

Delay function incorporated in the DPS-D7 has many parameters for obtaining a detailed sound creation, and it is also equipped with a time scaling function for speedy editing. It is capable of changing all the parameters categorized in "time scale" at the same time and at the same ratio and greatly helps you edit time information such as sizes of rooms. Thus, you are allowed to effectively proceed with sound creation when you first call up the preset data, organize the rough image of sounds with the time scale function and then change the parameters one by one.

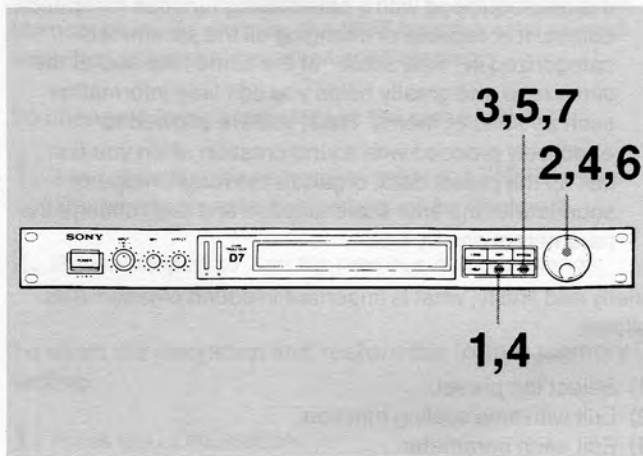
Briefly and finally, what is important in sound creation is as follows:

- (1) Select the preset.
- (2) Edit with time scaling function.
- (3) Edit each parameter.

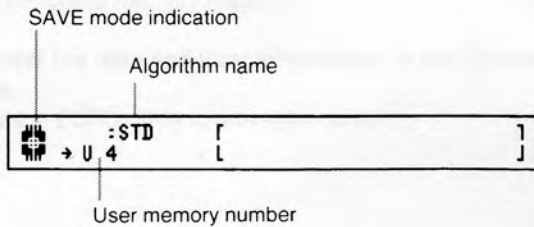
This shows the method of production from rougher imaging to detailed editing, which efficiently leads you to the goal. It should be noted as well, that it is possible to minutely compare sounds fully utilizing the comparing function.

Saving the Changed Effects (SAVE)

You can save the changed effects resulting from parameter values you have changed with the Edit function.



1. Press the SAVE button.



If you designate a memory number which is already stored in memory, you will get the algorithm name and the memory name after the user memory number is displayed.

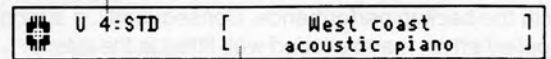
2. Turn the dial and assign a number to the edited effect.



3. Press the ENTER button.



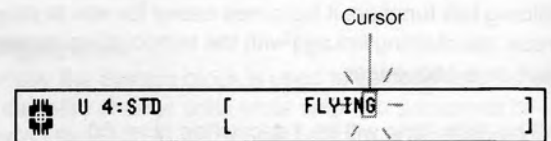
User memory number



The memory name of the original effect is displayed.

You cannot store the effect in the memory protected " " number unless you release the protection. (See page 23.)

4. Name the memory.



Turn the dial to select characters and press the SAVE button to move the cursor. Everytime the button is pressed, the cursor advances by one character. The characters are lined in the order of 0-9, A-Z, a-z, symbols and dot patterns. To delete the memory name of the original effects, first place the cursor on the heading of memory name indication area. Then turn the dial to select "all clear" and press the ENTER button. ("all clear" lies before the numerals.)

5. Press the ENTER button after naming.



MIDI Implementation Chart (SAVE)

When using MIDI to transmit data between DPS-D7 and other equipments, it is required to use the following data format below and follow the conditions of the table on page 35.

Channel voice message

* 1 1 0 0	n n n n	Program change & channel number(n n n n = 0 - 15)
0 p p p	p p p p	Program number(p p p p p p = 0 - 127)
* 1 0 1 1	n n n n	Control change & channel number(n n n n = 0 - 15)
0 c c c	c c c c	Control number(c c c c c c c = 0 - 127)
0 v v v	v v v v	Control value(v v v v v v v = 0 - 127)
* 1 0 0 1	n n n n	Note on & channel number(n n n n = 0 - 15)
0 k k k	k k k k	Note number(k k k k k k k = 0 - 127)
0 v v v	v v v v	Note on velocity(v v v v v v v = 0 - 127)
* 1 1 0 1	n n n n	Channel pressure(after-touch) & channel number(n n n n = 0 - 15)
0 v v v	v v v v	Pressure value(v v v v v v v = 0 - 127)

Channel mode message

* 1 0 1 1	n n n n	Mode message & channel number(nnnn=0 - 15)
0 c c c	c c c c	Omni mode off Omni mode on
		ccccccc=124 ccccccc=125
0 v v v	v v v v	vvvvvv=0 vvvvvv=0

System exclusive message

* 1 1 1 1	0 0 0 0 (F0)	Exclusive status	} Exclusive Header
0 1 0 0	1 1 0 0 (4C)	SONY ID	
0 0 0 0	n n n n (0n)	Global channel(nnnn=0 - 15)	
0 0 0 1	0 0 0 1 (11)	DPS-D7 ID	
0 c c c	c c c c	Command	
0 d d d	d d d d	} Data	
0 d d d	d d d d		
1 1 1 1	0 1 1 1 (F7)	End of Exclusive-EOX	

ALL DATA DUMP REQUEST (Receive)

Command : 0001 0000(10)
Data : None

ALL USER MEMORY DUMP REQUEST (Receive)

Command : 0001 0001(11)
Data : None

SYSTEM DUMP REQUEST (Receive)

Command : 0001 0010(12)
Data : None

MIDI DUMP REQUEST(Receive)

Command : 0001 0011(13)
Data : None

USER MEMORY DUMP REQUEST(Receive)

Command : 0001 010n(14or15)
bit 7
Data : 0 nnn nnnn nnnnnnnn : User memory number-1(0 - 255)
bit 654 3210 bit 76543210

ALL DATA DUMP (Send/Receive) (ALL USER MEMORY + SYSTEM + MIDI)

Command : 0001 1000(18)
Data : 0ddd dddd.... ddddddd : Data(see note 1,6)

ALL USER MEMORY DUMP (Send/Receive)

Command : 0001 1001(19)
Data : 0ddd dddd.... ddddddd : Data(see note 1,2)

SYSTEM DUMP (Send/Receive)

Command : 0001 1010(1A)
Data : 0ddd dddd.... dddddd : Data (see note 1,2)

MIDI DUMP (Send/Receive)

Command : 0001 1011(1B)
Data : 0ddd dddd.... dddddd : Data (see note 1,4)

USER MEMORY DUMP (Send/Receive)

Command : 0001 110n(1C or 1D)
bit 7
Data : 0 n n n n n n n n
bit 6 5 4 3 2 1 0
: 0ddd dddd.. n n n n n n n n : User memory number-1 (0 - 255)
bit 7 6 5 4 3 2 1 0
dddddd : Data (see note 1,5)

START ADDRESS TRANSFER (Receive)

Command : 0010 0000(20)
Data : 0 a a a a a a a
bit 6 5 4 3 2 1 0
: 0 a a a a a a a
bit DCB A 9 8 7
: 0 0 0 a a a a a
bit 12 1110FE
a a a a a a a a a a a a a a a a a a : Start address (0h ~ 7FFFh)
bit 121110FEDCBA 9 8 7 6 5 4 3 2 1 0

DATA TRANSFER (Receive)

Command : 0100 0000(40)
Data : 0 a a a a a a a
bit 6 5 4 3 2 1 0
: 0 a a a a a a a
bit DCB A 9 8 7
: 0 0 0 a a a a a
bit 12 1110FE
: 0ddd dddd.....
a a a a a a a a a a a a a a a a a a : Start address (0h ~ 7FFFh)
bit 121110FEDCBA 9 8 7 6 5 4 3 2 1
dddddd : (see note1)

note1-dd:Data format

```

0ddd dddd 0ddd dddd 0ddd dddd 0ddd dddd-
bit 765 4321 076 5432 107 6543 210 7654
 ← dd0 →← dd1 →← dd2 →← dd3
0ddd dddd 0ddd dddd 0ddd dddd 0ddd dddd....
bit 321 0765 432 1076 543 2107 654 3210
 dd3 →← dd4 →← dd5 →← dd6 →←
    
```

note2-ALL USER MEMORY DUMP FORMAT

dd0 ~ dd513 : USER MEMORY FAT
dd514 ~ dd26113(max) : USER MEMORY DATA

note3-SYSTEM DUMP FORMAT

dd0 ~ dd47 : SYSTEM DATA

note4-MIDI DUMP FORMAT

dd0 ~ dd257 : MIDI DATA

note5-USER MEMORY DUMP FORMAT

dd0 ~ dd425(max) : USER MEMORY DATA

note6-ALL DATA DUMP FORMAT

dd0 ~ dd47 : SYSTEM DATA
dd48 ~ dd305 : MIDI DATA
dd306 ~ dd819 : USER MEMORY FAT
dd820 ~ dd26419 : USER MEMORY DATA

Universal system exclusive message

INQUIRY MESSAGE

IDENTITY REQUEST (Receive)

* 1 1 1 1	0 0 0 0	(F 0)	Exclusive status	} Universal System Exclusive Non-Real Time Header
0 1 1 1	1 1 1 0	(7 E)	Non realtime message	
0 0 0 0	n n n n	(0 n)	Global channel(nnnn=0 - 15)	
0 0 0 0	0 1 1 0	(0 6)	Inquiry message	
0 0 0 0	0 0 0 1	(0 1)	Identity request	
1 1 1 1	0 1 1 1	(F 7)	End of Exclusive - EOX	

IDENTITY REPLY (Send)

* 1 1 1 1	0 0 0 0	(F 0)	Exclusive status	} Universal System Exclusive Non-Real Time Header
0 1 1 1	1 1 1 0	(7 E)	Non realtime message	
0 0 0 0	n n n n	(0 n)	Global channel(nnnn=0 - 15)	
0 0 0 0	0 1 1 0	(0 6)	Inquiry message	
0 0 0 0	0 0 1 0	(0 2)	Identity reply	
0 1 0 0	1 1 0 0	(4 C)	SONY ID	
0 0 0 0	0 0 0 1	(0 1)		
0 0 0 0	0 0 0 0	(0 0)		
0 0 0 0	0 0 0 1	(0 1)	DPS-D7 ID	
0 0 0 0	0 0 0 0	(0 0)		
0 s s s	s s s s	(s s)	} Software version	
0 s s s	s s s s	(s s)		
0 s s s	s s s s	(s s)		
0 s s s	s s s s	(s s)		
1 1 1 1	0 1 1 1	(F 7)	End of Exclusive - EOX	

**DIGITAL DELAY UNIT DPS-D7
MIDI Implementation Chart**

Date : 1 Sep. '91
Version : 1.0

Function ...	Transmitted	Recognized	Remarks
Basic Default	×	1 - 16	Memorized
Channel Changed	×	1 - 16	
Mode	Default	×	OMNI ON/OFF
	Messages	×	×
	Altered	*****	
Note Number :	True voice	*****	○ 0 - 127
Velocity	Note ON	×	○9n, V = 1 - 127
	Note OFF	×	×
After Touch	Key's	×	×
	Ch's	×	○
Pitch Bend		×	×
	0 - 120	×	○
Control Change			
Prog Change :	True #	×	○0 - 127

System Exclusive		○	○
Common	: Song Pos	×	×
	: Song Sel	×	×
	: Tune	×	×
System Real Time	: Clock	×	×
	: Commands	×	×
Aux Messages	: Local ON/OFF	×	×
	: All Notes OFF	×	×
	: Active Sense	×	×
	: Reset	×	×
Notes			

Model 1 : OMNI ON, POLY Model 2 : OMNI ON, MONO ○ : Yes
 Model 3 : OMNI OFF, POLY Model 4 : OMNI OFF, MONO × : No

Parameter Variation Range for LCL. MIDI

The parameters will be changed within the range as shown in the table below when you enter one of the control change number 0 – 127

Parameter variation range for the Delay block

Parameter	Algorithm	Range
time	STD, FBD, DBD, TPD, LGD, PTD, MTD	Set value – 128 words – Set value + 126 words
level	FBD, DBD, TPD, LGD, PTD, MTD	0% – Set value
phase	FBD, DBD, TPD, LGD, PTD, MTD	Control change data = normal if 0 – 63 = inverse if 64 – 127
EQ freq	FBD, DBD, LGD, MTD	Set value – 16/6oct. – Set value + 15/6oct.
EQ level	FBD, DBD, LGD, MTD	0 dB – Set value
EQ q	LGD, MTD	0.267 – 34.64

Parameter variation range for Input/Output block

Parameters	Range
level	0% – Set value
phase	Control change data = normal if 0 – 63 = inverse if 64 – 127
panpot	0% – Set value
panpot limit min	Set value – set value for panpot limit max (*)
panpot limit max	Set value for panpot limit min – set value (**)

* In case you change the panpot limit min using LCL. MIDI so that panpot is equal to or smaller than the panpot limit min, the panpot is also changed to the value of the panpot limit min.

** In case where you change the panpot limit max using LCL. MIDI so that the panpot is equal to or larger than the panpot limit max, the panpot is also changed to the value of panpot limit max.

Parameter variation range for Equalizer block

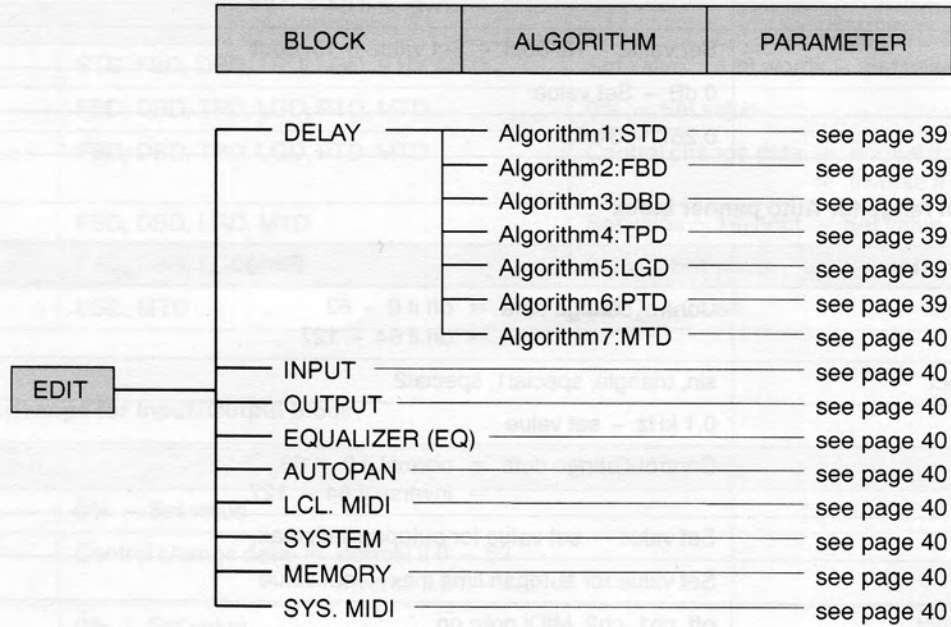
Parameter	Range
EQ on/off	Control change data = normal if 0 - 63 = inverse if 64 - 127
EQ freq	Set value - 16/6oct - Set value + 15/6oct.
EQ level	0 dB - Set value
EQ q	0.267 - 34.62

Parameter variation range for Auto panner block

Parameter	Range
autopan on/off	Control change data = off if 0 - 63 = on if 64 - 127
autopan wave select	sin, triangle, special1, special2
autopan freq	0.1 kHz - set value
autopan phase	Control change data = normal if 0 - 63 = inverse if 64 - 127
autopan limit min	Set value - set value for autopan limit max.
autopan limit max	Set value for autopan limit max - set value
autopan trigger select	off, ch1, ch2, MIDI note on
autopan trigger threshold	0% - set value
LFO step	1° - set value
LFO start point	0° - set value

Classification Chart for Editing

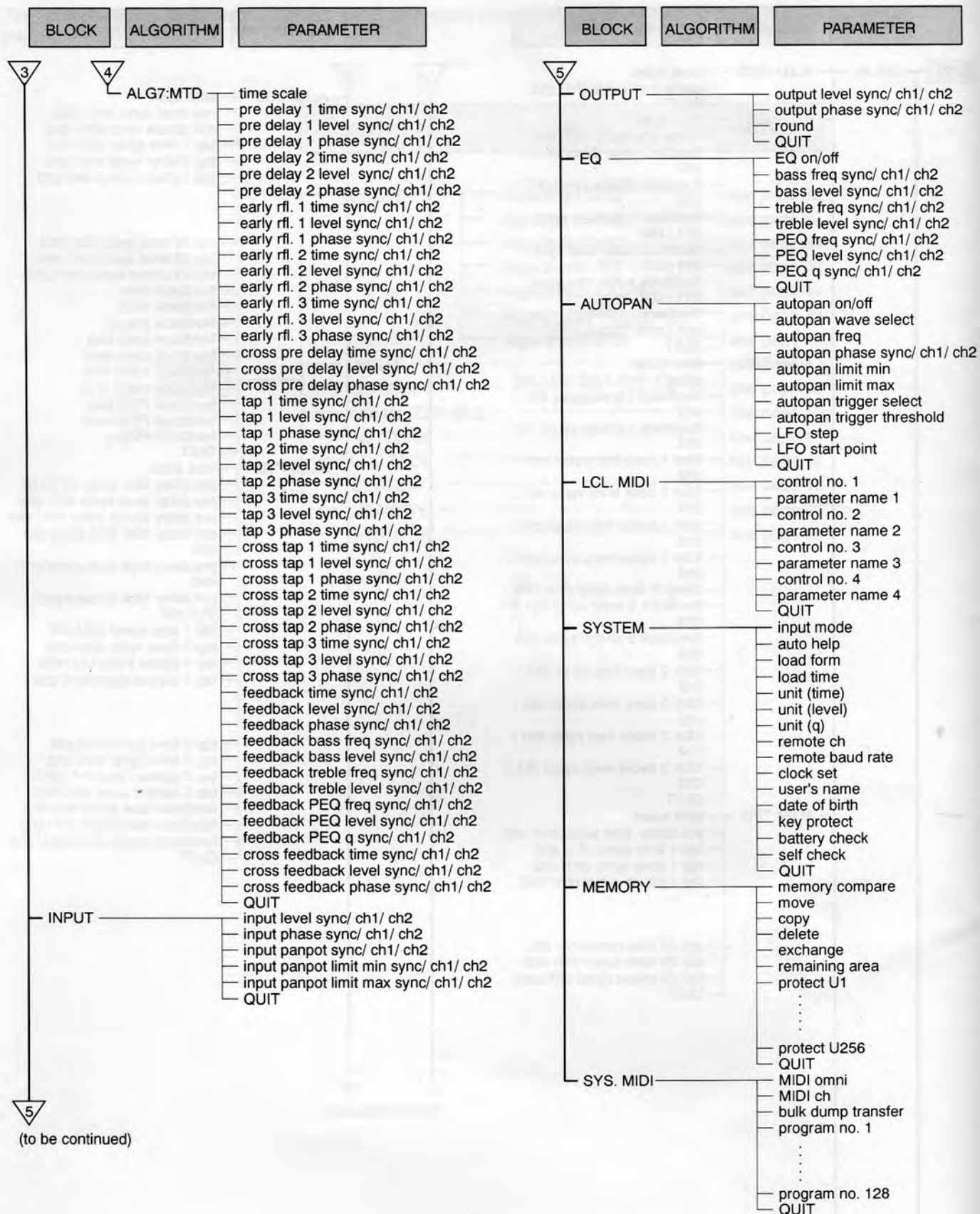
The chart below lists all the blocks, algorithms and parameters which you can edit. As for the parameters, see reference pages.



BLOCK	ALGORITHM	PARAMETER	
EDIT	DELAY	ALG1:STD	time scale delay time sync/ ch1/ ch2 QUIT
		ALG2:FBD	time scale delay time sync/ ch1/ ch2 feedback level sync/ ch1 / ch2 feedback phase sync/ ch1 / ch2 feedback bass freq sync/ ch1 / ch2 feedback bass level sync/ ch1 / ch2 feedback treble freq sync/ ch1 / ch2 feedback treble level sync/ ch1 / ch2 QUIT
		ALG3:DBD	time scale delay 1 time sync/ ch1/ ch2 feedback 1 level sync/ ch1 / ch2 feedback 1 phase sync/ ch1 / ch2 fdbk 1 bass freq sync/ ch1 / ch2 fdbk 1 bass level sync/ ch1 / ch2 fdbk 1 treble freq sync/ ch1 / ch2 fdbk 1 treble level sync/ ch1 / ch2 delay 2 time sync/ ch1/ ch2 feedback 2 level sync/ ch1 / ch2 feedback 2 phase sync/ ch1 / ch2 fdbk 2 bass freq sync/ ch1 / ch2 fdbk 2 bass level sync/ ch1 / ch2 fdbk 2 treble freq sync/ ch1 / ch2 fdbk 2 treble level sync/ ch1 / ch2 QUIT
		ALG4:TPD	time scale pre delay time sync/ ch1/ ch2 tap 1 time sync/ ch1/ ch2 tap 1 level sync/ ch1/ ch2 tap 1 phase sync/ ch1/ ch2 : : tap 38 time sync/ ch1/ ch2 tap 38 level sync/ ch1/ ch2 tap 38 phase sync/ ch1/ ch2 QUIT
1	2	(to be continued)	

BLOCK	ALGORITHM	PARAMETER	
1	2	ALG5:LGD	time scale mix level sync/ ch1/ ch2 mix phase sync/ ch1/ ch2 tap 1 time sync/ ch1/ ch2 tap 1 level sync/ ch1/ ch2 tap 1 phase sync/ ch1/ ch2 : : tap 29 time sync/ ch1/ ch2 tap 29 level sync/ ch1/ ch2 tap 29 phase sync/ ch1/ ch2 feedback time feedback level feedback phase feedback bass freq feedback bass level feedback treble freq feedback treble level feedback PEQ freq feedback PEQ level feedback PEQ q QUIT
3	4	ALG6:PTD	time scale pre delay time sync/ ch1/ ch2 pre delay level sync/ ch1/ ch2 pre delay phase sync/ ch1/ ch2 pre delay fdbk time sync/ ch1/ ch2 pre delay fdbk level sync/ ch1/ ch2 pre delay fdbk phase sync/ ch1/ ch2 tap 1 time sync/ ch1/ ch2 tap 1 level sync/ ch1/ ch2 tap 1 phase sync/ ch1/ ch2 tap 1 panpot sync/ ch1/ ch2 : : tap 5 time sync/ ch1/ ch2 tap 5 level sync/ ch1/ ch2 tap 5 phase sync/ ch1/ ch2 tap 5 panpot sync/ ch1/ ch2 feedback time sync/ ch1/ ch2 feedback level sync/ ch1/ ch2 feedback phase sync/ ch1/ ch2 QUIT
(to be continued)			

Classification Chart for Editing



(to be continued)

A/D Converter	18 bit oversampling Stereo A/D converter
D/A Converter	Pulse D/A converter
Sampling Freq.	48 kHz

Input

Connector type	Reference input level	MAX. input level	Input Impedance	Circuitry type
XLR-3-31 equivalent	+4 dBs	+24 dBs	10 kΩ	Balanced
Phone jack	-10 dBs	+10 dBs	50 kΩ	Unbalanced

XLR-3-31 equivalent connector
(1 : GND 2 : HOT 3 : COLD)

Output

Connector type	Reference output level	MAX. output level	Output Impedance	Circuitry type
XLR-3-32 equivalent	+4 dBs	+24 dBs	Min. 600 Ω	Balanced
Phone jack	-10 dBs	+10 dBs	Min. 10 kΩ	Unbalanced

XLR-3-32 equivalent connector
(1 : GND 2 : HOT 3 : COLD)

General

Frequency response	10 – 22 kHz $^{+0}_{-1.0}$ dB
Signal-to-noise ratio	more than 94 dB
Dynamic range	more than 94 dB
Total harmonic distortion	less than 0.0035% (1 kHz)
A/D, D/A delay time	approx. 2.3 msec
Memory	
Preset memory	100 effects
User memory	maximum of 256 effects
Power requirement	USA and Canadian model 120 V AC, 60 Hz UK model 240 V AC, 50/60 Hz, adjustable with a voltage selector Continental European model 230 V AC, 50/60 Hz, adjustable with a voltage selector
Power consumption	28 W
Dimensions	Approx. 482 × 44 × 320 mm (19 × 1 ³ / ₄ × 12 ⁵ / ₈ inches) (excluding projections) (h/w/d)
Weight	4.8 kg (10 lb 10 oz)

Design and specifications are subject to change without notice.

Note:

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Symptom	Check if:
Power does not turn on.	<ul style="list-style-type: none"> The power cord is not connected to an AC outlet.
No sound is heard.	<ul style="list-style-type: none"> The INPUT control is set to 0. The DRY and EFFECT controls are set to 0.
No sound effect is heard.	<ul style="list-style-type: none"> The EFFECT dial is set to 0. The BYPASS button is pressed.
Sound is distorted.	<ul style="list-style-type: none"> Input level is too high. → Turn the INPUT control counterclockwise to lower the level.
No stereo effect is obtained.	<ul style="list-style-type: none"> Input mode in the System block is set to "mono".
Uncontrollable with MIDI.	<ul style="list-style-type: none"> MIDI receive channel is suitable for send channel of a MIDI equipment. The control number assigned to this unit is used.

Parameter

A factor composing an effect. For example, a delayed effect is composed of factors such as delay time and delay level. The value of each of these factors is called the parameter and is critical to one solid effect.

Secondary parameter

A parameter capable of modifying parameters while editing under a certain rule, scale and sync are secondary parameters. A secondary parameter is not a real parameter, and cannot be saved, but it can modify more than two parameters at once.

Memory

Internal circuit board for memorization. To obtain the delayed effect, the micro computer residing in the unit sends parameters to the signal processing LSI (DSP). You can save these parameters in a memory and call it up when necessary. The memory of the DPS-D7 provides the preset memory for a hundred kinds of effect (preset upon shipment) and user memory (accessible freely by a user) for up to 256 effects.

EDIT

To edit means to change the value of parameters. You can create individual effects by changing the parameter values. The EDIT function allows you to improve effects in the preset memory as you desire for the operating condition or your particular needs.

SAVE

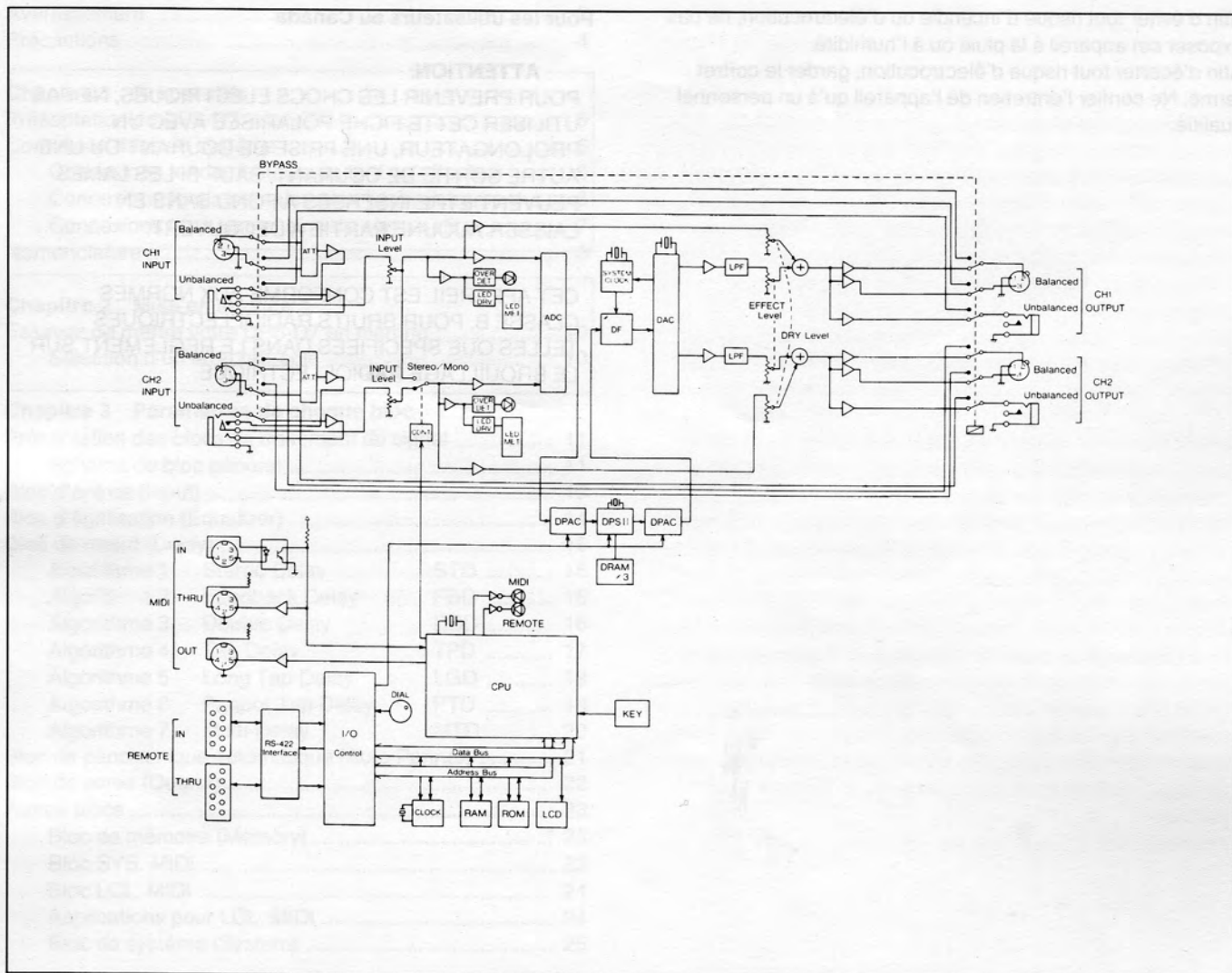
To save is to store the parameter in the user memory. This is a significant function for maintaining the individual effects. Once the individual effect is saved, it can be called anytime for editing and/or saving for the second time.

MIDI

MIDI stands for Musical Instrument Digital Interface, a universal standard unit for the data communication among electronic instruments. A keyboard controlling other electronic instruments, a sequencer or a PC organizes automatic playing. The MIDI function incorporated in the DSP-D7 allows you to select the memory number through the MIDI program change number (timbre changing signal for the keyboard), or to control parameters with the MIDI control change signal (variation of modulation wheels).

Algorithm

An operating method required for the digital delay to generate a certain effect inside the internal circuit. Each effect of feedback delay, tap delay, long delay is provided with its own operating method. The DPS-D7 incorporates newly developed algorithm enabling various effects far beyond any existing delay unit.



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