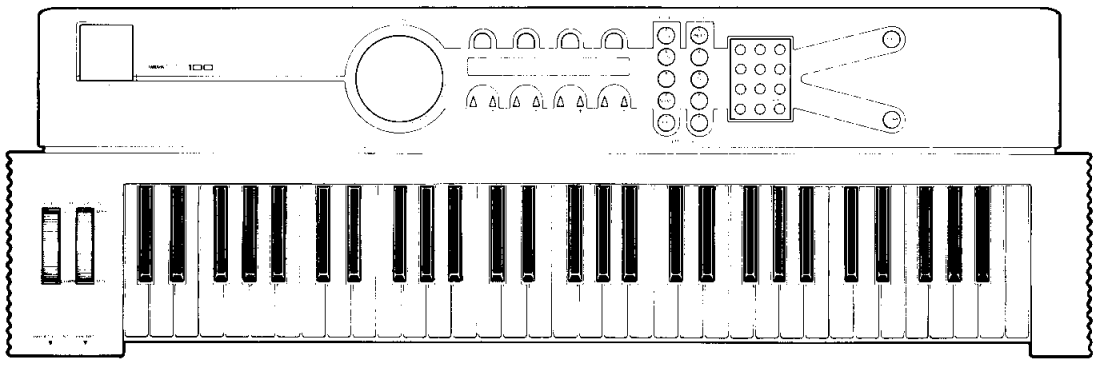
YAMAHA

YS100

DIGITAL SYNTHESIZER
SYNTHETISEUR NUMERIQUE
DIGITAL-SYNTHESIZER

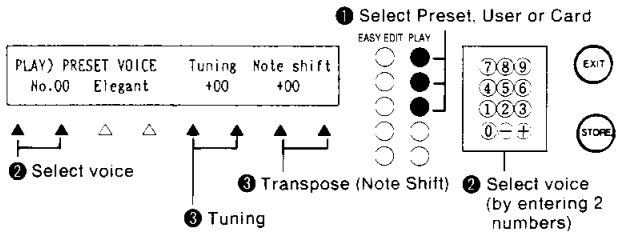
OPERATING MANUAL
MANUEL D'UTILISATION
BEDIENUNGSANLEITUNG



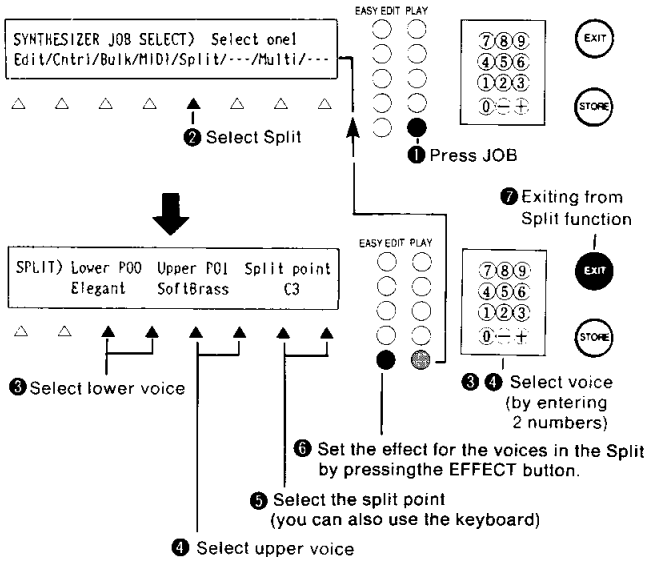
YS100/200 OPERATION GUIDE

PLAY

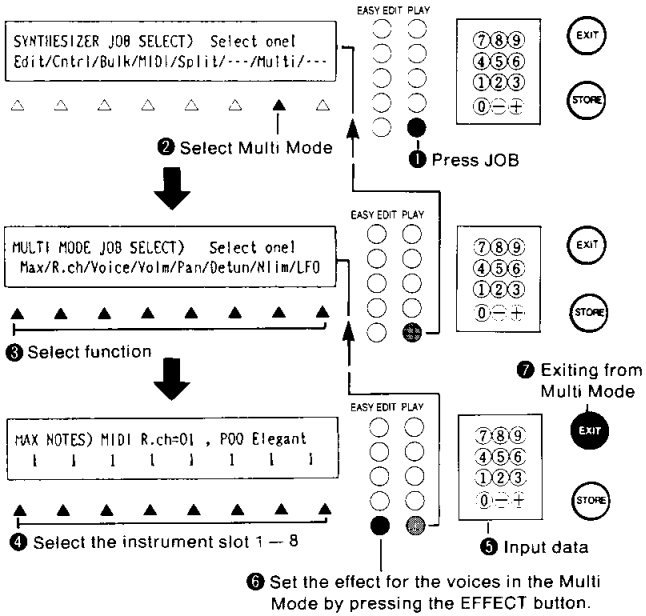
■ Playing One Voice



■ Split Play

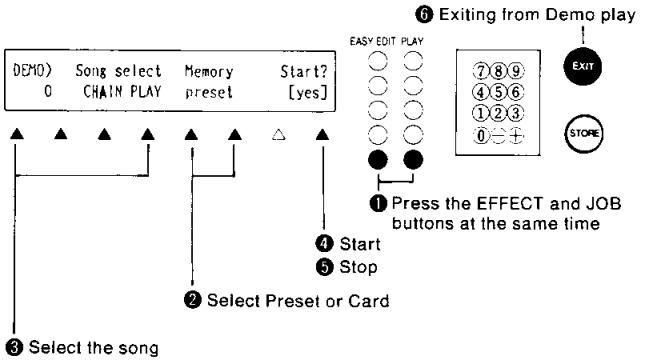


■ Multi Mode



Max ..... Maximum number of notes each voice can sound (total of 8)
R.ch ..... MIDI receive channel for each voice
Voices will not sound from the YS100/200 keyboard unless their receive channel settings match the MIDI transmit channel.
Voice.... Voice number of each instrument slot
Volm.... Volume of each voice
Pan ..... Stereo output setting for each voice
Detun .. The amount each voice's tuning deviates from standard pitch
Nlim .... The keyboard range over which each voice will sound (numeric keyboard 0 — 4: L, 5 — 9: H)
LFO..... Setting for each voice

DEMO PLAY



0 CHAIN PLAY Continuously plays the 5 demo songs in order
1 Opening
2 SLAV
3 Stomp
4 Nut
5 Funky City

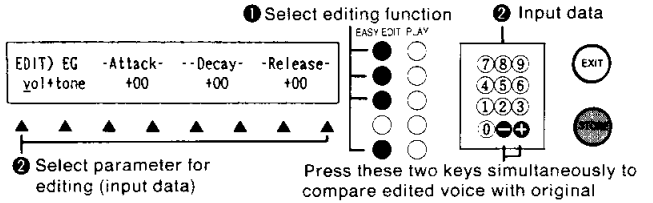
■ Preset Voice List

00	Elegant	10	Soft String	20	Sunbeam	30	Fog	40	Piano 2	50	Guitar 1	60	E. Bass 1	70	Trumpet 1	80	Recorder	90	Zap!
01	Soft Brass	11	Syn String 2	21	Shimmer 1	31	Husky Voice	41	E. Piano 2	51	Guitar 2	61	E. Bass 2	71	Tight Brass	81	Harmonica 1	91	Shwhap!
02	Wide String	12	Rich String	22	Soft Cloud	32	Swirlies	42	Wire Brass	52	E. Guitar 1	62	Syn Bass 1	72	Trombone 1	82	Whistle	92	Pound Wood
03	Cosmic	13	Syn Brass 1	23	Bamarimba	33	Husky Choir	43	Easy Clav	53	Harp 1	63	Syn Bass 2	73	Horn 1	83	Castanet	93	Oil Drum
04	Large Pipes	14	Syn Brass 2	24	Sandarimba	34	Pluck Brass	44	Funky Clav	54	Koto	64	Syn Bass 3	74	Horn 2	84	Triangle	94	Syn Snare
05	Syn String 1	15	Syn Brass 3	25	Float Chime	35	Angel Choir	45	Harpsichrd	55	Marimba	65	Syn Bass 4	75	Sax 1	85	Bell Tree	95	Dragon Hit
06	Folk Guitar	16	Breth Brass	26	Daybreak	36	Flute Voice	46	Vibe	56	Violin 1	66	Syn Bass 5	76	Sax 2	86	Referee	96	Dune Hit
07	Piano 1	17	Soft Ens.	27	Tinqule	37	Small Pipes	47	Celeste	57	Cello 1	67	Nasal Lead	77	Oboe 1	87	Steel Drum 1	97	Warp
08	E. Piano 1	18	Warm Ens.	28	Sand Bell	38	E. Organ 1	48	Tube Bell	58	Cello Ens.	68	Solid Lead	78	Clarinet	88	Steel Drum 2	98	Ice Age
09	Dist Guitar	19	Orches Ens.	29	Suspense	39	E. Organ 2	49	Music Box	59	Uprite Bass	69	Clari Lead	79	Flute	89	Ricochet	99	Encore

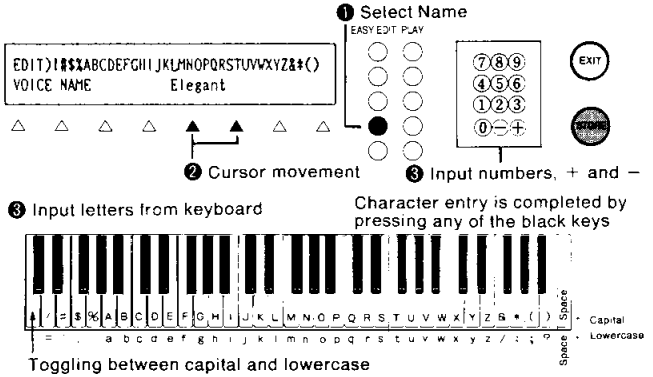
EDIT (Changing Voice)

■ Easy Edit

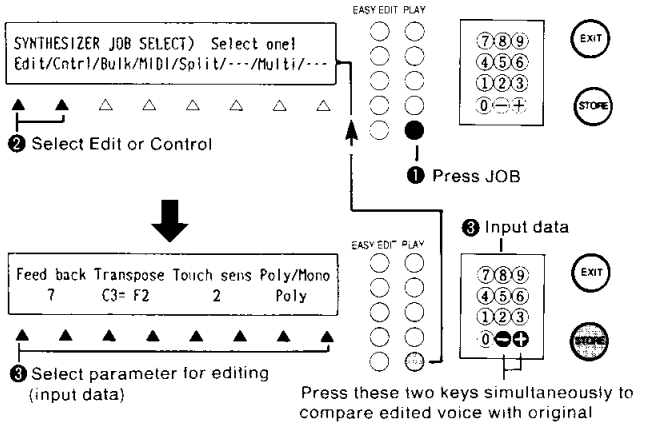
(EG, TONE, LFO, EFFECT)



(NAME)

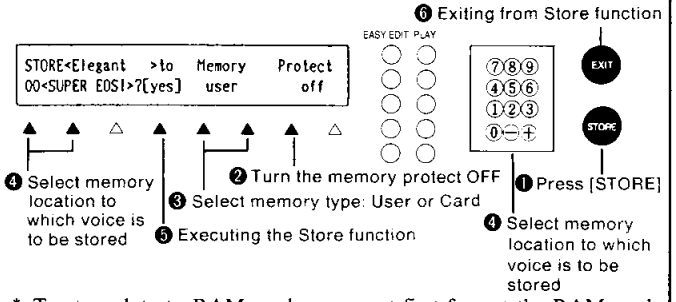


■ Advanced Voice Editing and Control Features



* Execute Store operation after completing editing
* If the PLAY and EXIT buttons are pressed before storing, data obtained during editing will be lost.

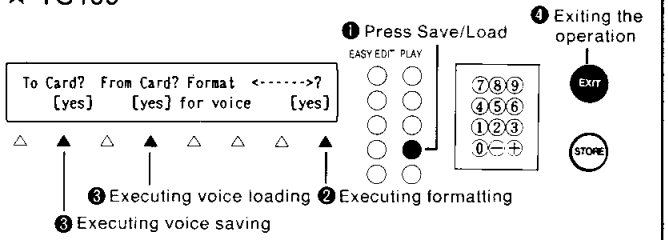
STORE (Storing Voices), Disabling the Memory Protect Function



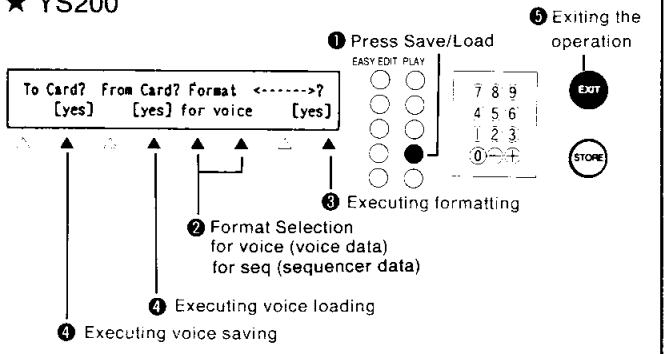
* To store data to RAM cards you must first format the RAM card and disable the write protect function.

CARD

★ YS100



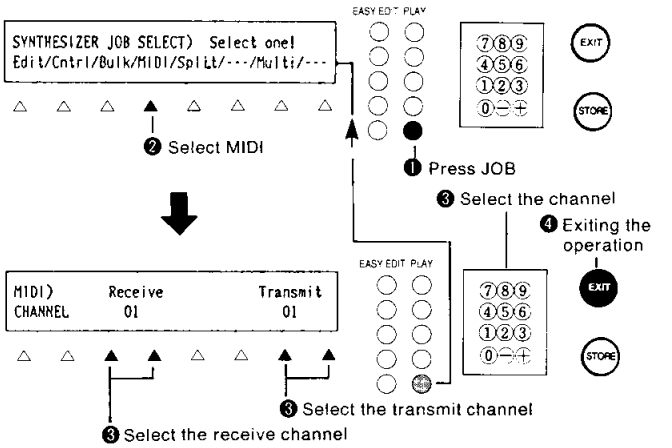
★ YS200



* Disable the write protect function of the card before formatting or saving.
* Disable the internal memory protect function before loading. (See the section, "Store" above.)

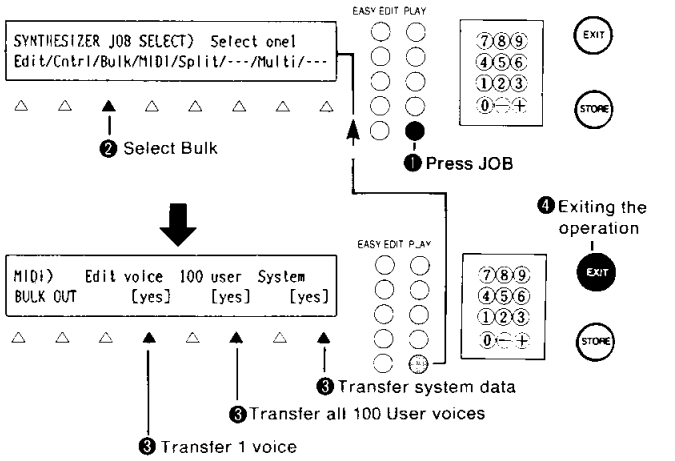
MIDI

■ Setting the MIDI Channel



* When selecting MIDI from the Multi Mode, the receive channel will be indicated as "multi" and cannot be changed in this function.
* In the Multi Mode, the receive channel of each voice must match the transmit channel set in this function.

■ Transferring MIDI Data



* Select the voice to be transferred before transferring one voice. (See the section, "Playing One Voice.")

HOW TO USE THIS MANUAL

Welcome to the YS100 Digital Synthesizer! This incredibly versatile instrument is certain to open up for you a whole new world of musical expression.

What can the YS100 do for you?

The answer: plenty! The YS100 gives you up to 300 different synthesizer sounds at your finger tips, and a wide variety of controls and functions to get the maximum expressive capability from each of the sounds.

Although the YS100 is a sophisticated musical instrument, you'll find it remarkably easy to use. The controls are laid out and labeled in a logical, easy-to-understand fashion and the large display gives you all pertinent information and even guides you through certain operations.

This manual is a complete introduction to the YS100, but you won't need to read it from cover to cover. Here's what we suggest you do to get a firm understanding of the YS100 and its functions:

- Read the **PRECAUTIONS** section. You should know beforehand how to treat your new YS100 with care.
- Follow the steps in **STARTING OUT**. This will get you operating the YS100 for the very first time, so look this over briefly before going to any other section — and then have fun exploring!
- The next section, **OPERATION BASICS**, takes you step-by-step through the basic features and functions of the YS100. Whether you've used similar functions on other synthesizers before or not, please don't skip this! The hands-on experience you gain here will be valuable later.
- If you're a newcomer to the world of synthesizers and digital music, it might be worth your while to skip over to the **GLOSSARY** in the **APPENDICES** section. In a brief and easy-to-understand way, the **GLOSSARY** explains some of the words and phrases used throughout the manual that might be unfamiliar to you.
- The **REFERENCE** section covers all the functions of the YS100 in depth. Everything you need to know is here; so after going through the first two sections of this manual and you feel confident as you operate and play the YS100, explore the **REFERENCE** at your own pace, trying out whatever features interest you. (Later you can refer to this material whenever you need to check something or jog your memory.)
- The **APPENDICES** cover various topics that should, like the **REFERENCE** section, prove useful in the future as you use the YS100. No need to jump in and read them right away, but you'll find plenty of help in them (should you ever need it).

Refer to the FRONT/REAR PANEL diagram on pages 4 — 5 as you read this manual.

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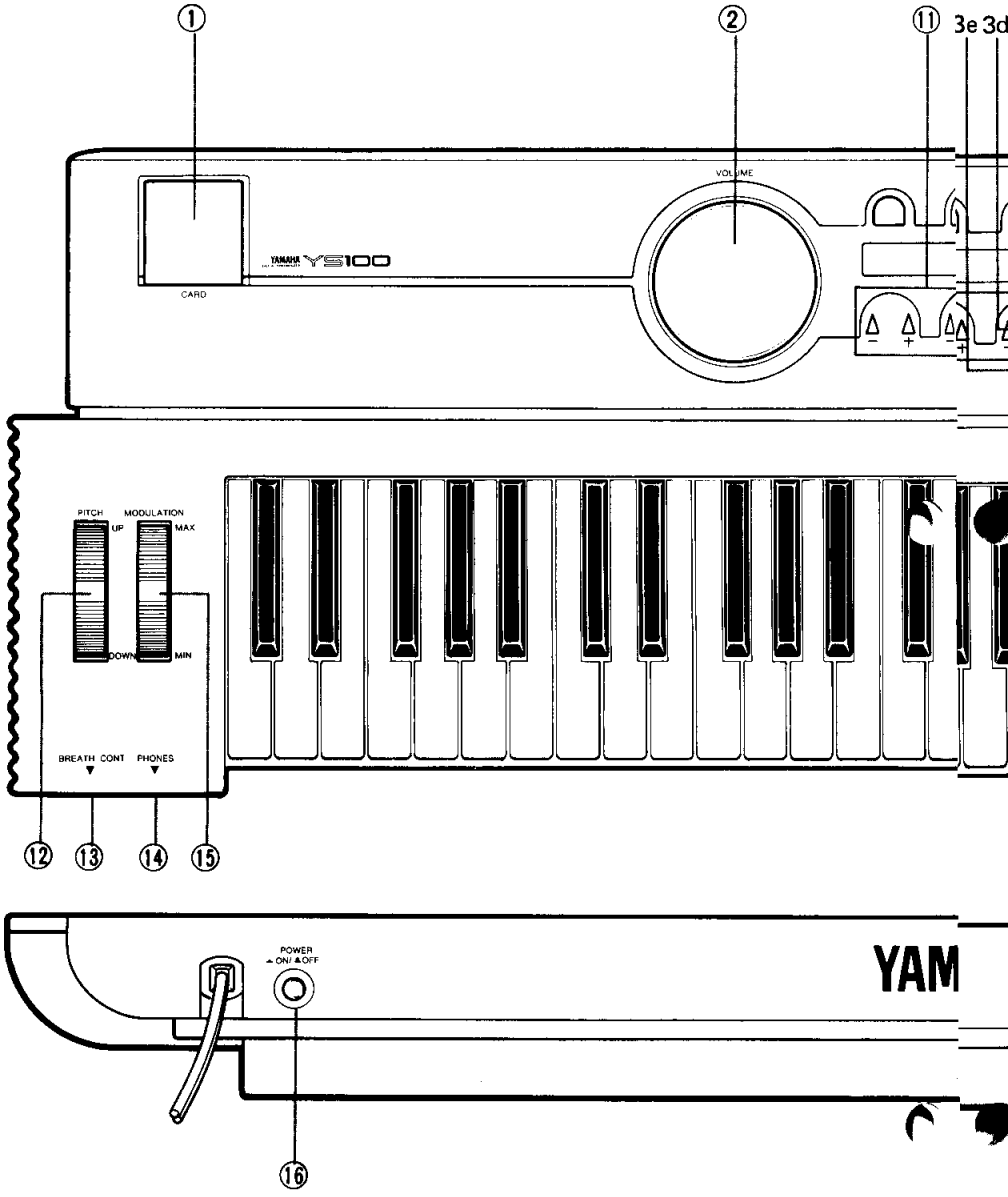
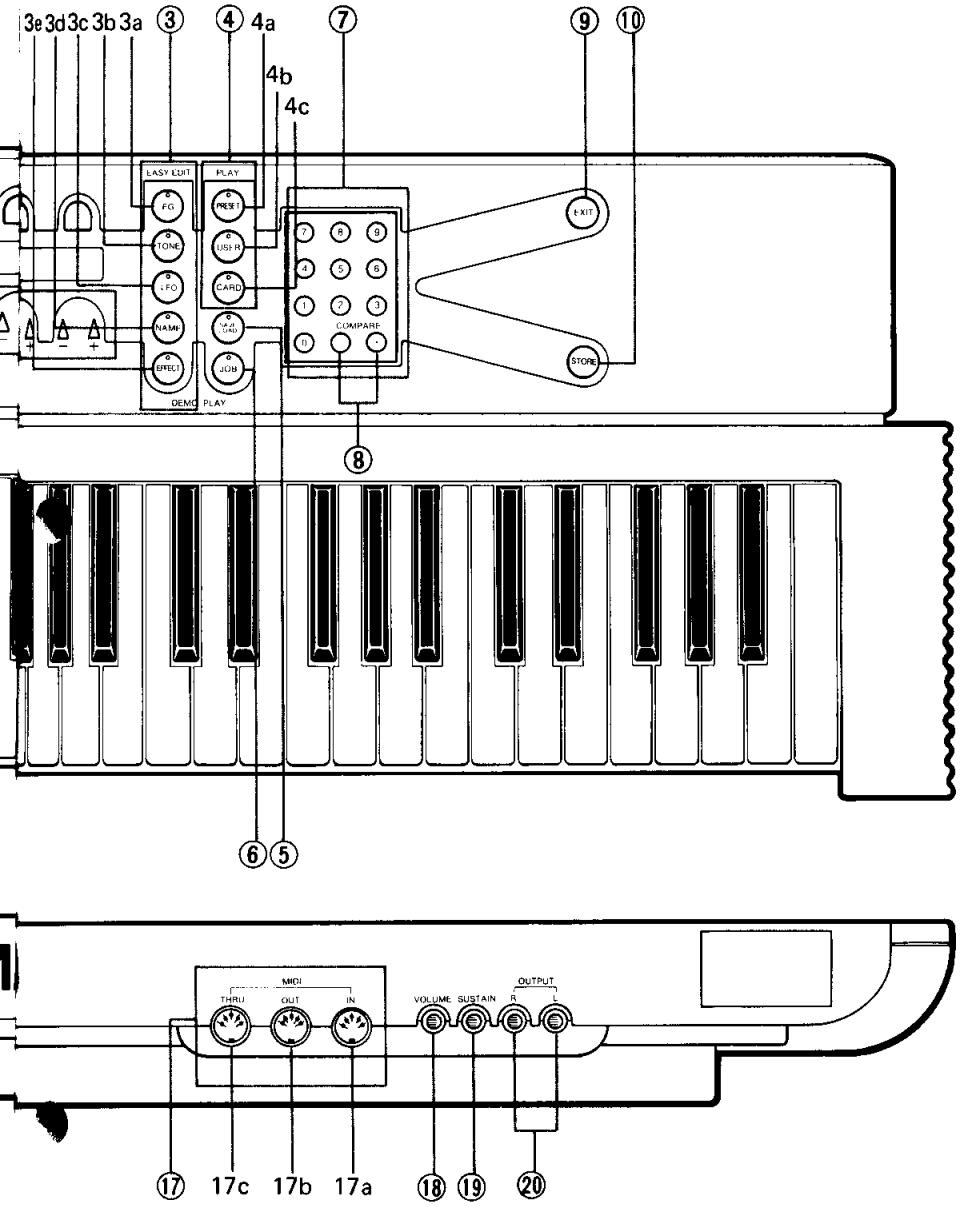
APPENDICES

FRONT/REAR PANEL



FRONT PANEL

1. CARD Slot
2. VOLUME Control
3. EASY EDIT Mode Buttons
   - 3a EG
   - 3b TONE
   - 3c LFO
   - 3d NAME
   - 3e EFFECT
4. PLAY Mode Buttons
   - 4a PRESET
   - 4b USER
   - 4c CARD
5. SAVE, LOAD Button
6. JOB Button
7. Numeric Keypad
8. +/− Data Entry Keys increase or decrease data values. When the + and − keys are pressed together, the COMPARE function is accessed.
9. EXIT Button
10. STORE Button
11. +/−SELECTOR Buttons (for data entry and function/parameter selection)
12. Pitch Bend Wheel
13. Breath Controller jack (for optional BC1, BC2 Breath Controller)
14. Headphone jack
15. Modulation Wheel



REAR PANEL

⑯ Power Switch

⑰ MIDI Terminals
- 17a. MIDI IN
- 17b. MIDI OUT
- 17c. MIDI THRU

⑱ Volume Pedal Terminal (for optional FC-7 Foot Controller)

⑲ Sustain Switch Terminal (for optional FC-4 Footswitch)

⑳ Outputs

L / MIX (serves as either mono out, or, if Output R is connected, the right stereo channel)

R (left stereo channel output)

PRECAUTIONS

- The voltage requirement for your YS100 has been set specifically for the main supply voltage used in your area. If you have any doubts about voltage suitability, please consult your local Yamaha dealer. If you intend to use your YS100 in an area with a different voltage, be sure to use the appropriate voltage convertor.

- Avoid placing your YS100 in direct sunlight or close to a source of heat. Also, avoid locations where the instrument is likely to be subjected to vibration, excessive dust, cold or moisture. All of these conditions could have a detrimental effect on both the mechanisms and the circuitry incorporated into the YS100.

- Do not use abrasive cleaners, waxes, solvents, or chemical dust cloths to clean the exterior or keys of your YS100 as these may dull the keys or damage the finish. Use a slightly damp cloth and a neutral cleanser. Never use aerosol sprays near the YS100 as they can get into the circuitry and prevent accurate transmission of data.

- Your YS100 contains no user serviceable parts. Opening it or tampering with it can lead to electrical shock as well as damage, and will void the product warranty. Refer all servicing to qualified Yamaha personnel.

- All computer circuitry, including that of the YS100, is sensitive to power surges or voltage spikes, such as those caused by lightning. For this reason, the YS100 should be turned off and unplugged from the wall socket in the event of an electrical storm.

- Computer circuitry is sensitive to electromagnetic radiation, such as is generated by television sets. The YS100's digital operation also generates high frequency pulses that may adversely affect radio or TV reception in the vicinity of the instrument. Use your YS100 at a suitable distance from such equipment to avoid malfunctions in the YS100 or any other connected equipment.

- Avoid applying excessive force to the controls. Also avoid dropping the instrument or otherwise subjecting it to impact. While the internal circuitry is of reliable integrated circuit design, the YS100 should be treated with care.

- When unplugging cords (MIDI, audio, power, etc.) from the YS100, never unplug by pulling on the cords; this can result in damage to the YS100 or the cords.

- After studying this manual thoroughly, keep it in a safe place for future reference.

STARTING OUT

This chapter of the manual will guide you step by step as you use the YS100 for the very first time. Whether you've played an electronic keyboard before or not, we recommend that you take the time to read through this section so that you can follow these steps each time you set up and play your YS100.

Before following any of the steps in this section, please read through the PRECAUTIONS chapter to ensure trouble-free operation and that the YS100 will be in its optimum playing condition.

SETTING UP

To set up your YS100 for playing, first place the instrument at a suitable playing height on a table or keyboard stand, and connect the AC power cord and audio cables as follows:

1) Plug the AC power cord into an AC outlet.

2) The best way to hear your YS100 is to connect the stereo OUTPUTS A and B to a high-quality stereo keyboard amplifier. If you are using a monaural amplifier, connect only OUTPUT A. For headphone listening, a pair of stereo headphones can be connected to the front panel PHONES jack. Headphones, however, should be connected AFTER turning the YS100's power on.

TURNING ON THE POWER

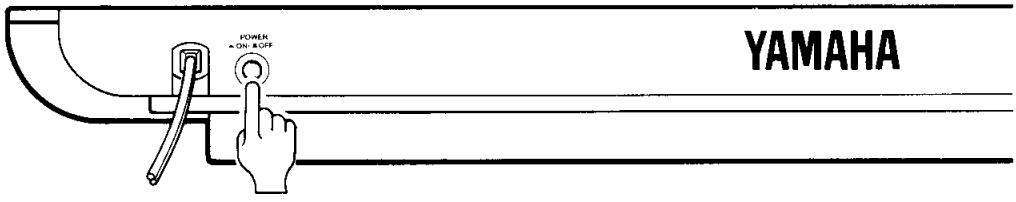
Yes, this operation step is so simple that we might as well not mention it. However, there are some simple steps you should follow when turning on the YS100's power switch (located to the far right, on the rear panel next to the power cord):

1) If you intend to connect the YS100 to an amplifier, make that connection first.

2) Turn on your YS100.

3) Turn on the connected amplifier.

Performing the steps in the above order ensures that the connected audio equipment will not be harmed by any sudden sounds from the YS100.



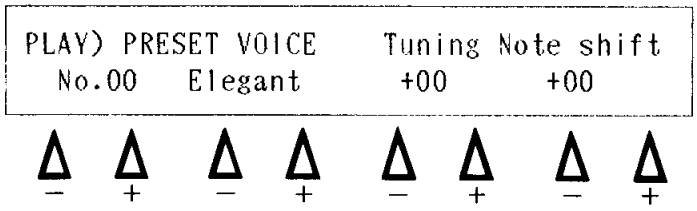
Note:

Inserting or removing a RAM memory card while the power is turned on may result in partial damage or complete deletion of voice data stored in the card. For this reason, insert or remove your RAM memory card from the CARD slot while the power is turned off.

PLAYING THE YS100

If you've followed all the above steps properly, you can begin playing your YS100.

When you first turn on the power to your new YS100, Preset voice #00, Elegant, will be automatically selected and the following display will appear:



Note:

Whenever you turn on the power, the YS100 will, after a short 2- or 3-second warm-up, be set to the voice (or sound program) that was last selected, before the instrument was last turned off.

Adjust the volume using the rotary volume control. After playing this sound for a while, go on to the next section and explore some of the other sounds of the YS100.

SELECTING PRESET VOICES

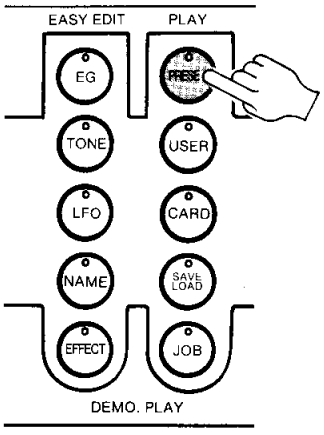
VOICE LIST

00	Elegant	25	FloatChime	50	Guitar 1	75	Sax 1
01	SoftBrass	26	Daybreak	51	Guitar 2	76	Sax 2
02	WideString	27	Tinqule	52	E. Guitar 1	77	Oboe 1
03	Cosmic	28	SandBell	53	Harp 1	78	Clarinet
04	LargePipes	29	Suspense	54	Koto	79	Flute
05	SynString 1	30	Fog	55	Marimba	80	Recorder
06	FolkGuitar	31	HuskyVoice	56	Violin 1	81	Harmonica 1
07	Piano 1	32	Swirlies	57	Cello 1	82	Whistle
08	E.Piano 1	33	HuskyChoir	58	CelloEns.	83	Castanet
09	DistGuitar	34	PluckBrass	59	UpriteBass	84	Triangle
10	SoftString	35	AngelChoir	60	E.Bass 1	85	BellTree
11	SynString 2	36	FluteVoice	61	E.Bass 2	86	Referee
12	RichString	37	SmallPipes	62	SynBass 1	87	SteelDrum 1
13	SynBrass 1	38	E.Organ 1	63	SynBass 2	88	SteelDrum 2
14	SynBrass 2	39	E.Organ 2	64	SynBass 3	89	Ricochet
15	SynBrass 3	40	Piano 2	65	SynBass 4	90	Zap!
16	BrethBrass	41	E.Piano 2	66	SynBass 5	91	Shwhap!
17	SoftEns.	42	WireBrass	67	NasalLead	92	PoundWood
18	WarmEns.	43	EasyClav	68	SolidLead	93	OilDrum
19	OrchesEns.	44	FunkyClav	69	ClariLead	94	SynSnare
20	Sunbeam	45	Harpsichrd	70	Trumpet 1	95	DragonHit
21	Shimmer 1	46	Vibe	71	TightBrass	96	DuneHit
22	SoftCloud	47	Celeste	72	Trombone 1	97	Warp
23	Bamarimba	48	TubeBell	73	Horn 1	98	IceAge
24	Sandarimba	49	MusicBox	74	Horn 2	99	Encore

The YS100 has 100 different voices that are stored in its internal Preset memory, and we're sure that you'll want to begin exploring those voices as soon as you turn the YS100 on.

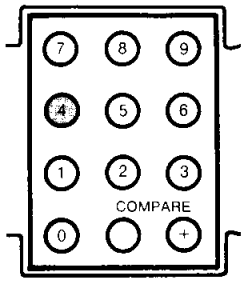
To select a Preset voice:

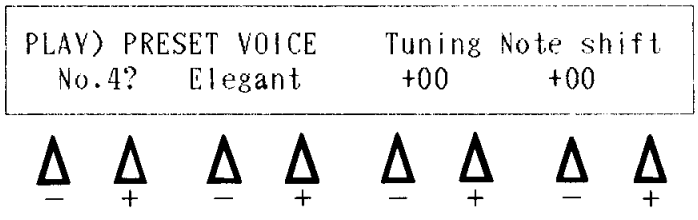
1) Press the **PRESET** button.



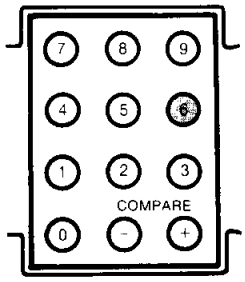
2) Use the first pair of **+/−SELECTOR** keys (under the far left side of the display) to step up or down to the desired voice. (The **−SELECTOR** key decreases the Preset voice number by one, while the **+ SELECTOR** key increases it by one.) Holding down either **SELECTOR** key causes the Preset voice numbers to advance rapidly in either direction.

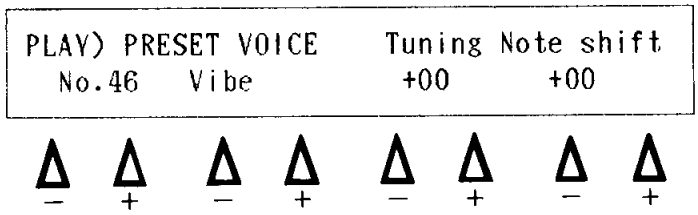
- You can also use the numeric keypad to select a Preset voice. Press the first digit of the Preset voice you wish to select. (As an example, let's select Preset voice #46, Vibe.) The display shown below will appear:





- The question mark after the number 4 indicates that you must press one more number on the numeric keypad to finally select the desired voice. So, press 6 to select voice #46.





That's all there is to it.

Now let's move on to the next section and make some changes in the sounds of some of the voices.

OPERATION BASICS

This chapter of the manual will guide you through the YS100's basic operations. Here you will learn how to edit Preset voices, name and store the voices you create, select and edit effect settings for your voices, and use some of the card operations of the instrument.

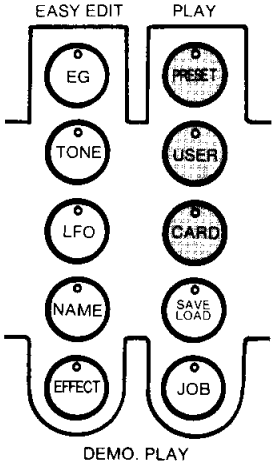
ABOUT THE CONTROLS

Let's begin this chapter by introducing you to some of the controls you will be using.

THE PLAY BUTTONS

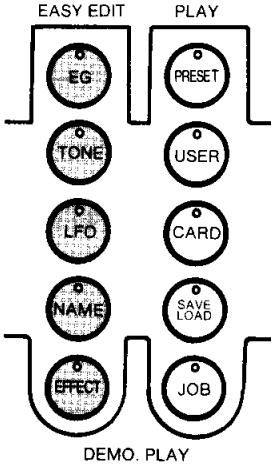
The **PLAY** buttons, labeled in purple, are used to select voices from the three different memory locations: PRESET, USER, and CARD. USER and PRESET are internal memory storage locations and can be selected at any time. CARD can only be used when a RAM or ROM card is inserted in the CARD slot. Each button has an LED which lights up in red when the button is pressed.

Try pressing each of the buttons in turn and notice what happens, both on each button's LED and the display.



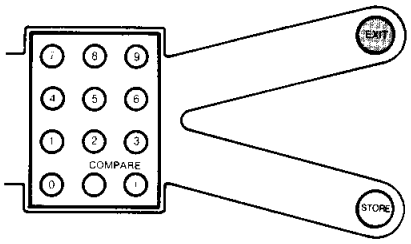
THE EASY EDIT BUTTONS

There are five buttons in the **EASY EDIT** button column: **EG, TONE, LFO, NAME,** and **EFFECT.** The name "EASY EDIT" is appropriate since these buttons allow you to easily alter the character of a voice to your liking. As with the **PLAY** buttons, each has an LED which lights up in red when the button is pressed. Press each of these buttons in turn, as you did with the **PLAY** buttons above, and notice what happens.



THE EXIT KEY

Pressing the **EXIT** button allows you to return to the last selected voice, regardless of the operation you are doing. You may, for example, be editing a voice and decide that you want to stop editing and return to another voice; a press of the **EXIT** button will return you to the voice you last selected, whether it is a Card, User, or Preset voice.



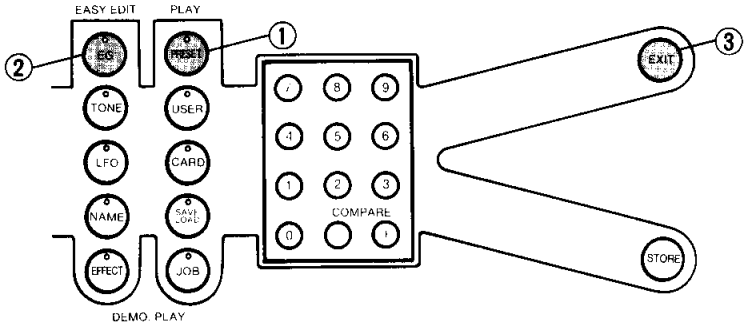
When you are using any of the **EASY EDIT** buttons to change the sound of a voice, the **EXIT** button also allows you to cancel those changes and return to the voice's original sound.

Watch how the display changes as you try the following steps:

①Press the **PRESET** button.

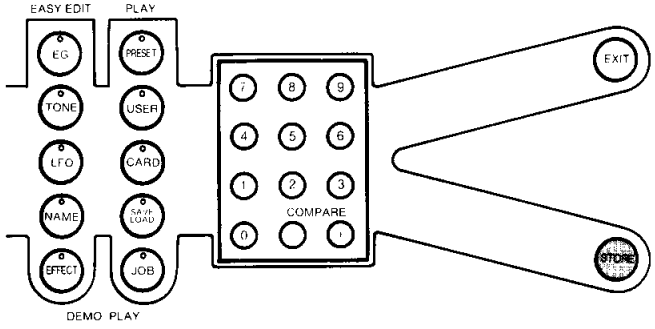
②Press the **EG** button.

③Press the **EXIT** button. The display will be the same as you saw in step #1.



THE STORE BUTTON

This button allows you to store a voice to either the internal user memory or a RAM card. Pressing the STORE button while in any operation will let you store the currently selected voice to a chosen memory location.

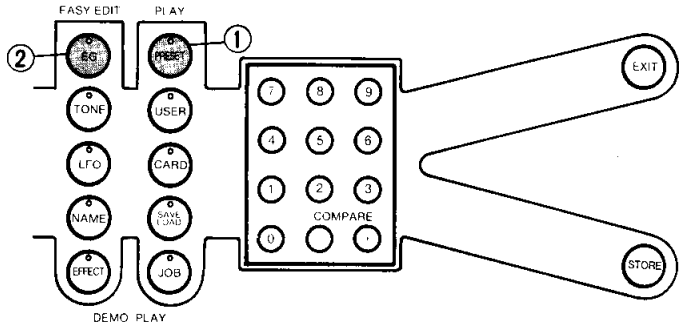


Now that you know something about some of the controls, let's actually begin using them!

EDITING VOICES

CHANGING THE SOUND OF A PRESET VOICE

Changing the sound of a voice — a process we'll call "editing" — is very simple. First, make sure that a Preset voice has been selected by pressing the **PRESET** button. Then, press the appropriate **EASY EDIT** buttons and change the values shown in the display.



Now it's time for you to create your own voice by editing a Preset voice.

1) Press **PRESET**. Its red LED should light up. Then use the numeric keypad to select voice #71, TightBrass.

2) Press the **EG** button. The red LED at the top of the button will light to indicate that the function is active. The following display will appear:

```
EDIT) EG    -Attack-   --Decay-   -Release-
 vol+tone     +00        +00        +00
```

3) By using the four pairs of +/− **SELECTOR** buttons, you can edit the various EG parameters as shown in the display. For now, let's use the pair directly under the Attack parameter. Press and hold the − **SELECTOR** button until the Attack parameter's value is −10. (You can also use the numeric keypad to enter the value directly.) Play the voice now and notice the difference in how the sound starts when you press a key.

```
EDIT) EG    -Attack-   --Decay-   -Release-
 vol+tone     -10        +00        +00
```

4) You can edit the release time by using the +/− **SELECTOR** buttons directly under — you guessed it — the Release parameter. Set this value to −8 by holding down the − **SELECTOR** button and listen to the new sound you've created.

```
EDIT) EG    -Attack-   --Decay-   -Release-
 vol+tone     -10        +00        -08
```

5) You can also compare your new sound with the Preset sound, listening to both in turn. Try this now. Firmly and simultaneously, press down the + and − keys on the numeric keypad (also labeled as the COMPARE keys). Notice that the LEDs of the bottom four **EASY EDIT** buttons flash in red. Play the sound. Do you recognize it? It's the one you started with, the sound before you began editing. To return to the sound you created in step #4 above, press the COMPARE keys together again. The LEDs will stop flashing and you can hear your new sound once again.

Note:

You may find that some parameter value displays are accompanied by an exclamation mark ("!") when edited beyond a certain value. This means that the actual parameter indicated does not change when adjusted to this value or beyond. Though the number (value) can be changed, the sound cannot.

CHANGING THE EFFECT SETTINGS OF A VOICE

The **EFFECT** section of the **EASY EDIT** Modes is one of the most dramatic. With the right effect, applied in the right amount, your voices can sound more dynamic and professional.

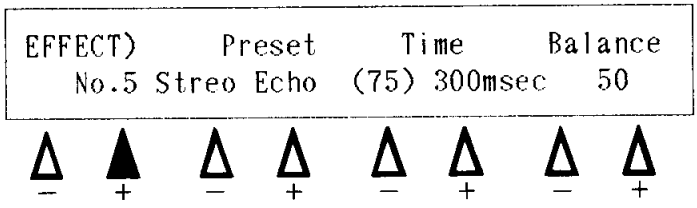
You'll learn more about effects and how to edit them to your liking in the REFERENCE chapter of this manual. For the moment though, let's select a voice and use a few different effects on it so that you can see just how powerful this function can be.

1) From the Preset voice memory, select voice #79, Flute.

2) Press **EFFECT**.

Play the voice. You'll notice that it sounds as if it was being played in a spacious concert hall.

3) Using the first (leftmost) pair of **+/− SELECTOR** buttons, change the effect setting to # 5, Streo (Stereo) Echo and play the keyboard. The resulting sound is spacious again, but this time with definite echoes that seem to rebound across the stereo image. This effect is suitable for rapidly played staccato passages as well as slowly played single line melodies.



4) Change the effect setting once more, this time to # 7, Dist. (Distortion) + Echo. The definite echoes heard in the last effect are in this one as well, but there is a harder edge to the sound — the result of distortion — which makes the flute voice sound more like a saxophone, especially when played in the lower octaves.

You can see that the **EFFECT** Mode is musically useful and adds tremendous depth to the already impressive sounds of the YS100. Take some time and explore the other effect settings with other preset voices.

CHANGING THE LFO SETTINGS OF A VOICE

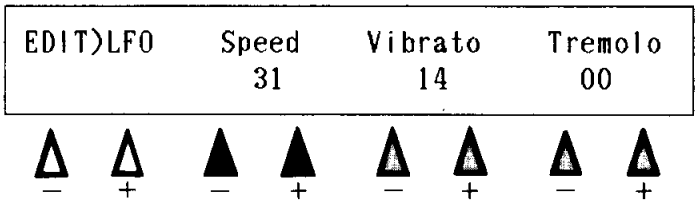
The initials LFO stand for Low Frequency Oscillator. Don't let the terminology intimidate you; this is just a fancy name for the method in which effects like vibrato and tremolo are created for synthesizer voices.

Vibrato and tremolo are age-old musical techniques used for both acoustic instruments and voice (the human kind!). A violinist, for example, rapidly moves his hand back and forth while holding a note in order to slightly waver the pitch. This is called vibrato, and in small amounts it gives the instrumental tone greater depth and animation. Tremolo is a similar effect, except that the volume of the sound varies, not the pitch. The LFO makes it possible to imitate these acoustic effects, or to create even wilder, more obviously electronic sounds.

- By now, you're undoubtedly using the YS100's functions with ease, so we'll just briefly introduce you to the parameters of the LFO and let you go exploring on your own!

1) Select a Preset voice and press LFO.

2) Change the three parameters one by one and listen to the effect created.



- **SPEED** (0 — 99)
  This controls how fast the LFO varies the pitch or volume.
- **VIBRATO** (0 — 99)
  This controls how deep the pitch variation will be.
- **TREMOLO** (0 — 99)
  This controls how deep the volume variation will be.

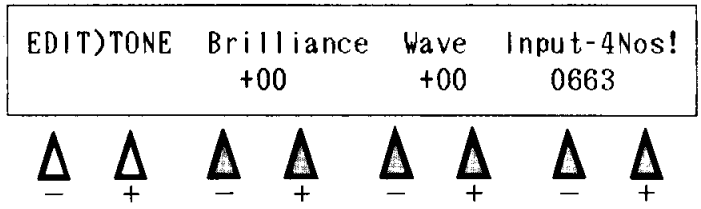
CHANGING THE TONE SETTINGS OF A VOICE

There are three Tone parameters: Brilliance, Wave, and Input-4Nos!. Simply put, these affect the quality and pitch of the sound, but you can get a better idea of what they do by listening to a sound as you adjust them. Try this:

1) Select a suitable voice from the Preset memory.

2) Press **TONE**.

3) Use the **+/– SELECTOR** buttons directly below Brilliance, Wave, and Input-4Nos! to change the sound of the Preset voice.

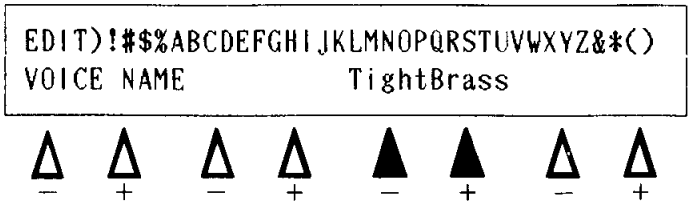


- Take the time to play around with these and the parameters you worked with before. You may discover and create some sounds that you'd like to keep. In fact, perhaps you already have — so, when you're ready, go on to the next two sections.

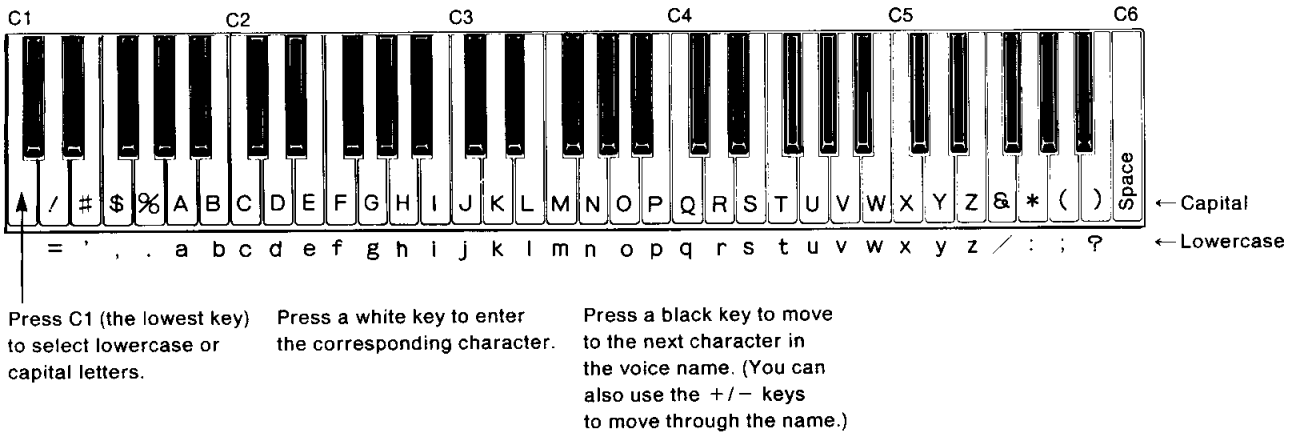
NAMING AN EDITED VOICE

Once you have edited a Preset voice to your liking, you'll probably want to give that newly edited voice a name and save it so that you can select it and play it again at any future time.

Press **NAME** of the **EASY EDIT** buttons. Its red LED will light up and the following display (or one very similar to it) will appear:



- You'll see that the name of the original sound will be shown on the display. The white keys of the keyboard function as a kind of typewriter when the NAME Edit Mode is selected. Numbers can be typed in by using the numeric keypad. Move the cursor on the display by using either the black keys or the third pair of **+/– SELECTOR** buttons (directly below the name).



For example, to enter the voice name "SLOW ORGAN" you would press: E4, E3, A3, B4, C6, A3, D4, G2, A1, G3 (alternating with a black key after each character).

Note:

Since voice names can have a maximum of 10 characters, exercise a little creativity and judgement when naming voices. Try to be as descriptive as possible — it's much easier to remember how "Glass Bell" and "Bell Mute" sound than "Bell 1" and "Bell 2."

STORING AN EDITED VOICE

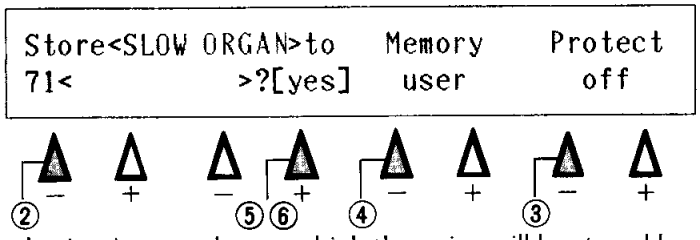
Once you've edited a voice to your satisfaction, you should store that voice to a memory location so that you can retrieve it whenever you need it. The YS100 has space in its internal User memory for 100 user-programmed voices and optional RAM cards are also available for storing 100 voices.

Let's store a voice you just created and named in the operations above to User memory.

1) Press **STORE**.

Note:

Voices CANNOT be erased from Preset memory. Nor can newly edited voices be stored to a Preset memory location. To keep a newly edited Preset voice, you must store the edited voice to a User or Card memory location.



2) Select the destination number to which the voice will be stored by using the first (leftmost) +/− **SELECTOR** button pair. Any destination number will do; however, for this example, hold the − **SELECTOR** button down until No. 00 shows in the display.

3) Press the rightmost − **SELECTOR** button (directly below the "Protect" parameter) to cancel the memory protect function. When set to ON voices cannot be stored.

4) Press the − **SELECTOR** button directly below the "Memory" parameter to select User memory.

5) Now that you've set the memory type and destination number AND disabled the memory protect function, press the + **SELECTOR** button directly below [yes].

6) Press it once again after the "Sure?" prompt on the display to finally store the voice.

Note:

The **STORE** button should be used immediately after editing a voice, if you want to keep that voice. Pressing some of the other buttons (**EXIT** in particular) may cause you to lose your edits.

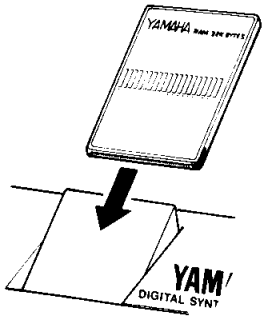
Keep on experimenting with the **EASY EDIT** features. Use them with different Preset voices before you go to the next section, and when you come upon some combinations that you like, store them to User memory, as you did above.

CARD OPERATIONS

In addition to the User and Preset voices, voices from memory cards are also available. Specially designed cards (ROM cards) can optionally be purchased, each with 100 voices created by expert programmers. If you have such a ROM card for the YS100, here's how to use it and listen to some of its voices. (Also optionally available is the MCD32 RAM card for storing your own original voice data.)

SELECTING CARD VOICES

First, insert the ROM card into the CARD slot on the left side of the front panel. Gently slide it in face up until it is securely seated in the slot. Next, press **CARD**. Now you're ready to select and play the Card voices. Select them in exactly the same way you selected Preset voices (as described above in the STARTING OUT chapter).

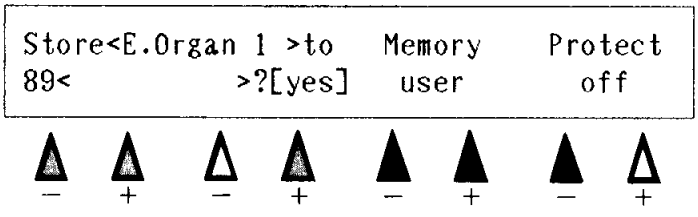


STORING CARD VOICES TO USER MEMORY

Let's take one of the Card voices now and store it to the internal User memory.

1) Select the Card voice you wish to store.

2) Press **STORE**.



3) Use the +/− **SELECTOR** buttons below "Memory" and "Protect" to switch the memory type to "user" and turn the memory protect to "off." The display should appear as above when you've finished.

4) Select the User memory number to which you want to store the card voice with the leftmost +/− **SELECTOR** buttons or the numeric keypad — just as you do when you select voices normally.

5) Now, simply press the + **SELECTOR** button below [yes] to execute the store operation.

SAVING VOICES TO MEMORY CARDS

You can also store voices to Card memory. However, the ROM card that you used to select voices from in the above operations cannot be used to store voices. For this you need a special kind of card — a memory card. You can find out more about memory cards in the REFERENCE chapter.

Note:

Inserting or removing a RAM memory card while the power is turned on may result in partial damage or complete deletion of voice data stored in the card. For this reason, insert or remove your RAM memory card from the CARD slot while the power is turned off.

If you have a memory card, follow these steps:

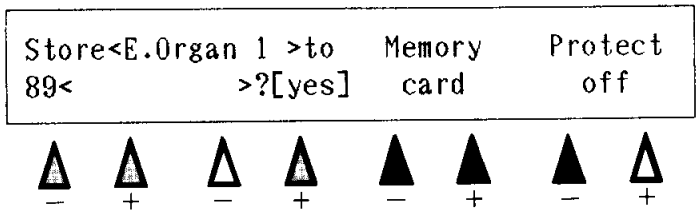
1) Insert the memory card in the CARD slot (before turning the power ON).

2) Select the voice you want to store — either User or Preset are fine.

3) Set the memory protect switch on the card to OFF.

4) Press **STORE**.

5) Take the same steps as you did above in STORING CARD VOICES TO USER MEMORY (steps #3 and #4), but change the display so that it appears as below:



6) Finally, select [yes] to execute the operation.

The **SAVE, LOAD** button can also be used to carry out similar card operations. However, it is far more powerful — and potentially more destructive — than the **STORE** button. More powerful, because you can copy a whole card's contents into User memory at one time. More destructive, because in doing so, you erase whatever voices were in User memory originally.

Use the **STORE** button for the time being; it's safer and, initially, you probably won't need to throw 100-voice groups back and forth between Card and User memory. When you DO need to, though, you can find out more about the **SAVE, LOAD** button in the REFERENCE chapter.

Note:

Before you can store or save data to a new memory card, it must be formatted. See Format, page 25.

You've completed this chapter now and should be able to operate nearly all of the functions of the YS100 with complete ease and confidence.

Go exploring again at your leisure — find sounds you like, change them around with the various editing features, and use them in songs of your own creation. If you're uncertain about how to do something, come back to this chapter to jog your memory. Or better yet, go to the next chapter, REFERENCE. There you'll discover even more interesting and exciting ways to use the YS100.

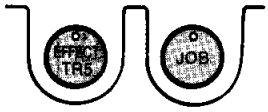
DEMONSTRATION SONG PLAY

The YS100 also is capable of playing specially prepared demonstration songs. Five such songs have been loaded into the internal memory and more can be played from current and soon-to- be-released ROM Voice Data cards. Each card has several demo songs that utilize the voices of the card.

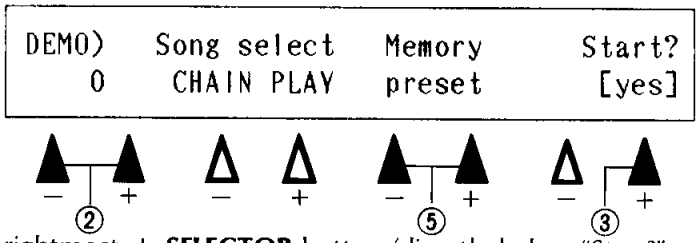
Though the YS100 is not equipped with a sequencer for recording, an external sequencer (such as the Yamaha QX5FD) can be used to record and automatically play your own songs in various multi-instrumental arrangements. The demo songs in both internal and Card memory should amply illustrate the powerful multi-voice capabilities of the YS100.

To play a demo song, simply:

1) Press the **EFFECT** and **JOB** buttons simultaneously.



2) Select the song with the leftmost pair of +/− **SELECTOR** buttons. The first selection ("CHAIN PLAY") automatically plays through the five demo songs in order. The other selections allow you to play each of the five demo songs individually.



3) Press the rightmost + **SELECTOR** button (directly below "Start?" on the display) to play the selected demo song.

- To play demo songs from Card memory, insert the ROM card and use the third pair of +/− **SELECTOR** buttons to select Card memory. Then, select and play the songs as you did in the above operation steps.

Note:

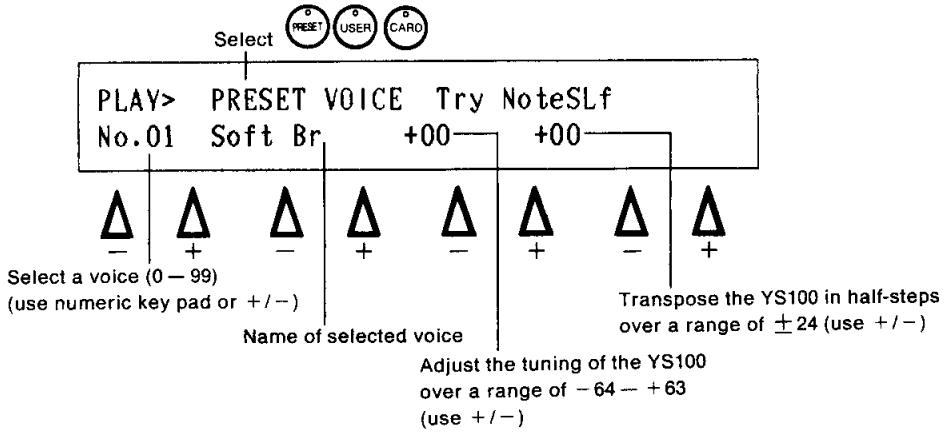
The keyboard cannot be used to play voices when the demo songs are being played.

REFERENCE

This chapter of the manual is a comprehensive guide to all of the functions of the YS100. We urge you to go through it casually at first; if some function or job strikes your interest, read about it and try to use it on your YS100. You'll also find this section handy when you need to refresh your memory about a function or operation.

PLAY MODE BUTTONS

Use the PLAY buttons (PRESET, CARD, USER) and the numeric key pad (or +/−) to select voices.



EASY EDIT MODE BUTTONS

EG

■ ***Functions:*** Adjust envelope generator settings (Attack, Decay, and Release times) for both Volume and Tone

ABOUT EG:

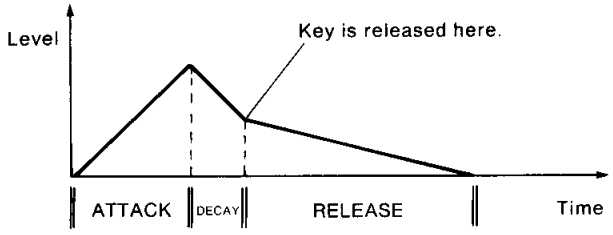
EG stands for envelope generator. Not that the words themselves are important to remember, but you should know what an envelope generator does.

Every sound that you hear, from the clanging of a bell to the screeching tires of a car coming to a sudden halt, has a direct relation to time. The volume of a sound takes a certain length of time to reach its loudest point — in the case of a bell, almost instantly — and it takes a certain length of time to die away.

Also, if you listen closely to the sound of a bell, you'll notice that the initial metallic clanging sound is gradually replaced by a softer, more mellow ringing tone. In other words, the tone of the bell also changes over time.

For a synthesizer to imitate the sounds of the real world and, in fact, for it to create sounds of any interest, it must be able to control these variations in volume and tone over time.

The YS100 does this with its EG's Attack, Decay, and Release parameters. Their effect can be easily understood from this diagram:



The envelope generator controls how the sound changes in both volume and tone over time. Both volume and tone can be controlled together by the same EG setting, or independent EG settings can be made for each.

In FM synthesis terminology, the volume EG affects the carrier operator(s) and the tone EG affects the modulator operator(s).

- To set a separate EG for volume:
  Press one of the +/− **SELECTOR** buttons until "volume" is displayed.
- To set a separate EG for tone:
  Press one of the +/− **SELECTOR** buttons until "tone" is displayed.
- To set a common EG for volume and tone:
  Press one of the +/− **SELECTOR** buttons until "vol + tone" is displayed.

Parameter ranges:

ATTACK: ±10
DECAY: ±10
RELEASE: ±10

(Positive values DECREASE the time, or make the sound change faster; negative values INCREASE the time, or make the sound change more slowly.)

TONE

Functions: Set harmonic content and brilliance of tone; determine the waveforms of the voice.

The Brilliance parameter controls how bright or mellow the tone is. Positive values make the tone brighter; negative values make it more mellow. In FM synthesis terminology, Brilliance controls the output level of the modulator operator(s).

The Wave parameter affects the frequency (position) of the harmonics or overtones --- i.e. it changes the fundamental character of the sound. Positive settings will produce higher overtones, and negative settings will produce lower overtones. Notice that changing this parameter can result in metallic or gritty sounds for some settings. In FM synthesis terminology, Wave controls the coarse frequency setting of the modulator operator(s).

The Input-4Nos! parameter lets you change the waveforms that the voice uses for its sound generation. Each voice has four sound sources, and each can be given one of eight different waveforms. Because some waveforms are brighter than others, this parameter also helps determine the overall brightness and tone quality of the sound. In FM synthesis terminology, the Input-4Nos! parameter determines the waveform for each operator.

Use the numeric keypad (0~7) to select one of the eight waveforms for each individual sound source (operator), and use the rightmost +/− **SELECTOR** buttons to advance all sound sources' waveforms by one.
Each sound source (operator) is represented by a single digit in the four-digit display, and each can only be changed from 0 to 7.

Parameter ranges:

BRILLIANCE: ± 10
WAVE: ± 10
Input-4Nos!: 0 — 7 (for each operator indicated in the four-digit display)

LFO

■ ***Functions:*** Adjust speed, depth and sensitivity of vibrato and tremolo effect.

The low frequency oscillator is used to modulate (cause periodic variations in) the pitch and/or volume of the sound. LFO-controlled pitch modulation is called Vibrato, and volume or amplitude modulation is called Tremolo.

- The speed of the modulation can be set.
- The Vibrato parameter adjusts both pitch modulation depth and sensitivity simultaneously.
- The Tremolo parameter adjusts both depth and sensitivity of amplitude modulation.

Note:

Two independent LFOs are available for voices when using the Multi Mode functions. Thus, when using 3 or more voices at the same time, the LFO applied to one voice could affect one or more of the other voices. See **LFO** in the MULTI MODE FUNCTIONS section of this chapter for more information.

■ ***Parameter ranges:***

SPEED:	0 — 99
VIBRATO:	0 — 99
TREMOLO:	0 — 99

NAME

■ ***Function:*** Assign names to voices.

Voice names can be up to ten characters in length. The available characters include letters of the alphabet, numbers, and 16 additional special characters and punctuation marks.

To enter a voice name:

Use the third pair of + / − **SELECTOR** buttons (directly under the current voice name) to position the cursor. To enter a completely new name, put the cursor at the beginning of the current name. The black keys may also be used to advance the cursor.

- Numbers are entered from the numeric keypad while letters and characters are entered one by one from the keyboard as explained in "NAMING AN EDITED VOICE", page 15.

EFFECT

■ ***Functions:*** Assign effect presets to voices; edit parameters of effect presets.

Ten effect presets are available:

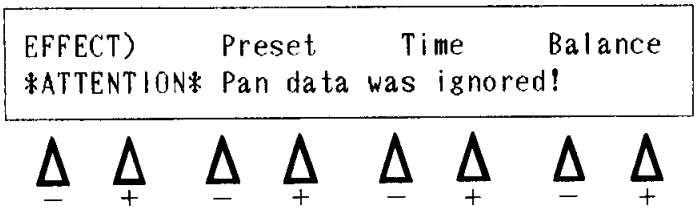
No. 0 Reverb — Hall
No. 1 Reverb — Room
No. 2 Reverb — Plate
No. 3 Delay
No. 4 Delay — Left/Right
No. 5 Stereo Echo
No. 6 Distortion + Reverb
No. 7 Distortion + Echo
No. 8 Gate Reverb
No. 9 Reverse Gate

- The Reverb presets recreate the reflections of the sound as it would be heard in various environments and thus make the sound seem more natural and lifelike.
- The Delay preset adds a single repeat. The Delay — Left/Right adds a single repeat, first to the left, then to the right.
- The Stereo Echo preset adds gradually decaying repeats (left and right together).
- The Distortion presets add a hard-edged, gritty sound.
- The Gate preset creates a reverb that is cut off (i.e. "gated") before it can decay naturally. The Reverse Gate preset creates a reverb that grows louder with time (the opposite of natural reverb) before it is cut off.

Each preset has two parameters: Time (or, in the case of the two Gate reverb presets, Room Size) and Balance. The Time parameters in the Reverb presets basically determine the perceived size of the room by adjusting the length of reverberation. Time parameters in Delay and Echo presets determine the length of time between the original sound and the delayed repeats. The Room Size parameters in the Gate presets determine the amount of reverberant "wash" in the sound. Balance parameters in all presets allow adjusting of the relative level of the effect compared to the voice. A Balance setting of 0 turns the effect off.

Note:

Effect and Pan cannot be used at the same time. If an effect setting is adjusted for a voice while that voice or any other in the Multi Mode arrangement has a pan setting, the following message will briefly appear and the pan setting(s) will be ignored.



■ ***Parameter ranges:***

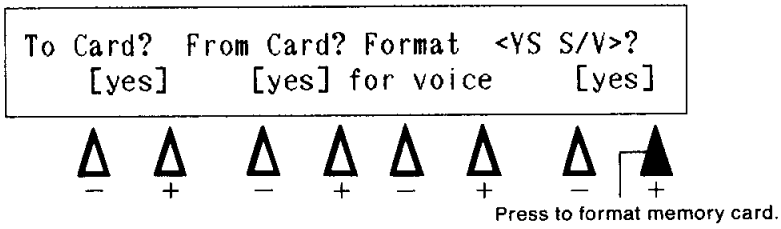
TIME (Reverb Presets #0, 1, 2, 6):	0.3 — 10.0 sec
TIME (Delay Presets #3, 4, 5, 7):	0.1 — 300 msec
ROOM SIZE (Gate Presets #8, 9):	0.5 — 3.2 sec
BALANCE:	0 — 99

SAVE, LOAD MODE

■ ***Functions:*** Save YS100 voices to memory card; load voices to the YS100 from ROM or memory cards; format memory cards for storage of voice/system data.

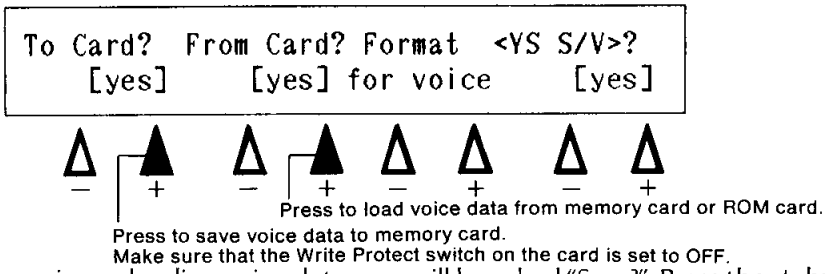
■ *FORMAT*

Before you can save YS100 voices to a memory card, it must be formatted to accept YS100 voice data. The upper right of the LCD will show the format.



If the format is not "YS S/V", you will need to format the memory card before saving voices to it. Press the rightmost + selector button. The display will show "Sure?", so press + again to format the card.

■ *SAVE, LOAD*



When saving or loading voice data, you will be asked "Sure?". Press the + button again to confirm the operation.

Note

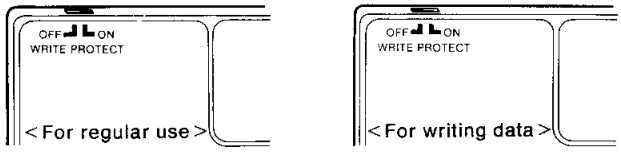
Loading data from a card into the YS100 will ERASE ALL PREVIOUS DATA in the YS100. If possible, save your important data to a blank memory card before loading any new data.
In the same way, saving data from the YS100 to a memory card will ERASE ALL PREVIOUS DATA in the memory card.

ABOUT THE MEMORY CARD (MCD 32)

Data cannot be stored to the memory card unless the Write Protect Switch on the card is set to OFF. The card is also equipped with a cell battery that must be replaced periodically.

1) Write Protect Switch (WRITE PROTECT)

Use a sharp-pointed tool such as a screwdriver to switch the Write Protect Switch to ON or OFF. Set the switch to ON for regular use in order to protect the data. Switch it to OFF when writing data.



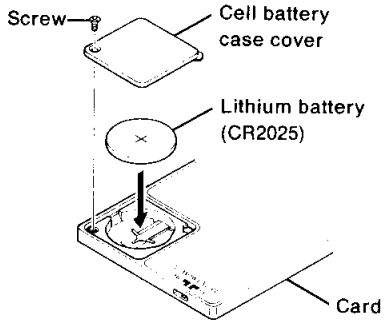
2) Replacement of Cell Batteries

Memorization of data requires a lithium battery. For regular use, a lithium battery lasts about five years. The Memory Card is shipped with the lithium battery already installed. If the battery runs down, replace it with a new one, following the procedure below. Use a CR2025 lithium battery.

Note:

When the battery is replaced, all the data memorized in the card will be erased. Load the necessary data to the YS100's internal memory before replacing the battery.

1) Remove the screw and the cell battery case cover with a small Phillips screwdriver.
2) Remove the old cell battery and insert the new one (CR2025) with the + side facing upward.
3) Install the cover and fasten it with the screw.



STORE

■ ***Functions:*** Store single voices to User or Card memory; select memory type for storage; set memory protect; select destination number.

The **STORE** button allows you to quickly store a single voice to User or Card memory. Pressing the **STORE** button allows you to exit from any mode and operation to store the currently selected voice.

Voices from any PLAY Mode location — Card, User, or Preset — may be stored to any Card or User location. This means that you can also move voices from one location to another.

Memory protect is set to ON at the factory. Here's how to store a voice:

1) Select the memory type: User or Card.
2) Turn memory protect OFF, (when storing to User memory) or turn Write Protect OFF (when storing to Card memory).
3) Select the voice number destination to which the currently selected voice will be stored.
4) Select [yes] to store and "Sure?" to finally execute the operation.

Note:

Storing a voice to User or Card memory will automatically and irretrievably ERASE THE VOICE AT THE DESTINATION NUMBER. Make certain that the voice at the destination number is no longer needed or has been stored to another location.

JOB MODE FUNCTIONS

JOB MODE

The JOB Mode lets you delve deeper into the editing and control features of the YS100. Within the JOB Mode are several sub-modes that allow you to:

- Edit additional voice parameters
- Edit real time performance control parameters
- Send voice and system data out to other MIDI devices
- Select MIDI transmission and reception channels
- Select the Play Mode to be used: Split or Multi
- Set a maximum of eight different voices to be used simultaneously, each with its own MIDI reception channel, key assignment, and volume, pan, LFO and detune settings

The Job Mode can be selected from within any mode or operation.

1) Press **JOB**.
2) Press the **+/− SELECTOR** button directly below the name of the sub-mode you wish to use.

VOICE EDIT (Edit)

■ ***Functions:*** Adjust the Feedback, Transpose and Touch Sensitivity settings of a voice; determine its Poly/Mono setting.

These are parameters which, in addition to the **EASY EDIT** parameters, let you create and shape the voices of the YS100.

- The Feedback parameter determines the basic tone qualities of a voice; a low value makes the sound soft and mellow, while higher values generally brighten the sound and give it a metallic edge. In FM synthesis terminology, this parameter allows you to adjust the amount that the modulator operator feedbacks on itself.
- Transpose is used to raise or lower the pitch of the YS100, in semitone steps, to any key.
- Touch Sensitivity determines the degree to which the volume and tone of the voice respond to your playing of the keyboard. The greater the value, the more sensitive the voice will be to your keyboard touch.
- "Poly/Mono" is normally set to "Poly". In PLAY mode, the voice will be able to play up to 8 simultaneous notes. In MULTI mode, the voice will be able to play as many simultaneous notes as specified by the max Notes setting.
  "Mono" mode is a bit unusual. Only one note can be sounding at a time, but if you press a key before releasing the previously pressed key, the sound will change in pitch, but will not "re-attack". I.e., mono mode lets you play "smoothly". (If you then release the second key while the first key is still pressed, the sound will return to the first pitch.)

■ ***Parameter ranges:***

FEEDBACK: 0 — 7
TRANSPOSE: C1 — C5
TOUCH SENS.: 0 — 7
POLY/MONO: Poly, Mono

CONTROL (Cntrl)

■ ***Functions:*** Set pitch bend range; determine assignment of modulation wheel and breath control.

If the preset Control settings for the voice have not been changed, the lower line of the LCD will show "-----" for each controller. You may select the following options for each controller.

PB Range: Pitch bend range of 0 — 12 semitones (in either direction).

MW effect: Select the effect that the MODULATION wheel (located to the left of the keyboard) will have. Select from vibrato, tremolo or wowwow.

Breath cnt: Select the effect that a separately sold BC1 or BC2 Breath Control will have when plugged into the BREATH CONT jack. Select from vibrato, tone or volume.

MIDI BULK OUT (Bulk)

■ ***Functions:*** Send currently edited voice (from edit buffer), 100 user voices, or system setup memory via MIDI OUT. System setup memory includes the following data; tuning, memory protect on/off, MIDI receive channel, MIDI transmit channel, settings for each instrument.

- To execute, press the + **SELECTOR** button directly below the [yes] display of the type of data you wish to send.

Note:

When transmitting 100 user voices to a 32-voice synthesizer (such as the DX11), only voice numbers 75 to 99 will be sent to the receiving synthesizer.

MIDI CHANNEL (MIDI)

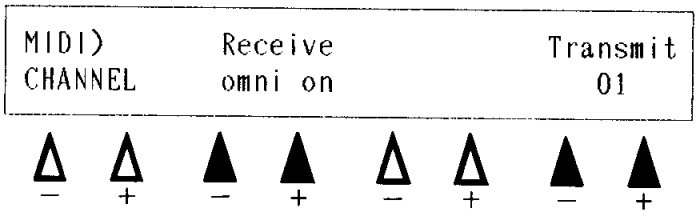
■ ***Functions:*** Set the MIDI reception and transmission channels.

To receive play data (from external MIDI devices such as other sequencers and synthesizers) and send data, the proper MIDI channel settings must be made.

- For normal MIDI operation, the channels of the YS100 and the MIDI device that is either sending or receiving must match.
- Omni On allows the YS100 to receive MIDI data over all channels.
- The Off value disables MIDI reception and transmission in the respective parameters.

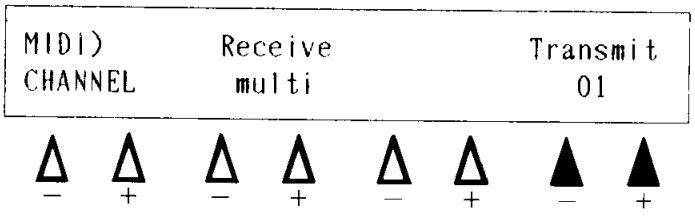
There are two different ways of selecting the MIDI Channel job, and the function as well as the display changes slightly depending on which way is selected.

The first way is directly from the Play Mode or after normal voice selection. (You can also select the MIDI Channel job directly by first pressing the **EXIT** button.)



The MIDI Receive and Transmit channels can then be set as described in this section.

The second way is within the Multi Mode. If you return to the Synthesizer jobs directly from the Multi Mode (without pressing any of the **PLAY MODE** buttons or the **EXIT** button) and select MIDI Channel, the following display will appear:



The "multi" in the display indicates that the Receive channel must be set for each voice in the Multi Mode's MIDI Receive Channel job. Receive channel settings CANNOT be made here.

Note:

If you have made changes in the MIDI Transmit and Receive channels, you may discover that some voices will not sound when you play the keyboard. Here is a short explanation of why that happens and how to avoid it:

Each voice can have its own MIDI Receive channel (set in Multi Mode's MIDI Receive Channel job). If that channel setting matches the MIDI Transmit channel (set in Synthesizer Job Mode's MIDI Channel), the voice will sound. Assigning different MIDI Receive channels to different voices is ONLY for controlling the YS100 from other MIDI instruments and devices; when playing voices from the YS100's keyboard in the Multi Mode, set all Receive channels **AND** the Transmit channel to the same value.

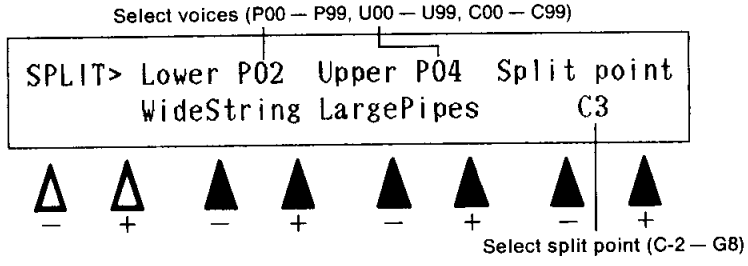
■ *Parameter ranges:*

RECEIVE CHANNEL:	Multi, 1 — 16, Omni On, Off
TRANSMIT CHANNEL:	Off, 1 — 16

SPLIT MODE (Split)

■ ***Functions:*** Set two voices to be played from separate parts of the keyboard and determine the split point that will separate them.

- Split Mode allows two different voices to be assigned to separate sections of the keyboard. Select the voices for the lower and upper parts of the keyboard with the PLAY Mode buttons, to select the memory type from which the voice is to be selected, and with the corresponding **+/− SELECTOR** buttons. The split point can be set by using the fourth pair of **+/− SELECTOR** buttons or by pressing the desired note on the keyboard.



Note:

You can edit voice data directly from the Split Mode by pressing the appropriate **EASY EDIT** button; however, only the low voice of the split can be selected automatically in this way.
To edit the high voice you must return to PLAY mode and select the voice.

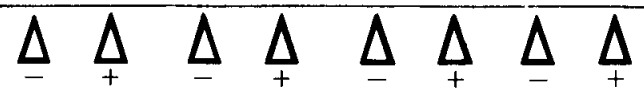
Note:

In the Split Mode the original effect settings for the two voices are ignored. If you want to have an effect on the voices, you must select a "global" effect — an effect setting that will be applied to both voices equally. To do this, press **EFFECT** while in the Split job and make the desired setting. Returning to Play Mode restores the original effect settings for the voices.

MULTI MODE FUNCTIONS

The Multi Mode is a powerful function in which you can play up to eight different voices at the same time and set each to be controlled independently over separate MIDI channels. Each voice can also be given its own key assignment, and volume, pan and detune settings.
When you select the Multi Mode job, you will get the following display.

```
MULTI MODE JOB SELECT >  Select one!
 Max/R.ch/Voice/Volm/Pan/Detun/Nlim/LFO
```



Press one of the −/+ selector buttons to choose a Multi Mode setting to adjust.

MULTI MODE DISPLAY EXAMPLES

For example, the following screens show a setup with a mono bass voice assigned to the lowest octave, a five-note polyphonic piano to the next two octaves, and two different strings voices (each monophonic) together occupying the highest range, and slightly detuned to create a richer sound. The Piano Voice is assigned to be controlled by LFOb, allowing you to create a tremolo effect. (This will depend on the LFO settings for the Piano voice.) The two Strings voices are using vibrato.

```
MAX NOTES> MIDI R.ch=01 , P60 E.Bass 1
  1    5    1    1    0    0    0    0
```

The 8 notes of polyphonic capability of the YS100 must be divided among the instruments used in Multi Mode. (In the following LCDs, notice that a "----" is displayed for instruments whose "Max Note" setting is 0. You will not be able to change settings for these instruments.)

```
RECEIVE CH> Max Notes=1 , P
  01   01   01   01  ---- ---- ---- ----
```

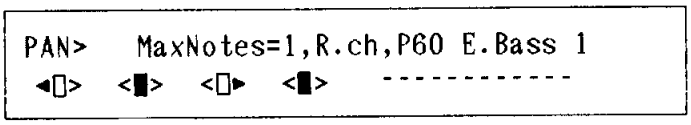
Each instrument can be set to receive a different MIDI channel. This means that a MIDI sequencer connected to the YS100 MIDI IN terminal can independently play specified voices if desired. The keyboard of the YS100 has a "Transmit Channel" setting, and in Multi Mode will play ONLY the instruments whose Receive channel matches the Transmit channel of the keyboard. To play the voices in the above LCD, the YS100 keyboard needs to be set to Transmit channel 1. See MIDI Channel in Job Mode functions.

```
VOICE NO.>Max Notes=1,R.ch=01,E.Bass 1
 P60  P07  P10  P02  ---  ---  ---  ---
```

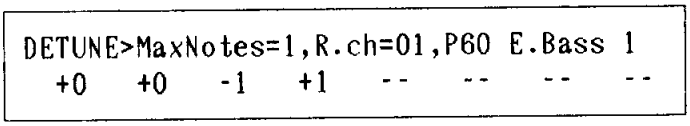
Select a voice (0 - 99) for each instrument.

```
VOLUME>MaxNotes=1,R.ch=01 P.60 E.Bass 1
  99   99   99   99   --   --   --   --
```

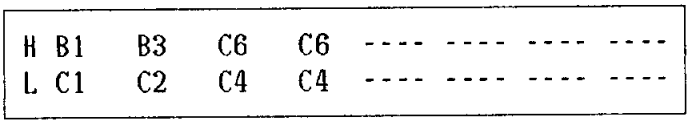
Adjust the volume balance of the instruments.



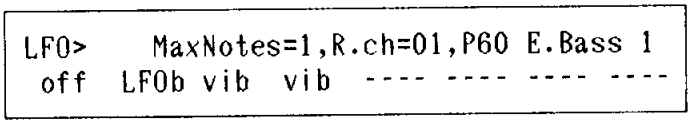
Each instrument can be panned to L, L+R or R in the audio output for a spacious effect when listening in stereo.



By detuning two voices that are to be played in unison (the two string voices in the above example), you can create a feeling of richness.



Each instrument can be limited to a specified area of the keyboard, to make complex keyboard splits.



Each instrument can use its own vibrato generator, or share one of the two LFOs (LFOa and LFOb) for tremolo effects.

MULTI MODE JOB SELECT (Multi)

■ ***Functions:*** Select jobs for the Multi Mode.

The jobs that may be selected are:

- Maximum notes (for each voice)
- MIDI receive channel
- Voice number
- Volume
- Pan
- Detune
- Note limit
- LFO

MAXIMUM NOTES (Max)

■ ***Function:*** Set the maximum number of notes each voice can sound.

■ ***Parameter ranges:***

MAXIMUM NOTES: 0 — 8

MIDI RECEIVE CHANNEL (R ch)

■ ***Function:*** Set the MIDI receive channel for each voice.

■ ***Parameter ranges:***

RECEIVE CHANNEL: 1 — 16, omni

VOICE NUMBER (Voice)

■ ***Function:*** Select the voice number (and the memory type from which it is selected) for each of the Multi Mode voice slots.

- Use the +/− **SELECTOR** buttons below each voice slot parameter to select the voice and use the Play Mode buttons to select the memory type (U = User, C = Card, P = Preset).

■ ***Parameter ranges:***

VOICE NUMBER: 00 — 99

VOLUME (Volm)

■ ***Function:*** Set the volume for each voice.

■ ***Parameter ranges:***

VOLUME: 0 — 99

PAN

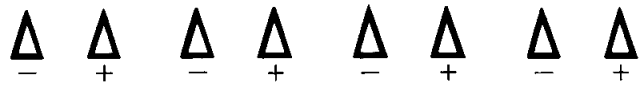
■ ***Function:*** Determine the pan setting for each voice.

- Use the +/− **SELECTOR** buttons below each voice slot parameter to select the pan setting (◄□> = Left, <■> = Center, <□► = Right).

Note:

Effect and Pan cannot be used at the same time. If a pan setting of left or right is adjusted for a voice while that voice or any other in the Multi Mode arrangement has an effect setting, the following message will briefly appear and the effect setting(s) will be ignored.

```
PAN)   MaxNotes=1,R.ch=01,P00 Elegant
*ATTENTION* Effect data was ignored!
```



■ ***Parameter ranges:***

PAN: Left (◄□>), Center (<■>), Right (<□►)

DETUNE (Detun)

■ ***Function:*** Set the degree of detuning for each voice.

Each voice can be detuned up or down relative to the originally set central pitch. Setting different detuning values to different voices lends an overall richness to the sound.

■ ***Parameter ranges:***

DETUNE: −7 — +7

NOTE LIMIT (Nlim)

■ ***Function:*** Set the lowest and highest notes at which each voice will sound.

Note Limit allows you to assign up to eight different voices to sections of the keyboard, in any fashion you desire. This Multi Mode job, in conjunction with Maximum Notes and Voice Number, is most important in creating multi-voice keyboard setups.

For example, a bass voice and a piano voice could be assigned to opposite sides of the keyboard. Note Limit would be used to determine where on the keyboard those sounds could be played. Once the bass voice is selected (in Voice Number), the low note limit could be set to C1 and the high note limit to G2. The piano voice would then be assigned to the range above that (G#2 to C6), allowing you to play independent voices with your left and right hands.

Both the currently set high note limit and low note limit values are shown in two rows on the display, but only the lower row of values can be edited. Use the numeric keypad to reverse the position of the rows on the display: pressing any number from 0 to 4 puts the low note limit row at the bottom of the display for editing; pressing numbers 5 to 9 puts the high note limit at the bottom for editing. The note values for each voice can then be set by first selecting the voice with the appropriate **+/− SELECTOR** button, and by entering the value from either the numeric keypad or the keyboard.

■ ***Parameter ranges:***

LOW NOTE (L): C-2 — G8
HIGH NOTE (H): C-2 — G8

LFO

■ ***Function:*** Set the two independent LFOs and vibrato control for each voice.

The YS100 is equipped with two independent LFOs that can be used simultaneously with any voice. However, since eight voices can be simultaneously sounded, no more than two different LFO settings (tremolo, tone, volume and wowwow) can be used at the same time. The only exception to this rule is vibrato, which is separate from the LFO (though is still considered as an LFO-type effect) and can be applied to any voice in addition to the two independent LFO settings.

Select the voice to be changed by pressing the appropriate **+/− SELECTOR** button and set the LFO value with the +/− keys on the numeric keypad. "LFOa" corresponds to the LFO setting made for the the leftmost voice in the display and "LFOb" is the next different LFO setting. For example, if a strings voice with an LFO setting of tremolo occupied the first, or leftmost, position in the display, "LFOa" would be set to tremolo, and all other voices given an "LFOa" value would have the same tremolo setting. The actual LFO values (Speed, Vibrato and Tremolo) are set in the LFO of the Easy Edit mode. Please refer to that section for more information.

■ ***Parameter values:***

off, LFOa, LFOb, vib

Note:

You can edit voice data directly from the Multi Mode by pressing the appropriate **EASY EDIT** button; however, only the leftmost voice in the display can be selected automatically in this way. To edit other voices, you must return to PLAY mode and select the voice.

Note:

In the Multi Mode, all voices must share the same effect (reverb, delay, distortion, etc.). Initially, this 'global' effect for the Multi Mode will be No. 0 Rev.Hall. To change this, press EFFECT and make the desired setting. It will apply to all the voices. When you return to Play Mode, each voice will regain its original effect settings.

Note:

When editing voices directly from the Multi Mode, it is possible to edit a voice and yet not be able to hear it. This happens when the edited voice (the leftmost voice on the display) has a MIDI Receive channel that is different from the MIDI Transmit channel. To hear only the voice you are editing, you can:

1) Set the MIDI Receive channel (in the Multi Mode's MIDI Receive Channel job) to the same value as the MIDI Transmit channel (in the Synthesizer Job Mode's MIDI Channel).

2) Set the MIDI Receive channel (in the Multi Mode's MIDI Receive Channel job) of all other voices to a different value than that set above in step #1.

3) Press the desired **EASY EDIT** button and begin editing.

OR (if the above three steps appear too troublesome),

Select the voice manually (as described in the OPERATION BASICS chapter) and edit it as you usually do.

MULTI MODE OPERATION — A SETUP EXAMPLE

The Multi Mode has some very powerful features, but it also contains some of the more complicated functions of the YS100. This section is meant to serve as a quick introduction to the operation of some of the Multi Mode jobs and give you a clearer grasp of how to use them for your own applications.

In this setup example, we'll create a keyboard arrangement in which three separate instrument sounds — piano, brass and solo violin — can be played.

The three voices used will be Preset voices #07 Piano 1, #56 Violin 1, and #75 Sax 1.

Before we assign these sounds to sections of the keyboard, we should find out what LFO settings these voices have and which are most important. Since the voice occupying the leftmost position in the Multi Mode displays determines the setting for "LFOa" (refer back to the description in the Multi Mode's LFO job), the voice whose LFO setting we feel is most important to keep should be assigned to the leftmost spot. (Remember that a voice's original LFO setting may be overridden or ignored if another voice precedes it in the display.) Our example is quite easy, since #56 Violin 1 is the only voice in which an LFO parameter is set to greater than 0 (in this case, tremolo = 15).

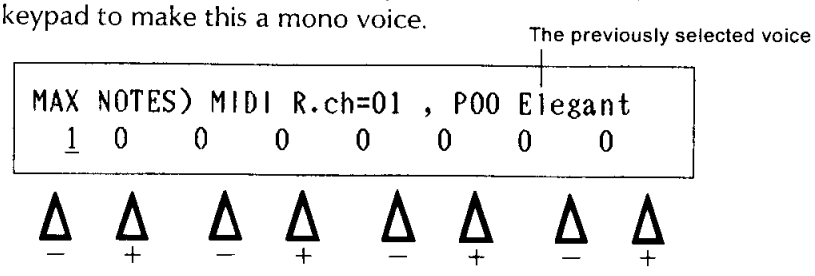
Now, let's set up the Multi parameters.

1) Press **JOB** and select **Multi**.

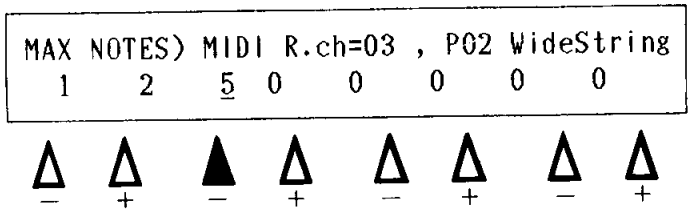
2) Select **Max** (since we must determine the maximum number of notes for each voice before doing anything else).

3) Press the leftmost − **SELECTOR** button.

4) Since the leftmost position will be occupied by the solo violin voice, enter "1" from the numeric keypad to make this a mono voice.

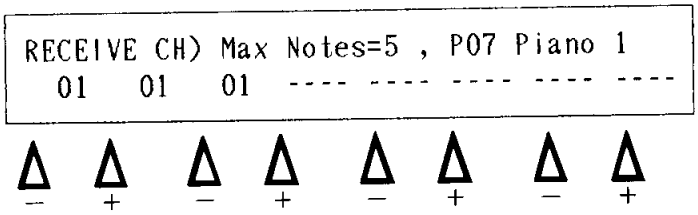


5) Now, set the maximum notes for the other two voices: 2 for voice #75 (the brass sound) and 5 for #07 (the piano sound).



6) Press **JOB** again and select **R.ch** (Receive Channel) this time.

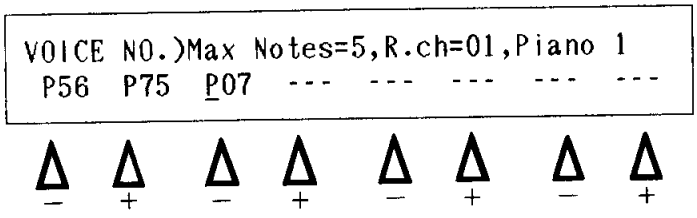
7) Set all Receive Channel values for the three voices to "01." The display should appear as shown below:



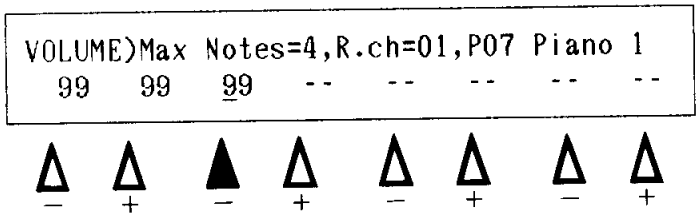
8) Select the voice numbers for each voice position. Press **JOB** again, then select **Voice**.

9) Press **PRESET** (since we must select the memory type in which the voice is located).

10) Enter "56" on the numeric keypad. Then enter Preset voice #75 and #07 in the same way. The display should appear as shown below:



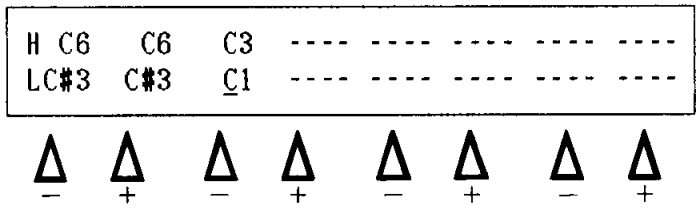
11) Set the volumes of the voices to an appropriate balance.



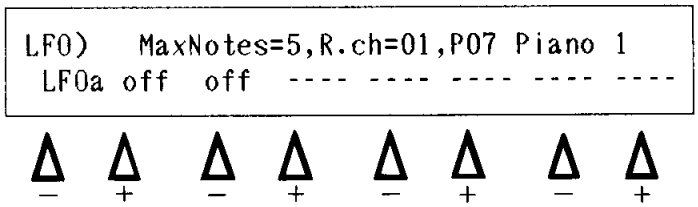
12) Next, set the note limits for each voice. This will determine the part of the keyboard at which each voice can be played. Press **JOB** again, then select **Nlim**.

13) Press the leftmost − **SELECTOR** button. You can now determine the note limits for the violin voice. The bottom of the display should contain the low note limit parameters. If it doesn't (if the "H" and "L" in the display are reversed), press "4" on the numeric keypad.

14) Set voice #75 to the same low note and high note limit values (C#3 and C6) and set voice #07 to low and high limits of C1 and C3. In this way, the lower two octaves will be used to play the piano voice and the top three octaves will be used for the brass and violin. The display should appear as follows.



15) Finally, select the LFO settings for each voice. Press **JOB**, then select **LFO**. Use the **+/− SELECTOR** buttons under the voice positions to select the desired voice, then use the + and − keys on the numeric keypad to set the value. The solo violin voice, since it has the only LFO setting, should be set to "LFOa." The other two voices may be set to "off."



Now, play the voices from the keyboard... and then go on to create and experiment with your own Multi Mode settings.

APPENDICES

FM SYNTHESIS

This section explains how the YS100 produces sounds using a method called FM Synthesis. It is not absolutely necessary that you read this section to be able to use the YS100, but understanding the "inner workings" of FM synthesis will help you use the Easy Edit functions to modify sounds to your liking.

INTERESTING SOUNDS AND BORING SOUNDS

The buzzing and beeping sounds used in early electronic music were very easy for a computer to make, but boring for humans to listen to. These boring sounds had a very simple "waveform" (sound wave). Sounds of real instruments (sax, piano, voice, etc.) are more interesting to listen to, but have a much more complex waveform. The following diagram shows a simple sound wave and a complex sound wave. (Of course these waveforms are not visible to the eye --- they are just graphs of the sound wave that reaches our ear.)

Simple Sound Wave
(boring, "electronic-sounding")

Complex Sound Wave
(interesting, "natural-sounding")

The **FM Synthesis** used in the YS100 synthesizer is an easy, yet powerful way to create the complex sounds that make real instruments sound so good.

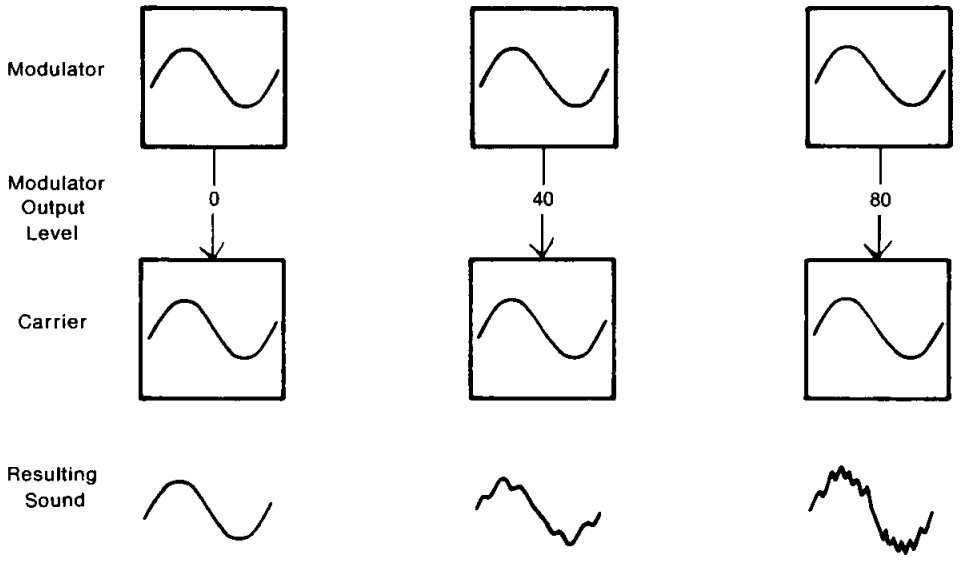
CARRIER AND MODULATOR

FM synthesis is very simple, but very versatile. It uses two simple sound waves, and **frequency modulates** one wave with the other. ("FM" stands for Frequency Modulation, just like in FM radio.)

Frequency Modulation is just another name for Vibrato, or continuous change in pitch. Musical vibrato (the type found in the YS100 Easy Edit LFO parameter) is relatively slow---usually no faster than ten cycles of pitch change every second. However the frequency modulation or "vibrato" in FM synthesis is so fast, that it results not in a changing pitch, but in a **more complex sound**.

You can probably guess that the greater the modulation, the more complex the resulting sound will be. (The harder you step on a cat's tail, the louder it complains!) The following diagram shows the effect of three different amounts of modulation. (The YS100 Easy Edit TONE Brilliance parameter determines the amount of modulation.)

To help you understand what is happening, the two sound waves in the diagram are labeled **Modulator** (the wave that modulates) and **Carrier** (the wave that is being modulated, or "carries" the modulation).



From left to right, the diagrams show the effect of increasing modulation to produce an increasingly complex sound. If the Modulator output is increased even more, the resulting sound will become more and more complex, until it finally becomes just noise --- a rasping or buzzing sound. On the other hand, if we change the output level of the Carrier (the sound wave **being** modulated), only the **volume** of the resulting sound will be affected. We can summarize this in the following two rules; 1. **The modulator output level determines the tone**, and 2. **the carrier output level determines the volume**.

Another way to change the resulting sound is to change the frequency (pitch) of the Modulator (this is what the YS100 Easy Edit TONE Wave parameter does). The frequency of the Modulator determines the **intervals** at which overtones (the individual pitches or harmonics that combine to make a single "tone") are produced, and affects the basic character of the resulting sound. In general, positive settings of the Wave parameter will make more widely-spaced overtones (higher overtones), resulting in a more sparkling sound.

Some settings of the TONE Wave parameter can produce metallic or gritty sounds. In most instrumental sounds, overtones are at regular multiples of the fundamental pitch. However if the Modulator frequency is an irregular multiple of the Carrier frequency, the overtones will be at irregular multiples of the fundamental pitch (the first harmonic), resulting in a dissonant sound.

SOUNDS THAT CHANGE IN TIME

Most sounds in the real world change (in both volume and tone) as time goes by. In technical terms, this "shape in time" is called the **Envelope**. For example, a piano note begins loud and bright-sounding, and decays to a quieter volume and a softer tone. An organ note stays at the same volume and tone as long as a key is pressed.

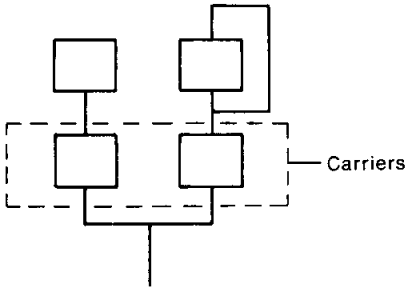
The component inside a synthesizer that produces this change is called the **Envelope Generator** (EG for short). Each Modulator and Carrier in the YS100 has its own EG. Since the Modulator output level determines the tone, the EG of the Modulator will determines the change in **tone** over time. Since the Carrier output level determines the volume, the EG of the Carrier determines the change in **volume** over time.

The Easy Edit EG parameters let you independently adjust the envelopes for "volume" (the EG of the Carrier), or "tone" (the EG of the Modulator), or "both" (the EG of both Carrier and Modulator).

FOUR OPERATORS

Whether it is being used as a Modulator or Carrier, each sound source in Yamaha FM synthesizers is called an **operator**. Each operator in the YS100 has its own output level, frequency and EG.

For simple FM synthesis only two operators are necessary, but the YS100 has **four**, providing a wide variety of possibilities. These four operators can be connected in eight different ways. Each combination of the four operators is known as an **algorithm**, and every YS100 sound uses one of these algorithms. For example, the algorithm shown below connects the four operators to make **two** independent Modulator/Carrier pairs, for even more complex, interesting sounds.



Other algorithms use one Modulator to modulate three Carriers, or three Modulators all modulating a single Carrier. Obviously, the role of each of the four operators will be different depending on whether it is used as a Carrier or Modulator. (However, the YS100 Easy Edit functions do not allow you to see or change the algorithm of the four operators.)

Each operator is able to produce one of eight different sound waves; the simple sound wave shown in the first diagram, or a more complex sound wave. The Easy Edit TONE Input-4Nos! parameter lets you specify a sound wave 0--7 for each operator. Of course, if a complex Carrier is modulated, or if the Modulator itself is complex, the result will be an even more complex sound wave. This allows the TONE Input-4Nos! parameter to produce major changes in tone quality.

FEEDBACK

FM synthesis requires a Modulator and a Carrier, but it is possible for a single operator to **modulate itself!** This is called Feedback. In each combination of operators, one of the operators is able to modulate itself. (In the first diagram in "Four Operators", this is indicated by the line connecting the upper right operator with itself.)

The Synthesizer Job VOICE EDIT Feedback parameter allows you to adjust this Feedback level from 0—7. Increasing the Feedback has the same type of effect as increasing Modulator output level---a more complex, brighter sound.

MIDI AND MIDI APPLICATIONS

The Musical Instrument Digital Interface (MIDI), first brought out in 1982, has proved to be one of the most important developments in electronic music. By applying the power of MIDI to your YS100, you can carry out an unlimited number of previously impossible performance operations, including the following:

- Play several synthesizers at one time from one YS100.
- Control performance functions such as pitch bend and modulation on other synthesizers as expressively as if they were being played directly.
- Change voices on other synthesizers and tone generators from your YS100, for impressive and effortless sound changes in real time.
- Set effects devices such as digital delay and digital reverberation units to change their effects programs along with voice program changes, to complement and add to the effects section of the YS100.
- Use the YS100 with sequencers and rhythm machines for completely automated song recording and performance.

As you can see, MIDI is a very powerful musical tool. However, you won't need a course in computer science to use your YS100 effectively with other MIDI instruments. All you need to know is what MIDI devices can do, and how you can control them with your YS100. After that, MIDI does all the work for you.

In every MIDI setup there is a master and a slave. The master can be a keyboard or sequencer — or both, like the YS100 — and the slave (a sound-generating instrument) is played by it.

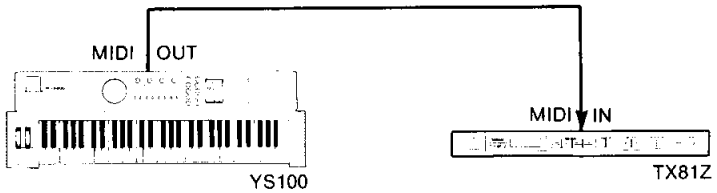
In essence, MIDI is extremely simple: it simply reduces all musical data to numbers, which can easily be sent from one instrument to another (hence the term "Digital Interface"). In practice, MIDI is unbelievably versatile, which is as it should be, for it is designed to fulfill the demands of professional musicians. Indeed, new uses of MIDI are being discovered at an extraordinary rate, both by MIDI engineers, and by musicians like yourself, experimenting and refining the art of digital music on stages and in studios around the world.

To illustrate some of the possibilities of MIDI and perhaps to trigger some ideas of your own, here are a few applications of the YS100.

Note:

You should know how the MIDI messages transmitted by the YS100 affect the sound of the slave (i.e., your MIDI synthesizer or tone generator) and how you can program your MIDI instrument to respond to these messages. For that information, please refer to the sections on the MIDI Synthesizer Job and the MIDI TRANSMIT CHANNEL Sequencer Job in the REFERENCE chapter. The basic procedure is to match the MIDI Transmit and Receive channels on the respective instruments. Also be sure to consult the owner's manuals of the particular MIDI instruments you are using.

1. YS100 PLUS TX81Z MULTI-TIMBRAL FM TONE GENERATOR.

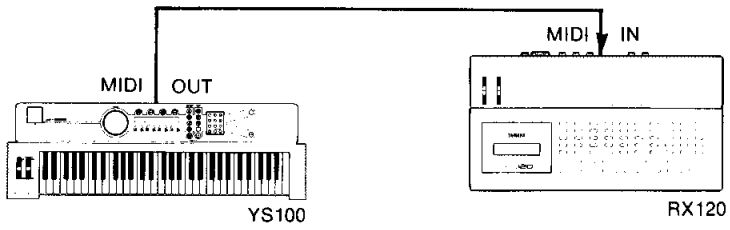


In this basic yet versatile arrangement, the YS100 is used to control the Yamaha TX81Z FM Tone Generator, which, like the YS100, can create up to eight superb FM voices simultaneously. The eight voices of both instruments could be set to play from different sections of the keyboard for a full, powerful sound.

Programming each voice to occupy a separate register of the YS100's keyboard also allows you to experiment with various split and layer combinations. For example, program a bass sound for C1 to C2, piano and cello sounds layered together in the

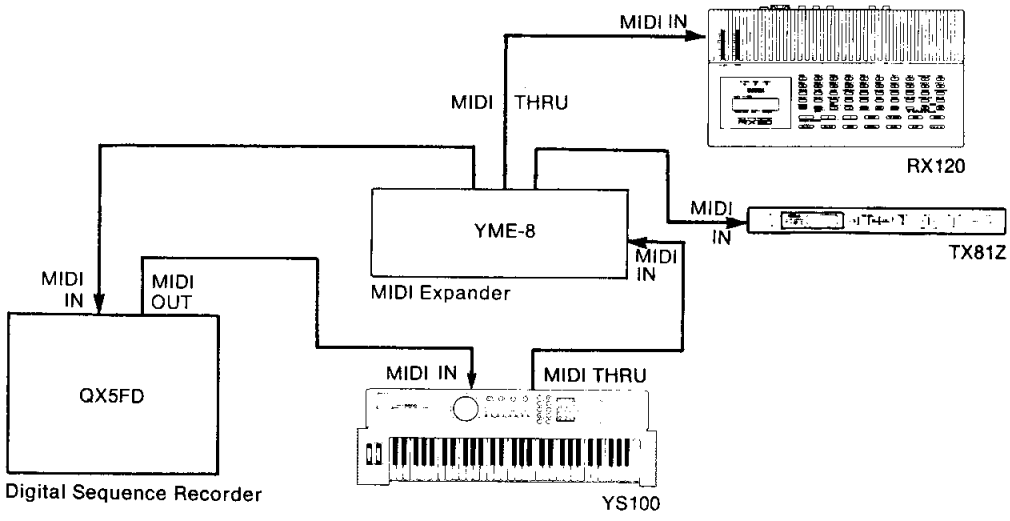
C#2 to C4 range, 4 different string sounds between C#4 and F5, and a clarinet sound at the top. Depending on which register you play in, you can get four distinct sounds. Voices can also be set to overlap, for added tonal interest.

2. YS100 PLUS RX120 DIGITAL RHYTHM PROGRAMMER



In another simple setup, the YS100 is used to play the authentic drum and percussion sounds of the RX120 Digital Rhythm Programmer. Each of the RX120's sounds can be played from a different key.

3. YS100 PLUS QX5FD DIGITAL SEQUENCE RECORDER



The eight voices of the YS100 can also be controlled by an external sequencer, such as the Yamaha QX5FD Digital Sequence Recorder. Compositions can be recorded and edited on the QX5FD and played back with the voices of the YS100. The keyboard of the YS100 can also be used to enter notes on the QX5FD; you can record to the QX5FD just as you would to a multitrack tape recorder, and build up your songs part by part. Other tone generators and rhythm machines can be connected to the QX5FD to complement the voices of the YS100 and fill out the instrumental parts of your composition.

GLOSSARY

If the YS100 happens to be the very first synthesizer you've ever owned or played, chances are that a few of the words in this manual are unfamiliar to you.

Let's say you're reading through a few pages of the manual, and the words "parameter," "polyphonic," and "pitch bend" shoot by in rapid succession. If your heart catches in fear or your brain suddenly shuts down at this point, then this section of the manual is for you!

The GLOSSARY will take you on a short guided tour of some of the YS100's main functions and, at the same time, explain briefly and simply some synthesizer jargon.

Be sure to also take a look at the FM SYNTHESIS and MIDI AND MIDI APPLICATIONS sections, for more information and ideas.

USING THE SOUNDS OF THE YS100

To play a synthesizer such as the YS100, the first thing you need are sounds. The YS100 is capable of making a wealth of sounds and sound effects, and we call each of these sounds **voices**. Expert sound engineers have designed hundreds of voices for the YS100, and you can choose any one of them at any time because they are kept permanently (or temporarily, in some cases) in voice memory.

There are two main groups of voice memory:

Internal memory keeps voices within the synthesizer itself. Voices in internal memory can be selected any time you play the YS100.

External memory keeps voices on devices outside the synthesizer. An example of external memory is the voice card, which allows you to, for example, play the same voices on your friend's YS100 that you play on your own.

The internal memory of the YS100 has two types: **Preset** and **User**.

Preset memory cannot be erased or changed; it is permanent.

User memory CAN be erased or changed. You can keep the voices that you create yourself in user memory.

External memory for the YS100 is in the form of cards and also comes in two types: **ROM** cards and **RAM** cards.

ROM cards, just like Preset memory, are permanent and cannot be erased or changed.

RAM cards are like User memory because you can change and erase voices on them.

SAVE, STORE, and LOAD

Save, Store, and **Load** are memory operations. You use these when you want to move voices between different memory types.

The **Save** operation (**SAVE, LOAD** button) is used to move a group of voices (100 voices per group) from internal memory to external memory. For example, when you have filled up the User memory with 100 of your own original voices and need more space, you can save those 100 voices to RAM card instantly by using the Save operation.

The **Store** operation (**STORE** button) is used to move only one voice between memory locations. Unlike Save above, you can move the voice within memory types as well as between them. You use this operation mainly to keep voices to User or Card memory just after editing them. You could also use this operation to change the order of User or Card voices.

The **Load** operation (**SAVE, LOAD** button) is the opposite of Save. It is used to move a group of voices (100 voices per group) from external memory to internal memory.

Use this when you want to put a new group of voices in the User memory.

PLAYING THE YS100

The YS100 is loaded with performance features that help you get the most out of its expressive synthesizer voices. These are called **real-time controllers** because they can be used to control the sound while you are playing. (See the CONTROL Job in the REFERENCE chapter for more about controllers.)

To the left of the keyboard are two of the main controllers, the **pitch bend wheel** and the **modulation wheel**.

The pitch bend wheel allows you to raise or lower the pitch of the instrument as you play it.

The modulation wheel allows you to control the amount of **modulation** (vibrato, tremolo, or wowwow effect) on a voice in real time. (**Vibrato** creates a wavering of the pitch of a sound, **Tremolo** creates a wavering of the volume, and **Wowwow** creates a wavering of the tone or brightness. These effects, by the way, are created by the **LFO** section of the YS100. You can learn more about the LFO in the CHANGING THE LFO SETTINGS OF A VOICE section of the OPERATION BASICS chapter.)

Here are some other performance controllers you can use:

Breath Control — With the use of an optional BC1 breath controller, you can control the volume or the amount of LFO modulation by blowing into the mouthpiece.

Key Velocity — With this feature, the volume of the YS100 changes depending on how hard or soft you play the keyboard, just as an acoustic piano does. This is also known as **Touch Sensitivity**.

Sustain Pedal — Holding the sustain pedal down as you play and release notes causes the notes to remain sounding as if you didn't release them.

Each voice of the YS100 can sound up to eight notes at a time. The eight simultaneous notes of the YS100 can be played either **Polyphonically** or **Monophonically**. Polyphonic (or **Poly**) means that if eight notes are being played at once, all eight will be heard. This is the usual mode when playing piano or organ sounds. Monophonic (or Mono) play means that only the last played note will sound. This can be more realistic when playing sounds that are naturally monophonic, such as solo wind or brass instruments, since only one note will be heard at a time."

EDITING VOICES

Do you remember what we told you about User and Preset memory? That you CAN'T change Preset memory voices, and that you CAN change User memory voices? Well, that's not true. Not technically, that is.

The fact is, any voice — Preset or User — can be changed, but not within its memory location. To change the sound of a voice, you have to bring it to a special memory location in the YS100 by selecting the voice, change it there, and then store it to User memory or RAM card. (Remember, you can't keep a new voice in preset memory or ROM; the voices kept there are permanent.)

When you do this, you are **editing** a voice. Making edits in a voice can involve anything from changing its name to changing its LFO setting.

When you edit a voice, you can only change one thing at a time. For example, if you edit the LFO setting, there are actually three parts of LFO you can change: Speed, Vibrato, and Tremolo. Each of these is called a **parameter**. A parameter is the a part or aspect of a voice that can be edited, and each voice has at least a dozen parameters.

rameters.

And when you edit a parameter — the Speed parameter, for instance — you're changing the number that indicates the speed or, in other words, you're editing the **value** of the parameter.

VOICE EDITING MODES AND PARAMETERS

All of the editing functions of the YS100 are covered in clear explanations in both the OPERATION BASICS and REFERENCE chapters, so please refer to those sections for information on specific modes and parameters.

ERROR MESSAGES

The YS100 will display one of the following messages to indicate an unexpected event or an aborted operation. Make changes as suggested here and repeat the operation.

- All error messages appear on the bottom row of the display.

VOICE LOADING AND SAVING MESSAGES

```
*ERROR* Verify NG!-----Please try again!
```

This appears if a mistake was made during saving or loading. Removing a card while in the saving or loading process will result in this message. Try to save or load again.

```
*ERROR* Protect!---Reset memory protect!
```

This appears when internal memory protect or write protect switch of RAM is on when executing a saving or loading operation. This message will also result when MIDI data (including voice data) is received while internal memory protect is on. When memory protect (or write protect) is on, data cannot be saved or received. Set the memory protect (or write protect) to off and attempt the operation again.

- See CARD OPERATIONS in the OPERATION BASICS section and SAVE, LOAD AND STORE OPERATIONS in the REFERENCE section for more information.

```
*ERROR* Format!------Please format card!
```

This message will appear when trying to save from or load to an unformatted card. This will also result when a card formatted to a system other than the YS100 is used. Re-format the card for the YS100.

- See CARD OPERATIONS in the OPERATION BASICS section and SAVE, LOAD AND STORE OPERATIONS in the REFERENCE section for more information.

```
*ERROR* Not ready!---Please insert card!
```

This message will appear if a card has not been inserted properly when card voices are selected or when save, load or store operations are attempted. Insert the card securely into the slot.

This message will appear if User voices or Card voices are selected when battery power is low.

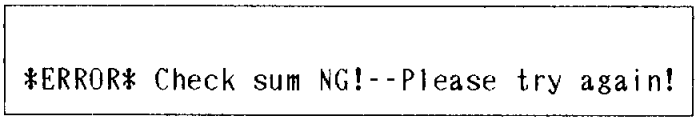
When User voices are selected, this message indicates that the battery inside the YS100 is getting low. When Card voices are selected, this message indicates that the battery inside the RAM memory card is getting low.

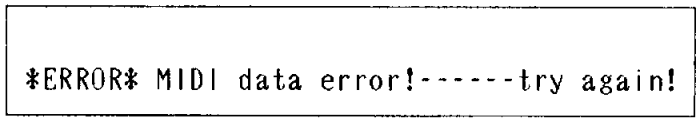
If the battery is not replaced soon after this message appears, voice data will be irretrievably lost. Replace the battery as soon as possible.

- For internal battery replacement: bring your YS100 to the store where you purchased it or to your nearest Yamaha service center. Do not try to replace the battery yourself.
- For RAM memory card battery replacement: purchase the appropriate battery and replace it yourself. See the owner's manual of the RAM memory card or the SAVE, LOAD AND STORE OPERATIONS part of the REFERENCE section of this manual.

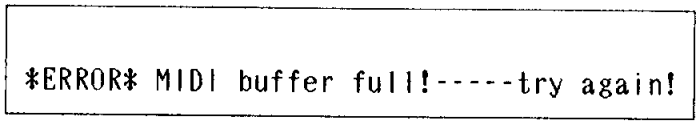
When the battery is replaced, all the data memorized in the card will be erased. Transfer the data to the YS100's internal memory or another card before replacing the battery.

MIDI RECEPTION AND TRANSMISSION MESSAGES





This will appear when MIDI data has not been received during a transfer operation. Try the operation again.



This will appear when MIDI data has been received more quickly than can be handled. Try the operation again.

```
*ERROR* MIDI ch!-Please set Transmit ch!
```

This will appear when voice data is transmitted when the MIDI transmit channel is off. Set the MIDI transmit channel to a value other than OFF. (See MIDI CHANNEL in the REFERENCE section.)

MULTI MODE MESSAGES

```
*ATTENTION* effect data was ignored!
```

This message will appear if an effect setting is adjusted for a voice while that voice or any other in the Multi Mode arrangement has a pan setting. The pan setting(s) will be ignored in the Multi Mode when effects are used. (See EFFECT MODE in the REFERENCE section.)

```
*ATTENTION* Pan data was ignored!
```

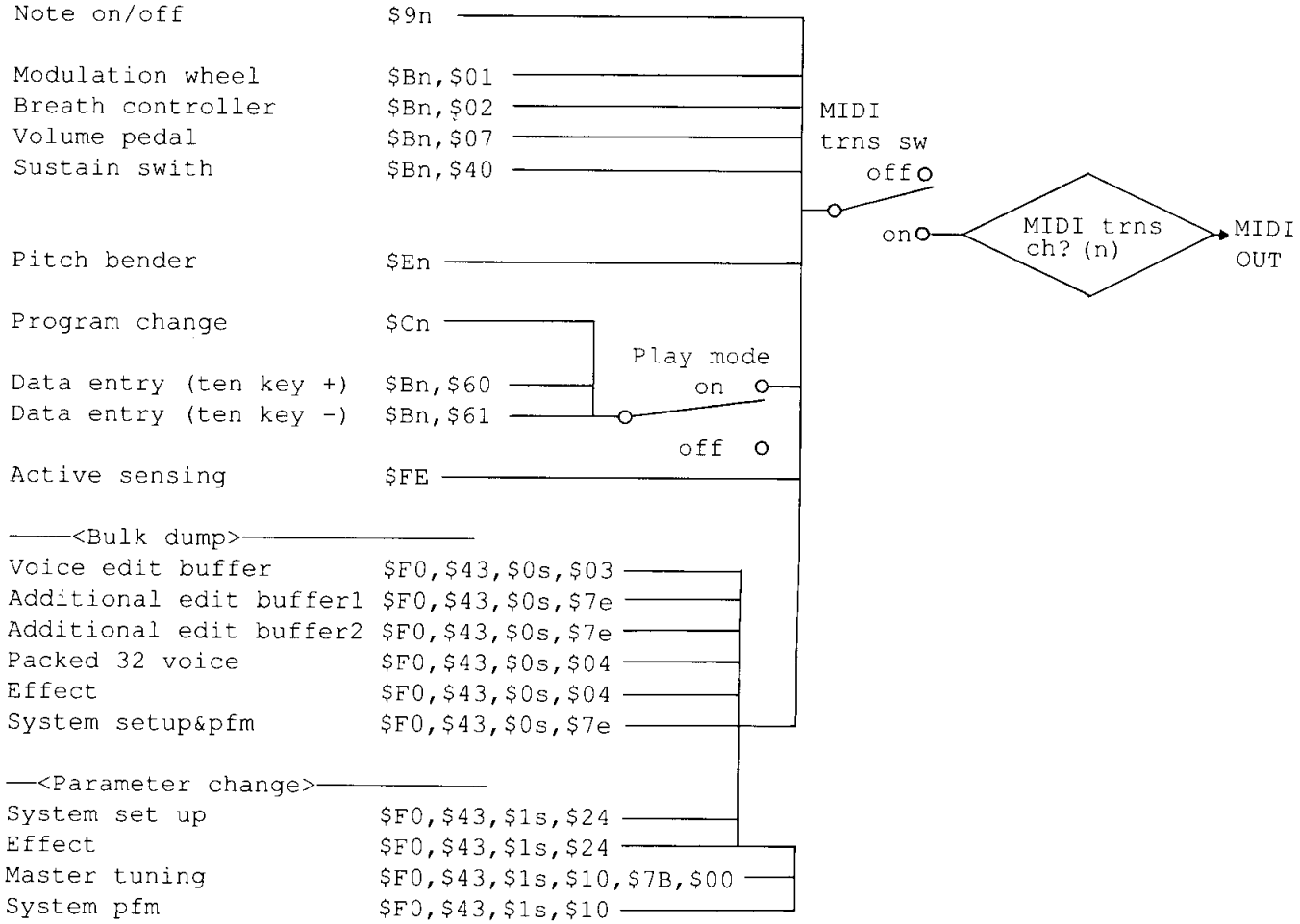
This message will appear if a pan setting of left or right is adjusted for a voice while that voice or any other in the Multi Mode arrangement has an effect setting. The effect setting(s) will be ignored in the Multi Mode when pan is used. (See PAN of the MULTI MODE FUNCTIONS in the REFERENCE section.)

SPECIFICATIONS

Keyboard:	61 velocity-sensitive keys
Sound Source:	FM (4-operator/8-algorithm), simultaneous 8 notes output
Internal Program RAM:	100 voice programs
Internal Program ROM:	100 voice programs
External Memory:	RAM/ROM card (32 kBytes), for programs (100 programs × 1 bank)
Display:	LCD: 40 characters × 2 lines
Controls:	Rotary Volume, Pitch Bend Wheel, Modulation Wheel
Front Panel Terminals:	Phones × 1 Breath Control × 1 (for optional BC-1 or BC-2 Breath Controller)
Rear Panel Terminals:	Output × 2 L/R Volume × 1 (for optional FC-7 Foot Controller) Sustain × 1 (for optional FC-4, FC-5 Footswitch) MIDI IN × 1 MIDI OUT × 1 MIDI THRU × 1
Dimensions (W × D × H):	990 × 320 × 105 mm (39 × 12-5/8 × 4-1/8")
Weight:	6.9 kg (15 lb 3 oz)

MIDI DATA FORMAT

(1) Transmitting Conditions



(2) Transmitting Conditions

Transmits when the transmit channel is set to a value other than OFF.

2-1 Channel Information

(1) Channel Voice Message

1)KEY ON/OFF

STATUS	1001nnnn	(9n)	n=channel number
NOTE No.	0kkkkkkk		k=36(C1)~96(C6)
VELOCITY	0vvvvvvv	(v=0)	KEY ON
CONTROL value	00000000	(v=0)	KEY OFF

2)CONTROL CHANGE

STATUS	1011nnnn	(Bn)	n=channel number
CONTROL No.	0ccccccc		
DATA	0vvvvvvv		

—— CONTROL NUMBER ———

C=1	Modulation wheel	v=0~127
C=2	Breath controller	v=0~127
C=7	Foot volume	v=0~127
C=64	Sustain switch	v=0:off,127:on
C=96	Data entry switch inc	v=127:on (play mode only)
C=97	Data entry switch dec	v=127:on (play mode only)

3)PROGRAM CHANGE (play mode only)

STATUS	1100nnnn	(Cn)	n=channel number
PROGRAM No.	0ppppppp		p=0~99

4)PITCH BENDER

STATUS	1110nnnn	(En)	n=channel number
VALUE (LSB)	0uuuuuuu		
VALUE (MSB)	0vvvvvvv		

Resolution: 7bit
Transmission of data occurs as follows:

MSB		LSB		
0000 0000	(00)	0000 0000	(00)	minimum value
0100 0000	(40)	0000 0000	(00)	middle value
0111 1111	(7F)	0111 1110	(7E)	maximum value

2-2 System Information

(1) System Realtime Messages

ACTIVE SENSING CLOCK		
STATUS	11111110	(FE)

(2) System Exclusive Messages

1) PARAMETER CHANGE

STATUS	11110000	(F0)	
ID No.	01000011	(43)	
SUB STATUS	0001ssss	(1s)	s=Transmit channel
GROUP NUMBER	0ggggghh		g=Group number
			h=Sub group number
PARAMETER No.	0ppppppp		
DATA	0ddddddd		
|	|		
DATA	0ddddddd		
EOX	11110111	(F7)	

This is a list of the parameter group numbers and parameter numbers of the 3 types.

Type	g	h	p	Data bit number
SYSTEM SET UP	9	0	1~3,7	1
SYSTEM PFM	4	0	0~95	1
EFFECT	9	0	88~90	1
MASTER TUNING	4	0	123	2

2) BULK DUMP

STATUS	11110000	(F0)	
ID No.	01000011	(43)	
SUB STATUS	0000ssss	(0s)	s=Transmit channel
GROUP NUMBER	0fffffff		f=Format number
BYTE COUNT(MSB)	0bbbbbbb		
BYTE COUNT(LSB)	0bbbbbbb		
DATA	0ddddddd	]	
	|		
	0ddddddd	]	
CHECK SUM	0eeeeeee		
EOX	11110111	(F7)	

This is a list of the format numbers of the 3 types.

Type	f	Byte count
VOICE EDIT BUFFER	3	93
PACKED 32 VOICE	4	4096

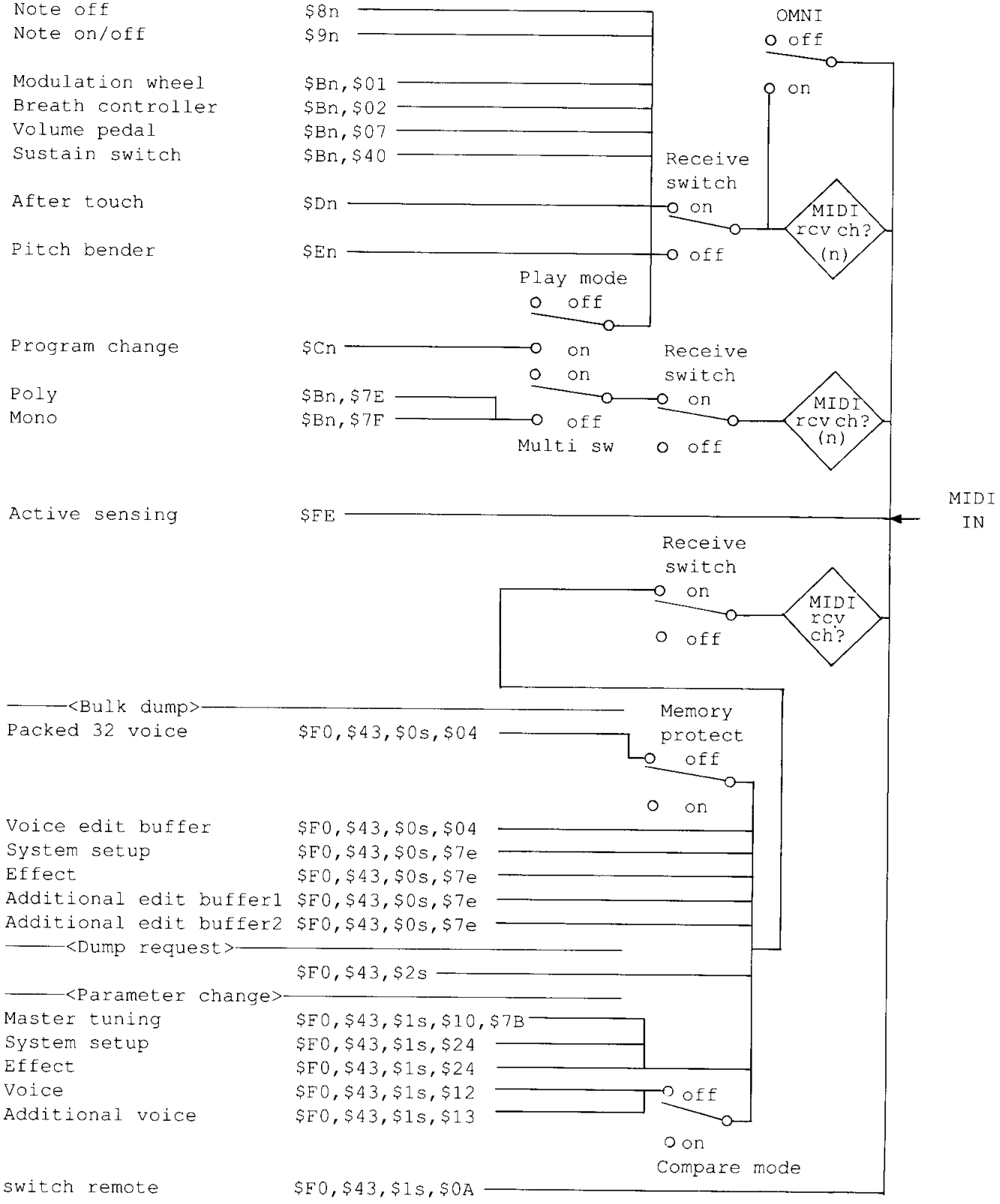
2)UNIVERSAL BULK DUMP

STATUS	11110000	(F0)	
ID No.	01000011	(43)	
SUB STATUS	0000ssss	(0s)	s=Transmit channel
GROUP NUMBER	01111110	(7E)	
BYTE COUNT(MSB)	0bbbbbbb		
BYTE COUNT(LSB)	0bbbbbbb		
CLASIFICATION-	0aaaaaaa	ASCII'L	
NAME	0aaaaaaa	ASCII'M	
	0aaaaaaa	ASCII'_	
	0aaaaaaa	ASCII'_	
DATA FORMAT-	0mmmmmmm	ASCII	
NAME			
	0mmmmmmm		
DATA	0ddddddd		
	0ddddddd		
CHECK SUM	0eeeeeee		
EOX	11110111	(F7)	

This is a list of the formats of 1 type.

Type	b	a	m
SYSTEM SETUP & PFM	100	LM__	8036S_
EFFECT	3	LM__	EFEDS_
Additional Edit Buffer1	23	LM__	8976AE
Additional Edit Buffer2	10	LM__	8023AE

(1.3) Receiving Condition



Reception Data

4-1 Channel Information

There are 8 MIDI reception channels, from INST 1 to INST 8, when MULTI is ON.

(1) Channel Voice Messages

1) KEY OFF

STATUS	1000nnnn	(8n)	n=channel number
NOTE No.	0kkkkkkk		k=0(C-2)~127(G8)
VELOCITY	0vvvvvvv		v is ignored

2) KEY ON/OFF

STATUS	1001nnnn	(9n)	n=channel number
NOTE No.	0kkkkkkk		k=0(C-2)~127(G8)
VELOCITY	0vvvvvvv	(v=0)	KEY ON
	00000000	(v=0)	KEY OFF

3) CONTROL CHANGE

STATUS	1011nnnn	(Bn)	n=channel number
CONTROL No.	0ccccccc		
CONTROL VALUE	0vvvvvvv		

—— CONTROL NUMBER ————

C=1	Modulation wheel	v=~127
C=2	Breath controller	v=~127
C=7	Volume	v=~127
C=64	Sustain switch	v=0:off,127:on

4) PROGRAM CHANGE (play mode only)

STATUS	1100nnnn	(Cn)	n=channel number
PROGRAM No.	0ppppppp		p=0~127

Selection of CARD/PRESET/USER can be done only form the front panel switchs.
p=100~127 are received as 0~27.

5) AFTER TOUCH

STATUS	1101nnnn	(Dn)	n=channel number
	0vvvvvvv		v=0~127

6) PITCH BENDER

STATUS	1110nnnn	(En)	n=channel number
VALUE (LSB)	0uuuuuuu		
VALUE (MSB)	0vvvvvvv		

Only data of the MSB side are active.

Resolution: 7bit

MSB	
0000 0000 (00)	minimum value
0100 0000 (40)	middle value
0111 1111 (7F)	maximum value

(2) Channel Mode Messages

Not received when MULTI is ON.
OMNI switch is not available.

1) MONO/ALL NOTE OFF

STATUS	1011nnnn	(Bn)	n=channel number
CONTROL No.	01111111	(7E)	
CONTROL VALUE	0mmmmmmm		Only 1 is recognized and sets MONO MODE.
			Ignored when m=1

2) POLY/ALL NOTE OFF

STATUS	1011nnnn	(Bn)	n=channel number
CONTROL No.	01111110	(7F)	
CONTROL	00000000		

4-2 System Information

(1) System Common Messages

Same as transmitting.

(2) System Realtime Messages

ACTIVE SENSING CLOCK		
STATUS	11111110	(FE)

Sensing starts once this code is received. When neither status nor data are detected for longer than 300 msec., the MIDI receiving buffer will be cleared and all currently sounding voices and sustain switch data will be set to OFF. Also after touch, foot volume, modulation wheel and pitch bend data will be initialized.

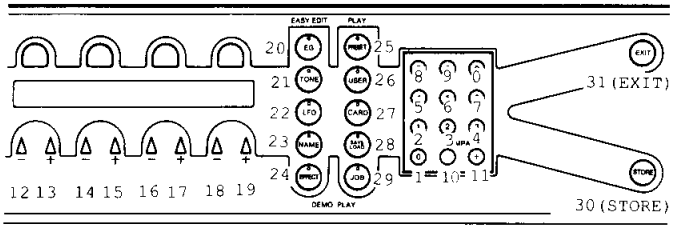
(3) System Exclusive Messages

INST 1 channel receives when MULTI is ON.

1) PARAMETER CHANGE SWITCH REMOTE

STATUS	11110000	(F0)
ID No.	01000011	(43)
SUB STATUS	0001ssss	(1s)
GROUP NUMBER		(24)
PARAMETER No.	0ppppppp	p=switch number+91(91~127)
DATA	0ddddddd	d=0:off,d=127:on
EOX	11110111	(F7)

This is received regardless of the Receive sw/channel setting. Switch numbers correspond to the positions indicated on the chart below.
p=127 is power on reset.



The following messages are received when Receive channels match.

3) PARAMETER CHANGE

STATUS	11110000	(F0)	
ID No.	01000011	(43)	
SUB STATUS	0001ssss	(1s)	s=Receive channel
GROUP NUMBER	0ggggghh		g=Group number
			h=sub group number
PARAMETER No.	0ppppppp		
DATA	0ddddddd		
|	|		
DATA	0ddddddd		
EOX	11110111	(F7)	

Type	g	h	p	Data byte number
VOICE	4	2	0~93	1
ADDITIONAL VOICE	4	3	0~26	1
EFFECT	9	0	4~6	1
SYSTEM SET UP	9	0	1~3,7	1
SYSTEM PFM	4	0	0~95	1
MASTER TUNING	4	0	123	2

4) BULK DUMP
Same as transmission.

5) UNIVERSAL BULK DUMP
Same as transmission.

6) DUMP REQUEST

VOICE EDIT BUFFER		(f=3)	┐ In this condi-
PACKED 32VOICE		(f=4)	┘ tion.
SONG SEQUENCE		(f=10)	
STATUS	11110000	(F0)	
ID No.	01000011	(43)	
SUB STATUS	0010ssss	(2s)	s=Receive channel
GROUP NUMBER	0fffffff		f=FormatNo.(3,4,10)
EOX	11110111	(F7)	

7) UNIVERSAL BULK DUMP REQUEST

STATUS	11110000	(F0)	
ID No.	01000011	(43)	
SUB STATUS	0010ssss	(2s)	s=Receive channel
GROUP NUMBER	01111110	(7E)	
CLASIFICATION-	0aaaaaaa	ASCII'L	
NAME	0aaaaaaa	ASCII'M	
	0aaaaaaa	ASCII'_	
	0aaaaaaa	ASCII'_	
DATA FORMAT-	0mmmmmmm	ASCII	
NAME	⋮		
	0mmmmmmm		
EOX	11110111	(F7)	

This is a list of the formats of 4 types.

Type	a	m
ACED + VCED	LM__	8976AE
ACED2 + ACED +VCED	LM__	8023AE
EFEDS + ACED2 + ACED +VCED	LM__	8036EF
EFEDS + SYSTEM SETUP	LM__	8036S_

< Attached list 1 >

Parameters indicated as %%% in the list are of common format with the DX11, but they do not function with YS100/200.

Parameter list of parameter change and bulk

*** VCED *** 93 byte voice edit parameter (1 bulk edit format)
para. cng g=4, h=2

	VCED address (para.cng)	b7	b6	b5	b4	b3	b2	b1	b0		
edit	0	0	0	0	———	AR	———			1-31	
	1	0	0	0	———	D1R	———			0-31	
	2	0	0	0	———	D2R	———			0-31	
	3	0	0	0	0	———	RR	———		1-15	
	4	0	0	0	0	———	D1L	———		0-15	
	5	0	———	———	LS	———	———	———		0-99	
	6	0	0	0	0	0	0	-RS-		0-3	OP.4
	7	0	0	0	0	0	———EBS———			0-7	
	8	0	0	0	0	0	0	0	AME	0-1	
	9	0	0	0	0	0	———	KVS———		0-7	
	10	0	———	———	OUT	———	———	———		0-99	
	11	0	0	———	———	CRS	———	———		0-63	(RATIO)
		0	0	———	CRS	———	x	x		0-63	(FIX)
	12	0	0	0	0	0	———DET ———			0-6	(center=3)
	13										
	.										OP.2
	.										
	26										
	.										OP.3
	.										
	39										
	.										OP.1
	.										
	52	0	0	0	0	0	———ALG———			0-7	
	53	0	0	0	0	0	———FBL———			0-7	
	54	0	———	———	LFS	———	———	———		0-99	
	55	0	———	LFD	———	———	———	———		0-99	
	56	0	———	PMD	———	———	———	———		0-99	
	57	0	———	AMD	———	———	———	———		0-99	
	58	0	0	0	0	0	0	0	SY	0-1	LFO SYNC
	59	0	0	0	0	0	0	-LFW-		0-3	
	60	0	0	0	0	0	———PMS———			0-7	
	61	0	0	0	0	0	0	-AMS-		0-3	
	62	0	0	———	———	TRPS	———	———		0-48	(center=24)

function		63	0	0	0	0	0	0	0	MO	: MONO	
		64	0	0	0	0	———	PBR	———		0-12	
		65	0	0	0	0	0	0	0	PM	: PORMOD	
	%%%	66	0	———	———	PORT	———	———	———		0-99	
		67	0	———	———	FC VOL	———	———	———		0-99	
	%%%	68	0	0	0	0	0	0	0	SU	0-1 sus.(F.SW)	
	%%%	69	0	0	0	0	0	0	0	PO	0-1 por.(F.SW)	
	%%%	70	0	0	0	0	0	0	0	CH	0-1 chorus set 0	
		71	0	———	———	MW PITCH	———	———	———		0-99	
		72	0	———	———	MW AMPLI	———	———	———		0-99	
		73	0	———	———	BC PITCH	———	———	———		0-99	
		74	0	———	———	BC AMPLI	———	———	———		0-99	
		75	0	———	———	BC P BIAS	———	———	———		0-100 (center0=50)	
		76	0	———	———	BC E BIAS	———	———	———		0-99	
		77	0	——	VOICE	NAME	1	——	——		32-127	
		78	0	——	VOICE	NAME	2	——	——			
		79	0	——	VOICE	NAME	3	——	——			
		80	0	——	VOICE	NAME	4	——	——			
		81	0	——	VOICE	NAME	5	——	——			
		82	0	——	VOICE	NAME	6	——	——			
		83	0	——	VOICE	NAME	7	——	——			
		84	0	——	VOICE	NAME	8	——	——			
		85	0	——	VOICE	NAME	9	——	——			
		86	0	——	VOICE	NAME	10	——	——			
	%%%	87	0	———	———	PR1	———	———	———		0-99 PEG	
	%%%	88	0	———	———	PR2	———	———	———		0-99	
	%%%	89	0	———	———	PR3	———	———	———		0-99	
	%%%	90	0	———	———	PL1	———	———	———		0-99 (center=50)	
	%%%	91	0	———	———	PL2	———	———	———		0-99	
	%%%	92	0	———	———	PL3	———	———	———		0-99	

*** parameter change only ***

nn (para.no)	b7	b6	b5	b4	b3	b2	b1	b0	dd (value)	comment
93	0	0	0	0	OP1	OP2	OP3	OP4	0-1	op. on(1)/off(0)

*** ACED *** 23 byte additional parameters (1 bulk edit format)
para. cng g=4, h=3

NO.	(para)	b7	b6	b5	b4	b3	b2	b1	b0	Data	note
0	0	0	0	0	0	0	0	0	FIX	0-1	OP.4
1	1	0	0	0	0	0	—— FIXRG ——			0-7	0(255Hz)-7(32KHz)
2	2	0	0	0	0	——— FINE ———				0-15	(7:F=0-3)
3	3	0	0	0	0	0	—— OSW ——			0-7	
4	4	0	0	0	0	0	0	-EGSFT-		0-3	0(off)-3(12dB)
5	5										OP.2
10	10										OP.3
15	15										OP.1
19	19									0(off)	
20	20	0	0	0	0	0	—REV—			0-7	0(off),7(first)
21	21	0	——— FC PITCH ———							0-99	
22	22	0	——— FC AMPLI ———							0-99	

*** ACED2 *** 10 byte additional parameter 2 for V2
para. cng g=4, h=3

NO.	para.	Nob	7	b6	b5	b4	b3	b2	b1	b0	Data	note
0	23		0	——— AT PITCH ———							0-99	
1	24		0	——— AT AMPLI ———							0-99	
2	25		0	——— AT P.BIAS ———							0-100	center 0 = 50
3	26		0	——— AT EG BIAS ———							0-99	
4	27		0	——— reserved ———								
5	28		0	——— reserved ———								
6	29		0	——— reserved ———								
7	30		0	——— reserved ———								
8	31		0	——— reserved ———								
9	32		0	——— reserved ———								

*** EFEDS *** 3 byte effect parameter for YS
para. cng g=9, h=0

NO.	para.	Nob	7	b6	b5	b4	b3	b2	b1	b0	Data	note
0	4		0	0	0	0	EFFECT PRESET No.				0-10	
1	5		0	0	———EFFECT TIME ———						0-40	
2	6		0	——— EFFECT BALANCE ———							0-99	

*** remote switch ***
para. cng g=9, h=0

g	h p	switch
9	0 91	ten key 0
92		ten key 1
93		ten key 2
94		ten key 3
95		ten key 4
96		ten key 5
97		ten key 6
98		ten key 7
99		ten key 8
100		ten key 9
101		ten key -
102		ten key +
103		left -
104		left +
105		left center -
106		left center +
107		right center -
108		right center +
109		right -
110		right +
111		eg
112		tone
113		lfo
114		effect
115		name
116		card
117		user
118		preset
119		sv,ld
120		job
121		store
122		exit
123		seq/play
124		rec
125		stop/cont.
126		start
127		power on reset

<Attached list 2 >

Detail of Bulk Dump Format

★ VCED

f = 3
data size = 93 ($005D)
data format = 7bit binary
total bulk size = 93+8 = 101

f0,43,0n,03,00,5D,<VCED data>,sum,f7

★ VMEM

f = 4
data size = 128x32 = 4096 ($1000)
data format = 7bit binary
total bulk size = 4096+8 = 4104

f0,43,0n,04,20,00,<VMEM data>,sum,f7

★ ACED

f = 126 LM__8976AE
data size = 23+10 = 33 ($0021)
data format = 7bit binary
total bulk size = 33+8 = 41

f0,43,0n,7e,00,21,LM__8976AE,<ACED data>,sum,f7

★ ACED2

f = 126 LM__8023AE
data size = 10+10 = 20 ($0014)
data format = 7bit binary
total bulk size = 20+8 = 28

f0,43,0n,7e,00,14,LM__8023AE,<ACED2 data>,sum,f7

★ EFEDS

f = 126 LM__8036EF
data size = 3+10 = 13 ($000D)
data format = 7bit binary
total bulk size = 13+8 = 21

f0,43,0n,7e,00,0D,LM__8036EF,<EFEDS data>,sum,f7

★ SYSTEM SETUP + PFM

f = 126 LM__8036S_

data size = 10+100 = 110 ($006E)
data format = 7bit binary
total data size = 110+8 = 118

f0,43,0n,7e,00,62,LM__8036S_,<system data>,sum,f7

<Attached list 3 >

*** VMEM *** 128 byte (91 byte is used) voice data (memory format)

adrress	b7	b6	b5	b4	b3	b2	b1	b0	dd (value)	comment
0	0	0	0	AR					1-31	
1	0	0	0	D1R					0-31	
2	0	0	0	D2R					0-31	
3	0	0	0	0	RR				1-15	
4	0	0	0	0	D1L				0-15	OP.4
5	0	LS							0-99	
6	0	AME	EBS			KVS			0-1,0-7,0-7	
7	0	OUT							0-99	
8	0	0	CRS						0-63 (RATIO)	
	0	0	CRS				x	x	0-63 (FIX)	
9	0	0	0	RS		DET			0-3,0-6	
10										
.										OP.2
.										
20										
.										OP.3
.										
30										
.										OP.1
.										
40	0	SY	FBL			ALG			0-1,0-7,0-7	
41	0	LFS							0-99	
42	0	LFD							0-99	
43	0	PMD							0-99	
44	0	AMD							0-99	
45	0	PMS		-AMS			-LFW		0-7,0-3,0-3	
46	0	0	TRPS						0-48	
47	0	0	0	0	PBR				0-12	
48	0	0	0	CH	MO	SU	PO	PM	0-1,0-1,0-1,0-1,0-1	
%%% 49	0	PORT							0-99	
50	0	FC VOL							0-99	
51	0	MW PITCH							0-99	
52	0	MW AMPLI							0-99	
53	0	BC PITCH							0-99	
54	0	BC AMPLI							0-99	
55	0	BC P BIAS							0-100	
56	0	BC E BIAS							0-99	

	57	0	VOICE NAME 1	32-127
	58	0	VOICE NAME 2	
	59	0	VOICE NAME 3	
	60	0	VOICE NAME 4	
	61	0	VOICE NAME 5	
	62	0	VOICE NAME 6	
	63	0	VOICE NAME 7	
	64	0	VOICE NAME 8	
	65	0	VOICE NAME 9	
	66	0	VOICE NAME 10	
%%%	67	0	PR1	0-99
%%%	68	0	PR2	0-99
%%%	69	0	PR3	0-99
%%%	70	0	PL1	0-99
%%%	71	0	PL2	0-99
%%%	72	0	PL3	0-99

*** VMEM ***

No.	b7	b6	b5	b4	b3	b2	b1	b0	Data	note
0 . . 67 . 72	same as DX21 VMEM PEG PR1 PEG PL3									
73	0	0	-EGSFT-		FIX	——FIXRG ——				OP.4
74	0	——	OSW ——		———	FINE ——				
75										OP.2
77										OP.3
79										OP.1
81	0	0	0	0	0	———REV——				FUNCTION
82	0	————	FC PITCH	————						
83	0	————	FC AMPLI	————						

*** VMEM for V2 ***

No.	b7	b6	b5	b4	b3	b2	b1	b0	Data	note
84	0	————	AT PITCH	————						
85	0	————	AT AMPLI	————						
86	0	————	AT P.BIAS	————						center=0
87	0	————	AT EG BIAS	————						
88-90	0	0	0	0	0	0	0	0		

*** VMEM for YS ***

No.	b7	b6	b5	b4	b3	b2	b1	b0	Data	note
91	0	0	0	0	EFFECT PRESET No.				0-10	
92	0	0	————	EFFECT TIME	————				0-40	
93	0	————	EFFECT BALANCE	————					0-99	
94-127	0	0	0	0	0	0	0	0		

note) AT P.BIAS

data	0,,,,,,49,50,51,,,,,,100
LCD	-50,,,,-1, 0,+1,,,,,,+50
MIDI	51,,,,,100,0,+1,,,,,,+50

*** SYSTEM SETUP *** 100 byte sytem set up

para. cng g=4, h=0

No.	para	b7	b6	b5	b4	b3	b2	b1	b0	Data	note
0	123,0	0	TUNE							0-127	master tune center=64

para. cng g=9, h=0

1	1	0	0	0	MIDBCH					0-16	basic rcv ch 16:omni,17:off
2	2	0	0	0	0	MIDTCH				0-15	trans ch,16:off
3	3	0	0	0	0	0	0	0	MLOCK	0-1	mem. protect

para. cng g=4, h=0

4	0	0	0	0	0	NUM of NOTE				0-8	INST1
5	1	0	0	0	0	0	0	Mem type		0-2	0:preset,1:user,2:card
6	2	0	Voice Number							0-99	
7	3	0	0	0	Recv. ch					0-16	16(omni)
8	4	0	LIMIT/L							0-127	0(C-2)-127(G8)
9	5	0	LIMIT/H							0-127	
10	6	0	0	0	0	DETUNE				0-14	7(center)
11	7	0	0	NOTE SHIFT						0-48	24 (center)
12	8	0	VOLUME							0-99	
13	9	0	0	0	0	0	0	OUT_ASGN		0-3	0(off),1(I),2(II),3(I II)
14	10	0	0	0	0	0	0	LFO SEL		0-3	0(off),1(I),2(II),3(vib)
15	11	0	0	0	0	0	0	0	0	0	reserved
16	12										INST2
.											
28	24										INST3
.											
40	36										INST4
.											
52	48										INST5
.											
64	60										INST6
.											
76	72										INST7
.											
88	84										INST8
.											
99	95										

para. cng (only)g=9, h=0

7	0	0	0	0	0	0	bulk block	0-4	midi bulk block

<Attached list 4 >

Dump Request Messages

★ VCED	f0,43,2n,03,f7
★ VMEM	f0,43,2n,04,f7
★ ACED + VCED	f0,43,2n,7e,LM__8976AE,f7
★ ACED2 + ACED + VCED	f0,43,2n,7e,LM__8023AE,f7
★ EFEDS + ACED2 + ACED + VCED	f0,43,2n,7e,LM__8036EF,f7
★ EFEDS + system setup	f0,43,2n,7e,LM__8036S_,f7

note) Ascii number	HEX
★ LM__8976AE	4c,4d,20,20,38,39,37,36,41,45
★ LM__8023AE	4c,4d,20,20,38,30,32,33,41,45
★ LM__8036EF	4c,4d,20,20,38,30,33,36,45,46
★ LM__8976S_	4c,4d,20,20,38,39,37,36,53,20

<Attached list 5 >

parameter change No. List

<<< $F0,$43,$1n,... >>>

VCED	$12(g=4,h=2),p=0-92,93
ACED	$13(g=4,h=3),p=0-22
ACED2(V2)	$13(g=4,h=3),p=23-33
SYS(sw remote)	$24(g=9,h=0),p=91-127
SYS(setup)	$24(g=9,h=0),p=0-7
SYS(pfm)	$10(g=4,h=0),p=0-95
MASTER TUNING	$10(g=4,h=0),p=123

YAMAHA [Digital synthesizer] Date : 6/16, 1988
Model YS100 MIDI Implementation Chart Version : 1.0

Function ...		Transmitted	Recognized	Remarks
Basic	Default	1 - 16	1 - 16	memorized
Channel	Changed	1 - 16	1 - 16	
Mode	Default	3	1, 2, 3, 4	memorized
	Messages	x	POLY, MONO(M=1)	single mode only
	Altered	**********	x	
Note Number		36 - 96	0 - 127	
	True voice	**********	12 - 107	
Velocity	Note ON	o 9nH,v=1-127	o v=1-127	
	Note OFF	x 9nH,v=0	x	
After Touch	Key's	x	x	
	Ch's	x	o	
Pitch Bender		o	o 0-12 semi	7 bit resolution
Control Change	1	o	o	Modulation wheel
	2	o	o	Breath control
	7	o	o	Volume
	64	o	o	Sustain
	96	o	x	Data entry +1
	97	o	x	Data entry -1 (Play mode only)
Prog Change		o 0 - 99	o 0 - 127 *1	
	True #	**********	0 - 99	
System Exclusive		o	o	Voice parameters
System Common	Song Pos	x	x	
	Song Sel	x	x	
	Tune	x	x	
System Real Time	Clock	x	x	
	Commands	x	x	
Aux Mes- sages	Local ON/OFF	x	x	
	All Notes OFF	x	o (126,127)	single mode only
	Active Sense	o	o	
	Reset	x	x	

Notes: *1 = play mode only

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

YAMAHA

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