YAMAHA

PortaSound

PSS-795

Owner's Manual

FCC INFORMATION

1. **IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!**
   This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. **IMPORTANT:** When connecting this product to accessories and/ or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. **NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

   Relocate either this product or the device that is being affected by the interference.

   Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

   In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

   If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA 90620.

   The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

* This applies only to products distributed by Yamaha Corporation of America.
* Dies bezicht sich nur auf die von der YAMAHA CORPORATION OF AMERICA vetriebenen Produkte.
* Ceci ne s'applique qu'aux produits distributés par Yamaha Corporation of America.
* Esto se aplica solamente a productos distribuidos por Yamaha Corporation of America.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the manufacture of this product contains LEAD. In addition, the electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT REMOVE ANY ENCLOSURE COMPONENTS! There are no user serviceable parts inside. All service should be performed by a service representative authorized by Yamaha to perform such service.

IMPORTANT MESSAGE: Yamaha strives to produce products that are both user safe and environmentally "friendly". We sincerely believe that our products meet these goals. However, in keeping with both the spirit and the letter of various statutes we have included the messages shown above and others in various locations in this manual.

Congratulations !

Thank you for purchasing YAMAHA PortaSound PSS-795. The PSS-795 is adopted with a unique synthesis "Advanced Wave Memory (AWM)" so that you can perform with a wide range of natural to hyper-natural sound qualities.
Additionally, the Vector Synthesizer function enables you to carry out time variance of a tone with controlling mixing ratio of any 4 AWM Voices you select.
Furthermore, the Auto Accompianment function supports your performance on the keyboard with various music styles such as rock 'n' roll, jazz, latin, funk, and much more. Moreover, you can record and play back your performance with the Song Memory Function. And other useful functions are also provided. In order to fully enjoy your lifelong musical time spent with the PSS-795, please read the instructions in this Owner's Manual which should provide help and suggestions.

Features

* **Built-in Hi-Fi stereo speakers** with Ported Bass Boost unit.

* **100 pre-set AWM Voices and 50 rhythm patterns (50 styles)** included. (sound reproduction: 28 notes at the same time)

* **Vector Synthesizer function** offers your original sound creation from any 4 Voices by mixing them with the Joy Stick.

* **Harmony effect** gives harmonized notes to a phrase or passage you play. 6 Harmony Types are provided.

* **Auto Accompaniment function** allows you to make an ensemble in any of 50 styles. A "Style" includes total arrangement for a certain musical style, which consists of rhythm patterns, chords, obbligati, formation of instruments and so on. You can easily and automatically incorporate these techniques into your playing which gives you the characteristics of the style you choose.

* **Song Memory function** enables 8 track digital recording and memorization of up to 8 songs.

* **8 Drum Pads** allow you to manually play up to 8 percussion sounds at any time. You can also assign to these pads any 8 instrumants you like from among 50 percussion sounds provided.

* **The PSS-795 has MIDI connectors** so that you can play it together with other MIDI-equipped devices. "MIDI" is an abbreviation for "Musical Instrument Digital Interface" and an international standard for electronic musical instruments. Furthermore the PSS-795 has the Multi-Timbre mode, which allows you to make an ensemble of Multiple Parts just only with one unit of the PSS-795.

Table of Contents

CAUTION!!

Pay special attention when handling the Song Memory.
The Song Memory data (= Songs you have Recorded) are so delicate that they will be easily destroyed by the electrical shock. Actually, the data will be lost partially. Remember this will definitely take place in the following situations:

The Song Memory data will be lost partially when the PSS-795 is turned Off intentionally or accidentally, that is, by using the POWER switch, or with batteries' voltage lowered or the authorized AC adaptor disconnected;
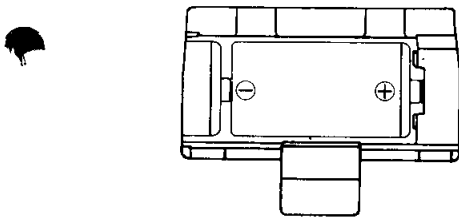
• **During Recording or Playback**

Getting Started

a. Setting up the power supply

The PSS-795 can be operated using either batteries or a standard outlet.

a) When you are using batteries

Flip the PSS-795 over and open the battery case. Insert six batteries (dry cells: 1.5V SUM-2 or R-14) all facing the same direction as shown. Replace cover.

* In case batteries' voltage are low, you hear the sounds distorted. If you go on using the PortaSound, <bt chn> indication will be shown. In this case, it's the time to replace all of 6 batteries with new ones.

* Do not use the batteries of different types other than listed above.

b) When using an electrical outlet

An authorized optional AC adaptor (YAMAHA PA-3, PA-4 or PA-40) must be used. The adaptor is plugged into the DC 9-12V IN terminal located on the back of the instrument.
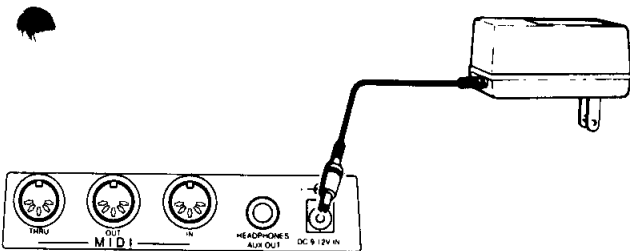

* There are different types of AC adaptors, be careful to use only the models mentioned above.

* If you leave the instrument without any power supply (batteries or adaptor) for a long period, your record in the Song Memory (explained later) will be lost, and the PSS-795 will be in the original status when shipped. But you don't mind the amount of time for changing batteries – 1 minute at most. This short period will not cause this to occur.

b. Hook-up terminals for attatchments

To use headphones: Plug the jack of the headphones into the terminal marked HEADPHONES/AUX. OUT. When the jack is plugged in, the speakers will no longer play out , thereby enabling you to enjoy making music without disturbing those around you.
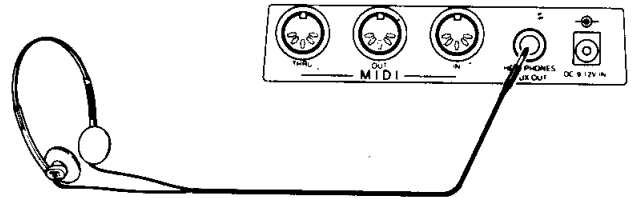
To connect to keyboard amplifier or stereo: (in using a keyboard or stereo amplifier you will enhance greatly the overall sound) Plug in an Audio connection cord from the PSS-795's HEADPHONES/AUX. OUT terminal to the keyboard or stereo amplifier's LINE IN, AUX IN, etc.
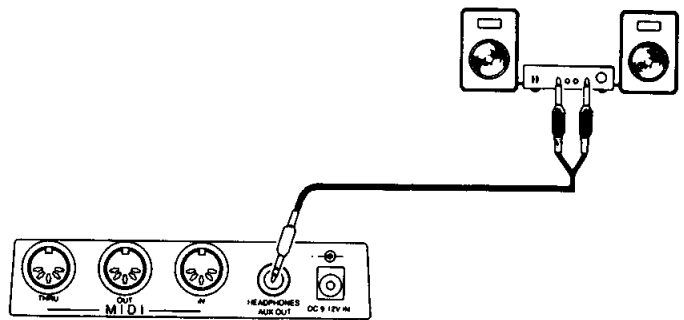

* Before inserting plugs in, MAKE SURE the volume controls on the amplifiers are turned all the way down to prevent damage to the speakers.

Note: In both cases of attatchments (headphones and amplifiers), the Master Volume control located on the PSS-795 can be used in controlling levels of volume.
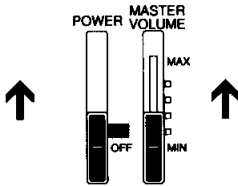
Quick Reference

Here the basic PSS-795 operations are outlined for easy reference. To get you started right away follow the instructions marked with a star (*) and you can make music instantly.
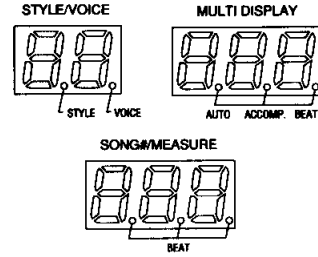
*Sound Set-Up

Step 1: Turn the power switch to the ON position.
Step 2: Slide the MASTER VOLUME control half way up.
As you press the keys the tones will be Piano Sound Voice number 00.

*Selection of Voices

Step 1: Press the VOICE button.
Step 2: You may select one of 100 different Voices by pressing the buttons marked <0> thru <9> located to the left of the VOICE button. For example, if you wanted to select Voice number 35 - Strings 2, you enter the number <3>, then the number <5>.
Step 3: You may move up or down a single digit from the number entered by pressing the <+> or <−> buttons once. For example by pressing the <−> button once after entering Voice number 35, you will change to Voice number 34 - Strings 1.
The Voice List located on the Control Panel indicates which Voice corresponds to number's 00 thru 99.
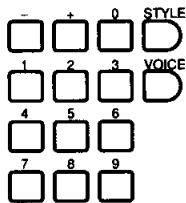
* In selecting a Voice number, you must enter a two digit figure, for example Voice number 02 would be selected by first pressing the number <0>, then the number <2>.

*Pitch Bend Wheel

By rotating the wheel up or down while playing on the keyboard, you will slide the pitch up or down accordingly, similar to the sound produced by a guitar when bending a string.
Note: For further details see page 9.

Displays

There are three LED displays located on the front panel of the PSS-795 using digital indication for clear viewing, so you can read the current status at a glance.

Voice Effects

By controlling these effects well, you can achieve a variety of colors and moods in your music making. Also you can establish each of the Voice Effects levels individually.
Note: For further details see page 9.

Auto Accompaniment

This function is provided for you to easily carry out various Orchestrations all by yourself. There are two kinds of modes for fingering the chords. First is the "Single Finger" mode which provides Auto Accompaniment by easy fingerings. Secondly, you can select the "Fingered" mode which is suited for songs containing more complicated chords. By combining and balancing these Fingering modes with the Orchestration, you will be able to produce more sophisticated and pleasurable music.
Note: For further details see page 19.
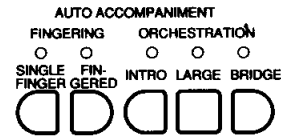
*Vector Synthesizer

This funtion allows you to mix any 4 Voices out of the 100 preset Voices to create your own kinds of sounds. You can balance the amounts of each voice selected as desired. Here's how it works: Push the VECTOR SYNTH ON/OFF switch, then as you press the keys, move the Joy Stick around freely. You will hear the mixed combinations of 4 Voices already programmed as a factory preset.
Note: For further details see page 12.
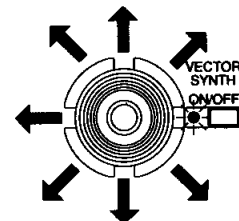
*Rhythm Accompaniment

Step 1: Push the STYLE button of the STYLE/VOICE section.
Step 2: Select one of the 50 Rhythm Styles listed on the control panel, and enter it's 2 digit number using the same buttons <0> thru <9> used in selecting a Voice, also by pressing the <+> or <-> buttons to select a Style of a higher or lower number.
Step 3: To start the rhythm, push the START/STOP button of the Accompaniment Control. When you push the FILL TO NORMAL, or FILL TO BRIDGE buttons, you can have Fill-Ins that correspond to the Style you are using. To stop the rhythm, push the START/STOP button again.
Note: for instructions on the SYNCHRO START/ENDING button, and controlling tempos refer to page 14.

Song Memory

By using the Song Memory function you can easily record and play back melodies, chords, and rhythm. But best of all, there are 8 separate recording tracks for each song, and up to 8 songs can be stored in memory, so that you will be to create your own original multi-track recordings just like a studio.
Note: For further details see page 26.

MIDI

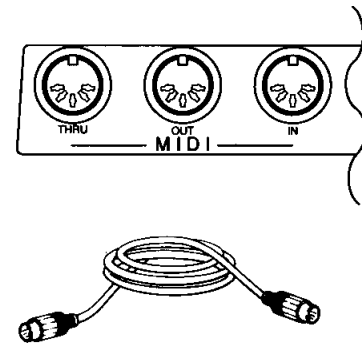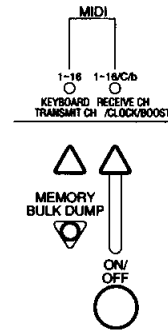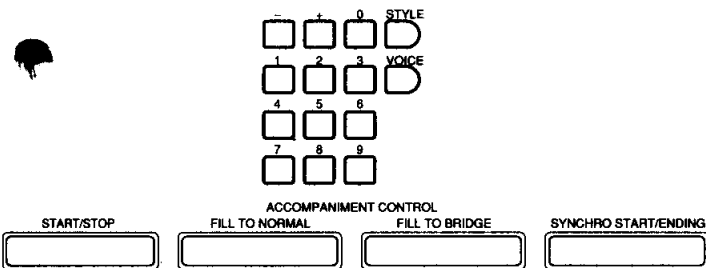By using a MIDI hook-up to another synthesizer (or MIDI equipment), you can operate the PSS-795 as a master keyboard to play the other synthesizer. Also you can hook-up to a sequencer or drum machine that will act as a master, and control the PSS-795.
Note: For further details see page 32.

* By pressing these buttons you can select a variety of MIDI modes.

*Drum Pads

To make a drum sound, press the drum pads manually marked <1> thru <8>. The PSS-795 comes from the factory with the following pre-assigned drum sounds already programmed:
PAD#1: Low Tom Tom
PAD#2: High Tom Tom
PAD#3: Bass Drum
PAD#4: Snare Drum
PAD#5: Closed High Hats
PAD#6: Open High Hats
PAD#7: Ride Cymbal
PAD#8: Crash Cymbal
But you are free to assign your own choices of drum sounds (of 50 kinds) to each pad.
Note: For further details see page 17.

*Demonstration

The PSS-795 comes with an **(A) Fusion** and **(B) Latin** song to demonstrate it's capabilities. To hear these examples press the DEMO START/STOP button anytime. The demonstration will keep repeating over and over until you stop it. To stop the demonstration: Push the DEMO START/STOP button, or push the STOP button of SONG MEMORY. The demonstration songs have been pre-assigned a tempo and style accordingly, but you can play along with the demo on the keyboard and drum pads, adjusting the Voice and Tempo as you like. The Voice selections, Voice Effects, and Vector Synthesizer function will work only on the keyboard as you play along (not the demo). If you wish to hear the second demonstration song, just press the <+> button of SONG # Select twice, the display will read 2, then press the DEMO START/STOP button.

Note: If you specify more than <3> for Demonstration Song number, and the DEMO START/STOP button is pressed, the demonstration will start with the first song.

* The "Demo Tunes" of this keyboard are strictly for demonstration purposes. In certain cases they cannot be reproduced.

Panel Description
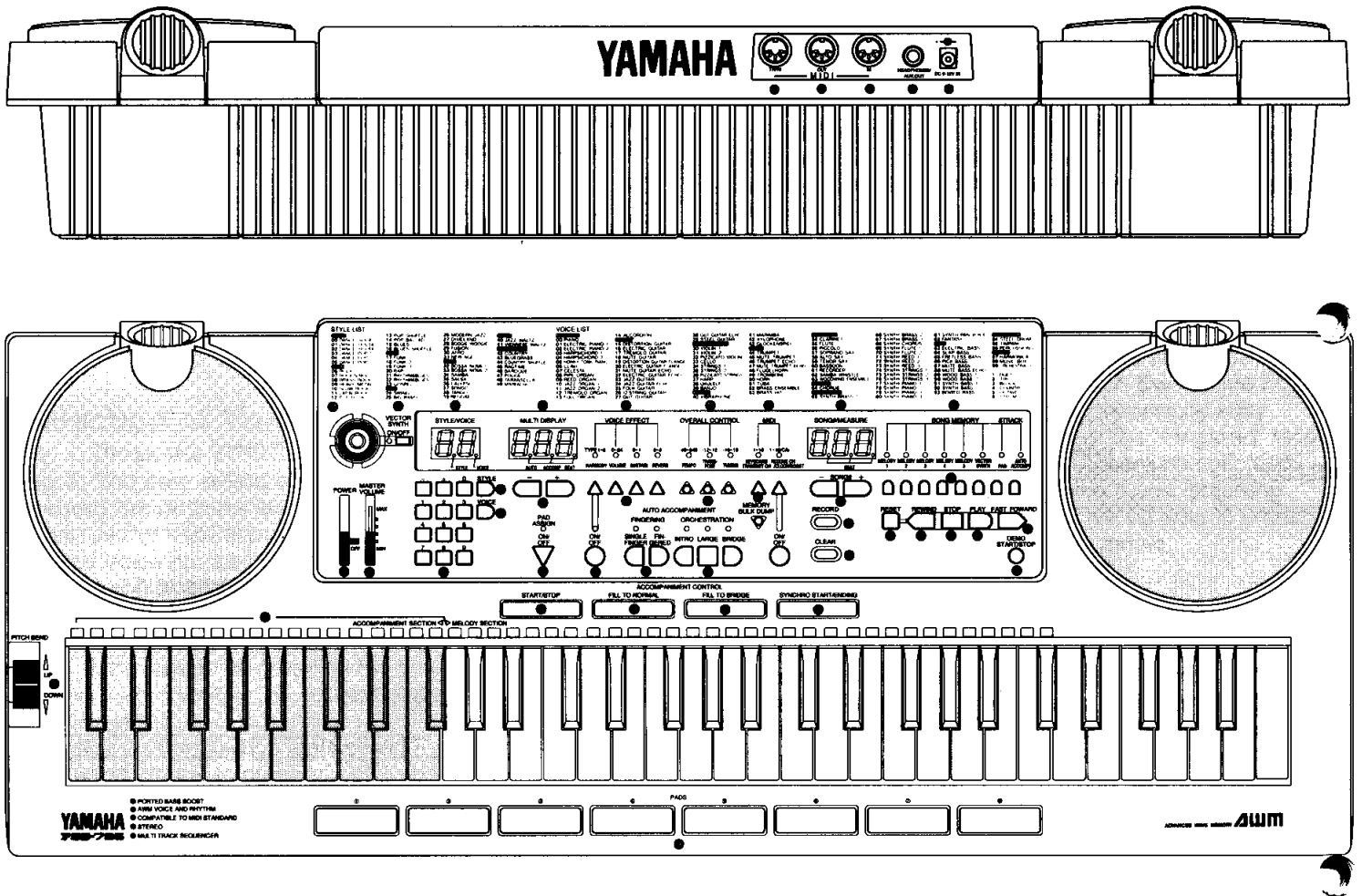
1 Power switch
Turns PSS-795 on and off.

2 MASTER VOLUME control
Adjusts output of built-in speakers or HEADPHONES/AUX. OUT Terminal.

3 MULTI DISPLAY
Shows the Value of Voice Effects, Overall Controls and MIDI parameters.

4 Increment/Decrement buttons (+/-)
Set the Value of Voice Effects, Overall Controls and MIDI parameters.

<< For Style/Voice selection >>

5 STYLE/VOICE display and LEDs
Shows the Style or Voice number currently selected with the corresponding LED lit up.

6 STYLE button
Before you select a STYLE, press this button.

7 VOICE button
Before you select a VOICE, press this button.

8 Numeric buttons (0 thru 9, +/-)
Specify a Style or Voice number in 2 digits as shown in each list printed on the front panel.

<< For Voice Effects control >>

9 VOICE EFFECT LEDs
Indicates which Voice Effect - Harmony/Volume/Sustain/Reverb is available. Current Value of the effect is shown in Multi Display.

10 VOICE EFFECT Select buttons
When setting a Voice Effect, first press the corresponding button and ensure the Voice Effect LED is lit up. Then set it with Increment/Decrement buttons.

11 HARMONY Effect ON/OFF button
Allows for switching this effect ON/OFF in realtime.

12 PITCH BEND Wheel
Changes the pitch of Voices higher or lower smoothly.

13 VECTOR SYNTHesizer function ON/OFF button
Activates or disactivates the function.

14 Joy Stick
Used for setting the voice mix with Vector Synthesizer.

6

<< For Overall control >>

◉ OVERALL CONTROL LEDs
Displays the current status of Overall control settings.

◉ OVERALL CONTROL Select buttons
Sets the Value for Tempo/Transpose/Tuning when each corresponding button is pressed.

<< For MIDI control >>

◉ MIDI LEDs
Indicates whether you are in KEYBOARD TRANSMIT CHannel or RECEIVE CHannel/CLOCK/velocity BOOST, while the Multi Display indicates what Value is set.

◉ MIDI Select buttons
set KEYBOARD TRANSMIT CHannel or RECEIVE CHannel/CLOCK/ velocity BOOST or into Bulk Dump mode, press the corresponding button.

<< For Auto Accompianment >>

◉ FINGERING buttons
To select Single Fingered/Fingered mode of Auto Accompaniment.

◉ ORCHESTRATION buttons
To select the instrumentation or variations of Auto Accompaniment.

◉ Keys for Auto Accompianment
These are the keys you push when using the Auto Accompaniment function.

<< For Accompaniment Control >>

◉ START/STOP button
Activates or disactivates the Auto Accompaniment or Rhythm.

◉ FILL TO NORMAL button
This provides a fill-in which then continues to play the normal accompaniment pattern.

◉ FILL TO BRIDGE button
This provides a fill-in which then continues to play the accompaniment pattern used in the Bridge section of a song.

◉ SYNCHRO START/ENDING button
Allows you to start the Auto Accompaniment and Rhythm simultaneously by pressing one of the Auto Acconpaniment keys. Also provides an ending pattern for when you want to finish a song.

◉ DRUM PADS
As you hit these pads, a percussion sound will be heard.

◉ PAD ASSIGN button
To select which percussion sound will be assigned to each pad. After pressing this button, push one of the keys which has an illustration directly above it, to hear the various percussion sounds available.

<< For Song Memory >>

◉ SONG#/MEASURE display
Shows which Song and what measure of the song you are in.

◉ 8 TRACK LEDs
Lights up LED of track currently selected for recording or playback.

◉ SONG Number Select buttons (+/−)
To select which Song you want to record or playback (or which demonstration song you wish to hear).

◉ 8 TRACK Select buttons
To select which track you want to record or playback.

◉ RECORD button
To set-up recording by pressing simultaneously with one of the 8 TRACK buttons you wish to record on. You will be on pause, ready to record. (Press RECORD button, and as you hold it down also press your other selected button.)

◉ CLEAR button
To erase a whole Song or one of the individual 8 Tracks currently selected, by pressing the 8 TRACK Select button. (Press CLEAR button, and as you hold it down also press your other selected button.)

◉ RESET button
To return to the first beat of the first bar of the selected Song.

◉ REWIND button
By pressing button once, the position is moved back to first beat of the previous bar. When you press and hold the button down, you rewind accordingly.

◉ STOP button
To stop recording or playback.

◉ PLAY button
To start recording or playback.

◉ FAST FORWARD button
By pressing button once, the postion is moved forward to the first beat of the next measure. When you press and hold the button, the postion is moved forward accordingly.

◉ DEMO (Demonstration) START/ STOP button
To start or stop the demonstration song.

<< Accessory Terminals >>

◉ DC 9-12V IN Terminal (for AC adaptor)
Terminal for connecting an optional adaptor (: YAMAHA PA-3, PA-4, PA-40) for electrical power supply from AC outlet.

◉ HEADPHONES/AUX. OUT Terminal
Terminal for connecting headphones, keyboard amplifier, stereo amplifier, etc.

◉ MIDI IN Terminal
Terminal for PSS-795 to receive MIDI information.

◉ MIDI OUT Terminal
Terminal for PSS-795 to generate MIDI information.
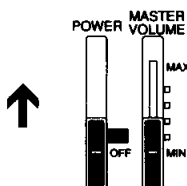
◉ MIDI THRU Terminal
This Terminal allows you to send out the MIDI information received thru the MIDI IN Terminal.

Voice Section

a. Selecting a Voice

There are 100 different pre-set voices to choose from, providing a wide variety of sounds to accomodate many types of song styles.
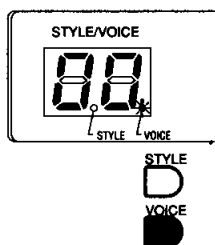
Step 1: Turn the POWER ON.

Turn the POWER switch to ON, and slide the MASTER VOLUME control up.
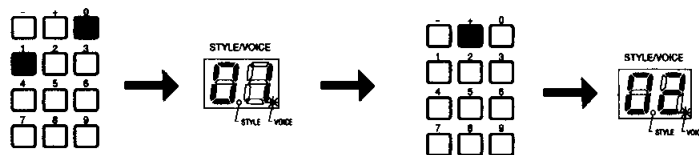
Step 2: Press the VOICE button.
Press the VOICE button of STYLE/VOICE select.

The Voice LED in the STYLE/VOICE display will light up. The number displayed indicates the Voice number. For now do the Voice selection.

Step 3: Select a Voice.
Consult the Voice List on the Control Panel and enter the 2 digit number using the Numeric buttons <0> thru <9> of the STYLE/VOICE select. For example, if you want ELECTRIC PIANO 1, which is Voice number 01, you first press <0>, then <1>. You can increase or decrease the number selected by the <+>/<−> buttons, so if you wanted to change the Voice to ELECTRIC PIANO 2, which is Voice number 02, you can just press the <+> button once.

Note: *To press and hold the <+> / <−> buttons you will increase or decrease the number at an accelerated rate.*

Step 4: Now when you press the keys of the keyboard, you will hear the Voice selected in Step 3. If you wish to change your Voice selection, just repeat Steps 2 & 3. (Unless you have been pressed the STYLE button, skip Step 2.)
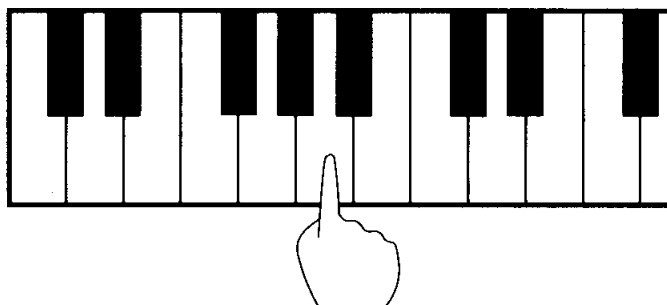
* The PSS-795 allows you to play up to 28 notes simultaneously. (But this number does vary depending on the mode of Auto Accompaniment, Orchestration, Voice, or playback status of Song Memory.)

b. Tuning

When you play along with another instrument, CD, tape or record, etc., it often happens that the tunings are slightly different. With the PSS-795 you don't have to worry about this. There is a Tuning function built in to this model that can adjust the pitch, allowing you to play in tune with other musical instuments, or musical sources.

Step 1: Press the TUNING button.
Press the TUNING button located in the OVERALL CONTROL select. The LED will light up, and the MULTI DISPLAY shows the current Tuning Value. The initial value displayed has been assigned as <0> which is A3=440Hz.

OVERALL CONTROL

40-240 -12-12 -16-16
TEMPO TRANS-POSE TUNING
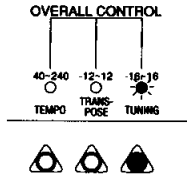
Step 2: Adjustment of Tuning:
Press the Increment/Decrement buttons located under the MULTI DISPLAY to raise or lower the pitch. You can raise or lower the pitch by about 3.13 cents. And with the value <+/−16>, It will be higher or lower than the standard pitch <0> by 50 cents (a quarter tone).

MULTI DISPLAY

AUTO ACCOMP. BEAT
− +

MULTI DISPLAY

AUTO ACCOMP. BEAT
− +

c. Transposing

This is a very useful function that allows you to change the key of the music you're playing, without changing the fingering at all. The notes you play can be heard as any pitch you select. This is especially useful for playing with other instruments, and Vocal accompaniment. You can easily change keys to match other musical sources, but still play the notes of your accustomed key. Also, you can extend the range of the lowest or highest notes on your keyboard.

Step 1: Press the TRANSPOSE button.
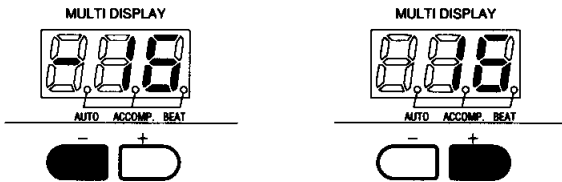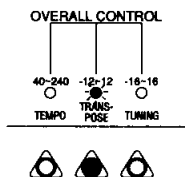When you press the TRANSPOSE button located in the OVERALL CONTROL select, the LED lights up, and the MULTI DISPLAY shows the current parameter value transposed. The initial value is pre-assigned as <0>.

OVERALL CONTROL

40-240 -12-12 -16-16
TEMPO TRANS-POSE TUNING

Step 2: Adjusting the Transposition.
Press the Increment/Decrement buttons located under the MULTI DISPLAY, to raise or lower the key.

You can raise or lower the key by 100 cents (a half tone). And with the value <+/−12>, It will be higher or lower than the standard key <0> by 1200 cents (one octave). For example if you change the parameter value to <3>, and play a song on the keyboard in the key of "C", the notes you actually hear, will be transposed to the key of "E♭ (E flat)".

MULTI DISPLAY

AUTO ACCOMP. BEAT
− +

MULTI DISPLAY

AUTO ACCOMP. BEAT
− +
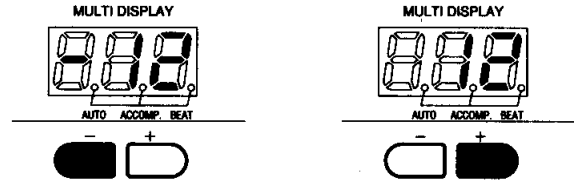
* Both the Tuning and Transpose functions work simultaneously in all possible Voices. (except Rhythm sounds, for which the Tuning is available.)

* Both the Tuning and Transpose functions will return instantly to <0> by pressing the <+> and <−> buttons BOTH at the same time.

* By pressing and holding down the <+> or <−> buttons, you will increase or decrease the Value at an accelerated rate.

* After setting up the Tuning or Transposition functions, the levels will be memorized until you shut off the POWER.

* Both the Tuning and Transposing will also affect the notes sounded by the MIDI Note On message from the external Master device. However, they will not affect the MIDI Note On message itself. So the PortaSound will transmit the same message as it received.

* If you change the Transpose value while any key is pressed down, the note currently reproduced will be held in the same key (pitch), but not transposed. Once releasing the key and repress it, at this time, the note will be reproduced in the transposed key (pitch).

* Transposition affects only the sound reproduction, so that MIDI Note On message transmitted will be still the same as without Transposition.

d. Voice Effects

The PSS-795 has a variety of Voice Effects to choose from, such as PITCH BEND WHEEL/REVERB/SUSTAIN etc., that with a little practice and wise selection, can be effective to make your performance more sophisticated.

a) Pitch Bending

By rotating the wheel up or down while playing on the keyboard, you will slide the pitch up or down accordingly, similar to the sound produced by a guitar when bending a string.

When you rotate the wheel in the upward direction, the pitch slides up, when you rotate the wheel in the downward direction, the pitch slides down.

9
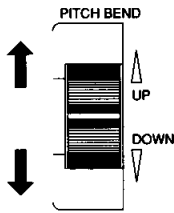
>>Adjusting the Range of Pitch Bending:

You can adjust the Pitch Bend Range from the center position (standard pitch) within <+12> (one octave up) to <−12> (one octave down). To adjust the pitch, rotate and hold the PITCH BEND Wheel all the way up or down, then press the Increment/Decrement button under the MULTI DISPLAY and select the desired value. For example if you select the value <1>, the pitch will slide up one half step (100 cents) when you rotate the wheel all the way up. If you select the value <12>, the pitch will slide up one octave (1200 cents) when you rotate the wheel all the way up. Conversely in minus value setting, the pitch will slide down when you rotate the wheel up.

* Initial value setting has been pre-assigned as the value <2>.

* The value which you assign is common to each Voice. So it does not change even when you select a different Voice. The value will also be memorized while the PSS-795 is turned off if the power is being supplied (batteries are set in).

* When you rotate the wheel, a kind of MIDI data - Pitch Bend Change message will be output from the MIDI OUT Terminal of the PortaSound. The PortaSound will actually output the Pitch Bend Change message to control the Receiver's Pitch Bending within the range of +/-1 octave. So if you control the pitch of another MIDI instrument connected to the PSS-795 as a Slave, you have to adjust the Pitch Bend Range on the instrument to +/-1 octave.
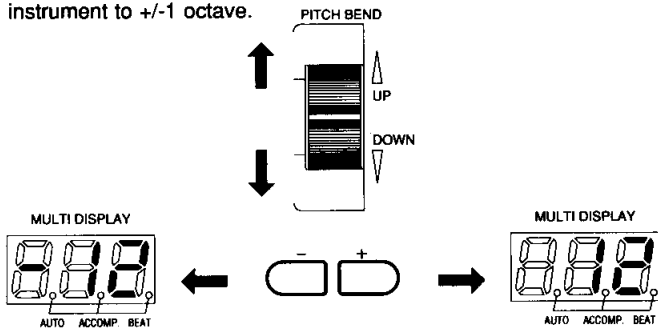
This table shows you the relationship between the possible value settings, and their corresponding pitch.

| Assigned value	Amount of Pitch Change When the Wheel is Fully Rotated	
	UPWARD	DOWNWARD
+12	up 1 octave	down 1 octave
+11	up 11 half steps	down 11 half steps
+10	up 10 half steps	down 10 half steps
:	:	:
:	:	:
+1	up 1 half step	down 1 half step
−1	down 1 half step	up 1 half step
−2	down 2 half steps	up 2 half steps
−3	down 3 half steps	up 3 half steps
:	:	:
:	:	:
−12	down 1 octave	up 1 octave

b) Reverb

This effect adds Reverberation to your sounds. It gives width and depth to your music that almost gives the impression of being in a concert hall. The PSS-795 Reverb Effect has a range of values that can be assigned within the range between <0> to <3>.

Step 1: Press the REVERB button.

When you press the REVERB button located in the VOICE EFFECT select, the LED lights up, and the MULTI DISPLAY shows the current Reverb Effect value.

* The initial value for Reverb Effect is <0>. If the MULTI DISPLAY shows <− − −>, this means the Reverb effect has been pre-fixed.
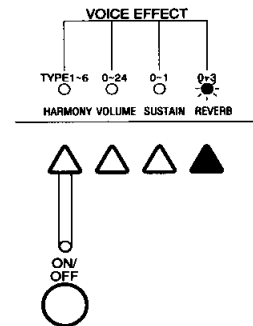
Step 2: Adjusting the value of Reverb Effect:

You can adjust the value of the Reverb Effect by using the Increment/Decrement buttons located under the MULTI DISPLAY. <0> means the Reverb Effect is Off, <1> is weak, and thru <3> is strong.

* Reverberation given by the Reverb Effect is heard to vary, even when you set the same value to several Voices. It depends on the Voice you select.

0 - 3

c) Sustain

This Effect adjusts the Release time of the Voice after releasing the pressed key(s) and enrich the sound for you to play with in a warm mood. The value is assigned either <0>: Off, or <1>: On. It will be applied in common to all possible Voices.

Step 1: Press the SUSTAIN button.

When you press the SUSTAIN button located in the VOICE EFFECT select, the LED lights up, and the MULTI DISPLAY shows the current Sustain Effect value.

* The initial value for Sustain Effect is <0>. If the MULTI DISPLAY shows <− − −>, this means the Sustain effect has been pre-fixed.

VOICE EFFECT

TYPE1~6 0~24 0~1 0~3
HARMONY VOLUME SUSTAIN REVERB

ON/OFF
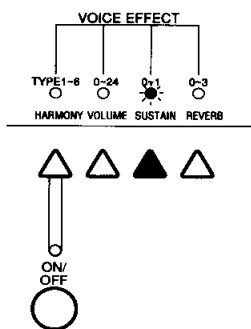
Step 2: Adjusting the value of Sustain Effect:
You can adjust the value of the Sustain Effect by using the Increment/Decrement buttons located under the MULTI DISPLAY.
<0> means the Sustain Effect is Off, <1> is On.

MULTI DISPLAY

AUTO ACCOMP. BEAT
− +

0 - 1
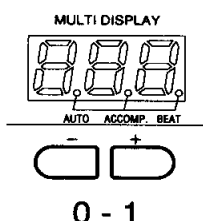
d) Volume

This function allows you to adjust only the Volume of Voices you play with, to contrast them with Rhythm or Accompaniment sounds. The Volume levels <0> to <24> apply to all Voice selections.

Step 1: Press the VOLUME button.
When you press the VOLUME button located in the VOICE EFFECT select, the LED lights up, and the MULTI DISPLAY shows the current VOLUME value. The initial value is pre-assigned as <21>.
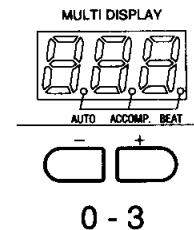
VOICE EFFECT

TYPE1~6 0~24 0~1 0~3
HARMONY VOLUME SUSTAIN REVERB

ON/OFF

Step 2: Adjusting the value of VOLUME:
You can adjust the Value of the VOLUME by using the Increment/Decrement buttons located under the MULTI DISPLAY.
<0> VOLUME is Minimum and <24> is Maximum.

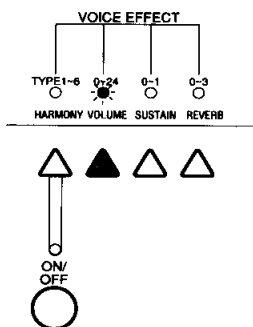* After setting any Volume value, If you activate and use the Vector Synthesizer, and turn it off by VECTOR SYNTH ON/OFF button, the assigned Volume value will return to the initial value <21>.

MULTI DISPLAY

AUTO ACCOMP. BEAT
− +

0 - 24
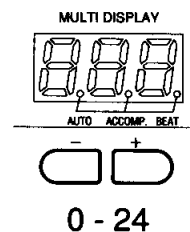
e) Harmony

This function allows you to produce chordal type sounds. When you use the Harmony Effect, you can achieve an image of more than one person playing while just utilizing one finger. The PSS-795 provides 6 different types of Harmony Effects. These Harmony sounds will automatically be selected according to the chord. That's why this Harmony Effect is so useful when you play along with the Auto Accompaniment.

Step 1: Press the HARMONY button.
When you press the HARMONY button located in the VOICE EFFECT select, the LED lights up, and the MULTI DISPLAY shows the current HARMONY Type value. The initial value is pre-assigned as <1> Duet.

VOICE EFFECT

TYPE1~6 0~24 0~1 0~3
HARMONY VOLUME SUSTAIN REVERB

ON/OFF
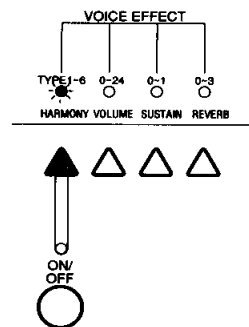
Step 2: Selecting the Type of Harmony:
Consult the HARMONY TYPE List on the Control Panel and enter the number of your selection using the Increment/Decrement buttons located under the MULTI DISPLAY.

MULTI DISPLAY

AUTO ACCOMP. BEAT
− +

1 - 6

11
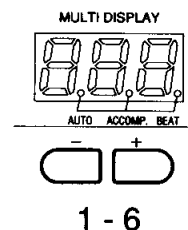
The 6 different types of Harmony Effects are shown below:

Harmony Types	
1. Duet	Adds Harmony that sounds like two people are playing.
2. Trio	Adds Harmony that sounds like three people are playing.
3. Block	Adds Harmony that sounds like Jazz type chording.
4. Country	Adds Harmony that sounds like Country Music style.
5. Octave	Plays additional notes in Octaves.
6. Strum	Adds Harmony as given by playing the each chord tone in order.

* The Harmony Type you assign will be memorized until you shut off the POWER. Next time when you turn the PSS-795, <1> Duet will be selected automatically.

Step 3: Press the HARMONY ON/OFF button.
When you press the HARMONY ON/OFF button, the LED lights up, and you will be set up to play in the currently selected Harmony Type.

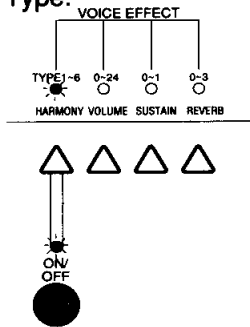* When the Harmony ON/OFF button is turned ON, you can play only one note at a time (If you press more than one note at a time, the highest note is given priority and played).

* When the VECTOR SYNTH or PAD ASSIGN is turned ON, you cannot use the Harmony function.

* The Harmony function works very effectively when you are using Auto Accompaniment. For you can have the Harmonized tones in accord with the Chord Progression.

* The Harmony Effect is also applied to a note sounded by an external MIDI Note On message.

<< Reference #1 >>

>> When you use certain Voice Effects in combination, it will help you give much more excellent expression. For example, PIPE ORGAN sound with Sustain and Reverb Effects will remind you of a cathedral in solemnity. Or, as a typical setting, STRINGS with Sustain and Reverb Effects can give you reality and ambience in a concert hall.

>> To utilize Harmony Effect with Sustain and/or Reverb Effect(s), a solo instrument will be a duo, trio, and even more so easily. If this is applied to a simple ELECTRIC PIANO, you will find its transfiguration and possibilities.

e. Vector Synthesizer (for Realtime Voice Mixing)

The Vector Synthesizer function offers you a realtime sound creation out of any 4 Voices among the 100 factory presets. This is easily carried out balancing the amounts of each Voice by the Joy Stick as you desire.

Step 1: Press the VECTOR SYNTH ON/OFF button.
When the VECTOR SYNTH ON/OFF button is turned ON, the LED lights up, and you will be set up to use the Vector Synthesizer function. When you move the Joy Stick perpendicularly, STYLE/VOICE display shows the 4 following Voices currently mixed. If you press the key, you will be able to hear the mixed sound of 4 Voices.

* The initial pre-assigned 4 Voices are Voice No.00, No.99, No.34, and No.64.
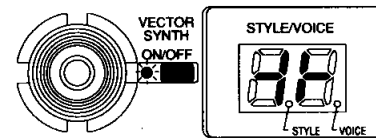
Step 2: Moving the Joy Stick:
Move the Joy Stick around freely as you play, the Joy Stick moves in every direction. (upward ,downward, and sideways Left and Right) Listen to how the balance of the 4 voices will change as you move the Joy Stick.

<Example> Change the volume of the pre-assigned (initial) 4 Voices, by the position of the Joy Stick.

>> When you move the Joy Stick Downward,
Indication of the STYLE/VOICE display changes to <99>, and you can hear Voice Number 99 (which is ORCHESTRA HIT), with emphasis.
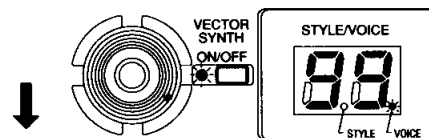
>> When you move the Joy Stick to the Right,
Indication of the STYLE/VOICE display changes to <34>, and you can hear Voice Number 34 (which is STRINGS 1), with emphasis.

12
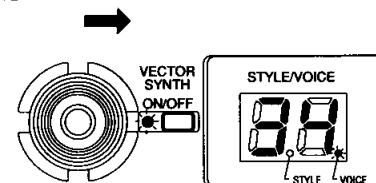
>> When you move the Joy Stick Upward,
Indication of the STYLE/VOICE display changes to <00>, and you can hear Voice Number 00 (which is PIANO), with emphasis.
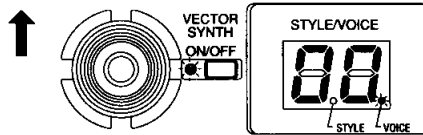
>> When you move the Joy Stick to the Left,
Indication of the STYLE/VOICE display changes to <64>, and you can hear Voice Number 64 (which is CHORUS), with emphasis.
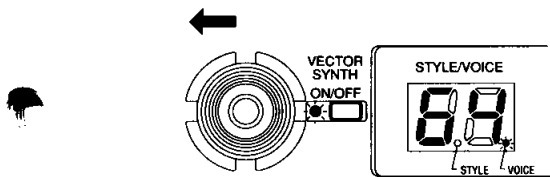
Step 3: Assigning 4 Voices:
Select and assign any 4 Voices which you like out of the 100 pre-set Voices in the Voice List located on the Control Panel.

When you move the Joy Stick all the way Upward, Downward, Right, or Left, STYLE/VOICE display shows one of 4 Voice numbers currently assigned.

Now you assign other 4 Voice numbers which you want:

Step 1: First move the Joy Stick in any direction (Upward, Downward, Right, or Left).

Step 2: Select a Voice using Numeric buttons as in usual Voice selection.
Also, you can assign a value for a Voice Effect such as Sustain or Reverb. But you cannot use the Harmony and Volume Effects.

By repeating Steps above to other 3 directions, assign all 4 Voices.

* Even when you turn OFF the Vector Synth function, the 4 Voices assigned, and each Voice Effect's value, will be memorized.

* While the Vector Synth function is in use, the number of notes possible to play simultaneously will be reduced substantially. So when you use Vector Synth function together with Auto Accompaniment or Song Memory, there is a shortage of notes that can be sounded at the same time. So when this occurs, we suggest to play using the most economical choice of notes possible. (Like single finger playing instead of chords and Harmony, less tensions, etc.)
In this case, the following indication will be shown until the total amount of notes is reduced under 28:
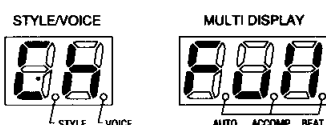
* Also when the Vector Synth function is activated and you use the Pitch Bend Effect, it will apply to all 4 Voices at the same time and the same distance.

<< Reference #2 >>

How to make sounds using the Vector Synth function as explained in the previous section, you select any 4 Voices from the 100 pre-set Voices to mix easily. You find there are full of possibilities! It's all up to your artistic discretion.

Here are some hints for using the Vector Synth function:

>> Sometimes it's easy for you to become bewildered in attempting to make the kind of sound you wish to hear, (which Voices to choose, and how to mix them?) but please remember, you can simplify the 100 Voice selections, by dividing them into 2 categories. In the first category: Voices which when the key is pressed and held, the sound will gradually diminish, like a piano or guitar; in the second category: Voices which are sustained for the duration the key is being pressed such as an organ or brass. So in creating your sounds, this is important to consider which category you want.

>> As you know the main merit of the Vector Synth function is to mix easily any 4 Voices, so it's a great way to experiment quickly and simply, and gives you a chance to bump into many exciting Voice combinations.

>> The Brass Family and String Family generally have sounds that begin with a smooth and slow attack, while the Piano Family has sounds which begin with a sharper and more percussive attack. Therefore, by adding a touch of Piano Family sound to a combination of Strings and/or Brass, you might come up with a beautiful sound worthy of a solo.

>> Think about how to play with four Voices while you freely move the Joy Stick to change the Volume balance among them. For example, you can start out playing using a Piano Family Voice, and then later smoothly mix in a String Family Voice etc. Depending on how to assign different combinations of Voices, and how to operate the Joy Stick, you will be able to represent high quality playing.

13

Rhythm Style Section

The PSS-795 has 50 kinds of realistic pre-set Rhythm Styles which have been professionally recorded. Each Rhythm Style has a variety of patterns such as Normal, Bridge, Intro., Ending, and two kinds of Fill-in patterns. So you have a storehouse of Styles and patterns to work with in varying your playing. Plus, the PSS-795 provides 50 kinds of percussion sounds, which you can play using the pads or keys, along with the Rhythm Style, in a flexible way that fits to the mood you wish to create. If you utilize the Song Memory function (explained in the Song Memory Section) it's possible to memorize the original Rhythm. We hope you enjoy the many options available for a variety of Rhythm Styles.
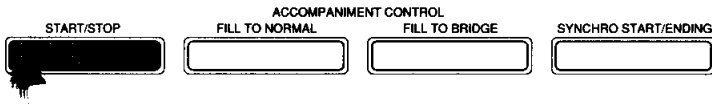
The following diagram shows the various patterns which one Rhythm Style contains, you can use it for reference as you learn more about each Style selection.

One Rhythm Style

Introduction pattern
(When starting Rhythm play with INTRO LED on)

Normal pattern
(With BRIDGE LED off)

Bridge pattern
(With BRIDGE LED on)

Fill-in pattern 1
(Fill-in leading Normal pattern)

Fill-in pattern 2
(Fill-in leading Bridge pattern)

Ending pattern
(During Rhythm play with SYNCHRO START/ENDING button pressed)

Every pattern is provided for you to construct a song as you wish. That is, each pattern is taken as a section of a song, so that you have various combination possibilities. Following are typical examples for song construction:

Ex.1

Introduction → Normal → Fill-in 2 → Bridge → Ending
BRIDGE off   INTRO   FILL TO BRIDGE   SYNCHRO START/ENDING

Ex.2

Introduction → Bridge → Fill-in 1 → Normal → Ending
BRIDGE on   INTRO   FILL TO NORMAL   SYNCHRO START/ENDING

Ex.3

Normal → Bridge → Fill-in 1 → Normal → Bridge
BRIDGE off   FILL TO NORMAL   FILL TO BRIDGE

Ex.4

Bridge → Fill-in 1 → Normal → Fill-in 2 → Bridge → Ending
BRIDGE on FILL TO NORMAL   FILL TO BRIDGE   SYNCHRO START/ENDING

You can easily order the patterns to press each corresponding button. Now, you learn about the operations of the Rhythm Style.

a. Basic Operations

a) Selecting a Rhythm Style

Step 1: Press the STYLE button.
Press the STYLE button of STYLE/VOICE select.

The Style LED in the STYLE/VOICE display will light up. The Number displayed indicates the Style number. For now do the Style selection.

Step 2: Select a Rhythm Style.
Consult the Style List on the Control Panel and enter the 2 digit number using the Numeric buttons of the STYLE/ VOICE select. For example, if you want ROCK, which is Style number 06, you first press <0>, then <6>. You can increase or decrease the Number selected by using the <+>/<–> buttons.

* To press and hold the <+>/<–> buttons you will increase or decrease the number at an accelerated rate.

Step 3: Assigning NORMAL/BRIDGE:
Decide which you want, NORMAL pattern or BRIDGE pattern, of the selected Rhythm Style.

* Normal pattern offers a basic pattern of the Style (including its Auto Accompaniment). And Bridge pattern offers additional sounds or little complicated pattern. Actually, you can take Normal pattern is pre-made intended to fit the introduction of a Song. Oppositely, a Bridge pattern is pre-made to fit the most interesting part of a song, in other words a climax.

How you assign NORMAL/BRIDGE: Press the BRIDGE button located in the Orchestration. The BRIDGE LED lights up and indicates the BRIDGE pattern has been assigned. Oppositely, when this LED is not lit, assigned is the NORMAL pattern.

* IWhen powering up, the NORMAL pattern is assigned.

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AUTO ACCOMPANIMENT
FINGERING   ORCHESTRATION
O   O   O   O   ☀
SINGLE FIN-   INTRO LARGE BRIDGE
FINGER GERED

b) Start & Stop

Step 1: Starting the Rhythm:
Start the Rhythm by pressing the START/STOP button located in the ACCOMPANIMENT CONTROL. If you press the button the Rhythm pattern which you selected (in "Selecting a Rhythm Style" procedure) will sound.
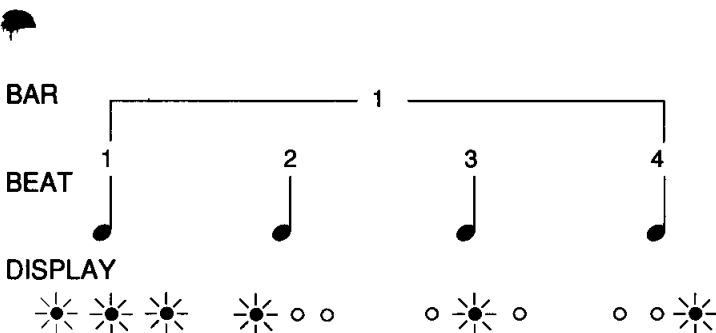
ACCOMPANIMENT CONTROL
START/STOP   FILL TO NORMAL   FILL TO BRIDGE   SYNCHRO START/ENDING

While playing the Rhythm pattern, if you select another Rhythm Style, the Rhythm will change automatically at the beginning of the next bar. You can also change NORMAL pattern to BRIDGE pattern, or vice versa. It will be changed over at the beginning of the next bar. You can change NORMAL/BRIDGE pattern any time.

Step 2: Stopping the Rhythm:
Stop the Rhythm by pressing the START/STOP button, a second time.

While the Rhythm Pattern is playing, 3 dots will flash on and off in time, in the MULTI DISPLAY.

c) Tempo Control

Tempos of the Rhythm have been pre-assigned different values according to the Rhythm Style, but you can adjust the Tempo easily even after starting the Rhythm or stopping by the following procedure. Here's how to change the Tempos to your liking:

Step 1: Press the TEMPO button.
When you press the TEMPO button located in the OVERALL CONTROL select, the LED lights up, and the MULTI DISPLAY indicates the current Tempo value.

OVERALL CONTROL
40-240 -12-12 -16-16
☀   O   O
TEMPO   TRANS- TUNING
        POSE
▲ △ △
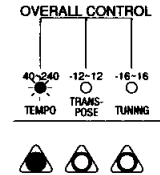
Step 2: Adjusting the Tempo:
You adjust the Tempo by pressing the Increment/ Decrement buttons located under the MULTI DISPLAY. The range of Tempo rates which you can adjust is from one quarter note = 40 to 240. Also, when the Increment/ Decrement buttons are both pressed simultaneously, the value of the Tempo automatically returns to the pre-assigned value of the current Rhythm Style selected.

* The Tempo you changed has been memorized until you Stop, and then change the Rhythm.

* When you Stop and change the Rhythm, Tempo will automatically become the pre-assigned value for the Rhythm Style selected.

* While Rhythm is playing and you change to another Rhythm, only the Rhythm Style will change not the Tempo.

BAR ┌─────── 1 ───────┐

BEAT 1   2   3   4
      ♩   ♩   ♩   ♩

DISPLAY

☀ ☀ ☀   ☀ o o   o ☀ o   o o ☀

* This diagram represents 4/4 Meter, if you are in another meter it displays differently.

* How to construct the Rhythm pattern, depends on the Rhythm Style, sometimes the patterns are in 2 bar units, or in 4 bar units, or 8 bar units, etc..

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b. Advanced Operations

a) Synchro Start

If you press the SYNCHRO START/ENDING button beforehand, you can start the Rhythm exactly simultaneously when you start playing on the keyboard.

Step 1: Select the Rhythm Style.

Step 2: Press the SYNCHRO START/ENDING button.
When you press the SYNCHRO START/ENDING button, located in the ACCOMPANIMENT CONTROL, 3 dots in the MULTI DISPLAY flash all together in time. This is SYNCHRO START Stand By position.
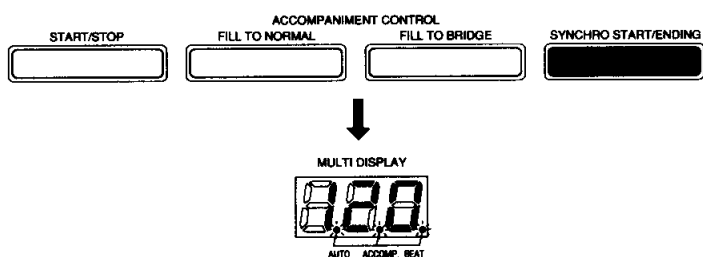
*   If you want to cancel the SYNCHRO START Stand By position, press the SYNCHRO START/ENDING button again.

Step 3: Start the Rhythm.
The Rhythm will Start the minute when you press any key on the keyboard as long as the Auto Accompaniment is OFF (with the SINGLE FINGER or FINGERED LED off). Also, when the Auto Acompaniment is ON (with the SINGLE FINGER or FINGERED LED on), you can start the Rhythm the minute when you press the keys of the Accompaniment section of the keyboard (from F#2 and below).

*   To select the Fingering (by pressing SINGLE FINGER or FINGERED button), it means to activate the Auto Accompaniment. (See "Auto Accompaniment Section".)

b) Ending

When you press the SYNCHRO START/ENDING button, while the Rhythm is running, the pre-set ENDING phrase which suits the current Rhythm Style, will start from the beginning of the next bar. And then the Rhythm will stop automatically.
While the ENDING phrase is being played, the Left dot in the MULTI DISPLAY will flash.
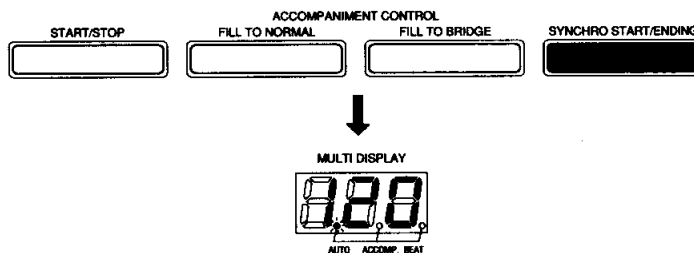
*   The length of the ENDING phrase, varies depending on the Rhythm Style.

*   If you change the Style number while the ENDING is being played, the ENDING pattern does NOT change.

c) Fill-Ins

You can insert Fill-Ins while playing the Rhythm pattern. When you press the FILL TO NORMAL button, Fill-In pattern which fits to the current rhythm style will be played until the end of the bar, and then continues to play the NORMAL pattern from the beginning of the next bar. When you press FILL TO BRIDGE button, a different Fill-In pattern will be played until the end of the bar, and then switched to the BRIDGE pattern at the beginning of the next bar. Each Rhythm Style has 2 Fill-in patterns, and depending on which button you press, the following rhythm will be defined as either NORMAL pattern or BRIDGE pattern.
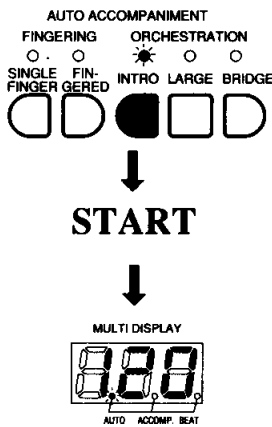

| FILL TO NORMAL button leads a Fill-In followed by a Normal pattern. | FILL TO BRIDGE button leads a Fill-In followed by a Bridge pattern. |

*   When you press the either of the Fill-in buttons and hold it down, the Fill-In pattern will be repeated for the duration it is held down.

*   Both buttons will function while playing Intro. or Ending.

d) Intro

When you set up the Intro. function, you can automatically start off the Rhythm with an Intro. which matches the currently selected Rhythm Style. You can easily set up the Intro. anytime by pressing the INTRO ON/OFF button located in the ORCHESTRATION select. When the INTRO ON/OFF button has been pressed, the LED lights up and the Intro. function is ready. But if the LED is not lit up, the Intro. function doesn't work. After the Intro. is set up, the Rhythm will start off with an Intro. when you press the START/STOP button. While the Intro. is being played, the Left dot in the MULTI DISPLAY will flash. Also, you can use this function with SYNCHRO START.

AUTO ACCOMPANIMENT
FINGERING   ORCHESTRATION

○ · ○   :◉: ○ ○

SINGLE   FIN-
FINGER GERED   INTRO LARGE BRIDGE

↓

START

↓

MULTI DISPLAY

AUTO   ACCOMP. BEAT

* The length of the Intro. varies depending on each Rhythm Style.

* When you press the INTRO button while the Rhythm is being played, the Intro. will not be played, (unlike when changing Rhythm Style or NORMAL/BRIDGE patterns), but the Intro. function will be set up and ready.

e) Pad Assigning

As you hit any of the 8 Drum Pads, a percussion sound will heard at any time. You can easily assign to these Pads any 8 instruments you like, from among the 50 percussion sounds of the Voice number 96 PERCUSSIONS. Now, why don't you try hitting the Pads and listen to the percussion sounds which are initially assigned to each Pad as shown below:

* These assignments will be memorized even after the POWER is turned OFF, IF you have batteries in.

* You can press the PAD ASSIGN button at any time; except when the Vector Synth function is ON.
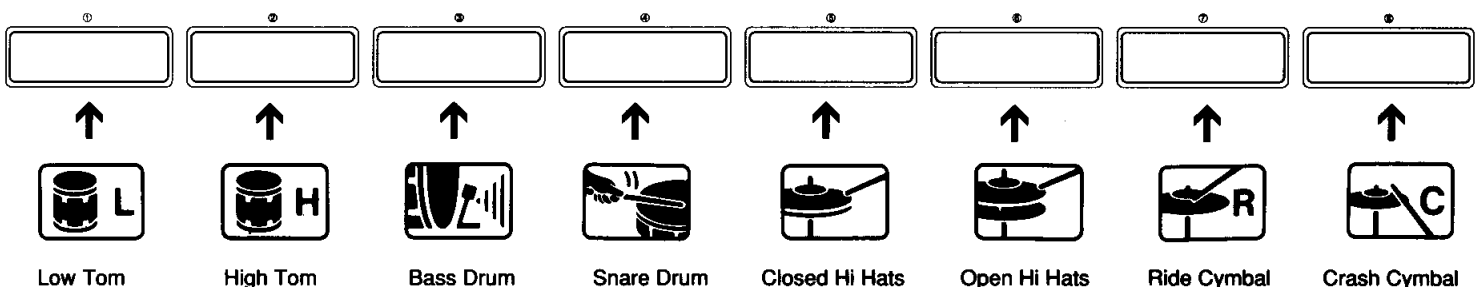
* When the Fingering is selected with the corresponding LED lit, if you press the PAD ASSIGN button, the Fingering will be cancelled and the LED will be turned off.
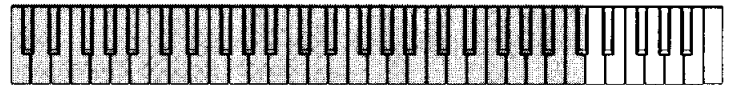
Step 1: Assigning Percussion sound to each PAD:
When you press PAD ASSIGN button, the LED will light up, the Voice number 96 will be selected, and you can play the 50 percussion sounds illustrated above the keyboard.
Actual procedure for assigning: First select a sound you like, by pressing and holding down the key corresponding to the sound. Then press a Pad to which you want to assign it. Repeat this procedure for the remaining Pads.

PAD
ASSIGN
:◉:
ON/
OFF
▼

Press and hold down the key corresponding to the Percussion Sound you select.

Press the PAD you want to assign to.

| Low Tom | High Tom | Bass Drum | Snare Drum | Closed Hi Hats | Open Hi Hats | Ride Cymbal | Crash Cymbal |

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<< Reference #3 >>

It seems difficult to control the Rhythm functions of the PSS-795, where even one style has many kind of Patterns, so we have provided a few hints.

>> You can start the Rhythm with an Intro. right away by: (a) selecting a Rhythm Style, (b) pressing the INTRO ON/OFF button, and (c) pressing the SYNCHRO START/STOP button. Now you are in SYNCHRO START Stand By position. As soon as you start to play with the touch of your first key, the Rhythm with an Intro. will start.

>> If you press the BRIDGE or FILL TO NORMAL button while the Normal pattern is running, you can play in another mood switching to the Bridge pattern. If you need more variation, simply select another Rhythm Style without stopping the rhythm running. And you may go into entirely different mood at the same Tempo.

>> If you assign Percussion Sounds beforehand to each Pad in convenient locations, it can be a great technique when performing, to add your own Fills and Percussion accents. For example: while one hand continues to play the melody, use the other to play a Fill on the Pads. And of course, you can always depend on the FILL TO BRIDGE or FILL TO NORMAL buttons, for excellent effects in your playing.

>> While you are playing, you can simulate a Drum Solo by pressing the PAD ASSIGN button and play using the keys corresponding to Percussion Sounds shown above each key (or alternatively, enter Voice number 96 which is PERCUSSIONS).

>> You can top off your performance with flair, by making use of the provided Endings when you press the SYNCHRO START/ENDING button.

Auto Accompaniment Section

When you make use of this very effective function, you will be sounding like a Professional in no time at all.
This Auto Accompaniment function is closely related to the Rhythm Style, because it functions in combination with (a) the arranging which fits to each Rhythm Style, or corresponding Intro. & Ending, and (b) accompaniment sound which fits to the chord work by FINGERING (SINGLE FINGER or FINGERED). So, as was explained in the Rhythm Style Section, regarding the Rhythm functions, you can control Auto Accompaniment in almost the same way. Let's take a look at the Basic steps involved, so you can have an overview of the whole function of Auto Accompaniment:

Steps for Auto Accompaniment

> - **Selection of the Fingering** (*)
>   - SINGLE FINGER or FINGERED

↓

> - **Selection of the Rhythm Style**
>   (For Rhythm and Auto Accompaniment by Left Hand)
> - **Selection of the Voice**
>   (For Melody played by Right Hand)

↓

> - **Assigning the Orchestration**
>   - BRIDGE on: Bridge pattern
>   - BRIDGE off: Normal pattern
>   - INTRO on: To Start with Introduction
>   - LARGE on: Large ensemble(*)
>   - LARGE off: Small ensemble (*)

↓

> *Starting the Rhythm*
> - **Immediate Start by START/STOP**
> - **Start by key pressing**
>   (any key in Auto Accompaniment section: C1-F#2)

↓

> *During Rhythm Play*
> - **Auto Accompaniment led by Chord work of Left Hand**
>   (Chords formed by SINGLE FINGER or FINGERED)
> - **Possible Assignment Change**
>   - Tempo change
>   - Selection of Normal/Bridge (manually or by 2 Fill-In patterns)
>   - Selection of the Voice
>   - Selection of the Rhythm Style
>   - Assignment of LARGE (on/off)

↓

> *Stopping the Rhythm*
> - **Immediate Stop by START/STOP**
> - **Stop after Ending pattern**

Note: Operations marked with (*) have not been discussed in the Rhythm Style Section.

Note: Normal, Bridge, Introduction and Ending will be affected with Assignment of LARGE (on/off).

a. Fingering of Auto Accompaniment

There are 2 kinds of Fingering methods provided for Auto Accompaniment. One is SINGLE FINGER method, which allows you to have Auto Accompaniment by easy fingering, the other is FINGERED method which you play chords as usual. Auto Accompaniment will be carried out by your chord work in either Fingering, within the Auto Accompaniment Key Section: C1 thru F#2.

< Fingering Selection >

When FINGERED method is selected

FINGERING
○ ☀
SINGLE FIN-
FINGER GERED

When SINGLE FINGER method is selected

FINGERING
☀ ○
SINGLE FIN-
FINGER GERED

Auto Accompaniment Key Section (C1 thru F#2)
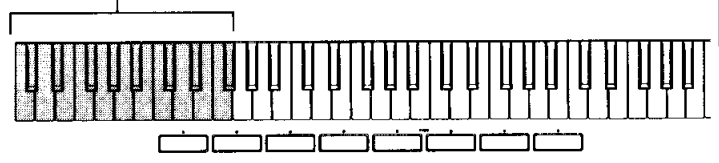
* F#2 and below is the Auto Accompaniment key section, so when you select a Voice you will not be able to hear that Voice sounded on keys C1 thru F#2.

When the Fingering is NOT selected, (Normal keyboard: C1 thru C6)

FINGERING
○ ○
SINGLE FIN-
FINGER GERED
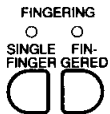
* When the Fingering is not selected, you will be able to play on the whole keyboard in any Voice you select.

b. 3 Orchestrations

Another important function to consider when you're using Auto Accompaniment is Orchestration. There are 3 buttons which are: INTRO, LARGE, and BRIDGE located in the Orchestration select. Depending on how you assign these Orchestrations in combining one another, you can produce many styles of arrangements.

>> INTRO button:
When you press the INTRO button, the LED will light up, and you are set up for Intro. (Same as in Rhythm Style Section). Now, after selecting either SINGLE FINGER or FINGERED mode to start the Auto Accompaniment, it will play an Intro. controlled by the chords you play with your left hand, and in the Style which is currently selected.

>> LARGE button:
This button controls whether the Auto Acommpaniment will be played with a Small ensemble or a Large ensemble (of Instrumentation). When you press the Large button and the LED lights up, you will have the Large ensemble Effect, and when the LED is not lit up, you have the Small ensemble Effect.

>> BRIDGE button:
When you press the BRIDGE button, the LED will light up and you will be in the BRIDGE pattern set-up (same as in the Rhythm Style Section) when the LED is not lit up it will be in NORMAL pattern set-up. The Auto Accompaniment will play in either case assigned, the arranging which fits to each Pattern. Also, depending on the status of the Large/ Small ensemble selected using the LARGE button, the arranging will vary accordingly.
You can play with various patterns combining these 3 Orchestration's activation and in activation.

* INTRO inactivation simply means Starting the Rhythm without Intro.. This has no concern with LARGE active or inactive.

* You can assign the Orchestration buttons at any time. The initial pre-set settings are: INTRO/Off, LARGE/On, BRIDGE/Off (NORMAL).
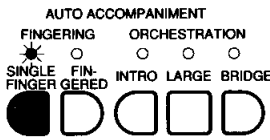
c. Single Finger Mode

This Fingering method allows you to have Auto Accompaniment easily, without playing the whole exact chord. For example, if you want to play a Major chord, just one Finger is required. Even for other chords, you only need to press a few keys to establish the whole chord.

Step 1: Select a Rhythm Style.

Step 2: Press the SINGLE FINGER button.
When you press the SINGLE FINGER button, the corresponding LED will light up, and SINGLE FINGER mode has been assigned.
At this time, the PSS-795 will automatically be in the SYNCHRO START Stand By position.

* When the PAD ASSIGN LED is lit, if the Fingering button (SINGLE FINGER or FINGERED) is pressed, the Pad Assigning will be cancelled and the LED will be turned off.

Step 3: Press any Auto Accompaniment keys.
When you press the Auto Accompaniment Key(s), the Auto Accompaniment will start automatically.

Step 4: Stop Auto Accompaniment.
When you want to Stop the Auto Accompaniment, press the SYNCHRO START/ENDING button, or the START/STOP button.
When you press the SYNCHRO START/ENDING button the Auto Accompaniment will finish in the Ending pattern.

Single Finger Chording >

The following diagram shows the relationship between the Chord Names, and Keys to press in the Auto Accompaniment section on the keyboard.

← Key to press

C D E F G A B C D E F ← Chord Names
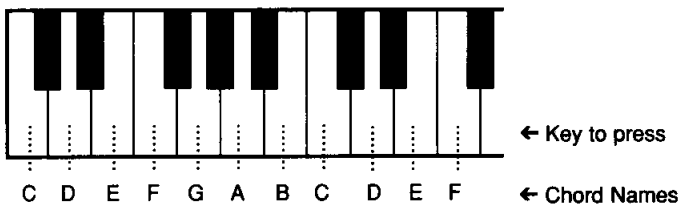
< How to play Chords named with a Sharp or Flat >

When the Chord Name has a Sharp, press the black Key to the right of the Chord Name Key. When the Chord Name has a Flat, press the black Key to the left of the Chord Name Key.

G♭ G#

G
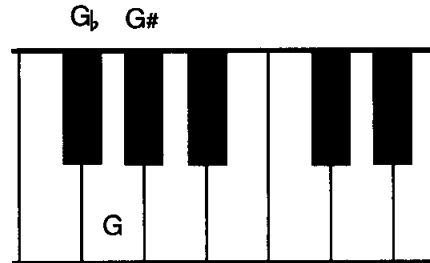
< How to play 7th or Minor Chords >

When the Chord Name consists of a Single Capital letter (C, D, etc.), this is a Major Chord. But the Chord progression of most songs also often use other Chords such as 7th chords (G7, E7, etc.) or Minor Chords (Cm, Am, etc.). For these types of Chords, press 2 or 3 Keys simultaneously as shown below:

Major Chord: Press the Root key.

Minor Chord: Press both Root key and any black key on the left of the Root key simultaneously. (with 2 fingers)

7th Chord: Press both Root key and any white key on the left of the Root key simultaneously. (with 2 fingers)

Minor 7th Chord: Press both Root key and any black and white keys on the left of the Root key simultaneously. (with 3 fingers)

* For further reference consult the Table on page 23.

< **Example** > The following diagram shows an example of playing using the SINGLE FINGER mode:


C   Dm7   F   G7

d. Fingered Mode

This Fingering method allows you to have Auto Accompaniment by playing Chords in the usual manner. It is well suited for the individual who is accustomed to playing Chords, and also for those songs containing Chords which are not possible to play using the SINGLE FINGER mode.

Step 1: Select a Rhythm Style.

Step 2: Press the FINGERED button.
When you press the FINGERED button, the corresponding LED will light up, and FINGERED mode has been assigned. At this time, the PSS-795 will automatically be in the SYNCHRO START Stand By position.

AUTO ACCOMPANIMENT
FINGERING   ORCHESTRATION
○ ✸   ○   ○   ○
SINGLE FIN-   INTRO LARGE BRIDGE
FINGER GERED
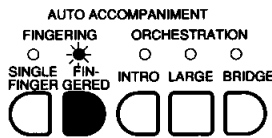
* When the PAD ASSIGN LED is lit, if the Fingering button (SINGLE FINGER or FINGERED) is pressed, Pad Assigning will be cancelled and the LED will be turned off.

Step 3: Press the Auto Accompaniment keys.
When you press the Auto Accompaniment keys which are detectable as a Chord, the Chords will change accordingly.

Step 4: Stop the Auto Accompaniment.
When you want to Stop the Auto Accompaniment, press the SYNCHRO START/ENDING button, or the START/STOP button.
When you press the SYNCHRO START/ENDING button, the Auto Accompaniment will finish in the Ending pattern.

< Example > The following diagram shows an example of playing using the FINGERED mode:

| C | Dm7 | F | G7 |

e. Detectable Chords

Types of Chords for Auto Acccompaniment detectable in the SINGLE FINGER/FINGERED modes are listed below:

Detected as a Chord if the Branketted note is not played:

ex. Detectable Chords on the Root "C"

Major Chord: C (*)

Suspended 4th Chord: Csus4

Minor Chord: Cm (*)

Augmented Chord: Caug

7th Chord: C7 (*)

Diminished Chord: Cdim

Minor 7th Chord: Cm7

Minor Major 7th Chord: CmM7 (*)

Major 7th Chord: CM7 (*)

Minor 6th Chord: Cm6

Minor 7th Flatted 5th Chord: Cm7-5

Single Chord: CS

7th Suspended 4th Chord: C7sus4 (*)

* Specified Chords (marked with a star) are detected when you play its inversions. A Diminished or Augmented Chord will be detected with the lowest note you play taken as its Root.

* Minor 7th Flatted 5th Chords and Minor 6th Chords are similar in the intervals of Chord tones (ex. Bm7-5 and Dm6 includes the same notes.). So only when the lowest note played can be taken as the Root of a Minor 6th Chord, it will be detected as a Minor 6th Chord. Otherwise, it will be detected as a Minor 7th Flatted 5th Chord.

<< Reference #4 >>

>> Why don't you try using many different techniques such as switching LARGE on/off or NORMAL/ BRIDGE, to vary the arrangments of your songs.

>> When you insert a Fill-in using the FILL TO NORMAL or FILL TO BRIDGE buttons, the arranging of the accompaniment will automatically change to fit the Fill-in itself. So keep in mind how those changes occur, and use them to add flavor to your performances.

>>To use the Harmony Effect without Auto Accompaniment, simply press the SYNCRO START/ ENDING button to cancel it. You still have the Harmonized tones in accord with the Chord Progression.

CHORD TABLE #1 - Single Fingered Chords

Major Chords	Minor Chords	7th Chords	Minor 7th Chords
C	Cm	C₇	Cm₇
C#(D♭)	C#m (D♭m)	C#7 (D♭7)	C#m7 (D♭m7)
D	Dm	D7	Dm7
D#(E♭)	D#m (E♭m)	D#7 (E♭7)	D#m7 (E♭m7)
E	Em	E7	Em7
F	Fm	F7	Fm7
F#(G♭)	F#m (G♭m)	F#7 (G♭7)	F#m7 (G♭m7)
G	Gm	G7	Gm7
G#(A♭)	G#m (A♭m)	G#7 (A♭7)	G#m7 (A♭m7)
A	Am	A7	Am7
A#(B♭)	A#m (B♭m)	A#7 (B♭7)	A#m7 (B♭m7)
B	Bm	B7	Bm7

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CHORD TABLE#2 - Fingered Chords
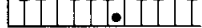
Major Chords

C
C#(D♭)
D
D#(E♭)
E
F
F#(G♭)
G
G#(A♭)
A
A#(B♭)
B

Minor Chords

Cm
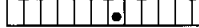C#m (D♭m)
Dm
D#m (E♭m)
Em
Fm
F#m (G♭m)
Gm
G#m (A♭m)
Am
A#m (B♭m)
Bm

7th Chords
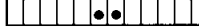
C7
C#7 (D♭7)
D7
D#7 (E♭7)
E7
F7
F#7 (G♭7)
G7
G#7 (A♭7)
A7
A#7 (B♭7)
B7

Minor 7th Chords

Cm7
C#m7 (D♭m7)
Dm7
D#m7 (E♭m7)
Em7
Fm7
F#m7 (G♭m7)
Gm7
G#m7 (A♭m7)
Am7
A#m7 (B♭m7)
Bm7

Major 7th Chords

CM7
C#M7 (D♭M7)
DM7
D#M7 (E♭M7)
EM7
FM7
F#M7 (G♭M7)
G#M7 (A♭M7)
G#M7 (A♭M7)
AM7
A#M7 (B♭M7)
BM7

Minor 7th Flatted 5th Chords

Cm7-5
C#m7-5 (D♭m7-5)
Dm7-5
D#m7-5 (E♭m7-5)
Em7-5
Fm7-5
F#m7-5 (G♭m7-5)
Gm7-5
G#m7-5 (A♭m7-5)
Am7-5
A#m7-5 (B♭m7-5)
Bm7-5

7th Suspended 4th Chords

C7SUS4
C#7SUS4 (D♭7SUS4)
D7SUS4
D#7SUS4 (E♭7SUS4)
E7SUS4
F7SUS4
F#7SUS4 (G♭7SUS4)
G7SUS4
G#7SUS4 (A♭7SUS4)
A7SUS4
A#7SUS4 (B♭7SUS4)
B7SUS4

Augmented Chords

Caug
C#aug (D♭aug)
Daug
D#aug (E♭aug)
Eaug
Faug
F#aug (G♭aug)
Gaug
G#aug (A♭aug)
Aaug
A#aug (B♭aug)

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CHORD TABLE#3 - Fingered Chords

Diminished Chords

Cdim
C#dim
(D♭dim)
Ddim
D#dim
(E♭dim)
Edim
Fdim
F#dim
(G♭dim)
Gdim
G#dim
(A♭dim)
Adim
A#dim
(B♭dim)
Bdim

Minor Major 7th Chords

CmM7
C#mM7
(D♭mM7)
DmM7
D#mM7
(E♭mM7)
EmM7
FmM7
F#mM7
(G♭mM7)
GmM7
G#mM7
(A♭mM7)
AmM7
A#mM7
(B♭mM7)
BmM7

Suspended 4th Chords

CSUS4
C#SUS4
(D♭SUS4)
DSUS4
D#SUS4
(E♭SUS4)
ESUS4
FSUS4
F#SUS4
(G♭SUS4)
GSUS4
G#SUS4
(A♭SUS4)
ASUS4
A#SUS4
(B♭SUS4)
BSUS4

Minor 6th Chords

Cm6
C#m6
(D♭m6)
Dm6
D#m6
(E♭m6)
Em6
Fm6
F#m6
(G♭m6)
Gm6
G#m6
(A♭m6)
Am6

Single Chords

CS
D♭S
(C#S)
DS
E♭S
(D#S)
ES
FS
G♭S
(F#S)

Song Memory Section

Song Memory function enables you to have 8 track digital recording and sound reproduction of up to 8 songs. When you use the Song Memory Function, you can record and playback your performance easily. You can enjoy Multi-track recording using the 8 recording tracks available for one song, and you can record up to 8 Songs that will be stored in the Memory. Please make the most of this easy-to-use function designed to assist your practicing and composition, and provide many hours of musical pleasure.

a. On Multi-Track Recording

Before we get into the specific procedures, you should learn about the general idea of Multi-Track Recordeing. Multi-Track Recording is a very popular and convenient method of recording used in marking LPs, CDs, etc. You record each instrument on a separate track, and mix them together later into a finished product.

In case of Song Memory of the PSS-795, there are 8 recording tracks provided. Multi-Track Recording by Song Memory will begin with, for example, recording of basic rhythm and chord progression on AUTO ACCOMP. Track. It should be done with Rhythm and Auto Accompaniment utilizing their various functions as well. Next, you can record various melodies or phrases to the basic accompaniment, on MELODY 1 thru MELODY 5 Tracks. Or, if you are interested in rhythm making, play on the Pads in your original arrangement and record it on PAD Track. Of course, you can play with Vector Synthesizer, and then record a realtime solo on VECTOR SYNTH Track. However, the operation of Song Memory is so easy to understand, which is similar to that of a cassette deck with each operation button: PLAY, STOP, FAST FORWARD, REWIND, etc. Each of these you are accustomed to, aren't you? Then, we explain about how to use Song Memory function.

b. 8 Recording Tracks

The PSS-795 has 8 recording tracks, that have been pre-designated for recording sounds and data. Now, let's look at what can be recorded on each track.
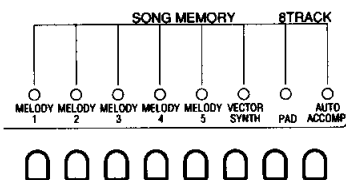
TRACK	WHAT CAN BE RECORDED
MELODY 1 to MELODY 5	Melodies played by using the 100 Pre-set sounds. * Voice numbers and the timing of changes of them. * Assigned value of Voice Effects and Harmony On/Off. * Pitch Bend range and amount of Pitch Bend Wheel rotation.
VECTOR SYNTH	Melodies of the Vector Synthesizer. * 4 Voices (Voice numbers) which are assigned to the Vector Synthesizer and assigned values of Voice Effects, and all timing of changes of them. * Changing of the mixed balances of VOLUME by the Joy Stick. * Pitch Bend range and amount of Pitch Bend Wheel rotation.
PAD	Percussion played by the Drum Pads. * Percussion sounds and the timing of playing.
AUTO ACCOMP.	Auto Accompaniment sounds, and Rhythm Style sounds. * Chords and the timing of Chord change. * Assigning of ORCHESTRATION, and the timing of changes of the ORCHESTRATION. * Timing of FILL-INs or ENDING. * RHYTHM STYLE number and the timing of changes of Rhythm Styles. * Tempos (*)

(*)Tempo Recording is available on the AUTO ACCOMP. Track. This procedure is not explained especially in the Instructions on the following pages, however, there are some points for the Tempo you have to remember:

*   In case you have Recorded your performance changing a Tempo to another, when you make a Playback just after finishing the recording, sometimes you cannot have it in the Tempo you intended. This comes from the Recording format adopted to the Song Memory (For more details see page 29.). To have a Playback as you recorded, first return to the 1st Bar of the Song by pressing the RESET button. Then start the Playback. (For detailed procedure, see page 29.)

*   In case you have stopped the Playback by pressing the STOP button, next time you make a Continued Playback by only pressing the PLAY button (without RESETting), you will have it in the same Tempo as you have stopped.

*   When you Re-recorded the Tempo, you have to Retake all the performance for AUTO ACCOMP. Track, from the 1st Bar of the Song. Remember, in this case, the performance you have Recorded will be overwritten and lost.

```
              SONG MEMORY    8TRACK

  O    O    O    O    O    O    O    O
MELODY MELODY MELODY MELODY MELODY VECTOR  PAD  AUTO
  1     2     3     4     5   SYNTH       ACCOMP.

  ⊓  ⊓  ⊓  ⊓  ⊓  ⊓  ⊓  ⊓
```

c. Basic Recording Procedure

When you use the PSS-795's many different functions, they will give you a variety of recordings. First, we will explain the basic procedure simply.

```
┌─────────────────────────┐
│  Select a Song Number.  │
└─────────────────────────┘
             ↓
┌─────────────────────────┐
│  Prepare for Recording. │
└─────────────────────────┘
             ↓
┌─────────────────────────────┐
│ Select a Recording Track.   │
└─────────────────────────────┘
             ↓
┌─────────────────────────┐
│    Start Recording.     │  ⎫
└─────────────────────────┘  │
             ↓               ⎬ (1st recording)
┌─────────────────────────┐  │
│   Finish Recording.     │  ⎭
└─────────────────────────┘
             ↓
┌─────────────────────────┐
│     Select a New        │  ⎫
│   Recording Track.      │  │
└─────────────────────────┘  │
             ↓               │
┌─────────────────────────┐  │
│ Start Recording to the  │  ⎬ (2nd recording)
│ New Track as the First  │  │
│ Track plays back.       │  │
└─────────────────────────┘  │
             ↓               │
┌─────────────────────────┐  │
│  Finish the Recording.  │  ⎭
└─────────────────────────┘
```
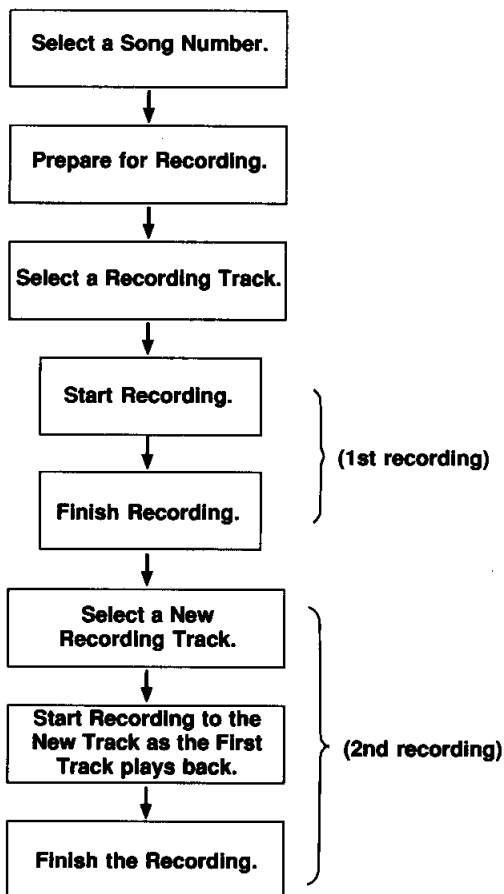
* Repeat the steps for 2nd Recording, to complete Multi-Track Recording.

d. How to Record a Song

Now let's get into the actual steps for Recording.

Step 1: Select a Song number (#).

The PSS-795 has a Memory Bank for up to 8 songs (Song numbers <1> thru <8>). First, choose the Song number which you want to Record on by pressing the Song Number Select buttons. The SONG#/MEASURE display will show (NO. 1 thru 8) the number selected. After a few seconds, the display changes back to <001> which indicates the Bar number.

* In this manual, both Bar and Measure are explained as the same.
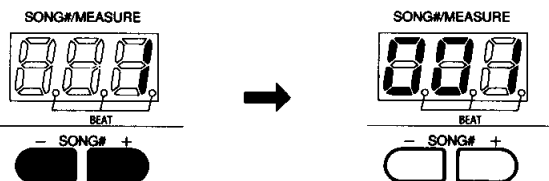
Select a Song number by pressing SONG Number Select buttons.

After a few seconds, changes back to Bar number indication.

Step 2: Prepare for Recording.

Before you select a Track, you will need some preparation depending on what you want to Record on which Track. So, please consider the following information regarding preparation of Recording:

1) Preparation when you want to select one of MELODY Tracks 1 thru 5:

Choose a Voice by consulting the Voice List located on the Control Panel, and assign the Voice Effects desired.

* Once you have Recorded melodies or phrases on MELODY 1 thru 5, you can hardly change the Volume balance among them. So if you wish to have an ensemble in good accordance during Playback, you need to follow the guidance in "1) Preparation when you want to select one of MELODY Tracks 1 thru 5". Additionally, each Voice's Volume can be assigned by the Voice Effect - VOLUME.

* You can change the assignments of Voice number or Voice Effects just before or during recording.

2) Preparation when you want to select the VECTOR SYNTH Track:

Select and mix desired 4 Voices (as explained in Voice Section: Vector Synthesizer).

* You can change the assignments of Voice number or Voice Effects just before or during recording.

* At the time you select to Record on the Vector Synth Track, the Vector Synth is automatically turned ON.

3) Preparation when you want to select the PAD Track:

Select and assign to the Pads desired Percussion sounds.

4) Preparation when you want to select the AUTO ACCOMP. Track:

Select a Rhythm Style, and assign the Orchestration. At the time you select to Record on the AUTO ACCOMP. Track, the Fingering will automatically be assigned to the FINGERED mode. If you want SINGLE FINGER mode you must assign it at that time. If you have already selected the SINGLE FINGER mode before this preparation, even when selecting the AUTO ACCOMP. Track, the Fingering is as it has been. If you want to record just the Rhythm, press the Fingering button assigned which will turn it off.

* You can change the assignments of Rythm Style, Orchestration, or Fingering just before or during recording.

* In the AUTO ACCOMP. Track, be careful to remember only Auto Accompaniment Sounds, and Rhythm Style sounds will be recorded. Even though you play and can listen to the keys in the Melody Section (G2 and above) or Rhythms played on the Pads, they will not be Recorded on the AUTO ACCOMP. Track.

Step 3: Stand By for Recording.

As you press and hold down the RECORD button, simultaneously press the TRACK Select button which you want to Record on. The LED of the selected TRACK will flash indicating you are ready to Record (Stand By for Recording). Also at this time, 3 dots in the SONG#/ MEASURE display will flash together in time with the currently assigned Tempo. Along with the dots, a metronome sound will play out from the speakers.
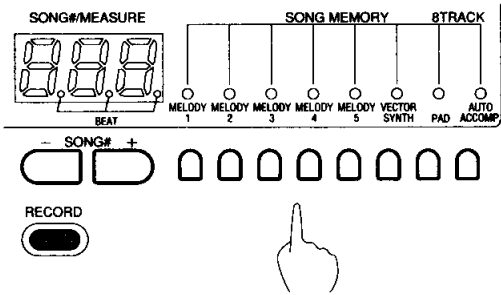
Press and Hold RECORD button.

Press the TRACK Select button of your choice.

If you want to cancel, press the chosen TRACK Select button again.

Before you start Recording, make sure the settings and assignments for Tempo, Voice numbers, etc., are all currently the ones you want.

Step 4: Start Recording.

You can start Recording in the currently selected Tempo by pressing any key of the keyboard, or pressing the PLAY button.

or
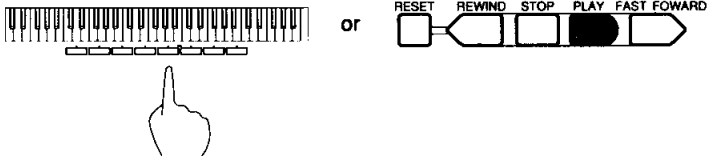
During Recording, the SONG#/MEASURE display shows the Bar number you are in. The 3 dots in the SONG#/MEASURE display and the 3 dots in the MULTI DISPLAY will show the beats of the measure in tempo, same as when in the Rhythm playing. In addition, from the speakers a metronome sound will play out with an accent on the first beat of each bar, and the LED of the Selected Track you are Recording on will continue to flash, but metronome sounds will not play out when recording on the AUTO ACCOMP. Track because you can play to Rhythm patterns running at that time. (Also when in Playback the metronome is not played out.)

MULTI DISPLAY

SONG#/MEASURE
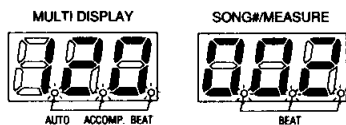
Displays the Beat.

Displays the Beat and the Bar Number.

Step 5: Stop Recording.
You can stop Recording by pressing the STOP button of the SONG MEMORY. When you're Recording on the AUTO ACCOMP. Track, you can finish the Recording with an Ending pattern by pressing the SYNCHRO START/ENDING button of ACCOMPANIMENT CONTROL. After Stopping the Recording, the SONG#/MEASURE display will automatically indicates the Bar number you started Recording from. Also, the LED of the Track just Recorded on, will stop flashing but remains lit up.

>> Verification of Recording:
When you press the PLAY button, you can Playback what you have Recorded. You can stop Playback at any time by pressing the STOP button. Also, you can go forward or backward using the FAST FORWARD or REWIND buttons, regardless of the status of the Song (running/stop). If you want to return to the Beginning of the Song, just press the RESET button (for further details see page 29 "e. How to Playback a Song".)

>> Continued Recording on Remaining Tracks (Multi-Track Recording):
If you want to Playback and hear the Tracks already Recorded while Recording on a New Track, the LED of the Track for Playback should be lit. Repeat Steps 2 thru 5 to Record on the remaining Tracks.

* If you don't want to hear a Track previously Recorded, turn OFF that Track's LED by pressing the corresponding Track Select button. You can Playback any Tracks previously Recorded at any time, by pressing the corresponding Track Select buttons which will light up (turn ON) or turn off the LEDs, regardless of the status of the Song (running/stop).

When you try a Multi-Track Recording, take care of the final length of the Song you wish to record. So remember the following:

In case the First Recorded Track is not the AUTO ACCOMP. Track:
☞Any longest Track (in regard of Bar numbers) will determine the Final length of the Song.

In case the First Recorded Track is the AUTO ACCOMP. Track:
☞The AUTO ACCOMP. Track will determine the final length of the Song. Any other Track cannot be Recorded longer than the AUTO ACCOMP. Track. If you wish to Record much longer than the current length, Re-record on the AUTO ACCOMP. Track as long as you wish.

In case you wish to shorten the final length of the Song:
☞Select the next Bar ahead to the Bar which you determine as the Last Bar. Then press the CLEAR and STOP button in the Song Memory simultaneously. Remember you cannot change the final length of the Song even pressing the CLEAR and Track Select buttons simultaneously.

< Example > Track LEDs' indications in the situation with the MELODY 1 Track on Recording, the AUTO ACCOMP. Track on Playback:

Track LED on Recording is flashing.

SONG MEMORY   8TRACK

MELODY 1 MELODY 2 MELODY 3 MELODY 4 MELODY 5 VECTOR SYNTH PAD AUTO ACCOMP.

Track LED on Playback is lit up.

⬅ To determine if a Track will be played back or not, press the corresponding Track Select button.
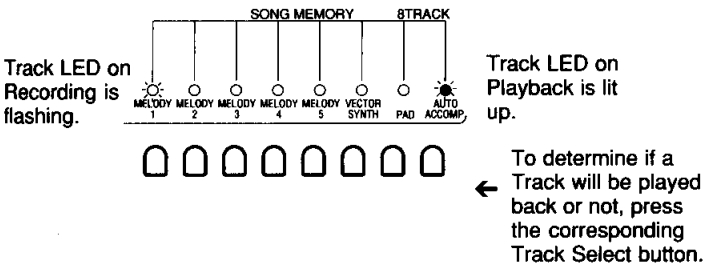
>> When you want to record another Song,

choose another Song number as was explained in Step 1, and then continue Recording following Steps 2 thru 5.

The capacity of Song Memory is approximately 2,800 of quarter notes. But, if while you're Recording, the capacity has been reached, the MULTI DISPLAY will show the following for a second and the Recording will automatically stop, and also at this time, the SONG#/ MEASURE display will indicates <001> (the Beginning of the Song).

MULTI DISPLAY

AUTO   ACCOMP.   BEAT
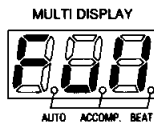
* The contents of SONG MEMORY will be memorized even after you turn OFF the POWER, if you have batteries installed.

CAUTION!!

Pay special attention when handling the Song Memory. The Song Memory data (= Songs you have Recorded) are so delicate that they will be easily destroyed by the electrical shock. Actually, the data will be lost partially. Remember this will definitely take place in the following situations:
The Song Memory data will be lost partially when the PSS-795 is turned Off intentionally or accidentally, that is, by turning the POWER switch, or with batteries' voltage lowered or the authorized AC adaptor disconnected;

• During Recording or Playback

e. How to Playback a Song

Step 1: Select a Song number.

First, choose the Song number which you want to Playback by pressing the Song Number Select <+/–> buttons. The SONG#/ MEASURE display will show (NO. 1 thru 8) the Number selected. After a few seconds, the Display changes back to <001> indicating the first Bar number.

At this time the LEDs of all Tracks which have been recorded on previously, will light up indicating you can Playback them. For the Track Nothing has been recorded on, the corresponding Track LED is not lit up.

* When you listen to the Playback of a Song you just recorded, this step can be skipped.

Step 2: Select the Track(s) to Playback.

For the Tracks of which LEDs lit up, you can Playback them. If you don't Playback a Track, press the corresponding Track Select button to turn off the LED.

* If you press the STOP button in this STAND BY status, it will turn OFF instantly all the Track LEDs that have been previously Recorded on. This will be a useful Shortcut in case you choose and Playback the only one Track among several ones activated.

Step 3: Start Playback.

When you press the PLAY button, Recorded data on selected Tracks will be Played Back simultaneously. It is possible to turn each Track ON or OFF by the Track Select button during Playback, but if you turn OFF all of the Tracks, the Playback will stop immediately.

Step 4: Stop Playback.

When you reach the end of the Song, Playback will Stop automatically, the SONG#/MEASURE display will return to the Bar <001>, and the Track LEDs you selected will remain lit. Also, you can Stop the Playback at any time, by pressing the STOP button. But in this case the SONG#/ MEASURE display's indication will be the Bar number when the Playback was Stopped. So now if you press the PLAY button again, Playback will Start from that Bar number. When you want to return to the Beginning of the Song, you can always press the RESET button at any time regardless of the status of the Song (running/stop).

>> How to use FAST FORWARD & REWIND buttons:

Each time you press the FAST FORWARD or REWIND buttons, you can go forward or backward Bar by Bar, or by pressing and holding down either button, you can do it at an accelerated rate. After you reach the location desired, release the Button, and press the PLAY button to Start the Song.

* You can use the FAST FORWARD or REWIND buttons during Playback, but while you're holding the Button down the Playback sounds cannot be heard.

* When you begin to Playback a Song on the way, sometimes you may hear different sound (Voices or phrases) from you have Recorded. This happens because of the Recording format adopted to the Song Memory. (It records only Changes and their Timing - a Voice to another, or a duration of a certain chord accompaniment, etc.. Operation of Song Memory is very similar to that of a cassette deck. However, Recording format is quite different.) So if you Playback a Song on the way and the Change data for a Voice is missed, this results in Playback with the Voice unchanged. To have a Playback as you have Recorded, first you should Rewind to the Bar at which you made the Change. Then try a Playback. Or if you have made the Change at the beginning of a Bar, Reweind one more Bar behind. If you may have Recorded more fastly than you intended to, the Change will occur at the end of the Bar just before the Bar of your destination. Of course, when you Playback a Song from the beginning, this inconvenience will not take place but you have a good Playback. Remember, not only the Song Memory of the PSS-795, but also the device so called "Sequencer" is generally adopted with the Recording format mentioned above.

>> How to use RESET button:

RESET button functions for you to return to the Beginning of the Song. If you press the RESET button during Playback, the Playback sounds will immediately Stop and you will be positioned at the Bar <001> again. Also, the RESET button will initialize the Song. That is, it brings the LEDs of the Tracks which are possible to be Played Back, all to light up and sets the Tempo to the one at the Beginning of the Song.

f. Other Useful Functions

a) Clear Function

The Clear function enables you to Erase the Recorded data by Track.

>> When you want to Clear by Track, first press and Hold the CLEAR button, then select the Track you wish to Clear by pressing the corresponding Track Select button. The SONG#/MEASURE display will show < c l r > for a few seconds, and the Data on that Track of the Song will be Erased.

RECORD

CLEAR

Press and Hold the CLEAR button.

SONG MEMORY   8TRACK

MELODY MELODY MELODY MELODY MELODY VECTOR PAD AUTO
  1   2   3   4   5   SYNTH   ACCOMP.

Press the Track Select button of the Track you wish to Clear.
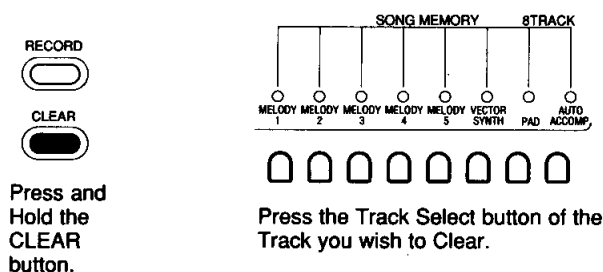
If you repeat this operation to all the Tracks including the Recorded data, you can Erase the Whole Song.

b) Punch In/Out

If you do the Punch In/Out you can Re-record just the part where you made an error in units of 1 Bar.
This can be very helpful because when you make one or two mistakes in the Song, you don't have to Re-record the Whole Song again. First, you move the Bar to the location you want to start retaking, using FAST FORWARD or REWIND button. Then, decide which Track you want to retake, and follow the steps of "d. How to Record a Song". New Data, from the Beginning of the Bar at which you Start up (Punch In) to the End of the Bar at which you Stop to Re-record (Punch Out), will now replace Old Data, and the Data before and after the Punched-In Data will remain exactly the same as before. When you press the STOP button to Punch Out after correcting the mistake, the Bar location will automatically move back to the beginning Bar where you just Punched In. This is useful for when you Re-record the same section as many times you wish.

< Example > Retaking Bars 4 thru 6 of a Song:

Before Punch In/Out
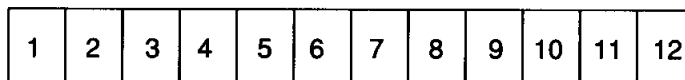
Start Recording (Punch In).   Stop Recording (Punch Out).

After Punch In/Out

Old Data
(Same as Before)   New Data   Old Data
(Same as Before)
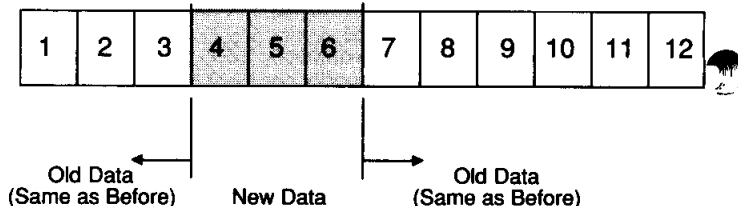
c) Simultaneous Multi-Track Recording

You can also Record more than one Track at a time doing the Simultaneous Multi-Track Recording. For example, you can Record the Chord Progression by Auto Accompaniment on the AUTO ACCOMP. Track with your left hand, and the Melody with your right hand on the MELODY 1 Track, etc. There are certain combinations of Tracks to be Recorded simultaneously, as shown below. **When you want to Record more than one Track at a time:** Press the RECORD button and Hold it down, then select the Tracks you need by Track Select buttons. Following Recording steps are the same as usual Track Recording.

* In case you are going to start Recording only by pressing the RECORD and PLAY buttons, the PSS-795 will automatically select the MELODY 1 and AUTO ACCOMP. Tracks and Stand By for Recording.

< Possible Track Combinations for Simultaneous Multi-Track Recording >

1) *Any one Track of MELODY 1-5 or VECTOR SYNTH + PAD + AUTO ACCOMP.*
2) *Any one Track of MELODY 1-5 or VECTOR SYNTH + PAD*
3) *Any one Track of MELODY 1-5 or VECTOR SYNTH + AUTO ACCOMP.*
4) *PAD + AUTO ACCOMP.*

* Once you start Recording, you cannot set other Tracks to Recording position even if they can be combined as shown above.

<< Reference #5 >>

The Song Memory of PSS-795 is designed so that you can start Recording with any Track you choose to. So, for those of you who are wondering which Track is better to start with, and how you should proceed to Record, we have provided the following Hints:

>> Standard Examples of Multi-Track Recording:

Step 1: First, you Record the Rhythm Style and Chord Progression using Auto Accompaniment, onto the AUTO ACCOMP. Track. Of course, remember to make the most of the Intro and Ending available.

Step 2: Next, you Record your original Fill-Ins or "live" Rhythm variations Manually to the PAD Track, to contrast and enrich the Rhythm Pattern, while listening to Playback of the AUTO ACCOMP. Track which was Recorded orehand in Step 1.

Step 3: With the same idea in Step 2, you can also Record another different type of Bass sound from the one pre-assigned to the Auto Accompaniment. For example, overdubbing a Slap Bass' lick to the regular Synth Bass sound, on one of the MELODY Tracks.

Step 4: Then, if your Background sounds seem lacking, you can fill them in with obbligato, ostinato, comping, etc. on the remaining MELODY Tracks.

Step 5: And finally, you can Record a dynamic Keyboard Solo to the VECTOR SYNTH Track using the Vector Synth function. While Recording it can be effective to use the Pitch Bend effect here.

Step 6: At this point, we can fix all the little mistakes made using the Punch In/Out method. Also, please keep in mind as you go along, the maximum amount of notes that can be sounded at any one time during Playback is 28. So remember not to overplay. This will also bring you in good arrangement.

Next, we will introduce examples for practical applications of the Song Memory function.

>> Using Song Memory for Minus One Settings:

You can use Song Memory as Backing for Vocals, or Instrumental Solos, for Practice or Live Performances.

>> Using Song Memory for Compostion or Arranging:

You can log your Melodic and Harmonic ideas into the Song Memory. Then, when you are seriously thinking about these ideas more in depth, you can record several versions to many different Tracks, and then save the best ones. This can apply to solos as well. You can Record Multiple different versions of a Solo, and then store the best ones for future use or reference.

Note: *You can also do the Recording or Playback from an extrernal MIDI keyboard.*

MIDI Section

The PSS-795 is a digital Keyboard operating with MIDI Standard. If you know about MIDI, you will come to know more about the workings and applications of the PSS-795. Now, we will gradually venture into the world of MIDI.

a. What is MIDI?

MIDI is an abbreviation for: Musical Instrument Digital Interface, which transmits and receives information about the music being played between MIDI-equipped electronic instruments/devices (such as personal computers). Since the concept of this World Standard has been adopted, it has allowed the interaction of many kinds of electronic equipment throughout the world. It may sound overwhelming but it really will be worth learning about MIDI. For example, you can connect different brands of MIDI-equipped instruments, the melodies played on an instrument could be played out on another instrument, or if you connect even more instruments, it's easy to broaden your capabilties and coordinate many sounds which together could sound as big as an Orchestra with you as the conductor! Let's take a look into how the electronic instruments can be connected by using MIDI.

b. MIDI Terminals and MIDI Cables

MIDI instruments/devices always have MIDI Terminal hook-ups. If you view the rear panel of the PSS-795, you will see the MIDI Terminals fitted there as shown below. Starting from the right, they are: MIDI IN, MIDI OUT, and MIDI THRU.

* Depending on the type of machine or instrument, the order of the Terminals may vary.
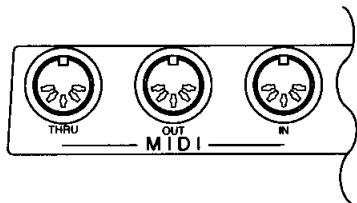
Each Terminal's role is as follows:

MIDI IN Terminal: This is the gateway which Receives MIDI information from other MIDI instruments/devices.

MIDI OUT Terminal: This is the gateway which Transmits MIDI information generated by the PSS-795.

MIDI THRU Terminal: This is the gateway which Transmits the same MIDI information that the one which came in via the MIDI IN Terminal of the PSS-795. It will not send out the MIDI information generated by the PSS-795.

When you connect those MIDI Terminals, use MIDI Cables which are shown below:
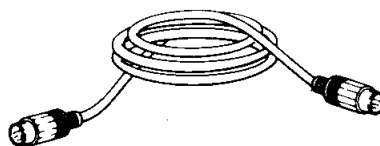
c. MIDI Connections

Now, let's connect the MIDI OUT Terminal which is an Exit of MIDI information, and the MIDI IN Terminal which is an Entrance of the information, using one MIDI cable. In this case of the connection illustrated, performance information from the PSS-795 will be sent out to MIDI instrument (A). In other words, you can say this is a situation where the PSS-795 controls (commands) the MIDI musical Instrument (A). Therefore, in this case the instrument that gives the command (PSS-795) is called the **"Master"**, and the instrument that obeys the commands is called the **"Slave"** (Musical Instrument (A)). This is an important idea to remember when dealing with connecting MIDI Instruments.
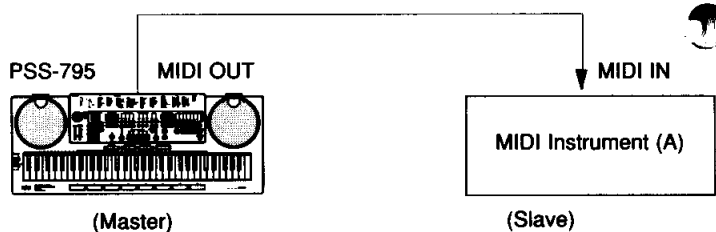
Oppositely, in the following case, MIDI instrument (A) will be the Master and the PortaSound will be the Slave.
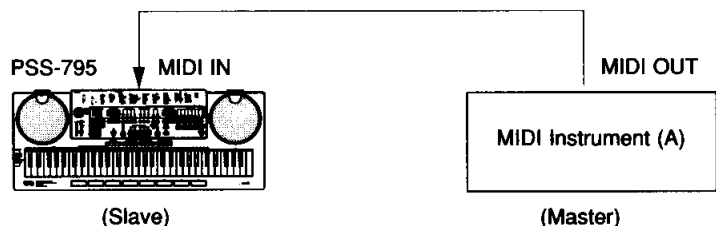
Additionally, If you make a couple of MIDI OUT-to-MIDI IN connection as shown below, you can use either of the instruments for Master and Slave at the same time.

(Master/Slave)   (Master/Slave)
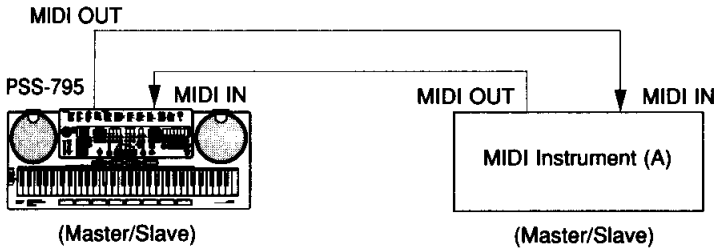
When you connect more than three MIDI instruments, you use the MIDI THRU Terminal as shown below. This illustration shows that the PSS-795 can have two "Slaves" simultaneously. In this case, MIDI instrument (A) cannot command MIDI musical instrument (B), because the MIDI THRU Terminal only Transmits the command, which came in via the MIDI IN Terminal, to MIDI instrument (B).

COMMAND: Play - Do re mi.   COMMAND: Play - Do re mi.
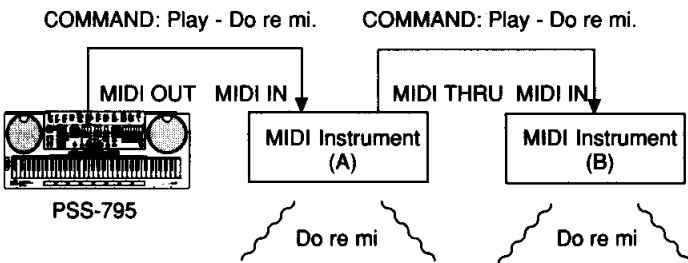
* When connecting using MIDI THRU Terminals, you may have no more than 3 or 4 Slaves at a time. For every time MIDI data pass the MIDI THRU Terminal on each MIDI device, the data will be delayed and even lowered. This may result in a wrong MIDI performance. So, when you wish to have much more Slaves, use a MIDI THRU BOX which distributes the same MIDI data to multiple Slaves simultaneously.
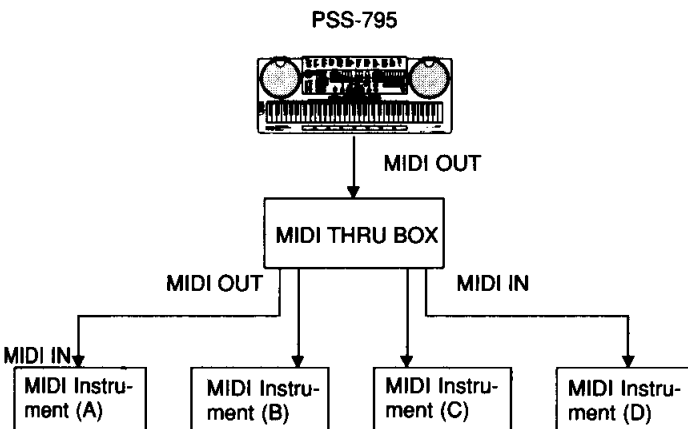
d. Types of MIDI Information

MIDI Information includes various kinds of messages (commands). You should learn some basic ones among them, which all are transmitted or received on the PortaSound.

Even when you press a key with one finger, information like **Note number** (which key), **Note on/off** (when pressed/released), and **Velocity** (how fastly and strongly played) will be transmitted. Not only these, but **Program Change** (for Voice selection) and **Control Change** (for Voice Effects) can also be Transmitted. These kinds of information are called "**Channel Messages**". In order for these types of information to be communicated, you must select the same **MIDI Channel number** (from 1 to 16) on both the Transmitter (Master) and Receivers (Slaves) among the MIDI-connected instruments. There is another kind of information called "**System Messages**", which you need when you have a rhythm machine or sequencer synchronized to play together.

Any MIDI information is rapidly transmitted/received in digital signals comprised of just two numerals 0 and 1.

e. Matching MIDI Channels

MIDI instruments/devices can transmit or receive information only when you select the same MIDI Channel on both Transmitter and Receiver, this is a basic rule to remember. For example consider how T.V. channels work; when you want to see a movie, you must select a certain Channel which is broadcasting the movie. In basically the same way, one MIDI cable can carry different kinds of MIDI performance information on 16 MIDI Channels. When the Receiver is set to the same MIDI Channel of the information as on the Transmitter, you can have it play as the received information. The following example shows a sequencer transmitting MIDI performance information for several parts on corresponding MIDI Channels. Each Receiver's MIDI Channel has been prepared so as to receive the specified performance information and independently plays out with a different sound and melody.

Ch. 1 Sax Part
Ch. 2 Piano Part
Ch. 3 Bass Part
Ch. 4 Rhythm Part
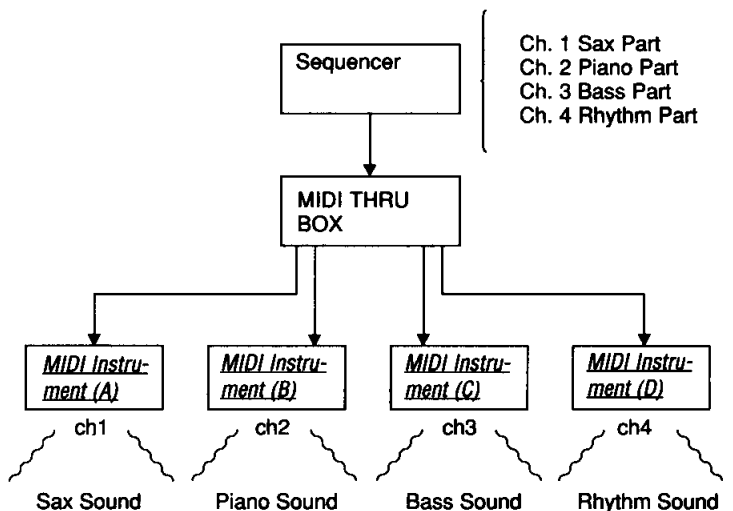
Note: *If a certain MIDI instrument can receive MIDI performance information on Multiple Channels and play out several parts' sounds at a time, this MIDI instrument has Multi-Timbre mode. And so the PSS-795 does.*

f. What is Multi-Timbre?

Here we will give the little explanation about the Multi-Timbre. As the illustration on the previous page "e. Matching MIDI Channels", if you have a Master device which can control multiple Slave instruments on respective Channels (ex. Sequencer) and several Slave instruments, you will have them make an automatic ensemble and will be a MIDI beneficiary. However, imagine if you wish to reproduce a philharmonic orchestration, besides a solo, combo, or quartet.... Simply talking, it will be required as many Slave instruments as the parts or members in the orchestra. This is no easy way of musical enjoyment. Generally, Multi-Timbre is an easy and economical way to carry out multiple MIDI performances simultaneously. In this case, a single Multi-Timbral Sound module will accept the MIDI messages on multiple Channels and reproduce the multiple performances. The Sound Module of your PortaSound is provided with this function. The following diagram will help you understand the Multi-Timbre:

MIDI Informations and functions. MIDI IN Terminal is a gateway of MIDI Information from an external Master controller. These are illustrated by 6 arrow groups toward Channel Buses. That is, you can play with a single Voice on the whole Keyboard (drive the Sound Module to sound a single Voice) on a KEYBOARD TRANSMIT CHannel(*1) selected (See page 36 for details.). If you activate the Vector Synthesizer, you can play with 4 Voices at a time (drive the Sound Module to sound 4 Voices) on Channel 1 to 4. Or, if you activate the Auto Accompaniment, the whole Keyboard will be split into two sections (C1-F#2: for accompaniment, G2-C6: for melody) and Auto Accompaniment will drive the Sound Module to sound several Voices on Channel 10 to 16. In the same way, 8 Pads will drive the Sound Module on Channel 16. Song Memory(*2) is a little complex as it enables Multi-Track Recording and functions in combination with other controllers, but finally it will drive the Sound Module fully on Channel 1 to 16. And, you can drive the Sound Module also from an external Master controller via MIDI IN Terminal. In this case, you can drive the Sound Module with the MIDI Information on the Channel(s) specified in RECEIVE CHannel selection (See page 35 for details.).

(*1) KEYBOARD TRANSMIT CHannel will be selected by a couple of link switches as shown in the diagram.

(*2) Song Memory is a little complex as it enables Multi-Track Recording and functions in combination with other controllers. That is, for example, in case of recording on one of the MELODY Tracks 1 to 5, KEYBOARD TRANSMIT CHannel will be automatically switched to the corresponding Channel to the Track (Channel 5 to 9). Or, in case of recording on VECTOR SYNTH Track, the VECTOR SYNTH ON/OFF switch will be automatically turned on and switched to Transmit Channel 1 to 4 (dedicated to Vector Synthesizer). Or, in case of recording on PAD Track, the Transmit Channel will be automatically switched to Channel 16 (dedicated to 8 Pads). Or, in case of recording on AUTO ACCOMP. Track, the Fingering will be automatically selected (initially FINGERED) and switched to Transmit Channel 10 to 16 (dedicated to Auto Accompaniment).

*   Multi-Timbre on the PortaSound will be performed with Dynamic Voice Allocaiton. (See page 37 for details.)

*   When recording on one of the MELODY Tracks 1-5 by the keyboard, KEYBOARD TRANSMIT CHannel will be automatically switched to the corresponding Channel.

As shown in the above diagram, the PortaSound has 16 Channel Buses toward its Sound Module, and they correspond to MIDI Channels 1 to 16 respectively (16 vertical arrows in the center of the diagram).
Built-in controllers such as Keyboard, 8 Pads, Vector Synthesizer, Song Memory, and Auto Accompaniment are designed to drive the Sound Module with their respective

g. How to Operate MIDI Functions on PSS-795

a) Receive Channel Selection

When you press the RECEIVE CH/CLOCK/BOOST button in MIDI select, the corresponding LED will light up, the MULTI DISPLAY will initially indicate <E 1>, and you can select the following option for reception of MIDI Information by Increment/Decrement buttons under the MULTI DISPLAY:

>> **Channel message reception by each individual Channel**
>> **Clock reception**
>> **Velocity Boost**

(Pressing the RECEIVE CH/CLOCK/BOOST button in MIDI select)

RECEIVE CH/CLOCK/BOOST LED lit up.

<E>: Enable to Receive.   <d>: Disable to Receive.

Channel Number   Clock   Velocity Boost

Loop Option
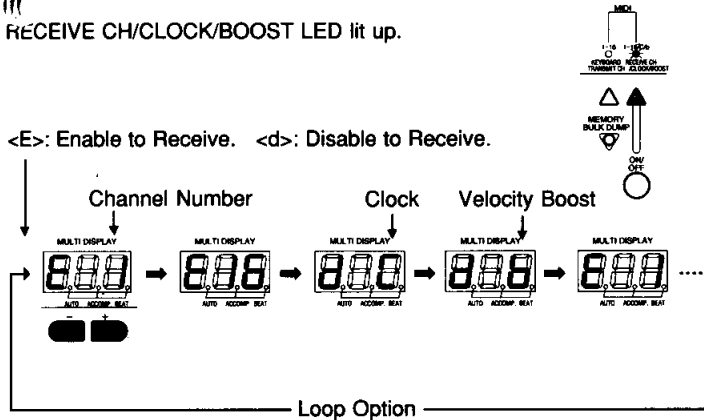
>> **Channel message reception by each individual Channel**
Initial Setting: Enable/Channel 1-16 <E 1> to <E16>

This option is useful when you use the PortaSound as a Slave Sound Module. Each of <E 1> to <E16> indication means <Enable/Channel Number>. In this "Enable" position, the PortaSound can receive Channel messages (: Note On, Program Change, Control Change, etc.) including that Channel number via its MIDI IN Terminal, so that you can control the PortaSound's Sound Module from an external Master.
However if you don't wish the PortaSound to receive the messages on a certain Channel, you can put the Channel in "Disable" position. First select the <Enable/Channel Number> indication and then press the ON/OFF button under the RECEIVE CH/CLOCK/BOOST button. At this time, the indication will be changed to <disable/Channel Number> such as <d 1>, <d 2>, etc. Oppositely, "Disable" can be changed to "Enable" also pressing the ON/OFF button.
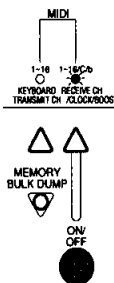
>> **Clock reception**
Initial Setting: disable/Clock <d c>

The Clock is generally called "MIDI Clock" and you can specify by this option, whether the PortaSound can receive external MIDI Clock or not.
As with Channel message reception, select Clock reception initially shown as <d c> (disable/Clock) and switch to "Enable" position by the ON/OFF button to receive external MIDI Clock. The <d c> indication will be changed to <E c> (Enable/Clock).
Normally, the PortaSound runs by its internal clock. However if it is in <Enable/Clock> position and connected to a Master which generates MIDI Clock, the PortaSound will synchronize and run with the Master. Additionally, the PortaSound can transmit and receive Start/Stop messages, so if a Master generates Start/Stop messages, you can control even start/stop of the accompaniment from the Master.

* With <E c> selected, while the PortaSound will synchronize and run with the Master, the MULTI DISPLAY will show an external Tempo. At this time, it would seem to be disordered because the microcomputer of the PortaSound calculate external MIDI Clock in realtime. This is no problem.

>> **Velocity Boost**
Initial Setting: disable/Boost <d b>

Normally the Keyboard on the PortaSound controls the internal Sound Module by Note On message including Velocity data maximally fixed (for your manual play). However, when you control the Sound Module from an external Master Keyboard which generates variable Velocity data, you may be compelled to do the key hitting or beating not pressing in order to well balance your melody with the accompaniment.
In this case, this option will be useful. First select Velocity Boost initially shown as <d b> (disable/Boost). Then activate the Booster by the ON/OFF button, and the <d b> indication will be changed to <E b> (Enable/Boost). After this operation you can play more comfortably from the Master Keyboard. If you don't need it, turn off the Booster by the ON/OFF button to change to the <d b> indication.

* When you activate the Booster, volume of Auto Accompaniment will be turned down (lower than its normal volume by 3dB).

* The initial pre-set settings for the Receive Channel mode are: Each Receive Channel;Enable, MIDI Clock;Disable, Velocity Boost;Disable.

b) Transmit Channel Selection

When you press the KEYBOARD TRANSMIT CH button of the MIDI select, the corresponding LED will light up, and you can assign the Transmit Channel for manual play on the keyboard and Voice selection for each individual Channel.
Additionally, to press the MEMORY BULK DUMP button consecutively, you can make a Data Transfer of the System Exclusive Message of the PortaSound.

>> Transmit Channel

When you press the KEYBOARD TRANSMIT CH button, the value shown in the MULTI DISPLAY is the current MIDI Transmit Channel for manual play on the Keyboard. If you want to change the value, press the <+/-> buttons to select the Channel you wish to Transmit on, however, only one Transmit Channel can be assigned at a time.

KEYBOARD TRANSMIT CH LED lit up.
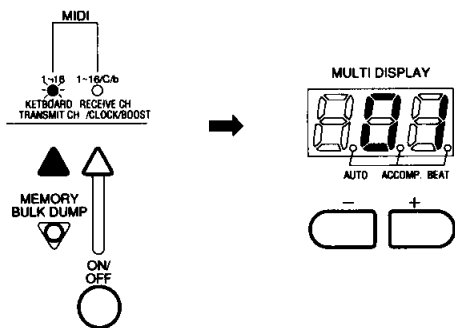
>> Voice selection for each individual Channel

After setting the Transmit Channel, make a normal Voice selection. That is all for setting a Voice selection for a single Channel. Repeat the same procedure for all Channels. See page 39 for the situation to actually do this. Additionally, initial settings when the PortaSound is turned on: Ch.1-15; Voice number 00, Ch.16; Voice number 96.

>> Memory Bulk Dump

Memory Bulk Dump function allows you to Transfer out and save the Song Memory data as a MIDI System Exclusive Message. (See page 39 for details.)
As you press the MEMORY BULK DUMP button once, with the KEYBOARD TRANSMIT CH LED lit, the PortaSound will now be in the Bulk Dump mode. At this point, the MULTI DISPLAY will show <b d P>, and All other functions will automatically Stop. This means that the PortaSound is ready Data Transfer (Stand By to Bulk Dump). When you press the MEMORY BULK DUMP button once again, the Display will show <b - 8> counting down to <0>, while the Bulk Dump is being executed. After finishing the Bulk Dump process, the Display will automatically returns to the current Tempo indication.
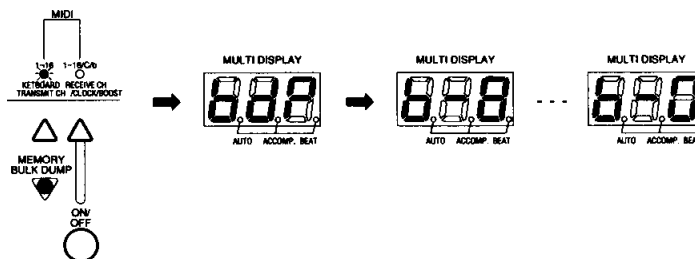
* In case you wish to try a Data Transfer to another PSS-795, just make a typical MIDI connection between the Transmitter PSS-795 and the Receiver PSS-795. Then you press the MEMORY BULK DUMP button on the Transmitter, the MULTI DISPLAY on the Receiver will also indicate <b - 8> counting down to <0>. When the Bulk Dump process is successfully completed, the Receiver's MULTI DISPLAY will also return to the Receiver's current Tempo indication.
In case you try a Data Transfer to a MIDI-equipped personal computer or Sequencer, normally it should only be set in Recording mode, and operation on the PSS-795 (Transmitter) is the same as explained. However, keep in mind to refer to the Operation Manual of the Receiver in use.

* When the PortaSound stands by to Data Transfer, if you can press a button for Voice Effects or Overall Controls, Data Transfer will be cancelled.

h. Transmitted and Received Data on PSS-795

a) Transmitted Data

<< Note On/Off >>

☞ Each Transmit Channel is as follows:

<Manual Play>
Whole Keys: C1-C6
When Auto Accompaniment used: G2 and above.
Channel Assignment: one of 1-16, Initial Value: 1.
☞ Transmitted by Manual play on the Keyboard.

Note: Even if you press a specific key, the PortaSound won't always generate the same Note On message. When you press C3 key in a Voice "BASS", the sound will be reproduced in C1, which is lower than what it should be reproduced (C3) by two octaves. At this time, Note On message will be transmitted as C1. The standard Note number (included in Note On message) is A3=440Hz.

<Manual Play with Vector Synth ON>
Whole Keys: C1-C6
When Auto Accompaniment used: G2 and above.
☞ Transmitted on Channels 1-4 by Manual play on the Keyboard.

<Song Memory>
☞ Transmitted are all the recorded data on the respective Tracks when they are played back. The data consist of:
Note On/Off, Program Change (for Voice selection), Control Change (for assignment of Voice Effects' value), and preset assignment change of Auto Accompaniment.

* **<MELODY 1 Track>**
☞ Transmitted on Channel 5.

* **<MELODY 2 Track>**
☞ Transmitted on Channel 6.

* <MELODY 3 Track>
☞ Transmitted on Channel 7.

* <MELODY 4 Track>
☞ Transmitted on Channel 8.

* <MELODY 5 Track>
☞ Transmitted on Channel 9.

* <VECTOR SYNTH Track>
☞ Transmitted on Channel 1-4.

* <PAD Track>
☞ Transmitted on Channel 16.

* <AUTO ACCOMP. Track>
☞ Recorded data on the AUTO ACCOMP. Track consist of:

<Rhythm Part>
☞ Transmitted on Channel 16.

<Bass Part>
☞ Transmitted on Channel 15.

<Other Accompaniment Parts>
☞ Transmitted on Channels 10-14.

Note: Asterisk (*) means that the performance information on the Tracks are Transmitted on the specified Channels when they are played back on the PSS-795.

<< Pitch Bend Change >>
☞ Pitch Bend Range on the Receiver is assumed to be set at +/- 1 octave, the value will be calculated from PSS-795's Pitch Bend Range and Amount of Wheel Rotation and then Transmitted.

<< Control Change >>
☞ The value of Voice Effects (Volume, Sustain, and verb) for the Voice will be Transmitted on each Channel.

<< Program Change >>
☞ Program Change of each Channel's Voice will be executed according to PortaSound Standard Voice Numbers. See page 41 for correspondence between Program Change numbers and Voices.

<< System Exclusive >>
☞ Transmitted by the MEMORY BULK DUMP button. See page 45 for details of the Bulk Data Format.

<< Active Sense, Start/Stop, Clock >>
☞ These Realtime messages are all Transmitted. Active Sense will be Transmitted for the Receiver(s) to recognize to be connected to the Transmitter. Start/Stop will be Transmitted if any Start/Stop operation is executed on the PortaSound. Clock will be Transmitted for the Receiver to synchronize with the PortaSound.

b) Received Data

<< Note On/Off >>
☞ Received on each Channel. Sound reproduction on the PortaSound is executed by Dynamic Voice Allocation.

On Dynamic Voice Allocation
The PortaSound fuctions as a Multi-Timbral Sound Module. That is, the PortaSound's internal microcomputer accepts Note On/Off and Program Change messages on the respective Channels, with which it drives the Sound Module to reproduce the corresponding Voices independently at the maximum of 28 notes. This is called Dynamic Voice Allocation to save you a bothering manual allocation. The Dynamic Voice Allocation will be performed by Channel Messages (: Note On/Off, Program Change, Control Change and Pitch Bend Change). So, when you use the PortaSound as a Multi-Timbre Sound Module, you need to send the Messages from the Master device. Additionally, the Auto Accompaniment is an application based on the Dynamic Voice Allocation.

<< Pitch Bend Change >>
☞ Pitch Bend Change can be received on Every Channel. However, the Pitch Bend Range is in common to All Channels as shown below:

Status	1st Data	2nd Data	Range
EnH	00H	00H	-1 Octave
EnH	00H	40H	Center
EnH	7FH	7FH	+1 Octave

* EnH=Pitch Bend Change status, n=0-F (: Ch.1-16)

<< Control Change >>
☞ Each Channel Receives the Values of Volume, Sustain, and Reverb for each sound, however the Value of each Effect is as shown below:

Status	Effects	MIDI Data
BnH	01H	00H-7FH
BnH	07H	00H-7FH
BnH	40H	00H-7FH
BnH	5BH	00H-7FH

* BnH=Control Change status, n=0-F (: Ch.1-16)

* Effects: 01H=Vibrato (Modulation), 07H=Volume, 40H=Sustain, 5BH=Reverb

☞ The following charts show the correspondence between Voice Effects' value and Received MIDI data.

Vibrato Step (Modulation)	MIDI Data
0	00H-0FH
1	10H-1FH
2	20H-2FH
3	30H-3FH
4	40H-4FH
5	50H-5FH
6	60H-6FH
7	70H-7FH

* Vibrato (Modulation) won't be applied to all Voices.

Volume Value	MIDI Data	Volume Value	MIDI Data
0	00H-04H	13	45H-49H
1	05H-09H	14	4AH-4EH
2	0AH-0EH	15	4FH-54H
3	0FH-14H	16	55H-59H
4	15H-19H	17	5AH-5EH
5	1AH-1EH	18	5FH-64H
6	1FH-24H	19	65H-69H
7	25H-29H	20	6AH-6EH
8	2AH-2EH	21	6FH-74H
9	2FH-34H	22	75H-79H
10	35H-39H	23	7AH-7FH
11	3AH-3EH	24	7FH
12	3FH-44H		

Sustain Value	MIDI Data
0	00H-3FH
1	40H-7FH

Reverb Value	MIDI Data
0	00H-0FH
1	20H-3FH
2	40H-5FH
3	60H-7FH

* BnH=Control Change status, n=0-F (: Ch.1-16)

* Effects: 07H=Volume, 40H=Sustain, 5BH=Reverb

<< Program Change >>

☞ Received on all Channels expect for Channel 16. Program Change for Channels 1-15 will be executed according to PortaSound Standard Voice Numbers. See page 41 for correspondence between Program Change numbers and Voices.

<< Active Sense, Start/Stop, Clock >>

☞ Active Sense will be Received. In case the PortaSound has recognized this message to come in every specified period, if the PortaSound cannot recognize it, all the sound reproduction on the PortaSound will be stopped. This is to prevent ceaseless sound reproduction by disconnection of a MIDI cable.
Start/Stop can be Received by Auto Accompaniment (with Fingering selected) or Song Memory (with Tracks selected for Recording or Playback). You can select either of them alternatively. If neither Fingering nor Track(s) has been selected, only the Rhythm will be controlled by Start/Stop. Clock can be Received if it is set in <Enable/Clock> position in Clock reception. When you intend to use the PortaSound as a Slave also utilizing Auto Accompaniment or Song Memory, remember to set Clock in "Enable" position. And, you can synchronize the performance on the PortaSound with the external accompaniment.

* Even if you set the PortaSound in <Enable/Clocl> position, it will run by its internal clock unless it recognizes the external Clock to come in. Additionally, the PortaSound in <Enable/Clock> position, won't start running by external Start message unless it recognizes the external Clock to come in. Oppositely, the PortaSound in <Disable/Clock> position, can receive external Start and Stop messages. At this time, however, the PortaSound runs by its internal clock (does not synchronize with the Master). Furthermore, in case you have been controlled the tempo of the PortaSound in <Enable/Clock> position from the Master, if you switch <Enable/Clock> to <Disable/Clock>, the tempo of the PortaSound is that you have last set from the Master.

<< System Exclusive >>

☞ Received when the data is Recognized as the Bulk Data (System Exclusive data) for the PSS-795.
See page 45 for details of the Bulk Data Format.

	Description	Value
1st Byte	System Exclusive status	F0H
2nd Byte	Manufacturer ID	43H (YAMAHA)
3rd Byte	Classification ID	76H
4th Byte	Data Format NO.	07H
Data	(Show below)	
Last Byte	End of Exclusive (EOX)	F7H

* "Classification ID" indicates the following "Data" is for "Portable Keyboard".

* "Data Format NO." indicates the following "Data" is exclusive for the PSS-795.

System Exclusive "Data" of the PSS-795 are:

• All the recorded data in Song Memory.

Data in Song Memory are Song data which consist of: Note On/Off, Program Change (for Voice selection), Control Change (for Voice Effects), Pitch Bend Change, Tempo Change.

* End of Exclusive is a MIDI standard message to indicate the System Exclusive Message's end.

i. Advanced Uses of PSS-795 in MIDI Connection

< **Example 1**> When using with a Personal Computer or Sequencer

The PSS-795 can be used as a Multi-Timbral, 28 note Polyphonic Sound Module when used together with a Personal Computer or Sequencer, and can be a valuable in working with music. Also, you can easily Transmit the Recorded data in Song Memory to a Personal Computer or Sequencer in order to store it on a floppy disk or cartridge tape, or modify it into the excellent ones on those machines.
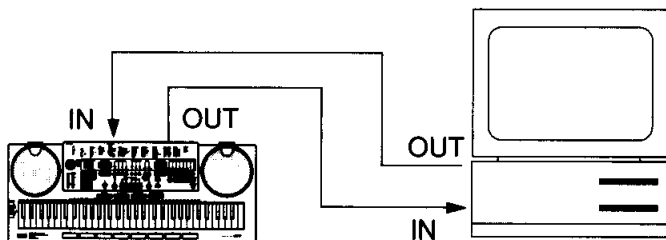
* When you connect with a Personal Computer, You need a MIDI Interface authorized for the computer.

>> Setting of the PSS-795 used as a Sound Module:

After you assign a Voice on each Channel, you can play out MIDI performance data for every part from a Personal Computer or Sequencer.

<< Voice Selection on Each Receive Channel >>

Step 1: First, turn the PSS-795's Receive Channels (1-16) in need to <Enable> position. Of course for those Channels you do not wish to Receive MIDI information, leave <Disable>.

Step 2: Next, press the KEYBOARD TRANSMIT CH button, and as you select each Channel (Channel number is being displayed in the MULTI DISPLAY) with <+/–> buttons beneath the Display, and assign a Voice with the VOICE and Numeric buttons in the STYLE/VOICE Select. Or, if you wish to do each Voice selection from the Master device, simply program it in the sequence data and send the data directly to the PortaSound. Due to the PortaSound's Dynamic Voice Allocation, you can concentrate on the operation of the Master device.

* When the PortaSound is turned on, the Voice number 00 PIANO is automatically selected for the Channels 1-15 and the Voice number 96 PERCUSSIONS for the Channel 16.

>> Data transmitting from the PSS-795:

Transmit the performance data of pre-made Song by using Song Memory to a Personal Computer or Sequencer in Real time. After setting the Personal Computer or Sequencer in Recording mode with its MIDI Clock synchronized to the PSS-795, on the PSS-795 you only Playback the Song to Transmit.

< **Example 2**> When controlling from an external keyboard

If you connect the PortaSound to an external keyboard with over 61 keys, you can expand the key range for performance. You can also balance your manual performance with the accompaniment by Velocity Booster activation setting the PortaSound in the <Enable/Boost> position.
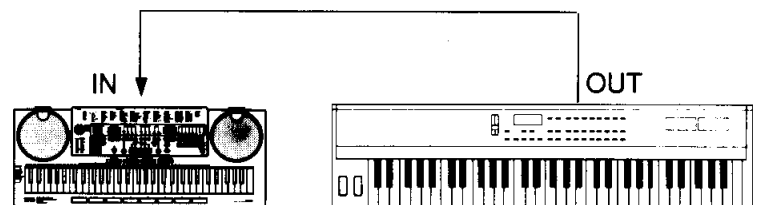
<< Controlling Auto Accompaniment by External Keyboard >>

Step 1: First select the Fingering (Single Finger or Fingered), and then match the Transmit Channel on the external keyboard with the KEYBOARD TRANSMIT CHannel on the PortaSound. At this point, you can use the keyboard splitting into two key sections for Auto Accompaniment and Melody as on the PortaSound.

Step 2: If the Master can transmit Start/Stop and Clock messages, set the PortaSound in <Enable/Clock> position. And, you can also control the PortaSound from the Master.

That is, it enables you to start Auto Accompaniment running at an identical tempo that is set on the Master, and stop it.

Note: Orchestration assignment, Fingering selection, and Fill-in insertion should be operated manually on the PortaSound. In matching the Transmit Channel on both units, if you set Channel 10 to 16 (dedicated to Auto Accompaniment), your performance and Auto Accompaniment will run against each other. For example, when you select a Voice or Style, the accompaniment reselect another. So don't select Channel 10-16 as Transmit Channel.

<< Controlling Song Memory by External Keyboard >>

Step 1: First match the Transmit Channel on the external keyboard with the KEYBOARD TRANSMIT CHannel on the PortaSound.
That is all for you to control the Song Memory from an external keyboard. And you can do the recording on the Tracks: MELODY 1 to 5, PAD, and AUTO ACCOMP. For recording onto VECTOR SYNTH Track, you should play the Vector Synthesizer on the PortaSound.

Step 2: For actual recording, you can follow the same steps as explained in "Song Memory Section".

Note: You can control Voice selection, Voice Effects from the external keyboard. That is, Voice selection will be executed by Program Change message, and Voice Effects' value will be assigned by Control Change message. They could be done by simply transmitting those message to the PortaSound referring to the Correspondence Charts (: on page 41 for Program Change and on page 37 for Control Change). However, as previously explained, in case you set the Transmit Channel on both units to one of 10 to 16 (dedicated to Auto Accompaniment), Voice selection of yours and that of Auto Accompaniment will run against each other.
Additionally, for controlling Tempo, or Start/Stop of Recording/Playback from the external keyboard, follow the same step in "Controlling Auto Accompaniment by External Keyboard".

< Example 3 > When using a Drum Machine or Pad Controller

First, you set the Transmit Channel of the Drum Machine to <16>, and set each Transmit Note number same as the one corresponding to the PSS-795's Percussion sound you wish, refering to the correspondence list on page 41. When you play the Drum Machine, the Percussion sounds of PSS-795 will be reproduced by the performance data including Strength and Weakness (according to Velocity data).
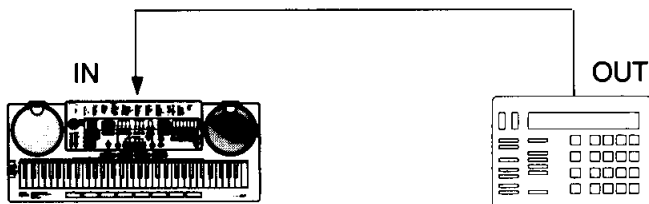
Note: If the Transmit Channel of the Drum Machine is fixed on a specific Channel number and disable to be changed, first (A) send MIDI Program Change number 100 (which is corresponding to Voice number 96 PERCUSSIONS) from the Drum Machine (or other Master device), or (B) assign the Voice number 96 PERCUSSIONS for the same Channel on the PSS-795 following the methods in " Voice Selection on Each Receive Channel" on page 39. Then set the Transmit Note number on the Drum Machine as already mentioned.

< Example 4 > When making a Larger Polyphonic ensemble

When you Receive a larger composition data (in case it is required to sound more than 28 notes at a time), you can use a MIDI connection as shown below. For example, you can use two units of PSS-795, and assign the 1st PSS-795 (Receive Channels 1-8/Enable, the rest/Disable) and assign the 2nd PSS-795 (Receive Channnels 9-16/Enable the rest/Disable). If you use two PSS-795s dividing their Receive Channels like this, you can have them play in 56 Polyphonic Sounds capability.
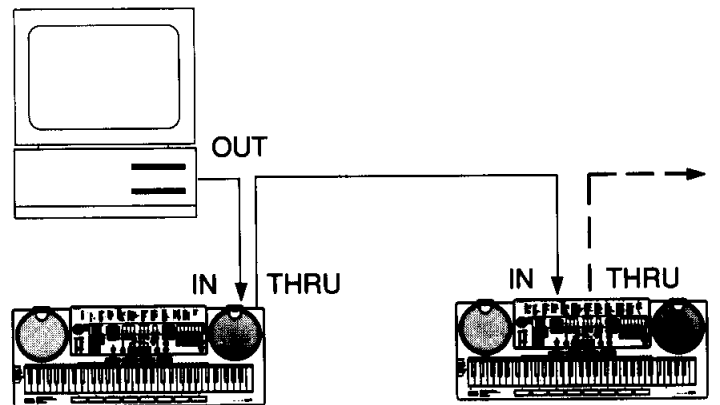
1st PSS-795
Receive Channel: 1-8 Enable

2nd PSS-795
Receive Channel: 9-16 Enable

< Example 5 > When controlling an external Sound Module from PSS-795

If you set the Sound program number of the external Sound Module which matches to a MIDI Program Change Number of PSS-795 beforehand, you can do the external Sound program selections PSS-795. In this case, if you select a similar Sound Program to a PSS-795's Voice and the Sound Module has Multi-Timbre mode, you can also apply Song Memory or Auto Accompaniment function to the Module.
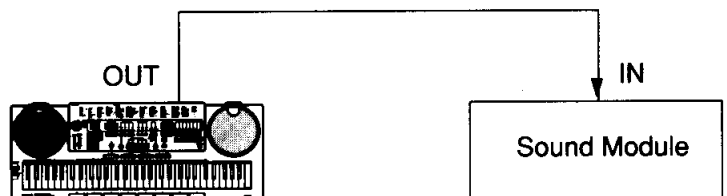
Chart 1: Correspondence between MIDI Note Numbers and Percussion Sounds

Note Name	Instrument Name	MIDI Note Number	Note Name	Instrument Name	MIDI Note Number
C1	BASS DRUM REVERB	36	C#3	SPLASH CYMBAL	61
C#1	TRIANGLE MUTE	37	D3	RIDE CYMBAL CUP	62
D1	SYNTH SNARE	38	D#3	RIDE CYMBAL EDGE	63
D#1	TRIANGLE OPEN	39	E3	CONGA LO	64
E1	SYNTH TOM BASS	40	F3	CONGA HI	65
F1	SYNTH TOM LO	41	F#3	CONGA HI MUTE	66
F#1	SYNTH TOM MID	42	G3	BONGO LO	67
G1	SYNTH TOM HI	43	G#3	BONGO HI	68
G#1	BASS DRUM LO	44	A3	TIMBALE LO	69
A1	BASS DRUM HI	45	A#3	TIMBALE HI	70
A#1	RIM SHOT 1	46	B3	TAMBOURINE	71
B1	TOM BASS	47	C4	CLAVES LO	72
C2	TOM LO	48	C#4	CLAVES HI	73
C#2	SNARE HI	49	D4	AGOGO LO	74
D2	TOM MID	50	D#4	AGOGO HI	75
D#2	RIM SHOT 2	51	E4	CUICA LO	76
E2	SNARE LO	52	F4	CUICA HI	77
F2	TOM HI	53	F#4	WHISTLE	78
F#2	HAND CLAPS	54	G4	BRASH SQUEEZE	79
G2	COWBELL	55	G#4	HI HAT FOOT	80
G#2	CABASA	56	A4	SNARE GATED REVERB	81
A2	HI HAT CLOSED	57	A#4	ONE	82
A#2	BRASH HIT	58	B4	TWO	83
B2	HI HAT OPEN	59	C5	THREE	84
C3	CRASH CYMBAL	60	C#5	FOUR	85

Chart 2: Correspondence between MIDI Program Change Numbers and PortaSound Standard Voices

Voice Number	Voice Name	MIDI Program Number	Voice Number	Voice Name	MIDI Program Number	Voice Number	Voice Name	MIDI Program Number
00	PIANO	3	34	STRINGS 1	41	68	SYNTH CHORUS	94
01	ELECTRIC PIANO 1	5	35	STRINGS 2	50	69	SYNTH FLUTE 1	112
02	ELECTRIC PIANO 2	54	36	PIZZICATO STRINGS	78	70	SYNTH FLUTE 2	47
03	HARPSICHORD 1	4	37	HARP	37	71	SYNTH REED 1	45
04	HARPSICHORD 2	53	38	UKULELE	40	72	SYNTH REED 2	85
05	HONKY-TONK PIANO	25	39	BANJO	34	73	SYNTH REED 3	113
06	CRAVI	30	40	VIBRAPHONE	7	74	SYNTH STRINGS 1	51
07	CELESTA	6	41	MARIMBA	8	75	SYNTH STRINGS 2	109
08	PIPE ORGAN	2	42	XYLOPHONE	59	76	SYNTH STRINGS 3	119
09	REED ORGAN	49	43	GLOCKENSPIEL	32	77	SYNTH PIANO 1	60
10	JAZZ ORGAN 1	1	44	TRUMPET	15	78	SYNTH PIANO 2	117
11	JAZZ ORGAN 2	27	45	MUTE TRUMPET	44	79	SYNTH PIANO 3	110
12	TREMOLO ORGAN	28	46	TRUMPET ECHO	118	80	SYNTH PIANO 4	95
13	FULL ORGAN	29	47	MUTE TRUMPET ECHO	120	81	SYNTH PAN VOICE	111
14	ACCORDION	31	48	FLUGELHORN	87	82	FANTASY	64
15	DISTORTION GUITAR	13	49	TROMBONE	16	83	ELECTRIC BASS	38
16	ELECTRIC GUITAR	68	50	HORN	17	84	SLAP BASS	39
17	TREMOLO GUITAR	69	51	TUBA	84	85	FRETLESS BASS	80
18	MUTE GUITAR	70	52	BRASS ENSEMBLE	92	86	PICK BASS	79
19	DISTORTION GUITAR FLANGE	108	53	BRASS HIT	104	87	MUTE BASS	114
20	E. GUITAR FLANGE	121	54	CLARINET	19	88	MUTE BASS ECHO	107
21	MUTE GUITAR ECHO	116	55	FLUTE	20	89	WOOD BASS 1	14
22	E. GUITAR ECHO	123	56	PICCOLO	103	90	WOOD BASS 2	81
23	JAZZ GUITAR	12	57	SOPRANO SAX	101	91	SYNTH BASS 1	58
24	JAZZ GUITAR ECHO	122	58	ALTO SAX	18	92	SYNTH BASS 2	86
25	FOLK GUITAR	36	59	TENOR SAX	102	93	BOWED BASS	35
26	12 STRING GUITAR	72	60	BASSOON	21	94	STEEL DRUM	9
27	GUT GUITAR	73	61	RECORDER	88	95	TIMPANI	66
28	GUT GUITAR ECHO	124	62	SAMBA WHISTLE	91	96	PERCUSSIONS	100
29	STEEL GUITAR	33	63	WOODWIND ENSEMBLE	93	97	HARMONICA	22
30	VIOLIN 1	10	64	CHORUS	96	98	MUSIC BOX	24
31	VIOLIN 2	67	65	SYNTH BRASS 1	0	99	ORCHESTRA HIT	90
32	PIZZICATO VIOLIN	65	66	SYNTH BRASS 2	82			
33	CELLO	11	67	SYNTH BRASS 3	115			

Troubleshooting

Symptom	Possible Causes	Solutions
When POWER switched ON speakers make a "pop" noise.	Initial Electric Current flows.	Don't worry (not a problem).
No sound coming from speakers.	MASTER VOLUME or the value of Voice Effect's VOLUME is turned down.	Turn up the MASTER VOLUME, or the value of Voice Effect's VOLUME.
	The value for VOLUME (of Voice Effects) is assigned to <0>.	Set the value other than <0>.
	HEADPHONES/AUX. OUT Terminal has a jack plugged into it.	Remove the jack.
When you press multiple keys, there are notes which are not sounded.	Depending on the mode (Auto Accompaniment, Vector Synth, etc.), the amount of notes voiced are different.	Don't worry, you can play up to 28 notes simultaneously in Normal mode.
	You are playing with a Voice which consist of some notes. As you make a combination of Voices with the Vector Synthesizer, some preset Voices are made of several notes. For example, with a Voice made of 4 notes, you can play up to 7 notes at a time (4 by 7 equals 28: maximum notes).	This is not a problem. Lessen the notes you play at a time.
Cannot change the Voice or Rhythm Style.	The VOICE or STYLE button has not been pressed first.	See page 8 or 14 and read instructions.
Cannot get Rhythm Sounds.	START button of ACCOMPANIMENT CONTROL is not pressed.	Make sure of the instructions on pages 16 thru 22.
	After pressing the SYNCHRO START button or Keys have not been pushed (when you are in Normal mode).	
	After pressing the SYNCHRO START button, the keys for Auto Accompaniment have not been pushed (when using Auto Accompaniment function).	
Cannot get Auto Accompaniment sounds.	Because you are in Normal mode.	Assign FINGERING mode to obtain desired Auto Accompaniment.
Cannot turn ON the Harmony function.	Because the Vector Synthesizer is ON.	Turn OFF the Vector Synthesizer.
Cannot play the Chord you want while pressing the keys when using Auto Accompaniment.	You might be trying to play a Fingered Chord when you're in Single Finger mode, or in the opposite case.	Change either your fingering or the Fingering mode.

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Symptom	Possible Causes	Solutions
Cannot turn ON the Vector Synthesizer.	Because the Pad Assign function is ON.	Turn OFF the Pad Assign function pressing the corresponding button.
	Because the VECTOR SYNTH Track in Song Memory is ON.	Clear the VECTOR SYNTH Track out.
Abnormally works or malfunctions. Any unfamiliar status found. Cannot control the PSS-795 any longer.	The PortaSound's internal micro-computer may have been "locked up" by Static Electricity or other factors.	**Step 1:** Turn the PortaSound OFF. **Step 2:** Then press the SINGLE FINGER and FINGERED buttons simultaneously and hold them down, and turn the POWER ON. This operation is called "All Reset", and brings the PSS-795 to the status when shipped. But remember this operation will clear the whole data in the Song Memory.

Warning Messages

Battery Change:
If you plays the PortaSound without cease, you may hear the sounds distorted. This is why batteries' voltage is lowered. If you go on using the PortaSound, <bt chn> indication will be shown in the STYLE/VOICE display and MULTI DISPLAY. In this case, change all of 6 batteries at a time. Be sure not to use the different type(s) of batteries together.

STYLE/VOICE   MULTI DISPLAY
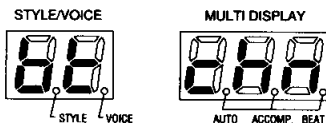
Buffer Full:
While the PSS-795 is Receiving the MIDI performance information from an external Master device, in case the quantity of MIDI information is over that the PSS-795 can process at a time, it will show <bu full> in the STYLE/VOICE display and MULTI DISPLAY for a second. Simultaneously, the notes currently sounding will automatically stop. Should this occur, lessen the MIDI information from the Master.

STYLE/VOICE   MULTI DISPLAY
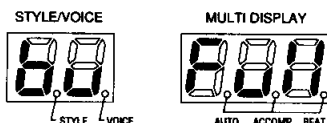
Channel Full:
While Transmitting or Receiving the MIDI performance information, or even playing on the Keyboard, if the total amount of notes on Channels 1 – 16 exceeds 28 (: Maximum of sound reproduction), the STYLE/VOICE display and MULTI DISPLAY will go on reading <Ch Full> until the total amount of notes is reduced under 28.

STYLE/VOICE   MULTI DISPLAY
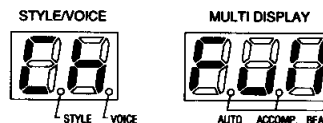
Check Sum Error:
While the PSS-795 is Receiving the "System Exclusive Message" (: the same data as the PSS-795 transmits in Memory Bulk Dump; General name for this kind of data in MIDI Standard), if the indication <Err> is shown in the MULTI DISPLAY, this means the Receiver PSS-795 failed to Receive the Exclusive data. In this case, specified Factory Preset data corresponding to the Exclusive data missed will be applied automatically.

MULTI DISPLAY
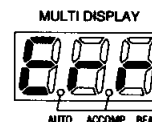
Memory Full:
While using the Song Memory function, if <Full> indication is shown, this means the memory capacity of the Song Memory has been reached. At this time, Recording will be automatically stop and Bar indication in the SONG#/MEASURE display turns to <001>. If you wish to go on Recording, you have to Clear the Recorded data by Track. (See page 30 for Clear function.)

MULTI DISPLAY
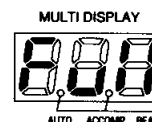
Maintenance

- **Location**
  Avoid exposure to direct sunlight or other sources of heat. Never leave it inside a car where it can get very hot. It may cause discoloration or deformation. Vibration, excessive dust, cold, low or high humidity can also cause malfunction.
- **Handling**
  Avoid rough handling. Don't drop or jolt the PortaSound as this can damage the internal circuitry. Pressing too hard on keys or controls may lead to malfunctions. When cords are plugged into the rear panel jacks, pay particular attention not to apply excessive force to them since this may damage the terminals.
- **Adaptors**
  Use only the power adaptor described in the POWER section. Disconnect the AC adaptor when not using your PortaSound.
- **Batteries**
- When not using your PortaSound for long periods, be sure to remove the batteries to avoid damage through battery leakage.
- Replace weak batteries before they run down completely.
- Always replace all batteries with new ones.
- Do not use different kinds of batteries at the same time.
- In case electrolyte has leaked into the battery compartment, wipe it off completely before installing new batteries.
- **Cleaning**
  Clean the exterior with a soft, dry cloth. Using chemical solvents will damage the finish.
- **Interference Through Electromagnetic Fields**
  Do not use your PortaSound close to television sets or other equipment receiving electromagnetic signals as this could cause interference noise in the other appliance.
- **Service and Modifications**
  Your PortaSound contains no user serviceable parts. Opening it or tampering with it in any way can lead to electrical shock as well as damage. Of course, any resulting damage will not longer be repaired free of charge. Refer all servicing to qualified YAMAHA personnel.

YAMAHA is NOT responsible for damage caused by improper use.

Specifications

Keyboard	61 half-sized keys (C1-C6)	**Auto**	Single Finger/Fingered buttons for
Master Controls	Power switch, Master Volume, Demo Start/Stop button	**Accompaniment**	Fingering Assign, Intro/Large/Bridge buttons for OrchestrationStart/Stop, Fill to Normal, Fill to Bridge, Synchro Start/Ending buttons for Accompaniment Control
Voices	100 AWM Voices		
Styles	50 Basic Rhythm Styles and Arrangements		
Style/Voice Select	Numeric buttons (0-9, +/−), Style/ Voice buttons, Style/Voice Display	**Pads**	Pads 1-8, Pad Assign On/Off button
Vector Synthesizer	On/Off button, Joy Stick	**Terminals**	MIDI THRU, MIDI OUT, MIDI IN HEADPHONES/AUX. OUT (stereo), DC 9-12V IN
Multi Display	Increment/Decrement buttons		
Voice Effects	Harmony (On/Off), Volume, Sastain, Reverb buttons, Pitch Bend wheel	**Amplifiers**	3W × 2
Overall Controls	Tempo, Transpose, Tuning buttons	**Speakers**	10cm × 2 (8 ohms)
MIDI Controls	Keyboard Transmit Channel, Memory Bulk Dump buttons, Receive Channel/Clock/Boost, Receive On/Off buttons	**Power Source**	DC 9V (6 batteries: 1.5V SUM-2, R-14) AC power adaptor: PA-3, PA-4, PA-40
		Dimensions	776mm (W) × 302mm (D) × 141mm (H)
Song Memory	Song#/Measure Display, Song Number Select buttons, Record/ Clear buttons (+/−), Track Select buttons(Melody 1-5, Vector Synth, Pad, Auto Accomp.) Reset/Rewind/ Stop/Play/Fast Forward buttons	**Weight**	4.5 kg (without batteries)
		Accessories	
		Optional Items	PA-3, PA-4, PA-40 AC power adaptor

YAMAHA reserves the right to make design and specification changes in the interests of product improvement without prior notice.

Appendix: Bulk Data Format

In addition to an explanation on page 39, in this section you have detailed information about the Bulk Data Format for the PortaSound.

HEADER and EOX

0000H									
	1	1	1	1	0	0	0	0	Status=F0H
	0	1	0	0	0	0	1	1	Manufactuerer ID=43H (Yamaha)
	0	1	1	1	0	1	1	0	Classification ID=76H (Portable Keyboard)
	0	0	0	0	0	1	1	1	Data Format Number=07H (PSS-795)

Song Memory Data ———— (See next page.)

	0	c	c	c	c	c	c	c	Check Sum Data=Two's compliment of 7 bits sum of all Songs
	1	1	1	1	0	1	1	1	EOX=F7H

SONG MEMORY DATA

Note: following data bytes are to be divided into 4 bit bit data and sent as less significant 4 bits of data part. Significant 4 bits are sent first.

0000H	SONG HEADER
	song #1 DATA
	song #2 DATA
	song #3 DATA
	song #4 DATA
	song #5 DATA
	song #6 DATA
	song #7 DATA
702FH	song #8 DATA

0000H	Less significant byte (LSB)	Address of Top of Record for selected song (XXXXH)
0001H	Most significant byte (MSB)	
0002H	LSB	Write Position Pointer (address of write position) (yyyyH)
0003H	MSB	
0004H	LSB	Read Position Pointer (address of read position) (zzzzH)
0005H	MSB	
0006H	Track status of song #1	
0007H	Track status of song #2	
0008H	Track status of song #3	
0009H	Track status of song #4	
000AH	Track status of song #5	
000BH	Track status of song #6	
000CH	Track status of song #7	
000DH	Track status of song #8	
	Dummy Any data is OK. (18 bytes)	
0020H		

Song Memory data consists of a Song Header and 8 song data. The size is 702FH bytes fixed.

The length of a header, 32 bytes from the top of song data is fixed. The length of each song data is variable. An unrecorded area, which is the area between Write Position Data and Read Position Data, is located somewhere in one of these 8 song data as long as there remains a capacity for further recording. When the bulk data is damped, this unrecorded area exists in the song which has been selected by the PSS-795 panel controls. The position of this area in the song is shown by the measure number (bar number) as well. However, once you upload the bulk data back onto the PSS-795, the position of the area will be reset to the top of the song.

Track status:

bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
MELODY 1	MELODY 2	MELODY 3	MELODY 4	MELODY 5	VECTOR SYNTH	PAD	AUTO ACCOMP.
Ch.5	Ch.6	Ch.7	Ch.8	Ch.9	Ch.1-4	Ch.16	—

status flag: 1=On, 0=Off

MIDI Channels 1 to 16 are assigned respectively to corresponding tracks as shown above. In case Channel messages exist in the tracks: MELODY 1 to 5, VECTOR SYNTH, and PAD, their status flags should be 1. In case chord data exist in the AUTO ACCOMP. track, its status flag should also be 1.

XXXXH	1 1 1 1 0 0 0 0	Top of Record
	0 0 0 0 0 0 0 1	Song number (#) (this case: 1)
	ABSOLUTE TEMPO	Initial tempo of this song
	ABSOLUTE TEMPO	
	RECORDED DATA	
yyyyH		Write Position Data
	UNRECORDED AREA Data has no meaning.	
		Read Position Data
	RECORDED DATA	
zzzzH	1 1 1 1 0 0 1 0	End of Record

1 1 1 1 0 0 0 0
Next Song Data (this case: for Song #2)
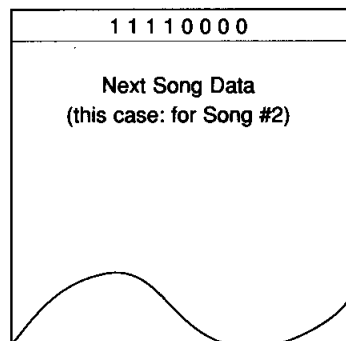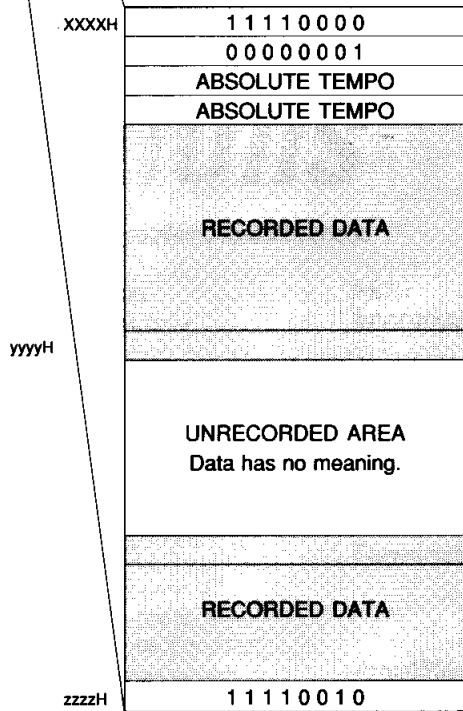
CONTENTS OF EACH SONG DATA

Note: Header and Footer must exist in a song data even when the song data has no contents.

HEADER

TOR

| 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |

Top of Record

| 0 | 0 | 0 | 0 | 0 | r | r | r |

r r r = Song number (: 0-7)

| 0 | l | l | l | l | l | l | l |

$llllll$ = Tempo1

| 0 | h | h | h | h | h | h | h |

hhhhhhh = Tempo2

Tempo = Tempo1 (40≤Tempo≤127)
Tempo = Tempo1+Tempo2 (128≤Tempo≤240)

FOOTER

EOR

| 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |

End of Record

INTERVAL DATA

| 0 | D | D | D | D | D | D | D |

DDDDDDD = Time Length (0000001=1/24 Beat)
(0011000=1 Beat)

PERFORMANCE DATA

NOTE ON

| 1 | 0 | 0 | 1 | n | n | n | n |

nnnn = MIDI Channel (: 0-15)

| 0 | k | k | k | k | k | k | k |

kkkkkkk = Note number (: 0-127)

| 0 | v | v | v | v | v | v | v |

vvvvvvv = Velocity (: 0-127)

NOTE OFF

| 1 | 0 | 0 | 0 | n | n | n | n |

nnnn = MIDI Channel (: 0-15)

| 0 | k | k | k | k | k | k | k |

kkkkkkk = Note number (: 0-127)

| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Velocity = fixed

PROGRAM
CHANGE

| 1 | 1 | 0 | 0 | n | n | n | n |

nnnn = MIDI Channel (: 0-15)

| 0 | p | p | p | p | p | p | p |

ppppppp = Program number (: 0-127)

CONTROL
CHANGE

| 1 | 0 | 1 | 1 | n | n | n | n |

nnnn = MIDI Channel (: 0-15)

| 0 | c | c | c | c | c | c | c |

* ccccccc = Harmony. (: 00)

| 0 | v | v | v | v | v | v | v |

vvvvvvv = Harmony type (: 0-5)

0=Duet	1=Trio
2=Block	3=Country
4=Octave	5=Strum

* ccccccc = Modulation (: 01)
    vvvvvvv = depth (: 0-127)
* ccccccc = Volume (: 07)
    vvvvvvv = value (: 0-127)
* ccccccc = Sustain (: 64)
    vvvvvvv = depth (: 0-127)
* ccccccc = Reverb (: 91)
    vvvvvvv = depth (: 0-127)

PITCH BEND CHANGE

1	1	1	0	n	n	n	n

nnnn = MIDI Channel (: 0-15)

0	l	l	l	l	l	l	l

lllllll = LSB

0	h	h	h	h	h	h	h

hhhhhhh = MSB

lllllll, hhhhhhh: 00, 00
(-1 octave)
00, 64
(center)
127, 127
(+1 octave)

VECTOR SYNTH NOTE ON/OFF

1	1	1	1	0	0	1	1

Vector Synth Note On/Off

0	s	n	n	n	n	n	n

s: 1 = Note On, 0 = Note Off

nnnnnn = Note number
(: 0-63, 0=C1)

VECTOR SYNTH VOLUME

1	1	1	1	0	1	0	0

Vector Synth Volume

0	v1	v1	v1	v1	v1	v1	v1

v1v1v1v1v1v1v1 = Ch.1 volume
(: 0-127)

0	v2	v2	v2	v2	v2	v2	v2

v2v2v2v2v2v2v2 = Ch.2 volume
(: 0-127)

0	v3	v3	v3	v3	v3	v3	v3

v3v3v3v3v3v3v3 = Ch.3 volume
(: 0-127)

0	v4	v4	v4	v4	v4	v4	v4

v4v4v4v4v4v4v4 = Ch.4 volume
(: 0-127)

CHORD CHANGE

1	1	1	1	0	1	0	1

Chord Change

0	0	0	0	n	n	n	n

nnnn = Root name (: 0-11, 0; C,
1; C#....11; B)

0	0	0	0	t	t	t	t

tttt = Chord type (: 0-11)
0: major
1: minor
2: 7th
3: minor 7th
4: major 7th
5: minor 7th flatted 5th
6: (7th) suspended 4th
7: augmented
8: diminished (7th)
9: minor major 7th
10: minor 6th
11: Single (octave unison)

MEASURE MARK

1	1	1	1	1	0	0	1

Measure Mark

0	b	b	b	b	b	b	b

bbbbbbb=number of beat in a
measure (1 beat=1/4 note)

0	m	m	m	m	m	m	m

mmmmmmm=measure number
within a pattern

STYLE NUMBER

1	1	1	1	1	0	1	0

Style number

0	0	0	0	0	0	0	0

0	0	s	s	s	s	s	s

ssssss = Style (: 0-49)

0	0	0	0	0	v	v	v

vvv = variation
0: Normal
1: Bridge
2: Fill-in 1
3: Fill-in 2
4: Intro
5: Ending

RELATIVE TEMPO

1	1	1	1	1	0	1	1

Relative Tempo

0	s	0	0	0	0	0	n

s: sign bit (1: minus)

0	h	h	h	h	h	h	h

hhhhhhh = tempo difference
(0-127)
Relative Tempo
= 128*n+hhhhhhh

ABSOLUTE TEMPO

1	1	1	1	1	1	0	0

Absolute Tempo

0	l	l	l	l	l	l	l

Tempo = lllllll (40≤tempo≤127)

0	h	h	h	h	h	h	h

= lllllll+hhhhhhh
(128≤tempo≤240)

FILL-IN STATUS

1	1	1	1	1	1	0	1

Fill-In Status

0	s	0	0	0	0	0	n

s: 1=On, 0=Off
n: Fill-In number
(0: Fill to Normal, 1: Fill to Bridge)

ORCHESTRATION

1	1	1	1	1	1	1	0

Orchestration

0	0	0	0	0	0	n	n

nn=Orchestration type
(01: Large, 10: Large Off)

Function ...		Transmitted Manual / Accomp / Rhythm	Recognized	Remarks
Basic	Default	1　/ 10-15 /　16	1-16	
Channel	Changed	1-16	1-16(*1)	
Mode	Default	3(*2)	3(*3)	
	Messages	x	x	
	Altered	************************	x	
Note		0-127(*4)	0-127	
Number :	True voice	************************	0-127	
Velocity	Note on	x　9nH, v=1-127(*5)	o　9nH, v=1-127	
	Note off	x　　9nH	x　9nH / 8nH	
After	Key's	x	x	
Touch	Ch's	x	x	
Pitch Bender		o	o	7 bit resolution
Control Change	1	o	o(*6)	MODULATION
	7	o	o	VOLUME
	64	o	o(*6)	DAMPER (SUSTAIN)
	91	o	o(*6)	REVERB DEPTH
				(VOICE EFFECTS)
Program		o(*7)	o　0-127(*8)	
Change :	True #	************************	0-99	
System Exclusive		o	o	
System :	Song pos	x	x	
:	Song Sel	x	x	
Common :	Tune	x	x	
System :	Clock	o	o(*9)	
Real Time :	Commands	o	o	START, STOP
Aux :	Local ON/OFF	x	x	
:	All Notes OFF	x	o	
Mes- :	Active Sense	o	o	
sages :	Reset	x	x	

Note:
*1: Possible to set ON/OFF individually on each channel (: 1-16ch).
*2: Multi-timbre.
*3: Multi-timbre by Dynamic Voice Allocation.
*4: Keys; 12-108, While the Song Memory data are being Played back; 0-127.
*5: Manual; Value is fixed to 7FH when performed by pressing Keys or Pads.
　　　　With Velocity Boost function active, Value is fixed to 70H.
　Accomp.; Various values.
　Recorded value when Song Memory is played back.
*6: Not received by every VOICE selected.
*7: A VOICE nunmber transmitted after converted to the corresponding Program Change number according
　　to PortaSound Standard Voice Number.
*8: Received according to PortaSound Standard Voice Number. Ignores the Message based on Ch.16.
*9: Possible to set ON/OFF manually.

Mode 1: OMNI ON, POLY　　　Mode 2: OMNI ON, MONO　　　　　　　　　　　　　　　o: YES
Mode 3: OMNI OFF, POLY　　Mode 4: OMNI OFF, MONO　　　　　　　　　　　　　　x: No

For details of products, please contact our nearest subsidiary/ or the authorized distributor listed below.

Pour plus de détails sur les produits, veuillez-vous adresser au concessionnaire/distributeur pris dans la liste suivante le plus proche de chez vous.

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① ⊕ ✳101 VL05540 Printed in Japan