

N

YAMAHA

PortaSound

PSS-590

Owner's Manual

Bedienungsanleitung

Mode d'emploi

Manual del usuario

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.

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Porta Sound Typ: PSS-590
(Gerät, Typ, Bezeichnung)

in Übereinstimmung mit den Bestimmungen der VERFÜGUNG 1046/84

(Amtsblattverfügung)

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Congratulations !

Thank you for purchasing YAMAHA PortaSound PSS-590. The PSS-590 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.

Furthermore, the Auto Accompaniment 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-590, please read the instructions in this Owner's Manual which should provide help and suggestions.

Features

- * **100 pre-set AWM Voices and 50 rhythm patterns (50 styles)** included. (sound reproduction: 28 notes at the same time)
- * **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 digital recording of Melody and Auto Accompaniment parts on each individual track as a song. It is capable of memorizing up to 3 songs.
- * **Manual Percussion** can be easily carried out whenever you select the Voice number 76 Percussion which includes 23 percussion sounds.
- * **The PSS-590 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-590 has the Multi-Timbre mode, which allows you to make an ensemble of Multiple Parts just only with one unit of the PSS-590.

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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 completely. Remember this will definitely take place in the following situations:

The Song Memory data will be lost completely when the PSS-590 is turned Off intentionally or accidentally, that is, by using the POWER switch, or with batteries' voltage lowered or the authorized AC adaptor disconnected;

- **Immediately after the PSS-590 is turned On**
- **During Selecting a Song by the operation explained in following pages**
- **During Recording or Playback**

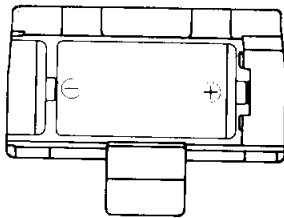
Getting Started

a. Setting up the power supply

The PSS-590 can be operated using either batteries or a standard outlet.

a) When you are using batteries

Flip the PSS-590 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.

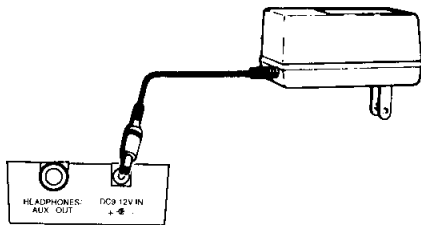


* In case batteries' voltage are low, you hear the sounds distorted. If you go on using the PortaSound, <bt chn> indication will be shown. In this case, it's the time to replace all of 6 batteries with new ones.

* 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.

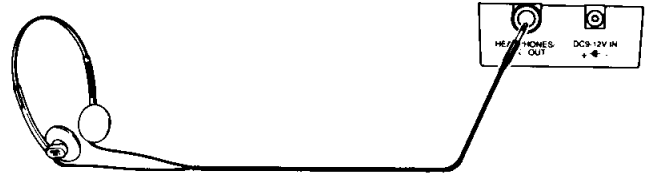


* There are different types of AC adaptors, be careful to use only the models mentioned above.

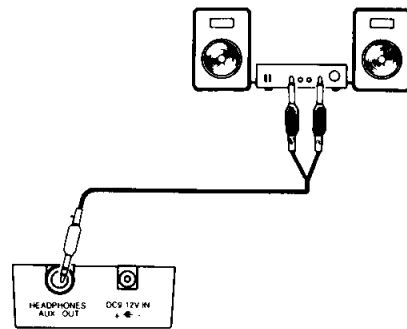
* If you leave the instrument without any power supply (batteries or adaptor) for a long period, your record in the Song Memory (explained later) will be lost, and the PSS-590 will be in the original status when shipped. But you don't mind the amount of time for changing batteries – 1 minute at most. This short period will not cause this to occur.

b. Hook-up terminals for attachments

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-590'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.

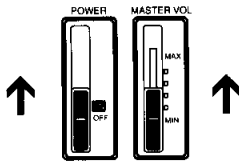
Note: In both cases of attachments (headphones and amplifiers), the Master Volume control located on the PSS-590 can be used in controlling levels of volume.

Quick Reference

Here the basic PSS-590 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.

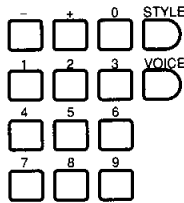
*Sound Set-Up

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

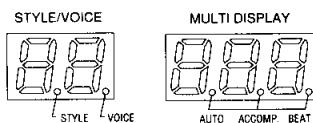
Step 1: Press the VOICE button.
Step 2: You may select one of 100 different Voices by pressing the buttons marked <0> thru <9> located to the left of the VOICE button. For example, if you wanted to select Voice number 35 - Trombone, you enter the number <3>, then the number <5>.
Step 3: You may move 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 - Mute Trumpet Echo.
 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>.

Displays

2 displays located on the front panel of the PSS-590 will allow you to read the current status or parameter at a glance.

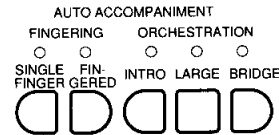


Voice Effects

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 10.

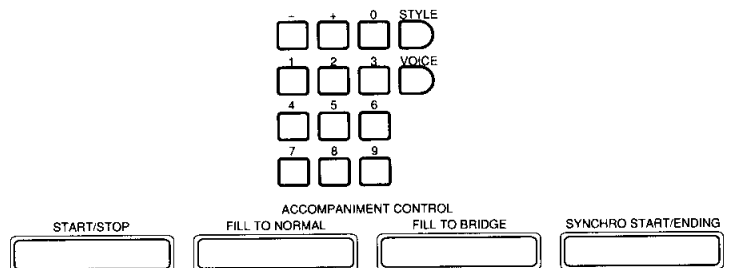
Auto Accompaniment

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 16.



*Rhythm Accompaniment

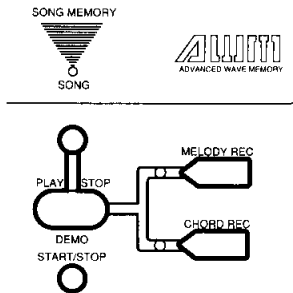
Step 1: Push the STYLE button of the STYLE/VOICE section.
Step 2: Select one of the 50 Rhythm Styles listed on the control panel, and enter it's 2 digit number using the same buttons <0> thru <9> used in selecting a Voice, also by pressing the <+> or <-> buttons to select a Style of a higher or lower 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 12.



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 2 separate recording tracks (: MELODY and CHORD) for each song. And, you can memorize up to 3 original songs as you wish.

Note: For further details see page 23.



*Demonstration

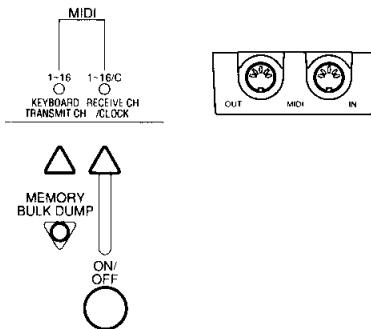
The PSS-590 comes with a Fusion song to demonstrate its capabilities. To hear this example, press the DEMO START/STOP button anytime. The demonstration will keep repeating over and over until you stop it. To stop the demonstration, press the DEMO START/STOP button once again. The demonstration has been pre-assigned a tempo and style accordingly. You can play along with the demonstration on the keyboard, adjusting the Voice and Tempo as you like. During playing the demonstration, Voice selection and Voice Effects are also available. However, these will be reflected on only the notes you play on the keyboard.



MIDI

By using a MIDI hook-up to another synthesizer (or MIDI equipment), you can operate the PSS-590 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-590.

Note: For further details see page 28.

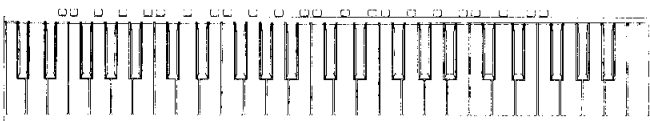


* By pressing these buttons you can select a variety of MIDI modes.

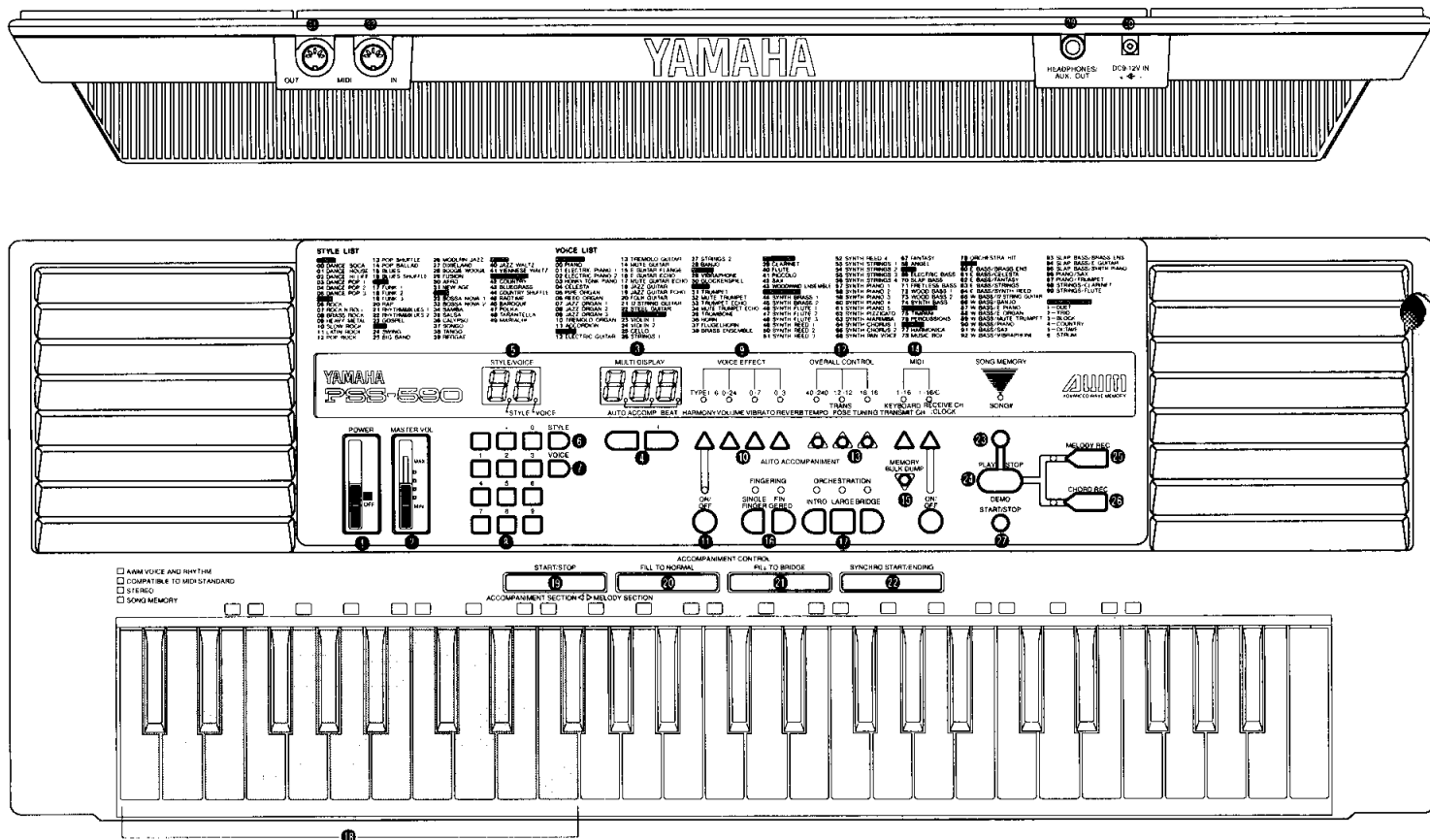
*Manual Percussion

When select the Voice number 76 PERCUSSION in the same methods as described in "Selection of Voices", you can play a percussion instrument illustrated above each key. 23 percussion sounds are provided.

Note: For further details see page 15.



Panel Description



1 Power switch

Turns PSS-590 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, or a song number selected.

4 Increment/Decrement buttons (+/-)

Set the Value of Voice Effects, Overall Controls and MIDI parameters.

<< For Style/Voice selection >>

5 STYLE/VOICE NUMBER 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 Number 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/Vibrato/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.

<< For Overall control >>

12 Overall Control LEDs

Displays the current status of Overall control settings.

13 Overall Control Select buttons

Sets the Value for Tempo/Transpose/Tuning when each corresponding button is pressed.

<< For MIDI control >>

⑩ MIDI LEDs

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

⑪ MIDI Select buttons

To select KEYBOARD TRANSMIT CH/RECEIVE CH/CLOCK or MIDI mode, etc., press the corresponding button.

<< For Auto Accompaniment >>

⑫ FINGERING buttons

To select Single Finger/Fingered mode of Auto Accompaniment.

⑬ ORCHESTRATION buttons

To select the instrumentation or variations of Auto Accompaniment.

⑭ Keys for Auto Accompaniment

These are the keys you push when using the Auto Accompaniment function.

<< For Accompaniment Control >>

⑮ START/STOP button

Activates or disactivates the Auto Accompaniment or Rhythm.

⑯ FILL TO NORMAL button

This provides a fill-in which then continues to play the normal accompaniment pattern.

⑰ 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.

⑱ SYNCHRO START/ENDING button

Allows you to start the Auto Accompaniment and Rhythm simultaneously by pressing one of the Auto Accompaniment keys. Also provides an ending pattern for when you want to finish a song.

<< For Song Memory >>

⑲ SONG# button

Press this button when you select a Song number.

⑳ PLAY/STOP button

Press this button when you start or stop recording or reproduction of a song already recorded.

㉑ MELODY REC button

Press this button when recording a melody or passage played by the right hand.

㉒ CHORD REC button

Press this button when recording an Auto Accompaniment led by the left hand.

㉓ DEMO (Demonstration) START/ STOP button

To start or stop the demonstration song.

<< Accessory Terminals >>

㉔ 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.

㉕ HEADPHONES/AUX. OUT Terminal

Terminal for connecting headphones, keyboard amplifier, stereo amplifier, etc.

㉖ MIDI IN Terminal

Terminal for PSS-590 to receive MIDI information.

㉗ MIDI OUT Terminal

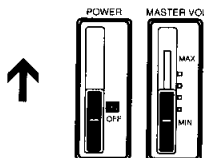
Terminal for PSS-590 to generate MIDI information.

Voice Section

a. Selecting a Voice

There are 100 different pre-set voices to choose from, providing a wide variety of sounds to accommodate many types of song styles.

Step 1: Turn the POWER ON.

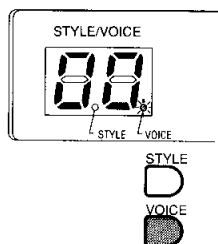


Turn the POWER switch to ON, and slide the MASTER VOLUME control up.

Step 2: Press the VOICE button.

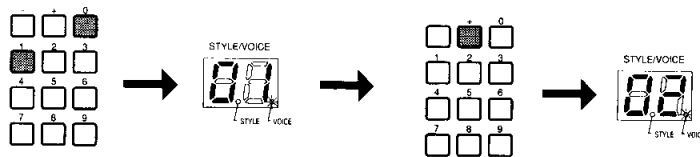
Press the VOICE button of STYLE/VOICE select.

The Voice LED in the STYLE/VOICE NUMBER display will light up. The number displayed indicates the Voice number.



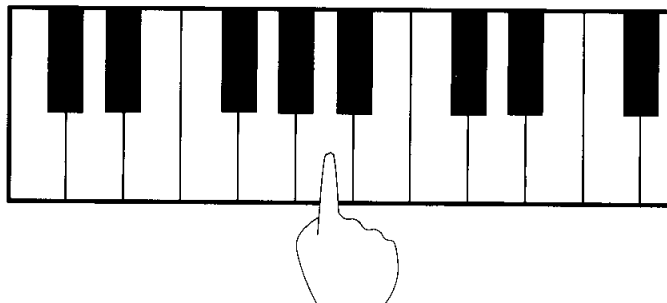
Step 3: Select a Voice.

Consult the Voice List on the Control Panel and enter the 2 digit number using the 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 using the increment <+>/decrement <-> 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.



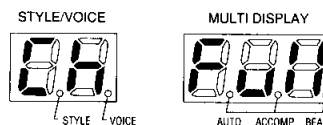
Note: By pressing and holding the <+> / <-> Buttons you will increase or decrease the number at an accelerated rate.

Step 4: Now when you press the keys of the keyboard, you will hear the Voice selected in Step 3 above. 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-590 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.)

* If there is a shortage of notes that can be sounded at a time, the following indication will be shown until the total amount of notes is reduced under 28:

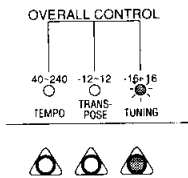


b. Tuning

When you play along with another instrument, CD, tape or record, etc., it often happens that the tunings are slightly different. With the PSS-590 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 instruments, or musical sources.

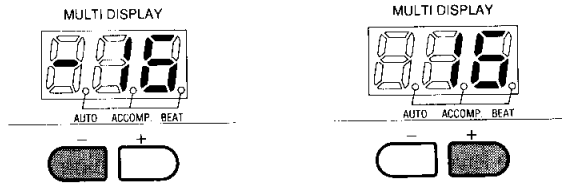
Step 1: Press the TUNING button.

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.



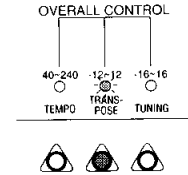
Step 2: Adjustment of Tuning:

Press the <+>/<-> buttons located under the MULTI DISPLAY to raise or lower the pitch. From the <0> setting, you can raise/lower the pitch to a maximum of <16>. Level <16> would almost be a Quarter step different from <0>, and each level is about 3.13 cents different from another level.



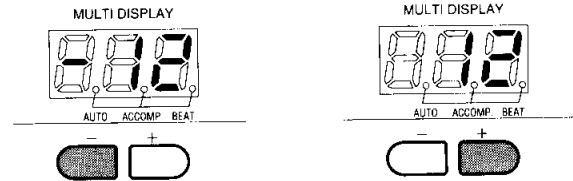
Step 1: Press the TRANSPOSE button.

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>.



Step 2: Adjusting the Transposition:

Press the <+>/<-> buttons located under the MULTI DISPLAY, to raise or lower the key. From the <0> setting you can raise/lower the key to a maximum of <12>. Level <12> would be 1 octave higher/lower than <0>. 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_b" (E flat)". Each level is one half step different from another level, thus the key of "E_b" is 3 half steps away from the key of "C".



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.

- * 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.
- * The Transposition will not work while you are playing on the Keyboard. This means you cannot control the Transposition while any key is pressed down.

d. Voice Effects

The PSS-590 has a variety of Voice Effects to choose from, such as REVERB/VIBRATO etc., that with a little practice and wise selection, can be effective in making your phrases and style more sophisticated.

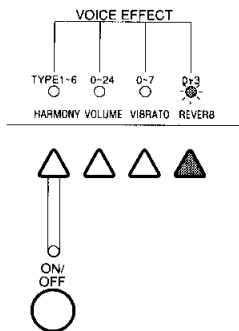
a) Reverb

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-590 Reverb Effect has a range of values that can be assigned from <0> to <3>. The Reverb Effect can be added to each Voice.

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 varies according to the Voice selection. If the MULTI DISPLAY shows <-- -->, this means the Reverb effect has been prefixed.

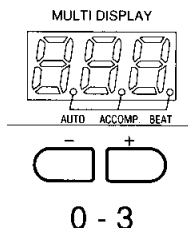


Step 2: Adjusting the value of Reverb Effect:

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

- * When you select a different Voice, the Reverb Effect you assigned will return to the initial value.

- * 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.



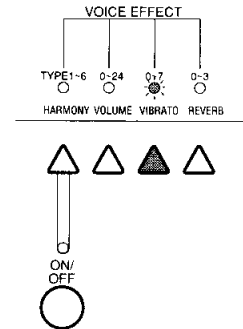
b) Vibrato

This Effect adds an alternating wave form that gives a warmth and richness to your music. The PSS-590 provides Vibrato Effect ranging from <0> to <7>, which can be added to each Voice selection.

Step 1: Press the VIBRATO button.

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

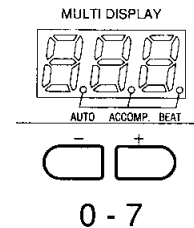
- * The initial value varies according to the Voice selection. If the MULTI DISPLAY shows <-- -->, this means the Vibrato effect has been prefixed.



Step 2: Adjusting the value of Vibrato Effect

You can adjust the value of the Vibrato Effect by using the <+>/<-> Buttons located under the MULTI DISPLAY. <0> means the Vibrato Effect is Off, <1> is weak, and thru <7> is strong.

- * When you select a different Voice, Vibrato Effect you assigned will return to the initial Value.

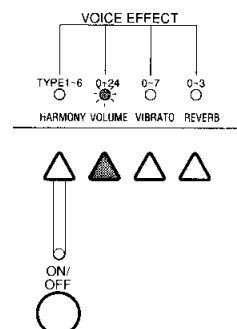


c) Volume

This function allows you to adjust the levels of Volume between your playing and Rhythm sounds, or between you playing and the background sounds of Auto Accompaniment. The Volume levels <0> to <24> apply to all Voice selections.

Step 1: Push the VOLUME button.

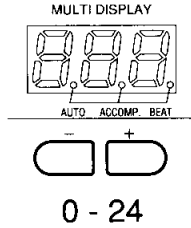
When you press the VOLUME button located in the VOICE EFFECT select, the LED lights up, and the MULTI DISPLAY shows the current VOLUME value. The initial value is pre-assigned as <21>.



Step 2: Adjusting the value of VOLUME:

You can adjust the Value of the VOLUME by using the <+>/<-> Buttons located under the MULTI DISPLAY. <0> VOLUME is Minimum and <24> is Maximum.

* When you select a different Voice, Volume Effect you assigned will return to the initial Value.

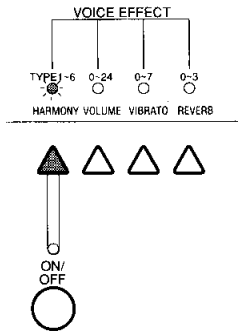


d) Harmony

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-590 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 are in the Auto Accompaniment function.

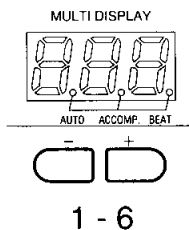
Step 1: Push the HARMONY button.

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.



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 <+> / <-> Buttons located under the MULTI DISPLAY. The 6 different types of Harmony Effects are shown below:

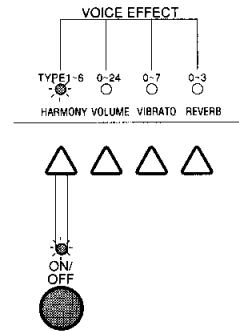


Harmony Types	
1. Duet	Adds Harmony that sounds like two people are playing.
2. Trio	Adds Harmony that sounds like three people are playing.
3. Block	Adds Harmony that sounds like Jazz type chording.
4. Country	Adds Harmony that sounds like Country Music style.
5. Octave	Plays additional notes in Octaves.
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-590, <1> Duet will be selected automatically.

Step 3: Push 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, only is given priority and played).

* 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.

<< Reference #1 >>

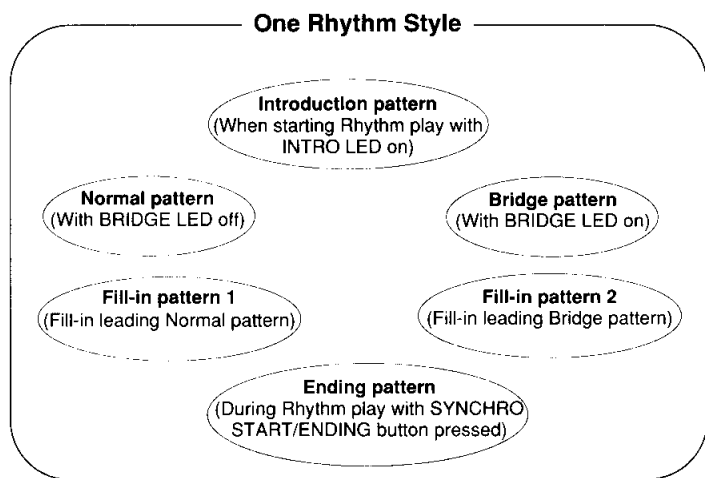
>> When you combine certain Voice Effects the result produced can be very effective. For example, by adding Vibrato and Reverb both to a member of the string family, (VIOLIN 1, CELLO, etc.), you can express reality and expanse simultaneously.

>> Also, it is possible to apply a Vibrato and/or Reverb combination with the Harmony Effects. Then on top of that, when you add the Pitch Bend Effect, it can sound really super.

Rhythm Style Section

The PSS-590 has 50 kinds of realistic pre-set Rhythm Styles. 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-590 provides 23 kinds of percussion sounds, which you can play along with a selected Rhythm Style on the keyboard, 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.



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

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

Ex.2

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

Ex.3

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

Ex.4

BRIDGE on Bridge → Fill-in 1 → Normal → Fill-in 2 → Bridge → Ending
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 about the Rhythm Style.

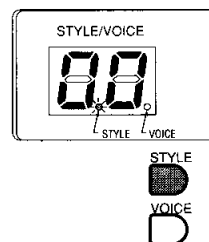
a. Basic Operations

a) Selecting a Rhythm Style

Step 1: Press the STYLE button.

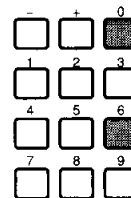
Press the STYLE button of STYLE/VOICE select.

The Style LED in the STYLE/VOICE NUMBER Display will light up. The Number displayed indicates the Style number.



Step 2: Select a Rhythm Style.

Consult the Style List on the Control Panel and enter the 2 digit number using the buttons <0> thru <9> of the STYLE/VOICE select. For example, if you want ROCK, which is Style NO.06, you first press <0>, then <6>. You can increase or decrease the Number selected by using the increment <+>/decrement <-> buttons.



* By pressing and holding the <+>/<-> buttons you will increase or decrease the number at an accelerated rate.

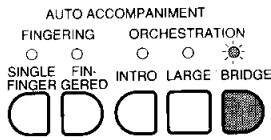
Step 3: Assigning NORMAL/BRIDGE:

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 is: 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.

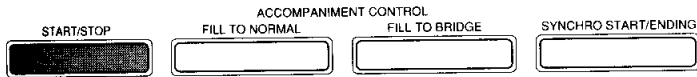
* Initial value pre-assigned is NORMAL pattern.



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.

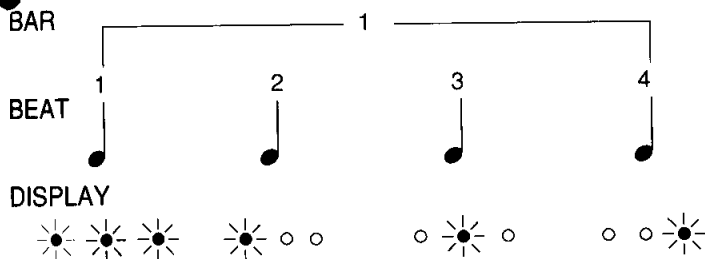


While playing the Rhythm pattern, if you select another Rhythm Style, the Rhythm will change automatically from the beginning of the next bar. Also, after you change the Voice, (by pressing the Voice button etc.), you need to do "Selecting a Rhythm Style" procedure again. You can also change NORMAL pattern to BRIDGE pattern, or vice versa. The timing of the changing is the same as Rhythm Style changing already explained. 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.



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

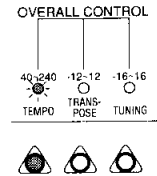
* How to construct the Rhythm pattern, depends on the Rhythm Style, sometimes the patterns are in 2 bar units, or in 4 bar units, or 8 bar units, etc..

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 using 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.



Step 2: Adjusting the Tempo:

You adjust the Tempo by pressing the <+>/<-> 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 <+>/<-> 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.

b. Advanced Operations

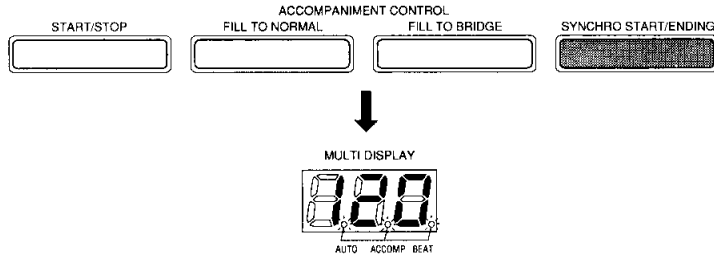
a) Synchro Start

When you start the Rhythm, if you use the SYNCHRO START/ENDING button, you can start the Rhythm exactly simultaneously when you start playing the song.

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 status.



* If you want to cancel the SYNCHRO START Stand By status, press the SYNCHRO START/ENDING button again.

Step 3: Start the Rhythm.

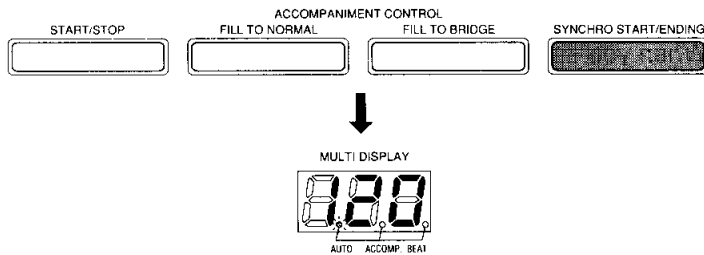
The Rhythm will Start simultaneously when you press any key on the keyboard as long as the Auto Accompaniment is OFF (with the SINGLE FINGER or FINGERED LED off). Also, when the Auto Accompaniment is ON (with the SINGLE FINGER or FINGERED LED on), you can start the Rhythm simultaneously by pressing the 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 playing, 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.

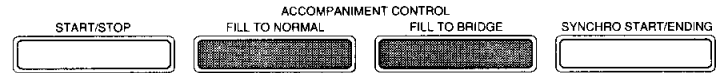


* The length of the ENDING phrase, varies depending on the Rhythm Style.

* 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 continues to play the BRIDGE pattern from the beginning of the next bar. Each Rhythm Style has 2 Fill-in patterns, and depending on which button you press, the continued rhythm will be defined as either NORMAL pattern or BRIDGE pattern.



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

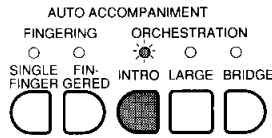
FILL TO BRIDGE button leads a Fill-In followed by a Bridge pattern.

* 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.

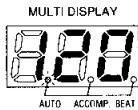
* Both buttons will function while playing Intro. or Ending.

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.



START



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

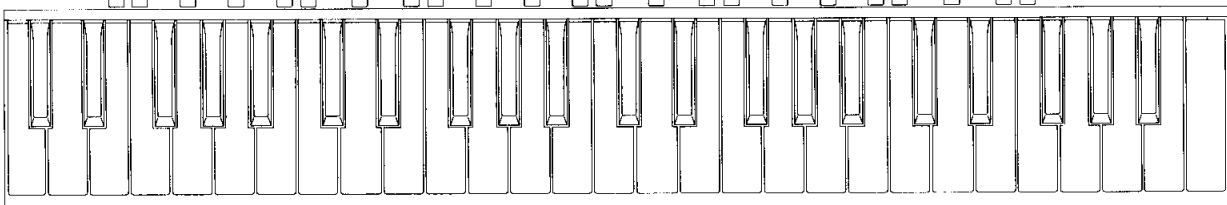
* When you press the INTRO button while the Rhythm is being played, the Intro. will not be played, (unlike when changing Rhythm Style or NORMAL/BRIDGE patterns), but the Intro. function will be set-up and ready.

e) Manual Percussion

Different from the other Voices provided, the Voice number 76 PERCUSSION allows you to play various sounds of percussion at a time. To carry this out, you only select the Voice number 76 in normal way of Voice selection. Now you have 23 percussion sounds assigned to the keys. Each percussion sound assigned is illustrated above the corresponding key. Try a percussion play to a Rhythm running.

Each instrument is illustrated as follows:

* Even pressing the keys assigned no sounds, you cannot make any sound reproduction.



<< Reference #2 >>

It seems difficult to control the Rhythm functions of the PSS-590, 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 status, and as soon as you start to play, with the touch of your first key pressed, the Rhythm with an Intro. will begin.

>> **If you press the BRIDGE button, or FILL TO BRIDGE button,** you can change the atmosphere of the song by switching to the BRIDGE patterns. This allows you to control the different sections and moods of a song when you go into a BRIDGE (using BRIDGE or FILL TO BRIDGE button) or by using the reverse actions (Fill to Normal, etc.) when returning to the Normal section of a song.

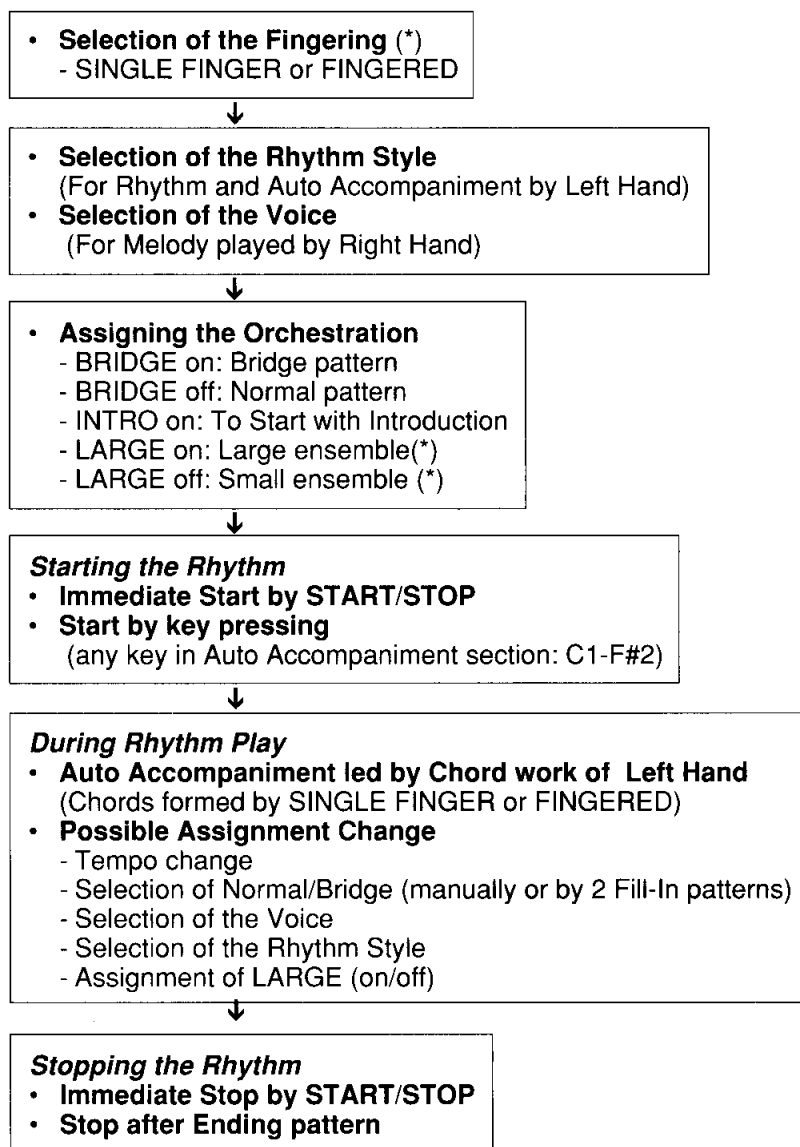
>> **During playing a Rhythm,** you can simulate a Drum Solo by selecting the Voice number 76 PERCUSSIONS and pressing any keys assigned percussion sounds.

>> **You can top off your performance with flair,** by making use of the previously recorded Endings provided 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



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 Modes for Auto Accompaniment. One is SINGLE FINGER mode, which easily allows you to have Auto Accompaniment by easy fingering, the other is FINGERED mode which you play chords as usual. In either Mode it is possible for the function to provide chord work as you play the keys designated for Auto Accompaniment: C1 thru F#2.

< Auto Accompaniment Keys >

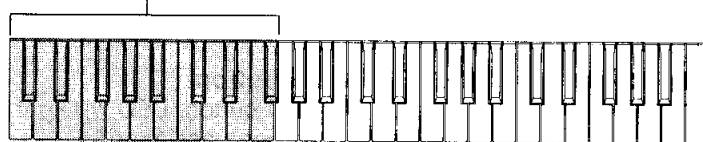
FINGERED mode



SINGLE FINGER mode

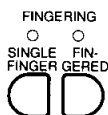


Auto Accompaniment Section
(C1 thru F#2)



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

When a FINGERING Mode is OFF, (Normal keyboard)



* When the FINGERING modes are NOT being used, you will be able to play on the entire 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, when you 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 Accompaniment 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 Orchestrations' activation and inactivation.

* 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, regardless of the START/STOP status. The initial pre-set settings are: INTRO./Off, LARGE/On, BRIDGE/Off (NORMAL).

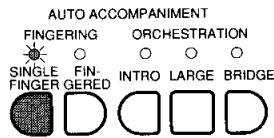
c. Single Finger Mode

This mode 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. The SINGLE FINGER mode is an Auto Accompaniment feature which consists of: Bass sound, Chord sound, and Melody sound. The Instrumentation, Volume, and Patterns vary according to the Rhythm Style selected.

Step 1: Select a Rhythm Style.

Step 2: Press the SINGLE FINGER button.

When you press the SINGLE FINGER button, LED will light up, and SINGLE FINGER mode has been assigned. At this time, the PSS-590 will automatically be in the SYNCHRO START Stand By status.



Step 3: Press any Auto Accompaniment keys.

Now, let's see HOW to play the chords of a song by pressing the Auto Accompaniment Keys. When you press the Auto Accompaniment Key(s), the Auto Accompaniment will start automatically.

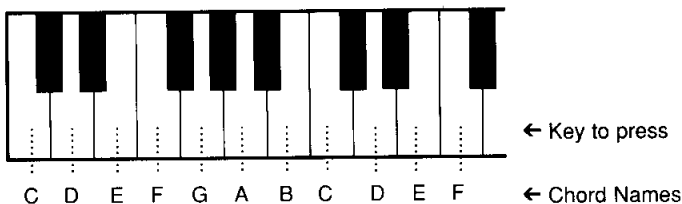
Step 4: Stop Auto Accompaniment.

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 song will finish after playing an ENDING.

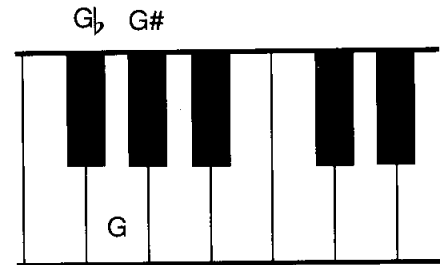
< Single Finger Chording >

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



< 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.



< How to play 7th or Minor Chords >

When the Chord's 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, you can press 2 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 20.

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



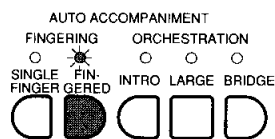
d. Fingered Mode

This Mode 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. The FINGERED mode consists of the same Auto Accompaniment sounds as 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-590 will automatically be in the SYNCHRO START Stand By status.



Step 3: Press the Auto Accompaniment keys.

Now, let's see HOW to play the chords of a song by pressing 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 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 song will finish after playing an ENDING.

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



e. Detectable Chords

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

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.






























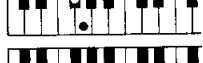








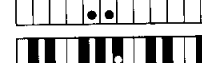




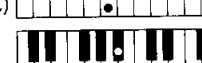



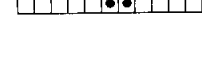
<< Reference #3 >>

>> **Why don't you try using** many different techniques such as LARGE/SMALL, BRIDGE/NORMAL, to vary the arrangements of your songs.

>> **When you insert a Fill-in**, by using the FILL TO NORMAL, and FILL TO BRIDGE buttons, the arranging of the accompaniment will automatically change to fit the Fill-in. 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		C ₇		Cm ₇	
C#(D ^b)		C#m (D ^b m)		C# ₇ (D ^b ₇)		C#m ₇ (D ^b m ₇)	
D		Dm		D ₇		Dm ₇	
D#(E ^b)		D#m (E ^b m)		D# ₇ (E ^b ₇)		D#m ₇ (E ^b m ₇)	
E		Em		E ₇		Em ₇	
F		Fm		F ₇		Fm ₇	
F#(G ^b)		F#m (G ^b m)		F# ₇ (G ^b ₇)		F#m ₇ (G ^b m ₇)	
G		Gm		G ₇		Gm ₇	
G#(A ^b)		G#m (A ^b m)		G# ₇ (A ^b ₇)		G#m ₇ (A ^b m ₇)	
A		Am		A ₇		Am ₇	
A#(B ^b)		A#m (B ^b m)		A# ₇ (B ^b ₇)		A#m ₇ (B ^b m ₇)	
B		Bm		B ₇		Bm ₇	

CHORD TABLE#2 - Fingered Chords

Major Chords

Minor Chords

7th Chords

Minor 7th Chords

C

C#(D^b)

D

D#(E^b)

E

F

F#(G^b)

G

G#(A^b)

A

A#(B^b)

B

Cm

C#m
(D^bm)

Dm

D#m
(E^bm)

Em

Fm

F#m
(G^bm)

Gm

G#m
(A^bm)

Am

A#m
(B^bm)

Bm

C₇

C#₇
(D^b₇)

D₇

D#₇
(E^b₇)

E₇

F₇

F#₇
(G^b₇)

G₇

G#₇
(A^b₇)

A₇

A#₇
(B^b₇)

B₇

Cm₇

C#m₇
(D^bm₇)

Dm₇

D#m₇
(E^bm₇)

Em₇

Fm₇

F#m₇
(G^bm₇)

Gm₇

G#m₇
(A^bm₇)

Am₇

A#m₇
(B^bm₇)

Bm₇

Major 7th Chords

Minor 7th Flatted 5th Chords

7th Suspended 4th Chords

Augmented Chords

C_{M7}

C#_{M7}(D^b_{M7})

D_{M7}

D#_{M7}(E^b_{M7})

E_{M7}

F_{M7}

F#_{M7}(G^b_{M7})

G_{M7}

G#_{M7}(A^b_{M7})

A_{M7}

A#_{M7}(B^b_{M7})

B_{M7}

Cm_{7.5}

C#m_{7.5}
(D^bm_{7.5})

Dm_{7.5}

D#m_{7.5}
(E^bm_{7.5})

Em_{7.5}

Fm_{7.5}

F#m_{7.5}
(G^bm_{7.5})

Gm_{7.5}

G#m_{7.5}
(A^bm_{7.5})

Am_{7.5}

A#m_{7.5}
(B^bm_{7.5})

Bm_{7.5}

C_{7SUS4}

C#_{7SUS4}
(D^b_{7SUS4})

D_{7SUS4}

D#_{7SUS4}
(E^b_{7SUS4})

E_{7SUS4}

F_{7SUS4}

F#_{7SUS4}
(G^b_{7SUS4})

G_{7SUS4}

G#_{7SUS4}
(A^b_{7SUS4})

A_{7SUS4}

A#_{7SUS4}
(B^b_{7SUS4})

B_{7SUS4}

Caug

C#aug
(D^baug)

Daug

D#aug
(E^baug)

Eaug

Faug

F#aug
(G^baug)

Gaug

G#aug
(A^baug)

Aaug

A#aug
(B^baug)

CHORD TABLE#3 - Fingered Chords

Diminished Chords

C_{dim}
 C[#]_{dim}
 (D^b_{dim})
 D_{dim}
 D[#]_{dim}
 (E^b_{dim})
 E_{dim}
 F_{dim}
 F[#]_{dim}
 (G^b_{dim})
 G_{dim}
 G[#]_{dim}
 (A^b_{dim})
 A_{dim}
 A[#]_{dim}
 (B^b_{dim})
 B_{dim}

Minor Major 7th Chords

CmM₇
 C[#]mM₇
 (D^bmM₇)
 DmM₇
 D[#]mM₇
 (E^bmM₇)
 EmM₇
 FmM₇
 F[#]mM₇
 (G^bmM₇)
 GmM₇
 G[#]mM₇
 (A^bmM₇)
 AmM₇
 A[#]mM₇
 (B^bmM₇)
 BmM₇

Suspended 4th Chords

C_{SUS4}
 C[#]_{SUS4}
 (D^b_{SUS4})
 D_{SUS4}
 D[#]_{SUS4}
 (E^b_{SUS4})
 E_{SUS4}
 F_{SUS4}
 F[#]_{SUS4}
 (G^b_{SUS4})
 G_{SUS4}
 G[#]_{SUS4}
 (A^b_{SUS4})
 A_{SUS4}
 A[#]_{SUS4}
 (B^b_{SUS4})
 B_{SUS4}

Minor 6th Chords

Cm₆
 C[#]m₆
 (D^bm₆)
 Dm₆
 D[#]m₆
 (E^bm₆)
 Em₆
 Fm₆
 F[#]m₆
 (G^bm₆)
 Gm₆
 G[#]m₆
 (A^bm₆)
 Am₆

Single Chords

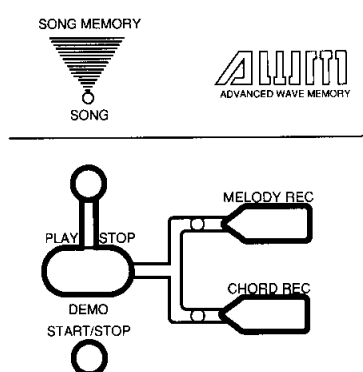
CS
 D^bS
 (C[#]S)
 DS
 E^bS
 (D[#]S)
 ES
 FS
 G^bS
 (F[#]S)

Song Memory Section

Song Memory function enables you to easily record and playback your performance on the keyboard. It has 2 individual tracks for Melody and Auto Accompaniment for 1 song. It would be so helpful when you make a practice or write an original song of yours.

a. 2 Recording Tracks

The PSS-590 has 2 recording tracks. The following chart shows what is recorded on each track:



* MELODY means:

- (1) your performance using the keys higher than F#2 when recording on both the MELODY and CHORD Tracks.
- (2) your performance using whole keyboard when recording only on the MELODY Track.

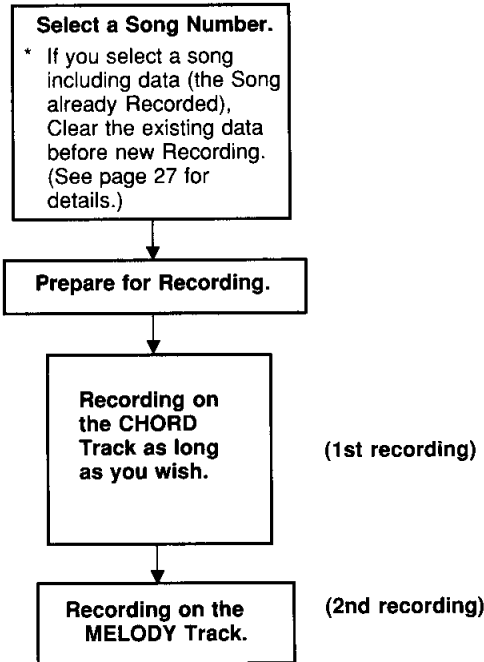
* On CHORD Track, your performance using Auto Accompaniment keys (lower than G2).

Note: (*)Tempo Recording is available on the CHORD Track. This procedure is not explained especially in the Instructions on the following pages. When you Re-recorded the Tempo, you have to Retake all the performance for CHORD Track, from the 1st Bar of the Song. Remember, in this case, the performance you have Recorded will be overwritten and lost.

TRACK	WHAT CAN BE RECORDED
MELODY	<p>Melodies played by using the 100 Pre-set sounds.</p> <ul style="list-style-type: none"> * Voice numbers and the timing of changes of them. * Assigned value of Voice Effects and Harmony On/Off.
CHORD	<p>Auto Accompaniment sounds, and Rhythm Style sounds.</p> <ul style="list-style-type: none"> * Chords and the timing of changes in Chords. * 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 (*)

b. Basic Recording Procedure

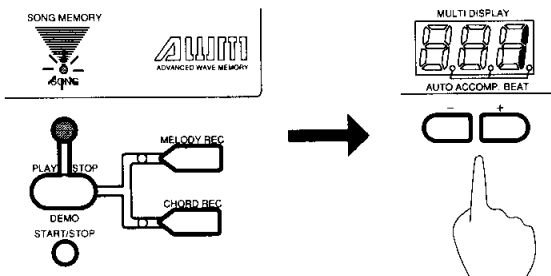
When you use the PSS-590's many different functions, they will give you a variety of recordings. First, we will explain the basic procedure simply.



c. How to Record a Song

Step 1: Select a Song number (#).

The PSS-590 has a Memory Bank for up to 3 songs (Song numbers <1> thru <3>). First, choose the Song number which you want to Record on by pressing the <+/-> buttons located under the MULTI DISPLAY. The Display will show the number selected.



Select a Song number by pressing the <+/-> buttons.

Step 2: Prepare for Recording.

You will need some preparation depending on which Track you record on.

So, please consider the following information regarding preparation of Recording:

1) Preparation when you select the MELODY Track:

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

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

2) Preparation when you select the CHORD Track:

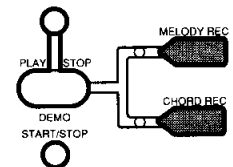
Select a Rhythm Style, and assign the ORCHESTRATION. At the time you select to Record on the CHORDTrack, the FINGERING will automatically be assigned to the FINGERED mode if the FINGERING has not been selected yet. If you want SINGLE FINGER mode you must assign it at that time. If you want to record just the Rhythm, press the FINGERING button assigned to turn it off.

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

* In the CHORD Track, be careful to remember only Auto Accompaniment Sounds, and Rhythm Style sounds will be recorded.

Step 3: Stand By for Recording.

As you press the REC button(s), the LED(s) of the selected Track(s) will flash indicating you are in STAND BY position and ready to Record. Also at this time, 3 dots in the MULTI DISPLAY will flash together in time with the currently assigned Tempo. Along with the dots flashing, a metronome sound will play out from the speakers.

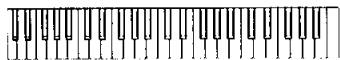


Press a REC button.

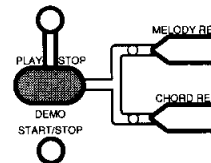
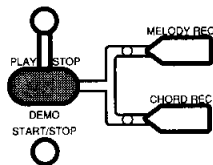
If you want to cancel, press the REC button of the Track in the STAND BY position again.

Step 4: Start Recording.

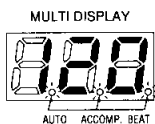
You can start Recording in the currently selected Tempo by pressing any key of the keyboard or pressing the PLAY/STOP button.



or



During Recording, the 3 dots in the MULTI DISPLAY will show the beats of the measure in tempo, same as when in the Rhythm playing. When you record on the MELODY Track, metronome sound will play out from the speakers with an accent on the first beat of a measure, and the LED of the selected Track will continue to flash. When you record on the CHORD Track, however, the metronome sound will not play out because the Rhythm patterns will be a guide for you. (Also when in Playback the metronome is not played out.)



Displays the Beat.

Step 5: Stop Recording.

You can stop Recording by pressing the PLAY/STOP button once again. Also, when you're Recording on the CHORD 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 PSS-590 will be in STAND BY position to Playback.

>> Verification of Recording:

When you press the PLAY/STOP button, you can Playback what you have Recorded. You can stop Playback at any time by pressing the PLAY/STOP button once again. For further details see page 26 "d. How to Playback a Song")

>> Continued Recording on Remaining Track:

If you want to Record on the other Track listening to the Playback first Recorded, repeat Steps 2 thru 5 to Record on the Track. Playback of the recorded Track will automatically start together when you start the New Recording.

- * DURING the New Recording, if you don't want to hear a Track first Recorded, turn OFF that Track's LED by pressing the corresponding REC button. Remember this operation should be done AFTER the New Recording has begun. If you press the REC button of a Track first Recorded BEFORE you start the New Recording, this will be a Re-Recording operation on the FIRST Track. During the New Recording, you can Playback the first Track by pressing its REC button with the LED lit up, or vice versa.

Note: The length of the Song is determined by the length of the CHORD Track. So, when you make a New Recording on the MELODY Track, the song will automatically stop after the last measure of the CHORD Track previously Recorded (even if the CHORD Track is not played back during the New Recording).

>> Simultaneous Recording on Both MELODY and CHORD Tracks:

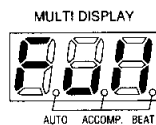
When you record the melody and accompaniment at a time, as explained in Step 3, set both MELODY and CHORD Tracks in the STAND BY position by pressing both REC buttons. Then follow Steps 4 and 5 as normally. At this time, play Auto Accompaniment keys (lower than G2) by the left hand, and melodies should be played with higher keys than F#2.

>> Re-recording Methods:

In case you have mistaken and Re-record it, just repeat Steps 2 thru 5 as many times you wish. Every time you Re-record, an old performance will be overwritten by a newly recorded one. Why don't you take the best one?

>> When you want to record another Song, choose another Song number as explained in Step 1, and then continue Recording following Steps 2 thru 5.

- * Once you start the song to Record or Playback, you cannot set the other Track in RECORD position during the song running.
- * During Recording, if the capacity of Song Memory has been reached, the following indication will be shown for a second and the Recording will automatically stop.



In case this indication is shown while Recording on the MELODY Track, even if you try a Re-recording on the MELODY Track by pressing the keys, you cannot start it right away. Also, when Playback, you will hear the beginning part of the Song incorrectly. When you Record on the MELODY Track after <Ch Full> indication, first make a dummy Recording or Clear the Song (for Clearing see page 27). Then start Re-recording.

- * The contents of SONG MEMORY will be Stored 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 will be easily destroyed by the electrical shock. Actually, the data will be lost completely. Remember this will definitely take place in the following situations:

The Song Memory data will be lost completely when the PSS-590 is turned Off intentionally or accidentally, that is, by using the POWER switch, or with batteries' voltage lowered or the authorized AC adaptor disconnected;

- Immediately after the PSS-590 is turned On
- During Selecting a Song
- During Recording or Playback

d. How to Playback a Song

Step 1: Select a Song number.

First, choose the Song number which you want to Playback by pressing the <+/-> buttons as explained in the Recording procedure.

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

Step 2: Start Playback.

When you press the PLAY/STOP button, the Recorded performance will be Played Back. You can determine which Track to Playback or not by pressing the corresponding REC button (LED indication: available; ON, inavailable; OFF) DURING Playback. If you turn OFF the LED of either Track, the Playback will stop immediately.

Step 3: Stop Playback.

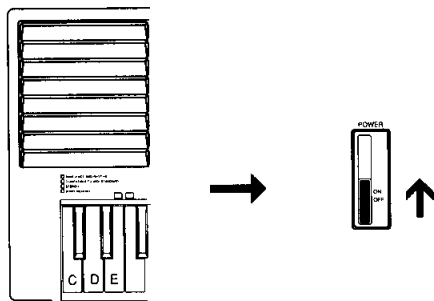
When you reach the end of the Song, Playback will Stop automatically. Also, you can Stop the Playback at any time, by pressing the PLAY/STOP button.

e. Clear Function

The Clear function enables you to Clear a whole Song at a time.

Step 1: Turn the PSS-590 OFF.

Step 2: Press one of the 3 keys; C1, D1 and E1 in the lowest Octave, and hold it down. These keys each correspond to the Song number 1 to 3:



C1: Song number 1
D1: Song number 2
E1: Song number 3

When you wish to Clear the Song number 2, just press D1 key and hold it down.

Step 3: Next turn the PSS-590 ON while holding the key.

Step 4: Release the key when you hear a Voice.

Try a Song selection with the SONG# button and <+/-> buttons under the MULTI DISPLAY and make a Playback. If it has done well (with No sounds Played back), do the Song making as you wish.

For the rest Songs, if you like, repeat Steps 1 to 4.

<< Reference #4 >>

>> Using Song Memory for Minus One Settings:

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

< Example >

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

Step 2: Next, in order to contrast and enrich the preset Rhythm, you Record your original Fill-Ins or "live" Rhythm variations manually played with the Voice number 76 PERCUSSION, onto the MELODY Track. Or, add obligatos or phrases you wish with other Voices.

Step 3: Stop Recording. Then give a realtime solo in another Voice while Playing back the accompaniment just Recorded.

>> Using Song Memory for Composition or Arranging:

You can log your Melodic and Harmonic ideas into the Song Memory.

MIDI Section

The PSS-590 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-590. Now, we will gradually venture into the world of MIDI.

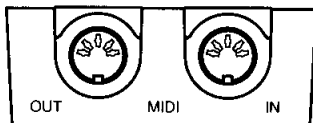
a. What is MIDI?

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 instruments having a MIDI Standard, 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 capabilities 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-590, you will see the MIDI Terminals fitted there as shown below. Starting from the right, they are: MIDI IN, MIDI OUT.

* Depending on the type of machine or instrument, the order of the Terminals may vary.

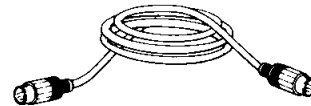


Each Terminal's role is as follows:

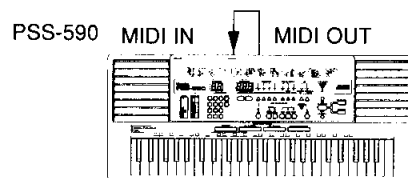
MIDI IN Terminal: This is the gateway which Receives MIDI information from other MIDI instruments/devices.

MIDI OUT Terminal: This is the gateway which Transmits MIDI information generated by the PSS-590. This Terminal also Transmits the same Channel Messages as Received by the MIDI IN Terminal.

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

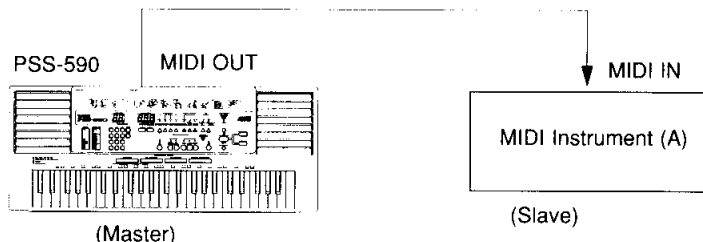


Note: Remember NOT to make a MIDI connection on one unit of the PortaSound. In other words, Don't connect the MIDI OUT Terminal with the MIDI IN Terminal of your PortaSound. This causes a Loop of MIDI connection, even a single key pressing will overdrive the internal Sound Module and Microcomputer to go on sounding all of 28 notes until the key is released.

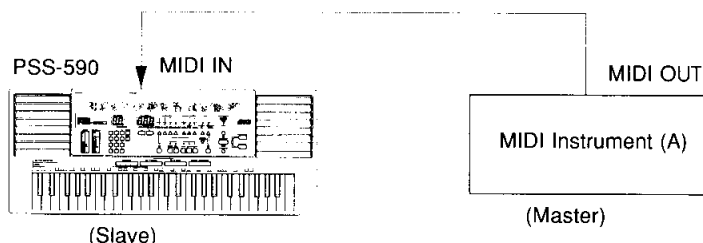


c. MIDI Connections

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-590 will be sent out to MIDI instrument (A). In other words, you can say this is a situation where the PSS-590 controls (commands) the MIDI musical Instrument (A). Therefore, in this case the instrument that gives the command (PSS-590) 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.



Note: Remember NOT to make a couple of MIDI OUT to MIDI IN connection between the PortaSound and a MIDI instrument (For both units to act Master and Slave simultaneously). In this case, if you play on the MIDI instrument, a Looped MIDI connection will be caused.

d. Types of MIDI Information

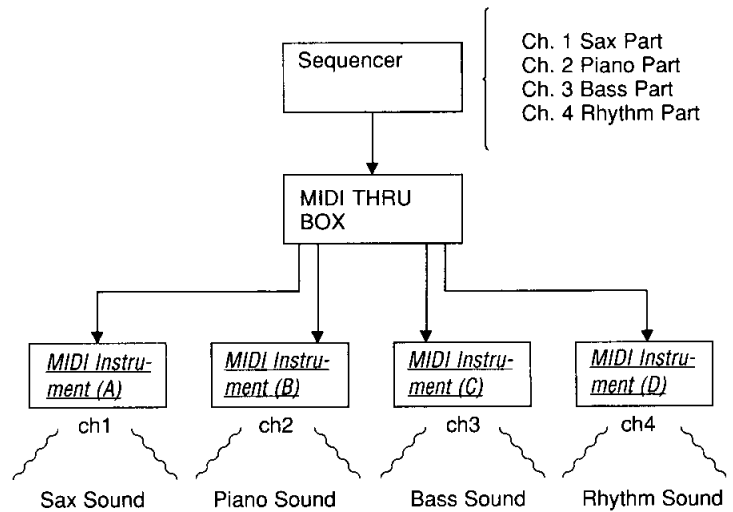
The kinds of information (commands) exchanged are many, but here we will try to explain some of them:

Even when you press a key with one finger, information like **Note number** (which pitch), **Note on/off** (when struck), **Velocity** (how fastly and strongly played), will be Transmitted. Not only these, but **Program Changes** (of Voice Selections), **Control Changes** (of 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 exchange information only when using corresponding MIDI Channels, 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 order to watch it. In basically the same way, one MIDI cable can carry different kinds of MIDI performance information on 16 MIDI Channels, when the Receiver is turned to the same MIDI Channel of the information, you can have it play as the received information. The following example shows a sequencer (or computer) 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.

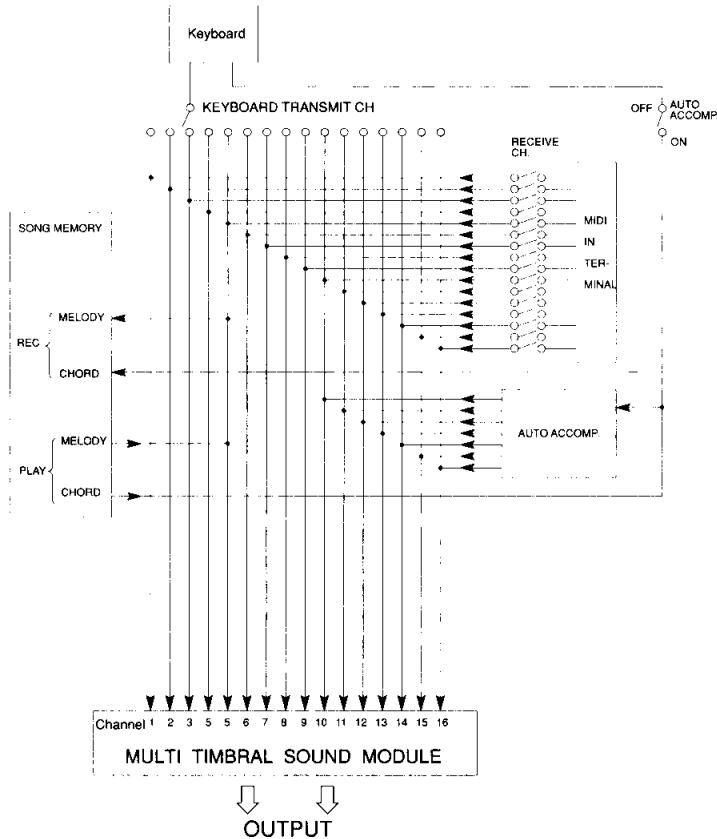


* "MIDI THRU BOX" is a device used to distribute the same MIDI data as input to its MIDI IN Terminal so that the Master can send the data to multiple Slaves simultaneously.

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-590 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:



- * When recording on the MELODY Track by the keyboard, KEYBOARD TRANSMIT Channel will be automatically switched to channel 5.
- * Multi-Timbre on the PortaSound will be performed with Dynamic Voice Allocation. (See page 32 for details.)

g. How to Operate MIDI Functions on PSS-590

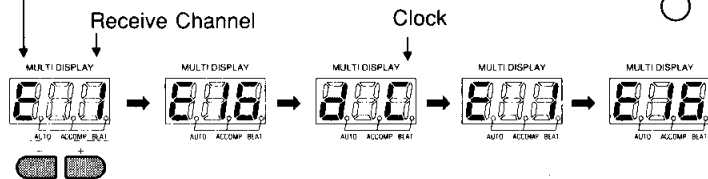
a) Receive Channel Selection

When you press the RECEIVE CH/CLOCK button of the MIDI Select, the corresponding LED will light up, and you can decide to Receive the Channel Messages on each Channel and MIDI Clock, or not. MULTI DISPLAY shows <E 1>, and if you press the <+> button beneath the Display once, it will change to <E 2>. If you keep pressing, the numbers will be looped as shown below. Of course, if you use the <-> button you can loop backwards.

RECEIVE CH/CLOCK LED lit up.

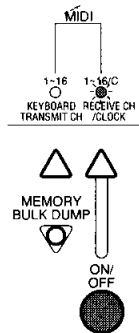


<E>: Enable to Receive. <d>: Disable to Receive.



>> Receive Channel <E 1> - <E16>

As you press the <+/-> buttons to select one of the Channels (1-16) you can assign as Enable to Receive <E + Ch.#>, or Disable to Receive <d + Ch.#> by pressing the ON/OFF button located beneath the RECEIVE CH/CLOCK button of the MIDI Select.



>> MIDI Clock <d c>

You can assign either Enable to Receive MIDI Clock (Displayed as <E c>), or Disable to Receive (Displayed as <d c>), by pressing the ON/OFF button located beneath the RECEIVE CH/CLOCK button same as Receive Channel setting. Using MIDI Clock, when you connect such two MIDI instruments as Rhythm machines or Sequencers, you can synchronize the tempo of every machine. For example, if you assign Enable to Receive MIDI Clock (Displayed as <E c>) when you start to play on the other MIDI instrument (Rhythm machine, etc.), the PSS-590 will start playing simultaneously with an identical Tempo (during Recording with Song Memory). Or, if you assign the opposite, Disable to Receive MIDI Clock, the PSS-590 will play under it's own start and Tempo, regardless of when the other MIDI instrument starts or with what Tempo.

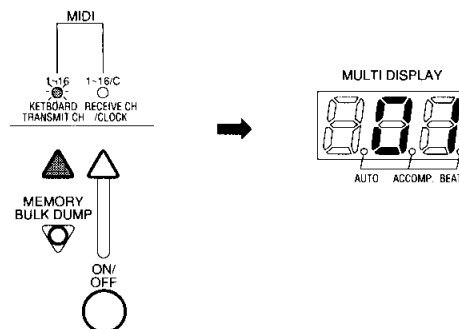
- * The initial pre-set settings for the Receive Channel mode are: Every Receive Channel/Enable, MIDI Clock/Disable.

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.

KEYBOARD TRANSMIT CH LED lit up.



>> 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.

>> Memory Bulk Dump

Memory Bulk Dump function allows you to Transfer out and save the following data as a MIDI System Exclusive Message.

• All Data in Song Memory

As you press the MEMORY BULK DUMP button once, with the KEYBOARD TRANSMIT CH LED lit, you will now be in the Bulk Dump mode, and the 3 digit LED of the MULTI DISPLAY will show <b d P>, and All other functions will automatically Stop, and you are in STAND BY Status for Data Transfer. When you press the MEMORY BULK DUMP button once again, the Display will show <0>, while the Bulk Dump will be executed on the Transmit Channel currently selected. 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-590, just make a typical MIDI connection between the Transmitter PSS-590 and the Receiver PSS-590. Then you press the MEMORY BULK DUMP button on the Transmitter, the MULTI DISPLAY on the Receiver will also indicate <b - 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-590 (Transmitter) is the same as explained. However, keep in mind to refer to the Operation Manual of the Receiver in use.

* When in STAND BY Status for Data Transfer, if you can press any button for Voice Effects or Overall Controls, Data Transfer will be cancelled.

>> 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 33 for the situation to actually do this. Additionally, initial settings when the PortaSound is turned on: Ch.1-15; Voice No.00, Ch.16; Voice No.76.

h. Transmitted and Received Data on PSS-590

a) Transmitted Data

<< Note On/Off >>

☞ Each Transmit Channel is as follows:

<Manual Play>

Whole Keys, when Auto Accompaniment used: G2 and above.

Channel Assignment (one of 1-16). Initial Value: 1.

☞ Transmitted by Manual play on the Keyboard, regardless of PSS-590's playing status.

<Song Memory>

* <MELODY Track>

☞ Transmitted on Channels 1-9.

* <CHORD Track>

☞ Transmitted on Channels 10-16.

* <Rhythm Key Notes>

(Including Manual Play on the Keyboard)

☞ Transmitted on Channel 16. Setting Transmit Channel to 16 will enable Manual Play of Percussion sounds. See page 35 for correspondence between Note Numbers and Percussion sounds.

* <Bass Key Notes>

☞ Transmitted on Channel 15.

* <Accompaniment Part>

☞ Transmitted on Channels 10-14.

Note: Asterisk (*) means that the performance information of the part is Transmitted on the specified Channel when it is played on the PSS-590.

<< Control Change >>

☞ The value for Voice Effects (Volume, Vibrato, and Reverb) 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 35 for correspondence between Program Change numbers and Voices.

<< System Exclusive >>

☞ Transmitted by the MEMORY BULK DUMP button.

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

☞ Transmitted according to MIDI Standard.

b) Received Data

<< Note On/Off >>

☞ Received including Velocity data (as strength and weakness of touch).

<Channels 1-16>

The PortaSound functions 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 Range of Pitch Bend is common for 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, Vibrato, and Reverb for each sound, however the Value of each Effect is as shown below:

Status	Effects	Value
BnH	07H	00H-7FH
BnH	01H	00H-7FH
BnH	5BH	00H-7FH

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

* Effects: 07H=Volume, 01H=Vibrato, 5BH=Reverb

<< Program Change >>

☞ Program Change of each Channel's Voice will be executed according to PortaSound Standard Voice Numbers. See page 35 for correspondence between Program Change numbers and Voices.

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

☞ Active Sense, Start/Stop and MIDI Clock are Received according to MIDI Standard. In addition, Stop message will be Received only by the Song Memory with the Clock synchronized to external MIDI device (when <Ec is selected, during Recording).

<< System Exclusive >>

☞ Received when the data is Recognized as the Bulk Data (System Exclusive data) for the PSS-590.

	Description	Value
1st Byte	System Exclusive status	F0H
2nd Byte	Manufacturer ID	43H (YAMAHA)
3rd Byte	Classification ID	76H
4th Byte	Data Format NO.	08H
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-590.

* System Exclusive "Data" of the PSS-590 are:

- All the recorded data in Song Memory.

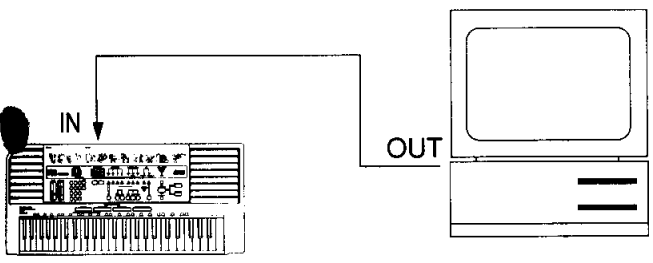
Data in Song Memory are Song data which consist of: Note On/Off, Program Change (for Voice selection), Control Change (for Voice Effects), Pitch Bend Change, Tempo Change.

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

i. Advanced Uses of PSS-590 in MIDI Connection

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

The PSS-590 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 aid 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-590 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.

<< Assigning Voice Selection on Each Receive Channel >>

Step 1: First, turn the PSS-590's Receive Channels (1-16) 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 (Ch.# is being displayed in the MULTI DISPLAY) with <+/-> buttons beneath the Display, and assign a Voice with the VOICE and Number 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.

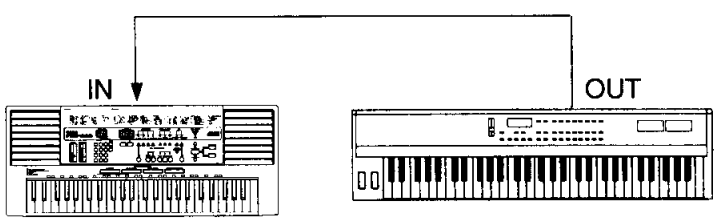
* When the PortaSound is turned on, the Voice number 00 PIANO is automatically selected for the Channels 1-15 and the Voice number 76 PERCUSSIONS for the Channel 16.

>> Data transmitting from the PSS-590:

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-590, on the PSS-590 you only Playback the Song to Transmit.

< Example 2 > When using a Regular-sized Keyboard

If you feel uncomfortable when playing on the mini-keys of the PSS-590, you can make a MIDI connection with an external MIDI-equipped keyboard which has Regular-sized keys.



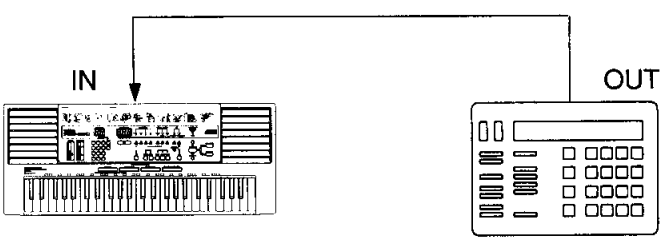
* If you use the Song Memory controlling the PSS-590 from an external keyboard, possible Recording Tracks are:

- MELODY Track (fixed on Ch. 5)

In this case, you have to set the external keyboard's Transmit Channel same Channel as that of the Track you select to Record on. For example, when Recording on the MELODY Track, you set the external keyboard's Transmit Channel to <5> before Recording.

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

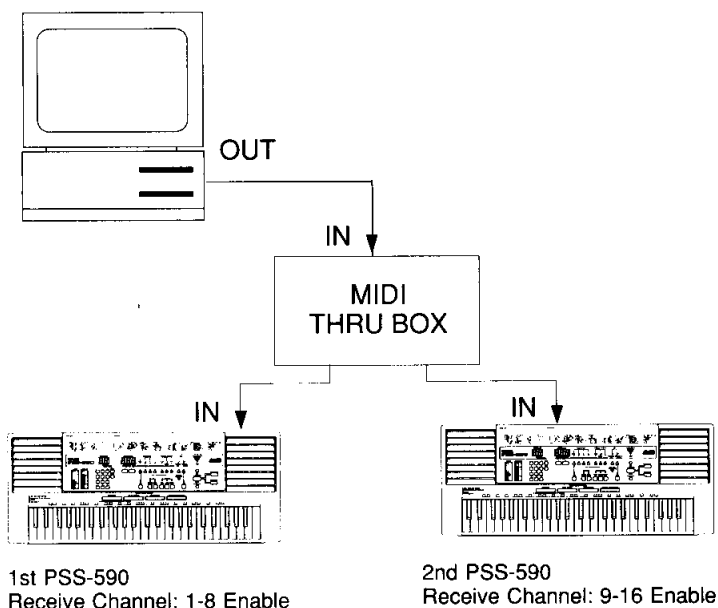
First, you set the Transmit Channel of the Drum Machine to <16>, and set each Transmit Note number same as the one corresponding to the PSS-590's Percussion sound you wish, referring to the correspondence list on page 35. When you play the Drum Machine, the Percussion sounds of PSS-590 will be sounded 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 76 PERCUSSIONS) from the Drum Machine (or other Master device), or **(B)** assign the Voice number 76 PERCUSSIONS for the same Channel on the PSS-590 following the methods in "Assigning Voice Selection on Each Receive Channel" on page 33. Then set the Transmit Note number on the Drum Machine as already mentioned. Even if this is not available, when hitting the pads or buttons on the Drum Machine, Desired sounds are not always reproduced from the PSS-590.

< 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-590, and assign the 1st PSS-590 (Receive Channels 1-8/Enable, the rest/Disable) and assign the 2nd PSS-590 (Receive Channels 9-16/Enable, the rest/Disable). If you use two PSS-590s dividing their Receive Channels like this, you can have them play in 56 Polyphonic Sounds capability.



< Example 5 > When controlling an external Sound Module from PSS-590

Beforehand, set the Sound program number of the external Sound Module which matches to a MIDI Program Change Number of PSS-590, then you can change the external Sound program selections, using Voice Select of PSS-590. In this case, if you select a similar Sound Program to a PSS-590's Voice and the Sound Module has Multi-Timbre mode, you can also apply Song Memory or Auto Accompaniment function to the Module.

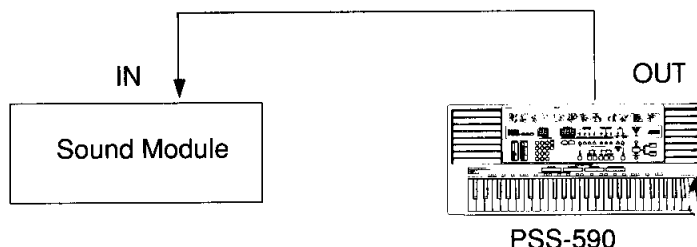


Chart 1: Correspondence between MIDI Note Numbers and Percussion Sounds

Note Name	Instrument Name	MIDI Note Number	Note Name	Instrument Name	MIDI Note Number
C1			C#3		
C#1			D3	HIHAT OPEN	59
D1			D#3		
D#1			E3	HIHAT FOOT	80
E1	BASS DRUM REVERB	36	F3	CRASH CYMBAL	60
F1	BASS DRUM LO	44	F#3		
F#1			G3	SPLASH CYMBAL	61
G1	BASS DRUM HI	45	G#3		
G#1			A3	RIDE CYMBAL EDGE	63
A1	TOM BASS	47	A#3		
A#1			B3	SYNTH TOM BASS	40
B1	TOM LO	48	C4	SYNTH TOM LO	41
C2	TOM MID	50	C#4		
C#2			D4	SYNTH TOM MID	42
D2	TOM HI	53	D#4		
D#2			E4	SYNTH TOM HI	43
E2	SNARE GATED REVERB	81	F4	SYNTH SNARE	38
F2	SNARE LO	52	F#4		*****
F#2			G4		*****
G2	SNARE HI	49	G#4		*****
G#2			A4		*****
A2	RIM SHOT 2	51	A#4		*****
A#2			B4		*****
B2	RIM SHOT 1	48	C5		*****
C3	HIHAT CLOSED	57	C#5		*****

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	MUTE TRUMPET ECHO	106	68	ANGEL	55
01	ELECTRIC PIANO 1	5	35	TROMBONE	16	69	ELECTRIC BASS	38
02	ELECTRIC PIANO 2	54	36	HORN	17	70	SLAP BASS	39
03	HONKY-TONK PIANO	25	37	FLUGELHORN	87	71	FRETLESS BASS	80
04	CELESTA	6	38	BRASS ENSEMBLE	92	72	WOOD BASS 1	14
05	PIPE ORGAN	29	39	CLARINET	19	73	WOOD BASS 2	81
06	REED ORGAN	49	40	FLUTE	20	74	SYNTH BASS	58
07	JAZZ ORGAN 1	1	41	PICCOLO	89	75	TIMPANI	66
08	JAZZ ORGAN 2	2	42	SAX	18	76	PERCUSSIONS	100
09	JAZZ ORGAN 3	27	43	WOODWIND ENSEMBLE	93	77	HARMONICA	22
10	TREMOLO ORGAN	28	44	SYNTH BRASS 1	0	78	MUSIC BOX	24
11	ACCORDION	31	45	SYNTH BRASS 2	82	79	ORCHESTRA HIT	90
12	ELECTRIC GUITAR	68	46	SYNTH FLUTE 1	95	80	E. BASS/BRASS ENS.	111
13	TREMOLO GUITAR	69	47	SYNTH FLUTE 2	47	81	E. BASS/CELESTA	126
14	MUTE GUITAR	70	48	SYNTH FLUTE 3	88	82	E. BASS/FANTASY	127
15	E. GUITAR FLANGE	104	49	SYNTH REED 1	45	83	E. BASS/STRINGS	124
16	E. GUITAR ECHO	107	50	SYNTH REED 2	85	84	E. BASS/SYNTH REED	116
17	MUTE GUITAR ECHO	105	51	SYNTH REED 3	13	85	W. BASS/12STRING GUITAR	123
18	JAZZ GUITAR	12	52	SYNTH REED 4	23	86	W. BASS/BANJO	112
19	JAZZ GUITAR ECHO	71	53	SYNTH STRINGS 1	51	87	W. BASS/E. PIANO	109
20	FOLK GUITAR	36	54	SYNTH STRINGS 2	101	88	W. BASS/E. ORGAN	114
21	12 STRING GUITAR	72	55	SYNTH STRINGS 3	103	89	W. BASS/MUTE TRUMPET	125
22	STEEL GUITAR	33	56	SYNTH STRINGS 4	56	90	W. BASS/PIANO	108
23	VIOLIN 1	10	57	SYNTH PIANO 1	60	91	W. BASS/SAX	115
24	VIOLIN 2	67	58	SYNTH PIANO 2	102	92	W. BASS/VIBRAPHONE	122
25	CELLO	11	59	SYNTH PIANO 3	9	93	SLAP BASS/BRASS ENS.	110
26	STRINGS 1	41	60	SYNTH PIANO 4	4	94	SLAP BASS/E. GUITAR	113
27	STRINGS 2	50	61	SYNTH PIANO 5	53	95	SLAP BASS/SYNTH PIANO	121
28	BANJO	34	62	SYNTH PIZZICATO	78	96	PIANO/SAX	118
29	VIBRAPHONE	7	63	SYNTH MARIMBA	59	97	PIANO/TRUMPET	119
30	GLOCKENSPIEL	32	64	SYNTH CHORUS 1	94	98	STRINGS/CLARINET	120
31	TRUMPET	15	65	SYNTH CHORUS 2	96	99	STRINGS/FLUTE	117
32	MUTE TRUMPET	44	66	SYNTH PAN VOICE	98			
33	TRUMPET ECHO	83	67	FANTASY	64			

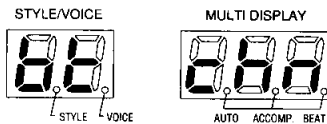
Troubleshooting

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
	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, 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. 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 12 and read instructions.
Cannot get Rhythm Sounds.	START button of ACCOMPANIMENT CONTROL is not pressed.	Make sure of the instructions on pages 13 thru 19.
	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 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.
Abnormally works or malfunctions. Any unfamiliar status found. Cannot control the PSS-590 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-590 to the status when shipped. But remember this operation will clear the whole data in the Song Memory.

Warning Messages

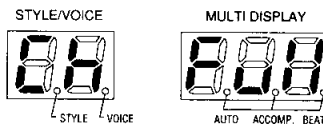
Battery Change:

If you play 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.



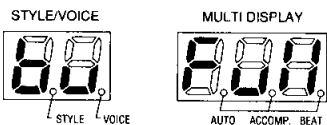
Channel Full:

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.



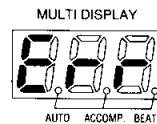
Buffer Full:

While the PSS-590 is Receiving the MIDI performance information from an external Master device, in case the quantity of MIDI information is over that the PSS-590 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.



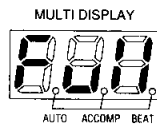
Check Sum Error:

While the PSS-590 is Receiving the "System Exclusive Message" (: the same data as the PSS-590 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-590 failed to Receive the Exclusive data. In this case, specified Factory Preset data corresponding to the Exclusive data missed will be applied automatically.



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. If you wish to go on Recording, you have to Clear the Recorded data by Track. (See page 27 for Clear function.)



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	49 half-sized keys (C1-C5)	Auto Accompaniment	Single Finger/Fingered buttons for Fingering Assign, Intro/Large/Bridge buttons for Orchestration Start/Stop, Fill to Normal, Fill to Bridge, Synchro Start/Ending buttons for Accompaniment Control
Master Controls	Power switch, Master Volume, Demo Start/Stop button	Terminals	MIDI OUT, MIDI IN, HEADPHONES/AUX. OUT (stereo), DC 9-12V IN
Voices	100 AWM Voices	Amplifiers	2W × 2
Styles	50 Basic Rhythm Styles and Arrangements	Speakers	10cm × 2 (4 ohms)
Style/Voice Select	Number buttons 0-9, Increment/Decrement buttons, Style/Voice buttons, Style/Voice Display	Power Source	DC 9V (6 batteries: 1.5V SUM-2, R-14) AC power adaptor: PA-3, PA-4, PA-40
Multi Display	Increment/Decrement buttons	Dimensions	668mm (W) × 265mm (D) × 83mm (H)
Voice Effects	Harmony (On/Off), Volume, Vibrato, Reverb buttons.	Weight	2.5 kg (without batteries)
Overall Controls	Tempo, Transpose, Tuning buttons	Optional Items	PA-3, PA-4, PA-40 AC power adaptor
MIDI Controls	Keyboard Transmit Channel, Memory Bulk Dump buttons, Receive Channel/Clock, Receive On/Off buttons		
Song Memory	Song Memory LED, Song# button, Play/Stop button, Play/Stop button, Melody Rec button, Chord Rec button		

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

Function ...	Transmitted Manual / Accomp / Rhythm	Recognized	Remarks
Basic Channel	Default : 1 / 10-15 / 16 Changed : 1-16	1-16 1-16(*1)	
Mode	Default : 3(*2) Messages : x Altered : *****	3(*3) x x	
Note Number	True voice : 0-127(*4) *****	0-127 0-127	
Velocity	Note on : x 9nH, v=1-127(*5) Note off : x 9nH, v=0 / 8nH(*6)	o 9nH, v=1-127 x 9nH, v=0 / 8nH	
After Touch	Key's : x Ch's : x	x x	
Pitch Bender	x	o	7 bit resolution
Control Change	1 : o 7 : o 91 : o	o(*7) o o(*7)	VIBRATO SW VOLUME SW REVERB SW (VOICE EFFECT)
Program Change	True # : o(*8) *****	o 0-127(*9) 0-99	
System Exclusive	o	o	
System Common	Song pos : x Song Sel : x Tune : x	x x x	
System Real Time	Clock : o Commands : o	o(*10) o(*11)	
Aux Messages	Local ON/OFF : x All Notes OFF : x Active Sense : o Reset : x	x o o x	

Notes :

- *1: Possible to set ON/OFF individually on each channel (: 1-16ch).
- *2: Multi-timbre.
- *3: Multi-timbre Dynamic Voice Allocation.
- *4: Keys; 12-96, While the Song Memory data are being played back; 0-127.
- *5: Manual; Fixed value 7FH when performed by pressing Keys or Pads. Recorded value when Song Memory is played back.
Accomp.; Various values.
- *6: Only while the Song Memory data are being played back.
- *7: Not received by every VOICE selected.
- *8: A VOICE number transmitted after converted to the corresponding Program Change number according to PortaSound Standard Voice Number.
- *9: Received according to PortaSound Standard Voice Number. Ignores the Message based on Ch.16.
- *10: Possible to set ON/OFF manually.
- *11: Receives only STOP while the Song Memory data are being recorded.

Remark: Among all the MIDI Messages from MIDI IN, Channel Messages explained in "Recognized" fields above will be output from the MIDI OUT as they were received. (Merged to the data generated by the PSS-590.)

YAMAHA

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