YAMAHA
SY85 Music Synthesizer
Owner's Manual 1
- Getting Started -

The SY85 Music Synthesizer delivers the incredible Yamaha AWM sound with improved quality and performance power. In addition to superior sound, the SY85 features "Quick Edit" modes that provide fast, easy access to the most important voice and performance editing jobs so you can customize the sound without having to deal with the details. Of course, you still have full programming power when you want to do some serious voicing. For unmatched on-stage expression the SY85 also features a sophisticated real-time control system that lets you modify up to 8 different parameters as you play — in addition to the traditional pitch and modulation wheels. There's even a full-featured sequencer that allows the SY85 to function as a complete music workstation. In terms of sound, real-time control, and total production power, the SY85 offers unprecedented levels of quality and performance.

We urge you to read the owner's manuals thoroughly in order to realize the full potential of the SY85 (see "About the Manuals" on page 7), and keep the manuals in a safe place for future reference.

MAIN FEATURES

● AWM2 Tone Generator System

2nd-generation Advanced Wave Memory (AWM2) technology delivers dazzling, true-to-life sound with 30-note polyphony.

● Large-capacity Waveform ROM

A large 6-megabyte waveform ROM provides plenty of capacity for top-quality samples.

● Expandable Waveform RAM

The SY85 comes supplied with 512 kilobytes of waveform RAM that can be used to load extra waveforms from a supplied waveform disk or disks from other sources. Up to 3-megabytes additional RAM can be installed for dramatically increased capacity.

● 256 Voices and 128 Performance Combinations

4 internal memory banks hold 256 individual voices. Voices can be played individually, or up to four voices can be combined and "layered" to form as many as 128 performance combinations.

● Advanced Digital Filters

Programmable digital filters allow the SY85 sound to be tailored as required. The filters also feature a resonance parameter equivalent to that found on the SY77 and SY99.

● Top-quality Effects

The basic quality of the SY85 voices is further enhanced by a range of programmable effects offering quality rivalling some of the finest separate signal processing systems — these are essentially the same effects that enhance the musical impact of the SY99.

● **Extensive Real-time Control**

    In addition to the pitch and modulation wheels, and dual output level controls, the SY85 has 8 slide controls that can be used to control a range of parameters while performing for unmatched expressive power.

● **Easy Editing Interface**

    8 function keys and slide controls below the large 40-character x 2-line LCD display allow direct selection and control of the parameters appearing directly above them in the display for efficient, intuitive editing. A 5x5 mode selection matrix further enhances operation by allowing fast, easy access to any of the SY85 modes.

● **9-track 10-song Sequencer**

    Full-function sequencer with 8 standard tracks and 1 dedicated rhythm track. Each sequencer "song" has its own 16-part multi-instrument setup. Rhythm parts can be recorded as "patterns" and then chained to form the complete rhythm track. The SY85 also includes 100 rhythm patterns that you can simply select and use.

● **Other Features**
- 3.5" floppy disk drive for versatile data management and storage.
- External memory card slots.
- Quick and in-depth editing modes.
- Function select matrix enhances operating ease.
- 61-key initial and after-touch sensitive keyboard.
- 2 assignable stereo outputs.

Contents

Precautions !! PLEASE READ THIS BEFORE PROCEEDING !!

■ Location
Do not expose the instrument to the following conditions to avoid deformation, discoloration, or more serious damage.

- Direct sunlight (e.g. near a window).
- High temperatures (e.g. near a heat source, outside, or in a car during the daytime).
- Excessive humidity.
- Excessive dust.
- Strong vibration.

■ Power Supply
- Turn the power switch OFF when the instrument is not in use.
- The power supply cord should be unplugged from the AC outlet if the instrument is not to be used for an extended period of time. (Reconnecting AC power will re-initialize all settings. As a result, user memory will be erased.)
- Unplug the instrument during electric storms.
- Avoid plugging the instrument into the same AC outlet as appliances with high power consumption, such as electric heaters or ovens. Also avoid using multi-plug adapters since these can result in reduced sound quality and possibly damage.

■ Turn Power OFF When Making Connections
- To avoid damage to the instrument and other devices to which it is connected (a sound system, for example), turn the power switches of all related devices OFF prior to connecting or disconnecting audio and MIDI cables.

■ MIDI Connections
- When connecting the SY85 to MIDI equipment, be sure to use high-quality cables made especially for MIDI data transmission.
- Avoid MIDI cables longer than about 15 meters. Longer cables can pick up electrical noise that can causes data errors.

■ Handling and Transport
- Never apply excessive force to the controls, connectors or other parts of the instrument.
- Always unplug cables by gripping the plug firmly, not by pulling on the cable.
- Disconnect all cables before moving the instrument.
- Physcal shocks caused by dropping, bumping, or placing heavy objects on the instrument can result in scratches and more seious damage.

■ Cleaning

- Clean the cabinet and panel with a dry soft cloth.
- A slightly damp cloth may be used to remove stubborn grime and dirt.
- Never use cleaners such as alcohol or thinner.
- Avoid placing vinyl objects on top of the instrument (vinyl can stick to and discolor the surface).

■ Electrical Interference

- This instrument contains digital circuitry and may cause interference if placed too close to radio or television receivers. If this occurs, move the instrument further away from the affected equipment.

■ Data Backup

- The SY85 contains a special long-life battery that retains the contents of its internal voice, performance, song, and non-volatile wave memory even when the power is turned OFF. The backup battery should last for several years. When the backup battery needs to be replaced "Change internal battery !" will appear on the display when the power is turned on. When this happens, have the backup battery replaced by qualified Yamaha service personnel. DO NOT ATTEMPT TO REPLACE THE BACKUP BATTERY YOURSELF!
- Internal memory data can be corrupted due to incorrect operation. Be sure to "save" important data to a floppy disk frequently so you have a backup to revert to if something happens to damage the data in memory. Also note that magnetic fields can damage data on the disk, so it is advisable to make a second back-up copy of disks that contain very important data, and keep backup disks in a safe place away from stray magnetic fields (i.e. away from speakers, appliances containing motors, etc.).

■ Handle Floppy Disks and the Disk Drive With Care

- Use only 3.5" 2DD type floppy disks.
- Do not bend or apply pressure to the floppy disk. Do not open the shutter and touch the surface of the floppy disk inside.
- Do not expose the disk to high temperatures. (e.g. direct sunlight)
- Do not expose the disk to magnetic fields. Magnetic fields can partially or totally erase data on the disk, rendering the disk unreadable.
- To eject a floppy disk, press the eject button slowly as far as it will go then, when the disk is fully ejected, remove it by hand.
  The disk may not be ejected properly if the eject button is pressed too quickly, or it is not pressed in as far as it will go (the eject button may become stuck in a half-pressed position and the disk extends from the drive slot by only a few millimeters). If this happens, do not attempt to pull out the partially ejected disk. Using force in this situation can damage the disk-drive mechanism or the floppy disk. To remove a partially ejected disk, try pressing the eject button once again, or push the disk back into the slot and then repeat the eject procedure carefully.
- Do not insert anything but floppy disks into the disk drive. Other objects may cause damage to the disk drive or the floppy disk.

■ Data Card and Wave Card

- Never attempt to force a voice card into the waveform slot, or vice versa. Doing so can cause serious damage to the card connectors.

■ Service and Modification

- The SY85 contains no user serviceable parts. Opening it or tampering with it in anyway can lead to irreparable damage and possibly electric shock. Refer all servicing to qualified YAMAHA personnel.

■ Third-party Software

- Yamaha can not take any responsibility for software produced for this product by third-party manufacturers. Please direct any questions or comments about such software to the manufacturer or their agents.

YAMAHA is not responsible for damage caused by improper handling or operation.

About the Manuals

The SY85 comes with two manuals — **Getting Started** and **Feature Reference**.

■ The Getting Started Manual (this manual)

In addition to an overview of the SY85 controls and connectors (page 10), the Getting Started manual contains six chapters that take you through the main procedures you will need to know to become familiar with your SY85:

1. **Setting Up Your System** [Page 17]
Basic system connections, powering up, loading and playing the demo, and loading the pre-programmed voice and performance data.

2. **Selecting And Playing Voices** [Page 21]
Selecting and playing voices from the INTERNAL 1, INTERNAL 2 and CARD memories, and using the real-time controls.

3. **The Performance Mode** [Page 30]
Selecting and playing performance combinations from the INTERNAL 1, INTERNAL 2 and CARD memories, and programming original performance combinations.

4. **Voice Editing & Effects** [Page 40]
Fast, easy voice editing and effect setup using the VOICE QUICK EDIT mode.

5. **The Sequencer** [Page 47]
Recording and playing sequences and patterns.

6. **Data Management** [Page 64]
Some ideas on how to efficiently manage your SY85 data.

We recommend that you go through the tutorials in sequence while actually carrying out procedures on your SY85. Once you've gone through the entire TUTORIALS section in this way, you should be familiar enough with the SY85 to need only the Feature Reference manual in future.

■ Icons

The following simple icons are used throughout the Getting Started manual to draw attention to important points and information where necessary. The icons also make it easier to differentiate between information that you should read immediately and information that can be skipped until later, hopefully helping you to become familiar with the SY85 in the quickest, most efficient manner possible.

This icon warns of possible hardware damage, software malfunction, or any other serious problem that may occur due to improper operation or set up.

This icon marks information that you must read — i.e. important steps or procedures that are essential for proper, efficient, or easy operation.

The magnifying-glass icon indicates information that may not be essential for general operation, but is a more detailed explanation of a feature, a description of the principle involved, etc. You can skip this information if full details are not required immediately.

Hints or ideas that are not specifically musical but may make operation easier or more interesting are marked by the light-bulb icon.

■ The Feature Reference Manual

The Feature Reference manual is the "nuts and bolts" reference for the SY85, individually describing its many functions in detail. The Feature Reference manual is divided into 7 main sections, each describing the various functions within a particular SY85 edit or utility mode.
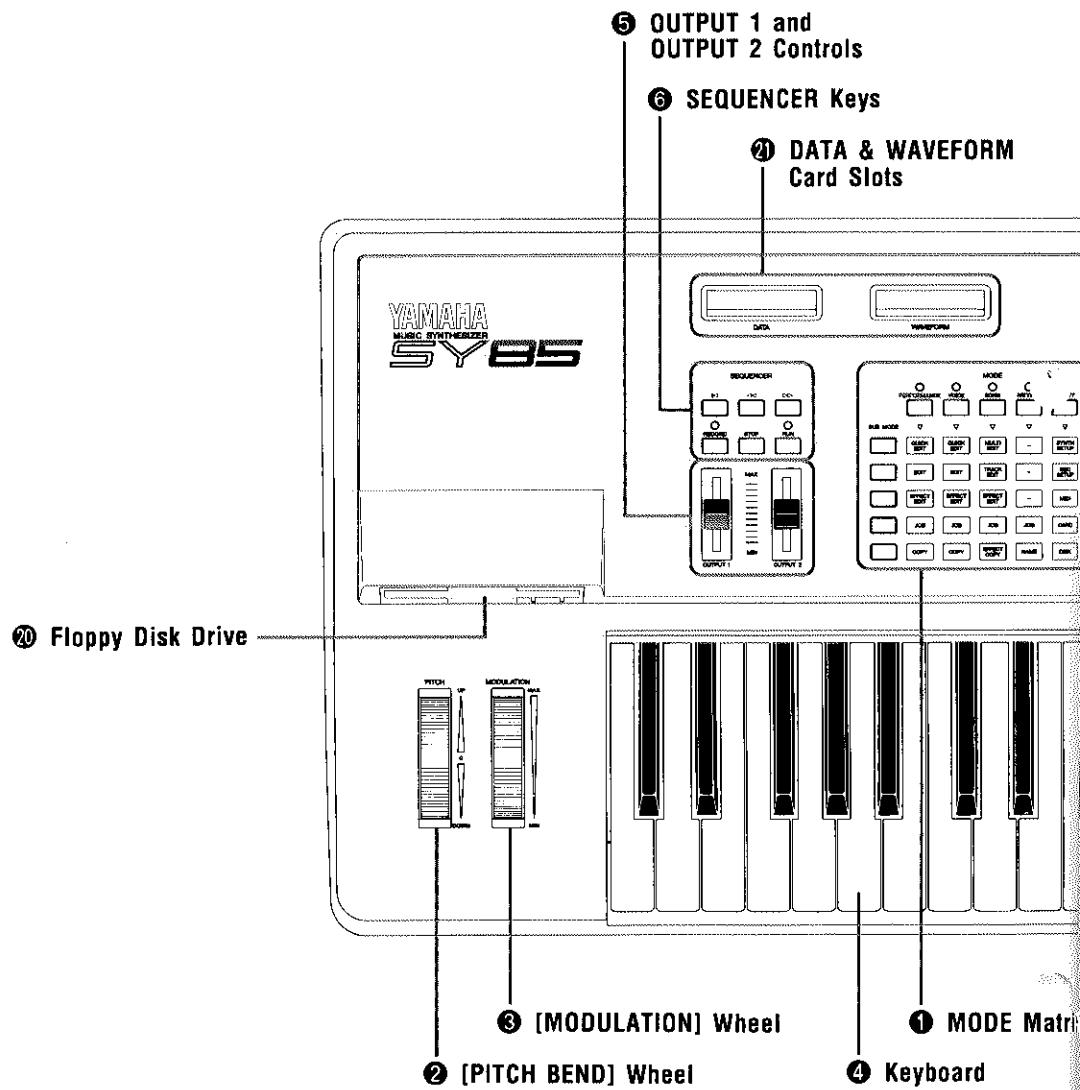
Once you have become familiar with the way the SY85 works by going through the Getting Started manual, you should only need to refer to the Feature Reference manual from time to time to get details on functions you've never used before, or refresh your memory about functions that you don't use very often.

Each section of the Feature Reference manual has its own table of contents, so you should be able to locate any particular function quickly and easily. Functions and references can also be located by referring to the index at the back of the manual.

■ Front Panel

❺ OUTPUT 1 and
OUTPUT 2 Controls

❻ SEQUENCER Keys

㉑ DATA & WAVEFORM
Card Slots

❷⓪ Floppy Disk Drive

❸ [MODULATION] Wheel

❷ [PITCH BEND] Wheel

❶ MODE Matri

❹ Keyboard

❶ MODE Matrix

The [PERFORMANCE], [VOICE], [SONG], [PATTERN], and [UTILITY] keys across the top of the matrix select the various SY85 modes, while the SUB MODE keys select the various sub-modes related to each main mode. This system provides direct, easy access to any mode without the need for a complex multi-level control interface.

| Getting Started: page 21. | Feature Reference: page 8. |
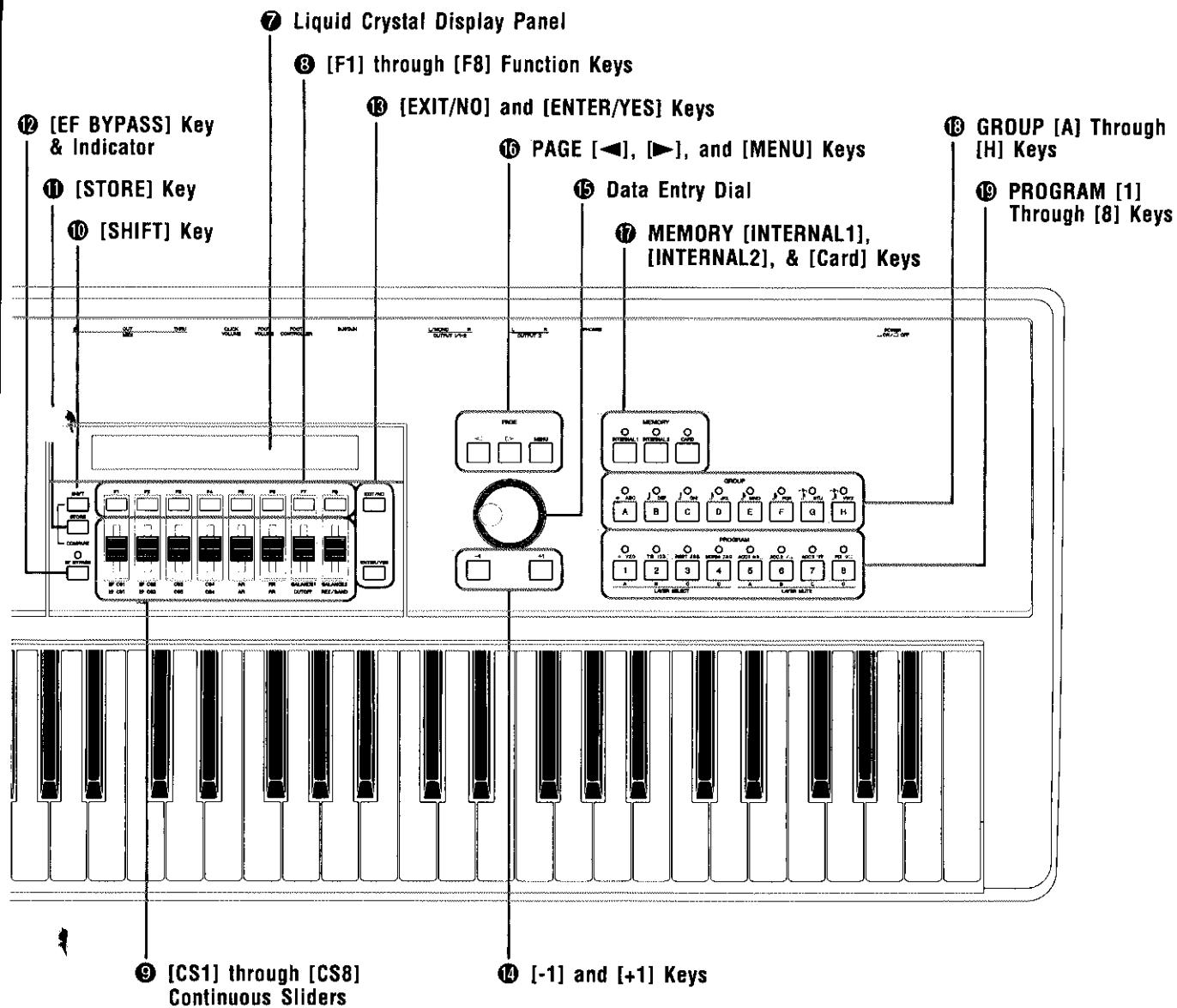
❷ [PITCH BEND] Wheel

This self-centering pitch wheel allows smooth upward and downward pitch bends.

| Getting Started: page 27. | Feature Reference: page 82. |

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❼ Liquid Crystal Display Panel

❽ [F1] through [F8] Function Keys

⑫ [EF BYPASS] Key & Indicator

⑬ [EXIT/NO] and [ENTER/YES] Keys

⑯ PAGE [◄], [►], and [MENU] Keys

⑱ GROUP [A] Through [H] Keys

⑪ [STORE] Key

⑮ Data Entry Dial

⑲ PROGRAM [1] Through [8] Keys

⑩ [SHIFT] Key

⑰ MEMORY [INTERNAL1], [INTERNAL2], & [Card] Keys

❾ [CS1] through [CS8] Continuous Sliders

⑭ [-1] and [+1] Keys

❸ [MODULATION] Wheel

Can be assigned to apply pitch modulation, amplitude modulation, frequency modulation, envelope generator bias, and filter cutoff frequency control for a range of expressive effects.

❹ Keyboard

The SY85 has a 61-key keyboard that is both velocity and after-touch sensitive for broad, intimate expressive control.

⑤ **OUTPUT 1 and OUTPUT 2 Controls**
Adjust the volume of the sound delivered via the rear-panel OUTPUT1 and OUTPUT 2 jacks as well as the PHONES jack.

⑥ **SEQUENCER Keys**
Control the recording and playback functions of the internal sequencer.

➡ Getting Started: page 51.

⑦ **Liquid Crystal Display Panel**
This 40-character x 2-line backlit liquid crystal display panel shows all essential information for easy operation and programming.

➡ Getting Started: page 21.

⑧ **[F1] through [F8] Function Keys**
The functions of these keys depend on the selected mode. They are used to engage a function indicated on the display immediately above the key, or select a parameter immediately above the key for editing.

➡ Getting Started: page 19. / Feature Reference: page 10.

⑨ **[CS1] through [CS8] Continuous Sliders**
In the voice and performance play modes these controls are used for real-time expressive control. In the edit and utility modes, however, they are used to edit the parameters that appear immediately above each continuous slider on the display.

➡ Getting Started: page 28. / Feature Reference: page 10.

⑩ **[SHIFT] Key**
The [SHIFT] key is sometimes used to access secondary functions, parameters, or displays. It is also used in conjunction with the [STORE] key to call the edit compare function.

➡ Getting Started: page 35. / Feature Reference: page 14.

⑪ **[STORE] Key**
Used to store edited data to an internal or card memory location. It is also used in conjunction with the [SHIFT] key to call the edit compare function.

➡ Getting Started: page 38. / Feature Reference: page 55.

⑫ **[EF BYPASS] Key & Indicator**
This key is used to bypass the SY85's internal digital effect system, turning all effects off. Effects are off when the [EF BYPASS] key indicator is lit.

⑬ **[EXIT/NO] and [ENTER/YES] Keys**

The [EXIT/NO] key can generally be used to exit from any sub-mode or function, while the [ENTER/YES] key is used to engage a variety of sub-modes and functions. These keys are also used to respond to the "Are you sure?" confirmation prompt when saving or initializing data.

➡ Getting Started: page 27. / Feature Reference: page 9.

⑭ **[-1] and [+1] Keys**

Can be used to select voices, performance combinations, sequencer songs, and patterns. These keys can also be used to edit parameter values in any of the SY85 edit modes. Either key can be pressed briefly for single stepping in the specified direction, or held for continuous scrolling.

➡ Getting Started: page 23. / Feature Reference: page 9.

⑮ **Data Entry Dial**

The data entry dial provides a fast, efficient way to cover a broad range of voice or performance numbers when, for example, you're looking for a voice but don't know the voice number. It's also handy for making large value changes in any of the edit modes.

➡ Getting Started: page 23. / Feature Reference: page 9, 10.

⑯ **PAGE [◄], [►], and [MENU] Keys**

In any of the edit and utility modes these keys are used to select the various edit screens. The [◄] and [►] are used to scroll backward or forward through the available screens one at a time, while the [MENU] key calls a menu that allows the desired screen to be directly specified and accessed by number.

➡ Getting Started: page 19. / Feature Reference: page 8.

⑰ **MEMORY [INTERNAL1], [INTERNAL2], & [Card] Keys**

Select the memory area — internal 1, internal 2, or card — from which voices or performance combinations will be selected.

➡ Getting Started: page 21. / Feature Reference: page 14.

⑱ **GROUP [A] Through [H] Keys**

In addition to their function in selecting voice or performance numbers, the GROUP keys are used to enter characters for voice, performance, song, and pattern names. They are also used to enter note lengths when recording with the internal sequencer.

➡ Getting Started: page 22. / Feature Reference: page 14.

⑲ PROGRAM [1] Through [8] Keys

The PROGRAM keys are used in conjunction with the MEMORY and GROUP keys to select voices and performance combinations. They are also used to enter characters for voice, performance, song, and pattern names, and to enter ties, rests, and accents when recording with the internal sequencer. When editing performance combinations they are also used to select the layer to be edited, and to mute specific layers as required.

➡️ Getting Started: page 22. / Feature Reference: page 14.

⑳ Floppy Disk Drive

The SY85's built-in floppy disk drive allows easy, economical, high-volume storage of voice, performance, sequencer, and wave data. The disk-in-use indicator below the drive slot lights while any disk operation is in progress (NEVER attempt to remove a disk or turn the power off while a disk operation is in progress). The eject button, also below the disk slot, is used to remove disks from the drive.

➡️ Getting Started: page 18. / Feature Reference: page 225.

㉑ DATA & WAVEFORM Card Slots
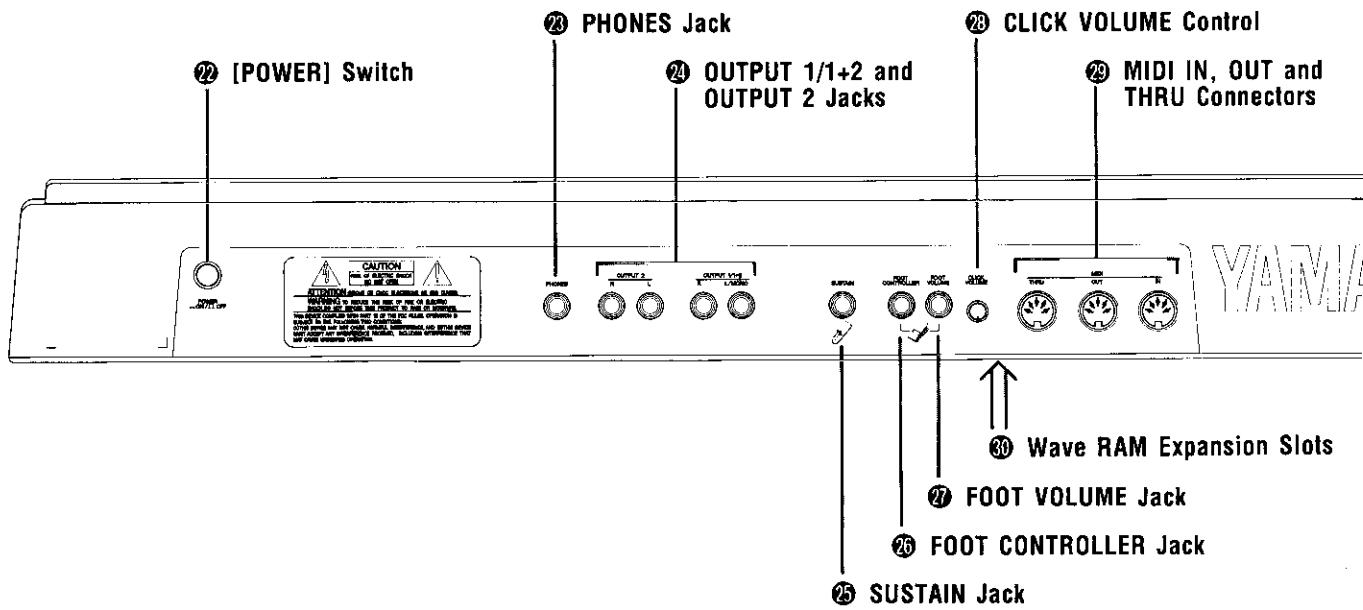
The DATA slot accepts Yamaha MCD64 Memory Cards for storage and retrieval of SY85 voices and performance combinations. It will also accept pre-programmed ROM voice/performance cards. The WAVEFORM slot accepts pre-programmed ROM cards containing wave data that can be used by the SY85. The card wave data can be loaded into the SY85's internal wave RAM memory.

➡️ Getting Started: page 64. / Feature Reference: page 250.

■ Rear Panel

㉓ PHONES Jack

㉘ CLICK VOLUME Control

㉒ [POWER] Switch

㉔ OUTPUT 1/1+2 and
OUTPUT 2 Jacks

㉙ MIDI IN, OUT and
THRU Connectors

㉚ Wave RAM Expansion Slots

㉗ FOOT VOLUME Jack

㉖ FOOT CONTROLLER Jack

㉕ SUSTAIN Jack

㉒ [POWER] Switch

Press to turn power ON or OFF.

㉓ PHONES Jack

Accepts a standard pair of stereo headphones (1/4" stereo phone plug) for headphone monitoring of the SY85 sound without the need for external amplification equipment.

㉔ OUTPUT 1/1+2 and OUTPUT 2 Jacks

These are the main stereo outputs from the SY85. If plugs are only inserted into the OUTPUT 1/1+2 jacks, then the OUTPUT 2 signals are combined with the OUTPUT 1 signals and delivered via the OUTPUT 1/1+2 jacks. Further, if a plug is inserted only into the L/MONO jack, the left and right-channel signals are combined and delivered via this jack (for connection to a monaural sound system).

㉕ SUSTAIN Jack

An optional Yamaha FC4 or FC5 footswitch can be connected here for press-on/release-off sustain control.

26 FOOT CONTROLLER Jack

An optional Yamaha FC7 or FC9 foot controller connected here can be used for amplitude modulation, pitch modulation, frequency modulation, envelope generator bias, and filter cutoff frequency control.

➡️ Getting Started: page 17.

27 FOOT VOLUME Jack

An optional Yamaha FC7 or FC9 foot controller connected here can be used for volume control.

➡️ Getting Started: page 17.

28 CLICK VOLUME Control

This knob adjusts the volume of the click (metronome) produced by the sequencer.

➡️ Feature Reference: page 217.

29 MIDI IN, OUT and THRU Connectors

The MIDI IN connector receives the data from an external sequencer or other MIDI device which is to control or transmit data to the SY85. The MIDI THRU connector simply re-transmits the data received at the MIDI IN connector, allowing convenient chaining of MIDI devices. The MIDI OUT connector transmits data corresponding to all SY85 performance operations, or bulk data when one of the MIDI data transmission functions are activated.

30 Wave RAM Expansion Slots

You can insert extra memory modules into these slots to expand the wave memory to a maximum of 3 Megabytes.

➡️ Feature Reference: page 285.
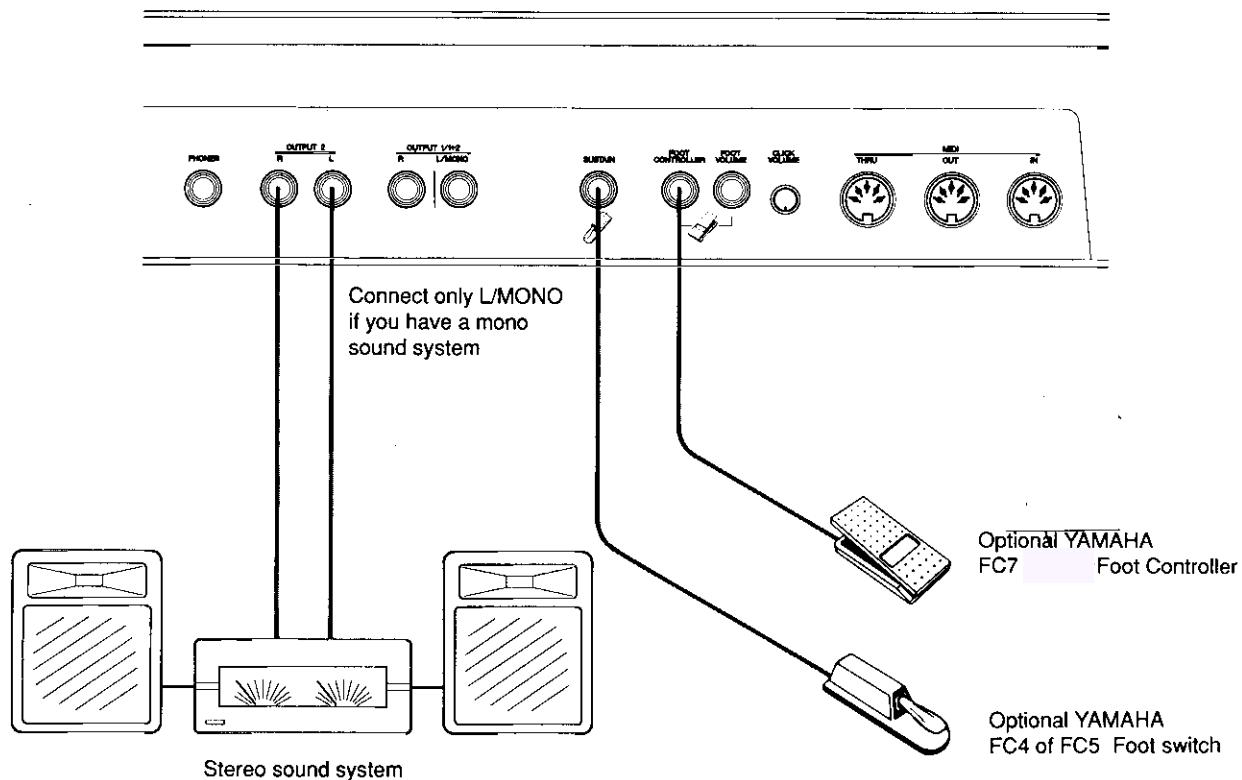
■ Connections

The diagram below shows the basic connections in a setup using only the SY85 and a stereo sound system.

Make sure that both the SY85 and your sound system are turned OFF when making connections.

Connect only L/MONO
if you have a mono
sound system

Optional YAMAHA
FC7   Foot Controller

Optional YAMAHA
FC4 of FC5 Foot switch

Stereo sound system

■ Power-on Procedure

Believe it or not, there's actually a "right" way to turn on a sound system that will minimize the possibility of damage to the equipment (and your ears!).

1. Make sure your sound system's volume control and the SY85 volume controls are turned all the way down prior to turning power on.

2. Turn on the SY85.

3. Turn on the sound system.

4. Raise the sound system volume to a reasonable level.

5. Gradually raise the SY85 OUTPUT1 and OUTPUT2 controls while playing the keyboard to set the desired listening level.

> **!! IMPORTANT**
> *The SY85 automatically transmits MIDI control change data corresponding to its control status when its power switch is turned ON or OFF. This can interfere with operation of other MIDI equipment connected to the SY85 MIDI OUT connector. If the SY85 is connected to other MIDI equipment, the SY85 power switch should be turned ON* <u>first</u>*, and turned OFF* <u>last</u>*.*

■ Load & Play the Sequencer Demo

Once you've set up your SY85 system, you might like to load and play the demo sequence provided on the "DEMO" disk.
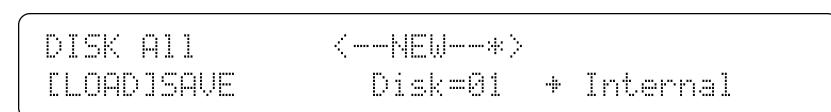
> **!! IMPORTANT**
> *Loading the demo data overwrites the sequencer, wave , and voice memory, so if you have any important data in either of these memory areas make sure it is safely stored to disk before loading the demo data.*

1. Insert the DEMO Disk

Insert the DEMO disk into the disk drive. The sliding disk shutter should go in first, and the label side of the disk should face upward.

2. Select the Utility DISK ALL LOAD Function

Press the [UTILITY] button so that its indicator lights, then press the SUB MODE [DISK] key (the lowest SUB MODE key). A display with the word "DISK" in the upper left corner should appear.

```
DISK All          <--NEW--*>
[LOAD]SAVE        Disk=01  + Internal
```
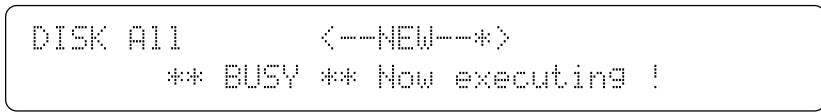
If necessary, press the PAGE [◄] key a few times until the "DISK ALL" display shown above appears. Also press the [F1] key to make sure that the LOAD function is selected (the square brackets should appear around "LOAD" on the display).

3. Load the Demo Data

Press the [ENTER/YES] once. "Are you sure?" will appear on the display. Press [ENTER/YES] a second time to actually begin loading the data.

```
DISK All        <--NEW--*>
       ** BUSY ** Now executing !
```
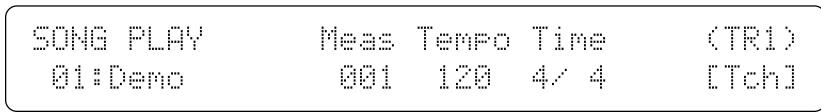
"** BUSY ** Now executing !" will appear on the display while the data is being loaded.

4. Engage the SONG Mode

When the data has finished loading, press the [SONG] key to engage the song mode.

```
SONG PLAY       Meas Tempo Time      (TR1)
  01:Demo        001  120  4/ 4      [Tch]
```

5. Play the Demo

Press the SEQUENCER [RUN] key to play the demo sequence. You can stop playback at any time by pressing the [STOP] key.

6. Eject the Disk

Press the eject button, below the disk drive slot, to eject the DEMO disk, then store the disk in a safe place.

■ Load the Pre-programmed Voice, Performance, & Pattern Data

Although the factory pre-programmed voices, performance combinations, and patterns are stored in the SY85 internal memory when the instrument is initially shipped, there is always a possibility that all or part of the memory has been erased or modified by the time the instrument gets to you. Here's how you can re-load all the pre-programmed data.

> **!! IMPORTANT**
>
> *Loading the pre-programmed data overwrites any other data that is in the SY85 internal memory, so if you have any important data in memory make sure it is safely stored to disk before loading the demo data.*

1. Insert the DATA Disk

Insert the DATA disk into the disk drive. The sliding disk shutter should go in first, and the label side of the disk should face upward.

2. Select the Utility DISK ALL LOAD Function

Press the [UTILITY] button so that its indicator lights, then press the SUB MODE [DISK] key (the lowest SUB MODE key). A display with the word "DISK" in the upper left corner should appear.

```
DISK All        <--NEW--*>
[LOAD]SAVE      Disk=01  + Internal
```

If necessary, press the PAGE [◄] key a few times until the "DISK ALL" display shown above appears. Also press the [F1] key to make sure that the LOAD function is selected (the square brackets should appear around "LOAD" on the display).

3. Load the Data

Press the [ENTER/YES] once. "Are you sure?" will appear on the display. Press [ENTER/YES] a second time to actually begin loading the data.

```
DISK All         <--NEW--*>
        ** BUSY ** Now executing !
```

"** BUSY ** Now executing !" will appear on the display while the data is being loaded.

4. Eject the Disk

When the data has finished loading press the eject button, below the disk drive slot, to eject the DATA disk, then store the disk in a safe place.
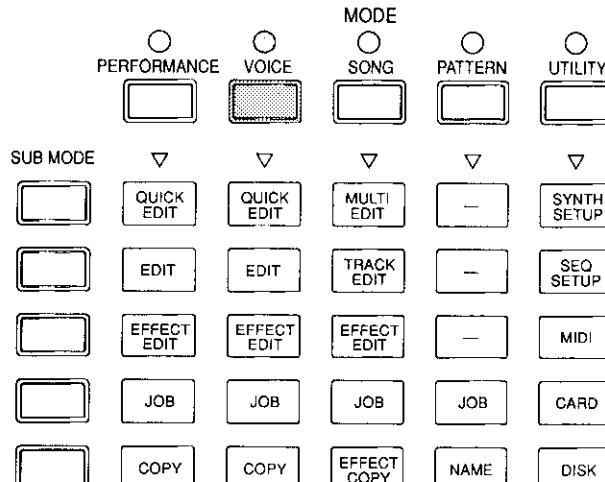
One of the first things you'll want to do with your SY85 is select and play some of its outstanding voices ... this section will show you how to do just that.

■ Play the Internal Voices

The SY85 can access three different voice memories — INTERNAL 1, INTERNAL 2, and CARD. Let's begin by selecting and playing some of the internal voices.

1. Select the Voice Play Mode

Press the [VOICE] key so that its indicator lights and the words "VOICE PLAY" appear on the top line of the LCD panel.

```
                              MODE
      O         O         O         O         O
  PERFORMANCE  VOICE     SONG    PATTERN   UTILITY
  [        ]  [▓▓▓▓▓]  [        ] [        ] [        ]

SUB MODE     ▽         ▽         ▽         ▽         ▽
  [        ]  [QUICK]  [QUICK]  [MULTI]  [  —  ]  [SYNTH]
             [EDIT ]  [EDIT ]  [EDIT ]           [SETUP]

  [        ]  [EDIT ]  [EDIT ]  [TRACK]  [  —  ]  [ SEQ ]
                                [EDIT ]           [SETUP]

  [        ]  [EFFECT] [EFFECT] [EFFECT] [  —  ]  [MIDI]
             [EDIT ]  [EDIT ]  [EDIT ]

  [        ]  [ JOB ]  [ JOB ]  [ JOB ]  [ JOB ]  [CARD]

  [        ]  [COPY ]  [COPY ]  [EFFECT] [NAME ]  [DISK]
                                [COPY ]
```
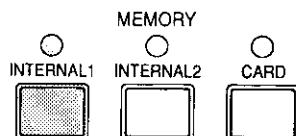
```
┌─────────────────────────────────────────────────────┐
│ VOICE PLAY                        I,A1:SP Makro       │
│ Serial    EF1:EG Chorus    EF2:Rev.Hall1             │
└─────────────────────────────────────────────────────┘
```

The information displayed on the bottom display line tells you about the current effect mode and what effects are assigned to the SY85's two effect processors. See the "Effects" section beginning on page 254 of the Feature Reference manual for more details.

2. Select an Internal Voice Memory & Bank

Each INTERNAL memory key accesses two banks of 64 voices. Try pressing the [INTERNAL 1] key a few times while watching the voice number on the display.

```
                    MEMORY
        O           O           O
     INTERNAL1  INTERNAL2     CARD
     [▓▓▓▓▓]   [        ]  [        ]
```

The voice number and name appear in the upper right-hand corner of the display. Notice that the roman-numeral subscript below the "I" at the beginning of the voice number alternates between "I" and "II" ($I_I \leftrightarrow I_{II}$) each time the [INTERNAL 1] key is pressed. Now try the same with the [INTERNAL 2] key. The display should alternate between I_{III} and I_{IV}. These are the symbols for internal voice banks 1, 2, 3 and 4:

[INTERNAL 1]

I_I .... Internal voice bank 1.
I_{II} .... Internal voice bank 2.
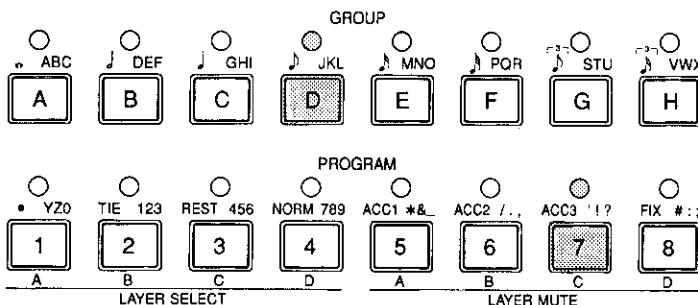
[INTERNAL 2]

I_{III} .... Internal voice bank 3.
I_{IV} .... Internal voice bank 4.

3. Select a Voice

After selecting an internal voice bank, you can select any of the 64 voices it contains. The 64 voices are organized into 8 groups of 8 voices each (8 x 8 = 64). Any voice can be selected by specifying its group using the GROUP keys ([A] through [H]), and its number using the PROGRAM keys ([1] through [8]).

To select voice "D7", for example, first press the GROUP [D] key and then the PROGRAM [7] key. The GROUP [D] key indicator will flash until the PROGRAM [7] key is pressed and the D7 voice is actually engaged.


```
VOICE PLAY              ID7:ST Violn
Serial   EF1:EQ -> Sym  EF2:Rev.Hall1
```

To select a different voice within the same group it is only necessary to press the appropriate PROGRAM key. To select a different group, however, you'll always have to press both a GROUP key and a PROGRAM key. In the same way, to select a different internal bank you'll have to press a MEMORY, BANK, and PROGRAM key. The indicators for the selected MEMORY and GROUP will flash, and no change will occur until the PROGRAM number is selected. This prevents unwanted voices from being selected until you've actually specified the number of the voice you want to use.
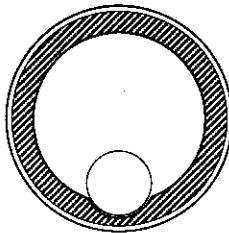
● **The [+1] and [-1] Keys** are best used for small, step-wise changes — e.g. selecting adjacent voice numbers, or numbers that are only a few steps away.

Press the [-1] or [+1] key briefly to decrement or increment the voice number by one, or hold either key for continuous decrementing or incrementing in the corresponding direction. The GROUP will switch automatically if you cross a bank voice-number boundary.

● **The Data Entry Wheel** provides a fast, efficient way to cover a broad range of voice numbers when, for example, you're looking for a voice but don't know the voice number. As usual, use the MEMORY keys to select the memory group, then rotate the data entry wheel while watching the display.

The groups are automatically switched as the voice numbers are changed.

4. Play

Try playing the selected voice on the keyboard. Select a number of different voices and try them out. Here's an abbreviated voice list for easy reference.

■ Internal Voice List

● **INTERNAL VOICE 1**

No.	Voice Name	No.	Voice Name
A1	SP Makro	E1	SC Wondr
A2	SP Movie	E2	SC Ecko
A3	SP SawSt	E3	SC Perc
A4	SP Poly	E4	SC Clav
A5	SP Sweet	E5	SC Fingr
A6	SP Phaze	E6	SC SPike
A7	SP Abyss	E7	SC Housy
A8	SP Glass	E8	SC Pan
B1	AP Grand	F1	BR Trump
B2	AP Rock	F2	BR Mute
B3	AP Tack	F3	BR Tromb
B4	AP Chors	F4	BR Horn
B5	AP Dance	F5	BR Tuba
B6	AP Touch	F6	BR TpSfz
B7	KY EP1	F7	BR EnsSF
B8	KY EP2	F8	BR TpEns
C1	BA Wood	G1	GT Steel
C2	BA Pitz	G2	GT Dark
C3	BA Fingr	G3	GT Nylon
C4	BA Pick1	G4	GT 12Str
C5	BA Pick2	G5	GT Strt1
C6	BA Frtls	G6	GT Strt2
C7	BA Thump	G7	GT Mute
C8	BA Slap	G8	GT Comp1
D1	ST Power	H1	ME Mello
D2	ST Sectn	H2	ME Orch1
D3	ST Arco	H3	ME Orch2
D4	ST Pizz	H4	ME Kali
D5	ST Deep	H5	ME Hand
D6	ST Sfz	H6	ME Tink
D7	ST Violn	H7	ME OrchR
D8	ST JeanL	H8	DR PTN

● **INTERNAL VOICE 2**

No.	Voice Name	No.	Voice Name
A1	SP Sweep	E1	SC Jrney
A2	SP Space	E2	SC Mute
A3	SP Nasty	E3	SC Metal
A4	SP Smoky	E4	SC Vox
A5	SP Goner	E5	SC Aha!
A6	SP Vizon	E6	SC Topia
A7	SP Slow	E7	SC Wires
A8	SP Sqare	E8	SC Vocal
B1	KY EP3	F1	BR Tpts
B2	KY EP4	F2	BR Stab
B3	KY EP5	F3	BR Toto
B4	KY EP6	F4	BR Rezz
B5	KY EP7	F5	BR Saw
B6	KY EP8	F6	BR SawSF
B7	KY EP9	F7	BR Wow
B8	KY EP10	F8	BR Swell
C1	BA Syn1	G1	GT Harm
C2	BA Syn2	G2	GT Strt3
C3	BA Syn3	G3	GT Dist
C4	BA Syn4	G4	GT Warm
C5	BA Syn5	G5	GT Comp2
C6	BA Syn6	G6	GT Wah
C7	BA Syn7	G7	GT Feed
C8	BA Syn8	G8	GT Jazz
D1	ST Sizzl	H1	ME Voics
D2	ST Brite	H2	ME Tomi
D3	ST Thin	H3	ME Soro
D4	ST Dark	H4	ME Grind
D5	ST Synth	H5	ME Gizmo
D6	ST Anlog	H6	ME Bottl
D7	ST Combo	H7	ME Templ
D8	ST Tron	H8	DR Zones

● INTERNAL VOICE 3

No.	Voice Name	No.	Voice Name
A1	SP Paddy	E1	SC Synnr
A2	SP Nehan	E2	SC Digi1
A3	SP Wine	E3	SC Bari
A4	SP Hyper	E4	SC Sqiff
A5	SP Big	E5	SC Bell
A6	SP Exita	E6	SC Digi2
A7	SP Freqs	E7	SC Rezz
A8	SP Mello	E8	SC Digi3
B1	KY EP11	F1	BR Syn1
B2	KY EP12	F2	BR Syn2
B3	KY Clav1	F3	BR Syn3
B4	KY Clav2	F4	BR Syn4
B5	KY Hrpsi	F5	WN Tenor
B6	KY Acrdn	F6	WN Alto
B7	KY Cali1	F7	WN Sopr
B8	KY Cali2	F8	WN Bari
C1	BA Syn9	G1	SE Rain
C2	BA Syn10	G2	SE Star
C3	BA Syn11	G3	SE BDup
C4	BA Syn12	G4	SE Templ
C5	SL Digi	G5	MI Ride
C6	SL Lead	G6	SE Alert
C7	SL Saw1	G7	BR East
C8	SL Saw2	G8	BR Tooth
D1	TP Timp	H1	SE Indus
D2	TP Glock	H2	SE Chou
D3	TP Hands	H3	SE Demon
D4	TP Mrmba	H4	SE Dropr
D5	TP Steel	H5	SE Wind
D6	TP Tubal	H6	SE Rezo
D7	TP Vibes	H7	SE Noize
D8	TP Xylo	H8	DR GMIDI

● INTERNAL VOICE 4

No.	Voice Name	No.	Voice Name
A1	CH Aah	E1	FI Blue1
A2	CH Ooh	E2	FI Kalim
A3	CH Ghost	E3	FI Sitar
A4	CH Vespa	E4	FI Harp
A5	CH Vocod	E5	FI DulcM
A6	CH Pure	E6	FI DulcD
A7	CH Quire	E7	FI Dudel
A8	CH Breth	E8	FI Blue2
B1	OR JazB	F1	WN Pan
B2	OR Perc	F2	WN Clari
B3	OR Smoke	F3	WN Basso
B4	OR Dist	F4	WN Oboe
B5	OR Cheap	F5	WN Picc
B6	OR Click	F6	WN Recor
B7	OR Pipes	F7	WN Flute
B8	OR Airy	F8	WN Breth
C1	SL Squar	G1	FI Lip
C2	SL Sync	G2	WN SaxSF
C3	SL Cutty	G3	SE Heli
C4	SL Hamma	G4	MW EGBia
C5	SL Pulse	G5	AT EGBia
C6	SL Dist	G6	MI EPNP
C7	SL Lyle	G7	MI Hiss
C8	SL Whisl	G8	MI Crash
D1	TP SynDr	H1	SE Gobln
D2	TP Loggy	H2	SE Up&Up
D3	TP Angle	H3	SE S&H
D4	TP Bambu	H4	SE Hyena
D5	TP Syn	H5	SE It
D6	TP Siam	H6	SE Hell
D7	TP Tinkl	H7	SE Pops
D8	TP Agone	H8	DR Efect

Note that the voices are arranged in categories for easier access. The category of each voice is identified by a two-character prefix, as follows:

AP ....Acoustic Piano
OR ....Organ
KY ....Keyboard
BR ....Brass
ST ....Strings
BA ....Bass
GT ....Guitar
WN ....Wind
FI ....Folk Instrument
CH ....Chorus
TP ....Tuned Percussion
SP ....Synth Pad
SC ....Synth Comp
SL ....Synth Lead
ME ....Musical Effect
SE ....Sound Effect
DR ....Drums
MI ....Miscellaneous Instrument
AT ....After Touch
MW ....Modulation Wheel

A more detailed voice list is provided in the Feature Reference manual appendix (page 306 through 309).

> *If you don't get any sound at this point: Make sure your sound system is turned ON and the volume is turned up to a reasonable level, make sure that the SY85 OUTPUT 1 and OUTPUT 2 controls are turned up to a reasonable level, and check all connections carefully.*

■ CARD Voice Memory

The CARD memory is an optional Yamaha MCD64 Memory Card (or preprogrammed voice card) plugged into the SY85 DATA slot. Memory cards are convenient for external storage and transportation of voices you or others create. You can also store sets of related voices on different memory cards. An MCD64 Memory Card holds four banks of 64 voices each — a total of 256 voices per card.

CARD voice numbers are preceded by the letter "C". The four voice banks are selected in sequence by repeatedly pressing the [CARD] key:

$$\dots \text{C}_\text{I} \rightarrow \text{C}_\text{II} \rightarrow \text{C}_\text{III} \rightarrow \text{C}_\text{IV} \rightarrow \text{C}_\text{I} \dots$$

Individual voices are then selected by using the GROUP and PROGRAM keys (or the [-1]/[+1] keys or data dial) in exactly the same way as the INTERNAL voices.

A properly formatted Yamaha MCD64 memory card (or an appropriate pre-programmed voice card) must be inserted in the CARD slot before the CARD memory can be selected. If no memory card is present, the "Data Card not ready!" display will appear when you attempt to select the card voice memory. If this happens, press the [EXIT/NO] key to return to the voice play mode.

■ Real-time Control

The SY85 provides a number of controllers that can be used for real-time musical control. Some, such as the pitch bend wheel, have a fixed function, while others can be set to control a wide range of parameters including amplitude and pitch modulation, filter modulation, and direct control of effect parameters.

Each voice has its own completely independent set of controller assignments, so any assignments you make using the appropriate VOICE EDIT mode functions (described in the Features Reference manual) will apply only to the current voice.

● PITCH BEND WHEEL

Rolling the PITCH wheel upward (away from you) will raise the pitch of notes played on the keyboard, while rolling the wheel in the opposite direction will lower the pitch. The PITCH wheel is self-centering and will always return to center position (normal pitch) when released.

The maximum range of the PITCH wheel can be set using the PITCH function described on page 82 of the Feature Reference manual.

● MODULATION WHEEL
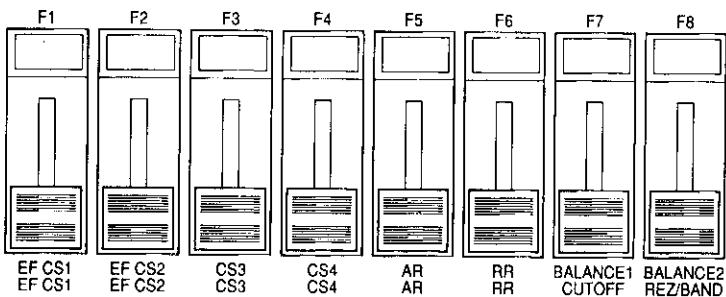
Rolling the MODULATION wheel upward (away from you) will increase the depth of the type of modulation set for the currently selected voice. The MODULATION wheel stays wherever it is set, so you can set it and leave it at any position that produces the desired modulation effect.

The MODULATION wheel can control pitch, amplitude, and frequency modulation, as well as envelope generator bias and filter cutoff frequency. The type of control applied can be independently programmed for each voice using the parameters described on page 83 of the Feature Reference manual.

● CONTINUOUS SLIDERS

Each of the continuous sliders below the SY85 display panel — [CS1] through [CS8] — has a specific real-time control function when playing in the VOICE mode (and the PERFORMANCE mode, described in the next section). The VOICE mode control slider functions are indicated by the <u>white</u> labels below each control.

F1	F2	F3	F4	F5	F6	F7	F8
EF CS1	EF CS2	CS3	CS4	AR	RR	BALANCE1	BALANCE2
EF CS1	EF CS2	CS3	CS4	AR	RR	CUTOFF	REZ/BAND

[CS1] EF & **[CS2] EF** are assigned to control specific parameters of the effects produced by the SY85 EFFECT 1 and EFFECT 2 processors, respectively. They could control reverb, chorus depth or speed, or just about any parameter that produces a useful real-time sound variation with the selected effect. Although initial assignments are factory-programmed for the voices provided with the SY85, they can be changed to suit your specific musical requirements by using the VOICE EFFECT EDIT mode CONTROL PARAMETERS function descibed on page 110 of the Feature Reference manual. See the "Effects" section beginning on page 254 for details about the effect system.

[CS3] & **[CS4]** are assignable to just about any voice parameters. Although initial assignments are factory-programmed for the voices provided with the SY85, they can be changed to suit your specific musical requirements by using the VOICE EDIT mode CS3 PARAMETER EDIT and CS4 PARAMETER EDIT functions descibed on pages 89 and 91 of the Feature Reference manual.

[CS5] AR controls the attack rate of the amplitude envelope generator, producing a faster or slower attack, as required.

[CS6] RR controls the release rate of the amplitude envelope generator, producing a faster or slower release, as required.

[CS7] CUTOFF varies the cutoff frequency of the digital filter, making it easy to produce real-time filter sweep effects.

[CS8] REZ/BAND increases or decreases the amount of resonance at the filter cutoff frequency, generally producing a sharper or broader tone. Higher resonance also tends to emphasize the effect of the [CS7] CUTOFF control.

Effect and voice changes produced by the continuous sliders while playing in the VOICE and PERFORMANCE modes are temporary, and are not stored by the SY85.

● FOOT CONTROLLER

An optional Yamaha FC7 or FC9 Foot Controller plugged into the rear-panel FOOT CONTROLLER jack can be assigned to amplitude modulation, pitch modulation, frequency modulation, envelope generator bias depth, and filter cutoff frequency depth control via the VOICE EDIT mode FOOT CONTROLLER DEPTH functions described on page 85 of the Feature Reference manual.

● KEYBOARD AFTERTOUCH

Keyboard aftertouch response is most frequently used for vibrato control: the harder you press the keys the more vibrato is applied. This makes it possible to control vibrato without having to remove one hand from the keyboard to use the MODULATION wheel. For the same reason, aftertouch is also often used for pitch control. Many of the internal voices provided with the SY85 have preset aftertouch functions (see the voice list on page 306 through 309), but you can assign aftertouch to a number of different functions by using the VOICE EDIT mode AFTER TOUCH DEPTH functions described on page 87 of the Feature Reference manual.

3. The Performance Mode
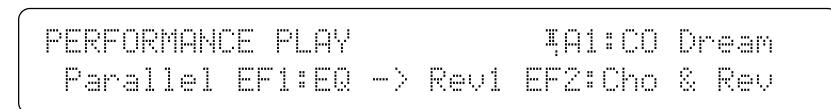
The SY85 PERFORMANCE mode makes it possible to combine up to four voices in "performance combinations" that significantly enhance the instrument's performance capabilities. 128 performance combinations can be stored in internal memory and recalled in the same way as the voices. Before we look at how you can create your own performance combinations, try selecting and playing some of the combinations provided with the SY85.

■ Play the Internal Performance Combinations

The SY85 can access three different performance memories — INTERNAL 1, INTERNAL 2, and CARD.

1. Select the Performance Mode

Press the [PERFORMANCE] key so that its indicator lights and the words "PERFORMANCE PLAY" appear on the top line of the LCD panel.

```
PERFORMANCE PLAY          ⅠA1:C0 Dream
  Parallel EF1:EQ -> Rev1 EF2:Cho & Rev
```

The information displayed on the bottom display line tells you about the current effect mode and what effects are assigned to the SY85's two effect processors. See the "Effects" section beginning on page 254 of the Feature Reference manual for more details.

2. Select an Internal Performance Memory

In the PERFORMANCE mode each INTERNAL memory key accesses a single bank of 64 performance combinations.

[INTERNAL 1]
I_I ....Internal performance bank 1.

[INTERNAL 2]
I_{II}.................Internal performance bank 2.

3. Select a Performance Combination

After selecting an internal performance bank, you can select any of the 64 performance combinations it contains in exactly the same way as you select voices. See page 21 for voice selection details.

4. Play

Try playing the selected performance combination on the keyboard. In some cases you'll hear several voices "layered" on top of one another, in others you'll get a split keyboard effect with one voice on the left-hand side of the keyboard and another on the right. Select a number of different performance combinations and try them out. Here's an abbreviated performance list for easy reference.

■ Internal Performance List

● INTERNAL PERFORMANCE 1

No.	Voice Name	No.	Voice Name
A1	CO Dream	E1	CO Jazzr
A2	KY Piano	E2	OR Gimme
A3	SP Aztec	E3	SP Lite
A4	SC Wyrz	E4	SC Buzz
A5	CH Choir	E5	CH Munch
A6	BA Pick1	E6	BA Rezzo
A7	ST Rosin	E7	ST Dark
A8	BR Stab	E8	BR Saw
B1	CO Soire	F1	CO E.S.P
B2	OR Bee	F2	KY Elek
B3	SP Lush	F3	SP Stars
B4	SC Rude	F4	SC Snaps
B5	CH Breth	F5	CH Abyss
B6	BA Swap	F6	BA Mini
B7	ST Octvs	F7	ST 2002
B8	BR Pro5	F8	BR Obie
C1	CO Orch	G1	CO Pnooh
C2	KY Digi1	G2	OR Nave
C3	SP Faery	G3	SP Ace
C4	SC Talk	G4	SC Point
C5	CH OohAh	G5	CH Comet
C6	BA Pick2	G6	BA Guppy
C7	ST Pitz	G7	ST Big
C8	BR Sfz	G8	BR Fatti
D1	CO Sable	H1	CO Inca
D2	KY Roady	H2	KY Funky
D3	SP Slide	H3	SP Vekta
D4	SC Klav	H4	SC Pizza
D5	CH Vespa	H5	CH Oral
D6	BA -Fret	H6	BA Doom
D7	ST Rings	H7	ST Tron
D8	BR Forte	H8	BR Swell

● INTERNAL PERFORMANCE 2

No.	Voice Name	No.	Voice Name
A1	CO Ncert	E1	CO Gospl
A2	KY Loud	E2	OR Cheap
A3	SP Carol	E3	SP Pluto
A4	SL Mitey	E4	SC Clank
A5	ME Orion	E5	ME Ecko
A6	GT Amped	E6	GT Harm
A7	SE Rolls	E7	SE Zoom
A8	WN Tenor	E8	BR Reeds
B1	CO DXStr	F1	CO Ethos
B2	OR Sine	F2	KY PnoMW
B3	SP Venus	F3	SP Synth
B4	SL Chick	F4	FI Santo
B5	ME Glitz	F5	ME Alien
B6	GT Strat	F6	GT El12
B7	SE C-tar	F7	SE Delay
B8	WN Sacks	F8	BR Lips
C1	CO Stass	G1	CO Kings
C2	KY Digi2	G2	KY Calio
C3	SP Whino	G3	SP Anlog
C4	SL L7	G4	SC Wind
C5	ME Honto	G5	ME Spark
C6	GT Phunk	G6	GT 12Str
C7	SE Xeno	G7	SE Flies
C8	WN Alto	G8	BR Miles
D1	CO Megin	H1	CO Happi
D2	KY Jerry	H2	KY Digi3
D3	SP Hinx	H3	SP Arpeg
D4	SL Eazy	H4	TP Bells
D5	ME Mars	H5	ME Hit
D6	GT Rock	H6	GT Acstc
D7	SE Storm	H7	SE Hero
D8	WN Panic	H8	BR Fanfr

* In addition to the voice categories described on page 26, the performance mode has a "CO" (combination) category.

■ CARD Performance Memory

Any Yamaha MCD64 Memory Card used for voice storage can be used for performance storage as well. An MCD64 Memory Card holds two banks of 64 performance combinations each — a total of 128 performance combinations in addition to 256 voices per card.

CARD performance numbers are preceded by the letter "C". The two performance banks are selected in sequence by repeatedly pressing the [CARD] key:

... C$_I$ → C$_{II}$ → C$_I$ ...

Individual performance combinations are then selected by using the GROUP and PROGRAM keys (or the [-1]/[+1] keys or data dial) in exactly the same way as the INTERNAL voices and performance combinations.
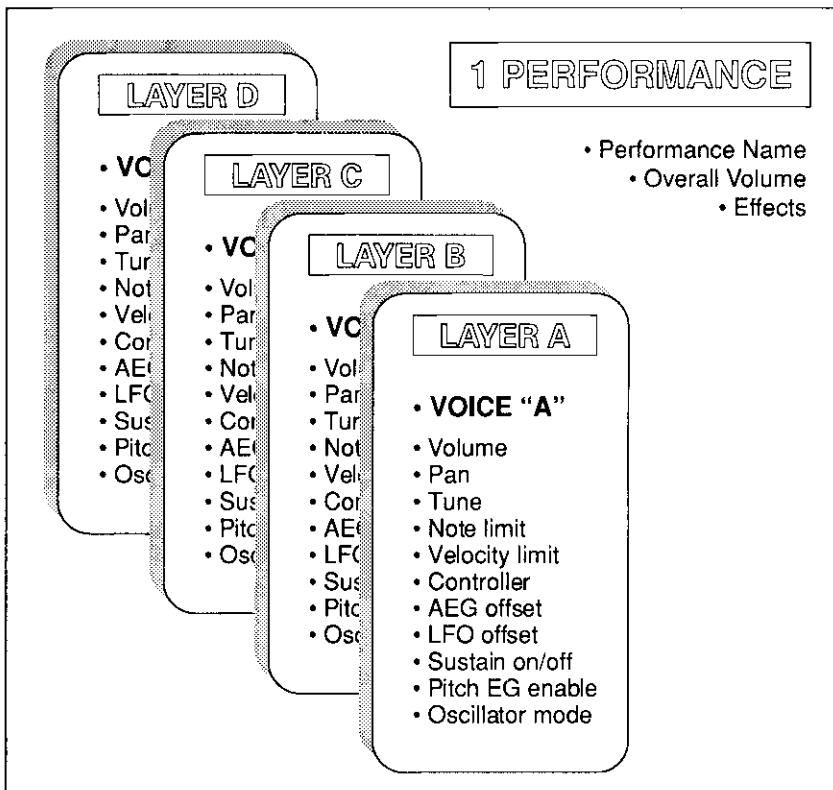
> **IMPORTANT**
>
> *A properly formatted Yamaha MCD64 memory card (or an appropriate pre-programmed voice card) must be inserted in the CARD slot before the CARD memory can be selected. If no memory card is present, the "Data Card not ready!" display will appear when you attempt to select the card memory. If this happens, press the [EXIT/NO] key to return to the performance play mode.*

■ Programming Your Own Performance Combinations

A single SY85 "performance combination" can have one, two, three, or four "layers," each having a different voice and several other important attributes.
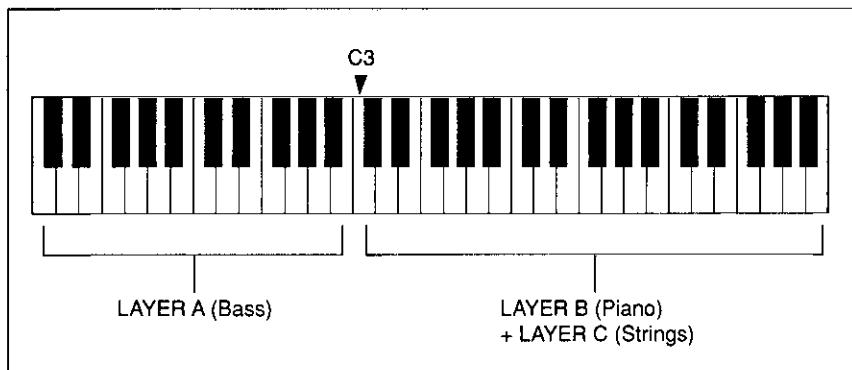

In addition to the individual attributes that can be programmed for each layer, overall characteristics such as volume, effects, and the performance name can also be programmed.

Layers can be played simultaneously across the entire keyboard, limited to specific ranges to create split keyboard setups, or overlapped in any way required. It's also possible to use "velocity switching" to assign different velocity ranges to different layers so that, for example, one voice sounds when you play softly and a completely different voice takes over (or overlaps the first voice) when you play harder.

● AN EXAMPLE

Follow these steps to create a 3-layer voice in which you play a bass voice on the lower two octaves of the keyboard, and piano plus strings on the upper octaves.

Although we won't use anywhere near the SY85's full complement of performance parameters, this exercise will help you get a feel for the performance mode and standard editing procedures.

1. Select a Performance Combination

Engage the PERFORMANCE mode and select any internal performance combination, as described in the preceding section.

2. Initialize the Selected Performance Combination
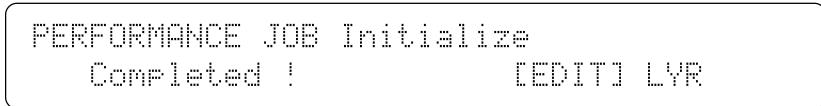
Make sure that the [PERFORMANCE] key indicator is lit, and then press the SUB MODE [JOB] key. Press the PAGE [▶] a few times to select the "PERFORMANCE JOB Initialize" screen.

```
PERFORMANCE JOB Initialize
                          [EDIT] LYR
```

Press the [F6] function key to ensure that the entire performance combination is initialized (the square brackets should be around "EDIT" above the [F6] key), then press [ENTER/YES].

```
PERFORMANCE JOB Initialize
Are you sure ?            [EDIT] LYR
```

Respond to "Are you sure?" on the display by pressing the [ENTER/YES] key again. "Completed" will appear for a few seconds when the initialization job has finished.

```
PERFORMANCE JOB Initialize
   Completed !            [EDIT] LYR
```

3. Select the Performance Edit "LAYER" Mode

Press the SUB MODE [EDIT] key. This selects the performance edit mode. Use the PAGE [◀] and [▶] keys to select the "LAYER" entry screen (if it doesn't appear immediately).
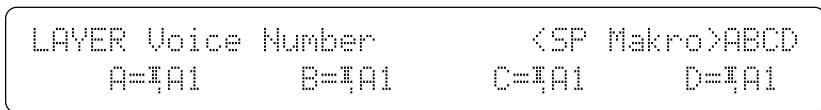
```
LAYER
                          Hit [ENTER]
```

When you've located this screen, press [ENTER/YES] to engage the performance edit LAYER mode.

4. Select the Voices for Each Layer

If the "LAYER Voice Number" display doesn't appear as soon as you engage the performance edit mode, press the PAGE [◀] key a few times until it does appear (see the "HINT", below).

```
LAYER Voice Number       <SP Makro>ABCD
   A=ⅠA1      B=ⅠA1     C=ⅠA1     D=ⅠA1
```

The voice numbers assigned to each layer are shown across the bottom of the display. After initialization, voice "I_IA1" is assigned to all four layers.

Press the [F2] function key to place the underline cursor under the layer-A voice number (note that the voice name is shown between parentheses in the upper right corner of the display), then use the [CS2] control slider or any of the voice selection methods already described to select voice number "I_IC1" (BA Wood).

Next press the [F4] function key to select the layer-B voice number, and use the [CS4] control slider or any other voice selection method to select voice number "I_IB1" (AP Grand).

Next press the [F6] function key to select the layer-C voice number, and use the [CS6] control slider or any other voice selection method to select voice number "I_ID1" (ST Power).

Finally, press the [F8] function key to select the layer-D voice number and, while holding the [SHIFT] key, press the [-1] key to turn layer-D "off".

```
 LAYER Voice Number               <───────>ABC─
      A=⌐C1        B=⌐B1        C=⌐D1        D=off
```

5. Set the Volume of Each Layer

Press the PAGE [►] key to move to the "LAYER Volume" screen.

```
 LAYER Volume                     <───────>ABC─
      127▐       127▐        98∂        ────
```

You can now use the [CS2] slider to adjust the volume of the layer-A voice, the [CS4] slider to adjust the volume of the layer-B voice, and the [CS6] slider to adjust the volume of the layer-C voice. The volume range is from "0" to "127", with "127" being maximum volume. The bars to the right of the volume parameters indicate volume level — the longer the bar the higher the volume.

For now, just use [CS6] to lower the volume of the layer-C strings voice to "98". Notice that since layer D is turned "off", no parameter appears for the layer-D voice.

6. Set the Pan Position of Each Layer

Press the PAGE [►] key to move to the "LAYER Pan" screen.

```
 LAYER Pan L........|........R        <───────>ABC─
      +0        −15        +15        ───
```

Use the [CS4] slider to set the layer-B pan parameter to "-15 and [CS6] to set the layer-C pan parameter to "+15". This pans the piano voice slightly to the left and the strings voice slightly to the right for a broader, more spacious sound (the bass voice is left in the center — "+0"). Note the position of the marker in the graphic pan display on the upper display line as you set these parameters.

7. Tune Each Layer

Press the PAGE [►] key to move to the "LAYER Tune" screen.

```
LAYER Tune )NtShft(        <───────>ABC─
  +12    +0    +0    +0    +0    +0   ───    ──
```

Since the bass voice we have selected will sound too low if played only on the lower two octaves of the keyboard, we'll shift its pitch up one octave. Use the [CS1] slider to set the layer-A "NtShft" (Note Shift) parameter to "+12".

8. Set the Note Limits for Each Layer

Press the PAGE [►] key to move to the "LAYER Note Limit" screen.

```
LAYER NoteLimit )Lo(       <───────>ABC─
   C≥ ~ B2    C3 ~ G8    C3 ~ G8   ───  ~───
```

Although the note limit parameters can be adjusted via the appropriate control sliders or other data entry controls, there is an easier way. Press [F2] to select the upper note limit for the layer-A voice then, while holding the [SHIFT] key, press the B2 key on the keyboard. Now press [F3] to select the layer-B lower note limit and, while holding [SHIFT], press the C3 key on the keyboard. Using the same technique, set the layer-C lower note limit to C3.

> **DETAIL** *Although the current layer-A lower limit (C-2) as well as the layer-B and layer-C upper limits (G8) extend beyond the keyboard, these settings won't adversely affect our performance combination so we won't bother to change them.*

9. Play

Try playing our new performance combination on the keyboard. You should hear only the BA Wood voice when playing on the lower two octaves (C1 through B2), and a combination of the AP Grand and ST Power voices when playing on the upper three octaves (C3 through C6).

The COMPARE Function

The COMPARE function lets you compare the sound of the edited performance combination with that of the original performace combination. To engage the COMPARE mode, press the [STORE] key while holding the [SHIFT] key. The [PERFORMANCE] key indicator will flash and you'll hear the original pre-edit performance combination when you play on the keyboard.

Press the [EXIT/NO] key to exit from the COMPARE mode and return to the edited data.

10. Go Back And Customize the Parameters

Now you know what the parameters we've just edited do, go back and modify them to create a performance combination that suits your musical needs (use the PAGE [◄] and [►] keys to locate the various edit screens).

11. Store Your Performance Combination

Once you're satisfied with the sound of your original performance combination, you can store it to an internal performance memory location as follows:

Press the [STORE] key.

```
PERFORMANCE STORE     LayerA:<BA Wood >
   To  ﬦA1:CO Dream   ﬦC1u ﬦB1u ﬦD1u off
```

Select the performance memory location to which you want to store your new performance combination using any standard performance selection procedure (e.g. MEMORY, GROUP, and PROGRAM keys).

```
PERFORMANCE STORE     LayerA:<BA Wood >
   To  ﬦD7:SE Storm   ﬦC1u ﬦB1u ﬦD1u off
```

Press [ENTER/YES].

```
PERFORMANCE STORE          Are you sure ?
   To  ﬦD7:SE Storm   ﬦC1u ﬦB1u ﬦD1u off
```

Press [ENTER/YES] again.

```
PERFORMANCE STORE            Completed !
   To  ﬦD7:SE Storm   ﬦC1u ﬦB1u ﬦD1u off
```

"Completed !" will appear briefly when the data has been stored, then the SY85 will return to the PERFORMANCE PLAY mode.

> **IMPORTANT**
>
> *If you return to the PERFORMANCE PLAY mode before storing the edited performance combination, either by pressing the [EXIT/NO] key or the [PERFORMANCE] key, an inverse letter "E" will appear to the right of the performance number, indicated that it has been edited but not stored. You can call the STORE function at this point and proceed as described above. If you select a different performance combination before storing, however, the edited data will be lost. Also note that any previous data in the performance memory location you store to will be overwritten by the new data.*

You can use the PERFORMANCE NAME function described on page 25 of the Feature Reference manual to give your perform- ance combination an original name before storing it.

■ Further Possibilities …

When you're ready to explore the many other possibilities the SY85 pro- vides for performance programming, read through the "PERFORMANCE EDIT MODE" section of the Feature Reference manual (page 13).

4. Voice Editing & Effects

For the programmer who wants to get serious about voice programming, the SY85 offers an extensive range of parameters that allow extremely fine control. All parameters are discussed in detail in the Feature Reference manual VOICE EDIT section (page 57), and we recommend that the dedicated programmer study the Feature Reference manual carefully before embarking on any major voicing projects. The SY85's dual-processor effect system is also quite complex, allowing detailed effect setups to be programmed for each voice. The effect system is described in detail in the feature Reference manual (page 254). For now, however, let's see how you can create a new voice quickly and easily using the VOICE QUICK EDIT mode.

1. Select a Voice

In the VOICE PLAY mode, select the voice you want to edit using the normal voice selection procedure.

```
VOICE PLAY                    ⌐A1:SP Makro
  Serial    EF1:EG Chorus  EF2:Rev.Hall1
```

2. Press [QUICK EDIT]

Press the SUB MODE [QUICK EDIT] key to engage the voice quick edit mode.

3. Select and Set the WAVE Parameters

If it doesn't appear immediately when the QUICK EDIT mode is engaged, use the PAGE [◄] and [►] keys to locate the "QED WAVE" screen.

```
QED WAVE)Group      Number
        01:Piano    P001:Piano
```

These parameters provide a fast, easy way to select a new AWM wave for the current voice, and automatically set the main amplitude envelope generator parameters to values that produce good results with the selected wave.

For fast, easy selection of the preset SY85 waves, the "Group" parameter, edited via [CS2], selects 16 different wave categories or "groups", each containing a number of waves that can be individually selected by using the "Number" parameter.

Quick Edit Wave Groups

1: Piano	Acoustic pianos.
2: Key	Other keyboards.
3: Brass	Brass instruments.
4: Wind	Wind instruments.
5: Strings	Strings.
6: A.Guitar	Acoustic guitars.
7: E.Guitar	Electric guitars.
8: Bass	Acoustic & electric bass.
9: Folk	Folk & ethnic instruments.
10: Synth	Synthesizer sounds.
11: Choir	Choir & human voice.
12: TPerc	Tuned percussion.
13: Drum	Drums.
14: Perc	Percussion instruments.
15: SE	Sound effects.
16: Osc	Basic oscillator waveforms.

Once the desired group has been selected, use [CS5] to select the wave to be used in the current voice. The [INTERNAL 1], [INTERNAL 2], and [CARD] keys can also be used to select the memory area from which the wave is to be selected. A complete listing of the internal waves is given in the Feature Reference manual appendix (page 310).

4. Select and Set the Amplitude Envelope Generator Parameters

Use the PAGE [◄] and [►] keys to locate the "QED AEG Type" screen.

```
QED AEG)Type          Atk   Sus   Rel   Vel
   1:Piano            63    --    27    +3
```

Rather than having to set numerous level and rate values via the full-edit amplitude envelope generator parameters, these parameters let you select from a range of preset envelope types, and then modify the overall attack, sustain, and release characteristics as required.

[CS1] selects either the envelope defined by the current amplitude envelope parameter settings, or one of 21 preset amplitude envelope types for the current voice. The envelope types are:

Quick Edit Envelope Types

0: --------	Full-edit envelope.
1: Piano	Acoustic piano.
2: Brass	Brass.
3: SfzBrass	Sforzando brass.
4: SynBrass	Synthesizer brass.
5: StFast	Fast-attack strings.
6: StSlw/Pd	Slow-attack strings (pad).
7: E.Bass	Electric bass.
8: SynBass1	Synthesizer bass 1.
9: SynBass2	Synthesizer bass 2.
10: Organ	Organ.
11: Guitar	Guitar.
12: Pluck1	Plucked instrument 1.
13: Pluck2	Plucked instrument 2.
14: SynPad	Synthesizer pad.
15: SynComp	Synthesizer comping (backing).
16: Percusiv	Percussive.
17: S.Ideal1	Sound envelope 1.
18: S.Ideal2	Sound envelope 2.
19: S.Ideal3	Sound envelope 3.
20: S.Ideal4	Sound envelope 4.
21: Init	Initialized envelope.

[CS5] sets the attack rate for the selected envelope. "63" produces the fastest attack, while "0" produces the slowest attack. [CS6] sets the sustain level for the selected envelope, and [CS7] sets the release rate for the selected envelope.

[CS8] determines how the output level of the voice changes in response to velocity changes (e.g. keyboard dynamics). Plus "+" settings produce higher output level in response to higher velocity values — i.e. the harder a key is played, the louder the sound. The maximum setting of "+7" produces the maximum level variation in response to velocity changes. Minus "-" settings produce the opposite effect: lower level in response to higher velocity. A setting of "+0" results in no level variation.

5. Select and Set the FILTER Parameters

Use the PAGE [◄] and [►] keys to locate the "QED FILTER Type" screen.

```
QED FILTER)Type          Coff Reso Vel
            1:VeloSoft    115    0  +27
```

Although the SY85 includes a sophisticated digital filter system that can be precisely controlled via the full-edit parameters, the simplified filter parameters provided here have been specifically created for fast, efficient filter programming.

[CS3] selects either the filter defined by the current filter parameter settings, or one of 15 preset filter types for the current voice. The filter types are:

Quick Edit Filter Types

0: --------	Full-edit filter.
1: VeloSoft	Velocity sensitive, soft response.
2: VeloWide	Velocity sensitive, wide response.
3: VeloHard	Velocity sensitive, hard response.
4: VeloReso	Velocity sensitive, resonant.
5: SynBass1	Synthesizer bass 1.
6: SynBass2	Synthesizer bass 2.
7: SynBras1	Synthesizer brass 1.
8: SynBras2	Synthesizer brass 2.
9: Sweep	Sweep-frequency filter.
10: SlowAtak	Slow-attack filter.
11: LPF_Init	Initialized LPF.
12: HPF_Init	Initialized HPF.
13: BPF_Init	Initialized BPF.
14: BEF_Init	Initialized BEF.
15: Thru	No filter.

[CS6] sets the cutoff frequency of the selected filter (0 … 127). Lower cutoff values produce a lower cutoff frequency and higher values produce a higher cutoff frequency. If the "Thru" filter type is selected, no cutoff frequency can be set and "---" appears on the display in place of the parameter.

[CS7] determines the degree of filter resonance (00 … 99). This parameter has a similar effect to the "resonance" settings on traditional analog synthesizer filters — i.e. it determines the height of a peak in the filter response at the cutoff frequency. Higher resonance values produce a higher resonant peak and reduce the overall bandwidth of the filter, passing a narrow band of frequencies at the filter's cutoff. If a filter type other than "LPF" is selected, no resonance can be produced and "--" appears on the display in place of the parameter.

[CS8] determines how the filter cutoff frequency changes in response to velocity changes (e.g. keyboard dynamics). The range is from -63 to +63. Plus "+" settings produce higher cutoff frequencies in response to higher velocity values — i.e. the harder a key is played, the higher the cutoff frequency. The maximum setting of "+63" produces the maximum level variation in response to velocity changes. Minus "-" settings produce the opposite effect: lower cutoff in response to higher velocity. A setting of "+0" results in no cutoff variation.

6. Select and Set the LFO Parameters

Use the PAGE [◀] and [▶] keys to locate the "QED LFO" screen.

```
QED LFO)    Type      Speed Depth
            vibrato    64    64
```

Here, the main LFO parameters are simplified and concentrated in a single screen for quick, easy programming.

[CS3] determines whether the LFO will produce vibrato (pitch modulation), tremolo (amplitude modulation), or wahwah (filter cutoff modulation) effects. The current LFO parameter settings (page 78) are selected when this parameter is set to "-------".

[CS5] sets the speed of the LFO (0 … 99). "0" is the slowest speed setting, producing an LFO speed of approximately 0 Hertz. The fastest setting of 99 produces an LFO speed of approximately 25 Hertz.

[CS6] sets the maximum amount of amplitude (tremolo), pitch (vibrato), or filter cutoff (wahwah) modulation that can be applied to the current voice. A "0" setting produces no modulation while a setting of "127" produces maximum modulation.

7. Select and Set the EFFECT Type & Balance Parameters

Use the PAGE [◀] and [▶] keys to locate the "QED EFFECT" screen.

```
QED EFFECT)   Type            Wet Balance
  25:EG Chorus  01:Rev.Hall1        50%
```

The SY85 features a complex, high-performance effect system that can be programmed easily via the parameters presented here and in the following screen.

[CS1] selects any of the SY85's 90 effect types for the EFFECT 1 processor, and [CS4] does the same for the EFFECT 2 processor. See page 254 of the Feature Reference manual for more details on the SY85 effect system.
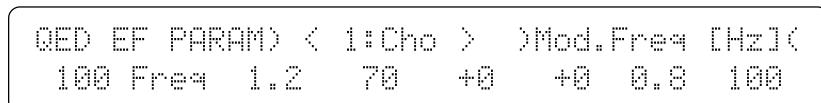
[CS8] controls the balance between the direct no-effect sound and the effect sound. The maximum setting of "100" produces maximum effect depth.

8. Select and Set the Main Effect Parameters

Use the PAGE [◄] and [►] keys to locate the "QED EF PARAM" screen.

```
QED EF PARAM) < 1:Cho > )Mod.Freq [Hz](
  100 Freq  1.2   70   +0   +0  0.8  100
```

This screen provides access to the four main parameters each for the current selected effect 1 and effect 2. The four effect 1 parameters are edited via [CS1] through [CS4], while the four effect 2 parameters are edited via [CS5] through [CS8]. The name of the corresponding effect and parameter are shown on the upper display line when one of these parameters are edited.

The parameters are different for each effect (refer to page 274 of the Feature Reference manual for details).

9. Play

Try playing your new voice on the keyboard (of course, you can play at any time while editing to hear how it's progressing).

The COMPARE Function
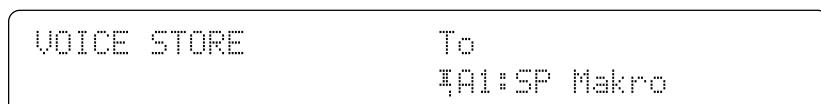
The COMPARE function lets you compare the sound of the edited voice with that of the original voice. To engage the COMPARE mode, press the [STORE] key while holding the [SHIFT] key. The [VOICE] key indicator will flash and you'll hear the original pre-edit voice when you play on the keyboard.

Press the [EXIT/NO] key to exit from the COMPARE mode and return to the edited data.

10. Store Your New Voice
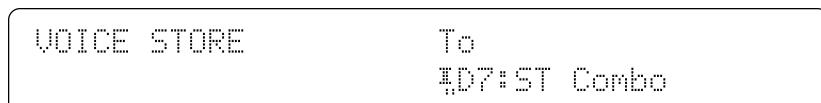
Once you're satisfied with the sound of your original voice, you can store it to an internal voice memory location as follows:

Press the [STORE] key.

```
VOICE STORE          To
                     ▮A1:SP Makro
```

Select the voice memory location to which you want to store your new voice using any standard voice selection procedure (e.g. MEMORY, GROUP, and PROGRAM keys).
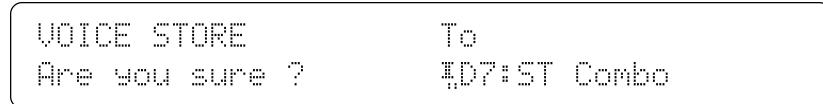
```
VOICE STORE          To
                     ▮D7:ST Combo
```

Press [ENTER/YES].

```
VOICE STORE          To
Are you sure ?       ▓D7:ST Combo
```

Press [ENTER/YES] again.

```
VOICE STORE          To
    Completed !      ▓D7:ST Combo
```

"Completed !" will appear briefly when the data has been stored, then the SY85 will return to the VOICE PLAY mode.

> **IMPORTANT**
>
> *If you return to the VOICE PLAY mode before storing the edited voice, either by pressing the [EXIT/NO] key or the [VOICE] key, an inverse letter "E" will appear to the right of the voice number, indicated that it has been edited but not stored. You can call the STORE function at this point and proceed as described above. If you select a different voice before storing, however, the edited data will be lost. Also note that any previous data in the voice memory location you store to will be overwritten by the new data.*

> **HINT**
>
> *You can use the VOICE NAME function described on page 95 of the Feature Reference manual to give your voice an original name before storing it.*

■ Further Possibilities …

When you're ready to explore the many other possibilities the SY85 provides for voice programming, read through the "VOICE EDIT MODE" section of the Feature Reference manual (page 57).

5. The Sequencer

The SY85 sequencer has 8 "normal" tracks and a special rhythm track. Each of the normal sequencer tracks can control a separate "instrument". Which track controls which instrument is determined by the multi-play setup instrument assignments and the sequencer track transmit channel assignments (both are described below). Normally, sequencer tracks 1 through 8 are assigned to the correspondingly numbered MIDI transmit channels, so tracks 1 through 8 control the multi-play instruments assigned to MIDI channels 1 through 8, respectively. Track 9, the rhythm track, plays a sequence of rhythm "patterns" — any of the 100 preset rhythm patterns provided with the SY85, or original patterns you record in the PATTERN mode.

The SY85 sequencer can hold up to 10 separate "songs" that can be selected and recorded or played as required. Completed songs can also be saved to external floppy disks for long-term storage.

There are basically two ways to record using the sequencer — realtime or step write. Both of these methods are described below.

■ Real-time Recording (Tracks 1 … 8)

Realtime recording allows you to directly record anything you play on the keyboard, capturing the spontaneous timing, keyboard dynamics and controller operations of the performance. Using the realtime recording mode is, in fact, very much like using a conventional tape recorder. Realtime recording is best for parts you can play easily on the keyboard, and for passages in which you want to retain the human "feel" of naturally varying timing and other musical factors.

1. Engage the Song Mode and Select a Song Number

Press the [SONG] key to engage the song mode.

```
SONG PLAY      Meas  Tempo Time     (TR1)
 02:InitSong    001   120  4/ 4     [Tch]
```

The SY85 can hold up to 10 different "songs" in memory at the same time. Use [CS1] to select a song number from 1 to 10. If this is the first song you've recorded, "1" is a logical choice.

Optional **Set the Transmit Channel For Each Track.**

This step is only necessary if you want to change the default track transmit channel settings: tracks 1 through 8 normally transmit on MIDI channels 1 through 8, respectively.

Press [F8] to call the Track Transmit Channel display.

```
Track Transmit Channel
     1    2    3    4    5    6    7    8
```

Here you can specify which MIDI channel (1 … 16) each of the sequencer's 8 main tracks will transmit on. Functions keys [F1] through [F8] correspond to tracks 1 through 8. Press a function key to move the underline cursor to the MIDI channel parameter for that track, then use the corresponding control slider (e.g. [CS3] for track 3) to set the MIDI transmit channel for that track. The MIDI transmit channel for the rhythm track (track 9) can be set by holding the [SHIFT] key and using the [CS8] control slider (note that "RH9" appears above [CS8] while the [SHIFT] key is held) . The rhythm track is normally set to transmit on channel 16.
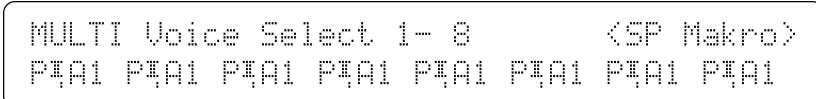
> 🔍 **DETAIL** *This function is obviously important if you will be using the SY85 sequencer to drive an external tone generator that has specific channel requirements.*

2. Program the MULTI Setup For the Selected Song

Each SY85 "song" has an independent "multi setup" that can have up to 16 voices assigned to "instruments" 1 through 16. Each instrument is controlled via the correspondingly numbered MIDI channel.

Press the SUB MODE [MULTI EDIT] key, and then use the PAGE [◄] and [►] keys to locate the "MULTI Voice Select" screen shown below. This screen lets you select the voices that are to be played via the various multi-setup channels.

```
MULTI Voice Select 1- 8        <SP Makro>
PﬠA1 PﬠA1 PﬠA1 PﬠA1 PﬠA1 PﬠA1 PﬠA1 PﬠA1
```

Only eight voice numbers are shown on the display at one time. Use the PAGE [◄] and [►] keys while holding the [SHIFT] key to switch between multi instruments "1 … 8" and "9 … 16". The currenty selected group of voices is indicated on the upper display line.

After moving the cursor to the instrument you want to edit by pressing the appropriate function key, use the same function key to toggle between PERFORMANCE or VOICE memory ("P" or "V" at the beginning of the voice number). Then use the [INTERNAL 1], [INTERNAL 2], and [CARD] keys to select the memory area from which the voice is to be selected, and finally the GROUP and PROGRAM keys to select the voice. Voices within the selected memory bank can also be selected directy for each channel by the appropriate CS sliders. Internal and card voices cannot be mixed.

The voices can individually turned on or off by using the [-] (off) and [+] (on) keys while holding the [SHIFT] key.

The name of the currently selected voice is shown in the upper right corner of the display.
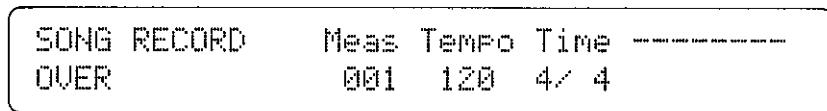
> 🔍 **DETAIL** *To make locating voices for multi assignment faster and easier, a "voice search" function can be accessed from the "MULTI Voice Select" screen by pressing the SUB MODE [COPY] key.*

# 3. Return to the SONG Mode and Set the Record Parameters
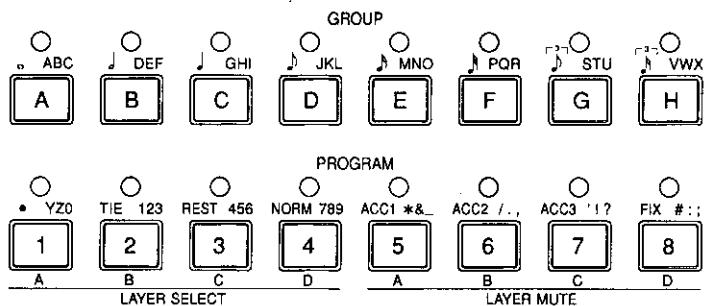
3-1 Engage the Record Mode.

Press [SONG] or [EXIT] to return to the song play mode, then press the sequencer [RECORD] key to engage the record standby mode. The red [RECORD] indicator will light.

```
SONG RECORD    Meas Tempo Time ----------
OVER            001  120  4/ 4
```

3-2 Select the Record Track.

GROUP keys [A] through [H] correspond to sequencer tracks 1 through 8, while PROGRAM key [1] is used to select the rhythm track (the rhythm track will be described in detail in "Rhythm Patterns and the Rhythm Track"). When the song mode is engaged, the indicators corresponding to tracks that already contain some recorded data glow green. The inidcator of the track to be recorded, selected by pressing the appropriate GROUP or PROGRAM key, glows red.

When the desired record track is selected, the corresponding instrument in the current multi-play setup will sound when the keyboard is played.

3-3 Select a Record Mode.

Use [CS1] to select the desired record mode. The different record modes are:

● **OVER** (Real-time Overdub)
Material recorded in the overdub mode is recorded "over" any previous material, so you end up with a combination of the previous and newly-recorded data.

● **REPL** (Real-time Replace)
Anything recorded in this mode replaces previously recorded material. That is, previous data on the current track is erased and replaced by the new material.

● **STEP**

The STEP record mode will be described in "STEP RECORDING" beginning on page 52.

● **PUNC** (Real-time Punch-in)

Punch-in recording makes it possible to re-record (replace) a section of a previously-recorded track without affecting the data before and after the punch-in section. All operations are the same as for replace recording, except that you must specify the measure numbers for the beginning and end of the punch-in segment. If you select "punc" instead of "over" or "repl," (see step 3, above) the display will appear as follows:

```
SONG RECORD    Meas Tempo Time ----------
PUNC  001~ 001  001  120  4/ 4
```

Use the [CS2] and [CS3] control sliders to set the punch-in and punch-out measures, respectively, prior to recording. Other parameters within this display can be set in the same way as for replace or overdub recording.

Once recording is started the sequence will play back until the punch-in point is reached, then the replace record mode will be activated until the punch-out point is reached, allowing you to record the new material. If recorded material exists following the punch-out point, playback will continue until the end of the sequence.

3-4 Set the Record Tempo.

Use [CS5] to set the tempo you want to record at (shown in beats per minute on the display). The tempo can be set from 30 to 240 beats per minute.

3-5 Set the Time Signature.

Use [CS6] to set the time signature of the song to be recorded. The time signature can only be set if the song selected for recording is "clear" and does not contain any previous data. See "CLEAR SONG" on page 179 of the Feature Reference manual for instructions on how to clear one or all songs.

Optional Set the Start Measure.

Before actually begin recording you can use the [CS4] slider to set the measure from which you want to start recording, if the track being recorded already contains recorded material.

4. Press [RUN] To Start Recording
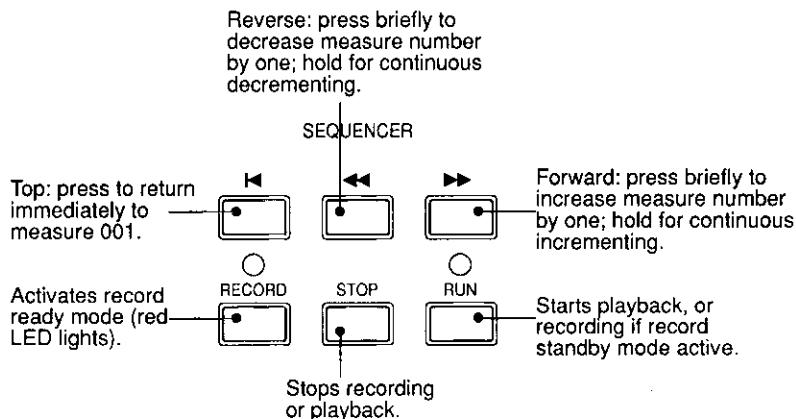
Press the [RUN] key and start recording after a two-measure count-in. The count-in is indicated visually on the LCD by "minus" measure numbers — e.g. recording will actually begin after a two-measure count-in from -8 to 0 if 4/4 time is selected, -16 to 0 if 8/8 time is selected, etc. The "click" metronome will also sound as long as the "CLICK MODE" function is set appropriately ("REFERENCE" section, page 217) and the rear-panel [CLICK VOLUME] control is set to an appropriate level. After the count-in, the measure numbers will increase as recording progresses. The [RUN] key indicator also flashes to indicate the tempo — red on the first beat of every measure and green on all other beats.

5. Press [STOP] To Stop Recording

When you have finished playing the part for the current track, press the [STOP] key to stop recording. Both the [RUN] and [RECORD] key indicators will go out, and "Executing!" will appear on the display briefly while recorded data is being processed. After this, the SY85 will return to the sequencer play mode.

6. Check the Part just Recorded

You can now listen to the part you've just recorded by pressing the sequencer [I◀] "top" key (see illustration below) to return to the first measure, and then the [RUN] key. You can also use the forward and reverse keys to move to any measure and listen to playback from that point.

Reverse: press briefly to decrease measure number by one; hold for continuous decrementing.

SEQUENCER

Top: press to return immediately to measure 001.

Forward: press briefly to increase measure number by one; hold for continuous incrementing.

Activates record ready mode (red LED lights).

RECORD   STOP   RUN

Starts playback, or recording if record standby mode active.

Stops recording or playback.

Playback will stop automatically when the end of the recorded sequence is reached, or it can be stopped at any time by pressing the [STOP] key.

While a sequence is playing, the [CS1] through [CS8] sliders can be used to adjust the volume of multi instruments 1 through 8, respectively. Also, since the cursor is located at the "Tempo" parameter, the data entry dial or [-1] and [+1] keys can be used to change the tempo during playback.

7. Record the Next Part

When you're satisfied that the first track is OK, go back to step 3-2 and select a new record track, then record. Continue this process until your composition is complete. For difficult tracks you might want to use the step record mode, described below.

■ Step Recording (Tracks 1 … 8)
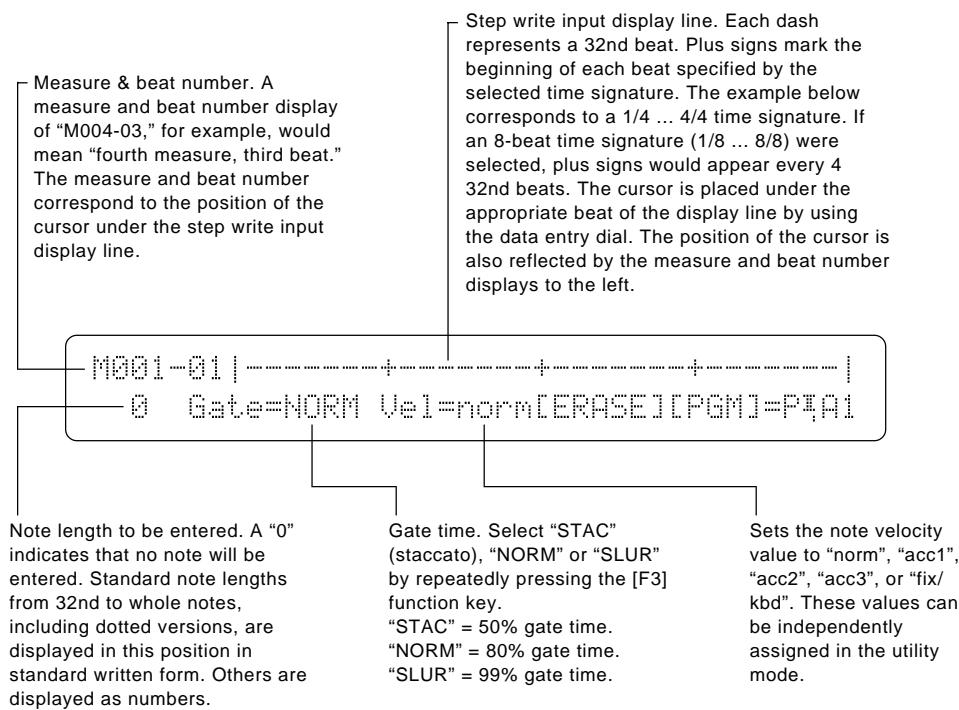
Step recording allows you to input parts note by note, rest by rest, without having to actually play the part on the keyboard. This is ideal for entering difficult parts from written music, or for extremely complex or fast passages that would be impossible to play in real time.

1. Select the "Step" Record Mode

The sequencer record mode is entered in the same was as described in the "REALTIME RECORDING" section, above. Instead of choosing the "repl" or "over" record mode, select "step." You can also select a time signature at this point if nothing has been recorded yet.

2. Press [RUN]

Press the [RUN] key to call the step record display.

Step write input display line. Each dash represents a 32nd beat. Plus signs mark the beginning of each beat specified by the selected time signature. The example below corresponds to a 1/4 … 4/4 time signature. If an 8-beat time signature (1/8 … 8/8) were selected, plus signs would appear every 4 32nd beats. The cursor is placed under the appropriate beat of the display line by using the data entry dial. The position of the cursor is also reflected by the measure and beat number displays to the left.

Measure & beat number. A measure and beat number display of "M004-03," for example, would mean "fourth measure, third beat." The measure and beat number correspond to the position of the cursor under the step write input display line.

```
M001-01|—————————+—————————+—————————+—————————|
  0   Gate=NORM Vel=norm[ERASE][PGM]=P¼A1
```

Note length to be entered. A "0" indicates that no note will be entered. Standard note lengths from 32nd to whole notes, including dotted versions, are displayed in this position in standard written form. Others are displayed as numbers.

Gate time. Select "STAC" (staccato), "NORM" or "SLUR" by repeatedly pressing the [F3] function key. "STAC" = 50% gate time. "NORM" = 80% gate time. "SLUR" = 99% gate time.

Sets the note velocity value to "norm", "acc1", "acc2", "acc3", or "fix/kbd". These values can be independently assigned in the utility mode.

3. Set the Gate Time and Velocity

Use the [F3] function key to select the gate time of the first note to be entered: "STAC" for short, staccato notes; "NORM" for normal-length notes; or "SLUR" for long notes that run into each other.

The velocity of the notes to be entered is set via the "NORM" (PROGRAM [4]), "ACC1" through "ACC3" (PROGRAM [5] through [7]), and "FIX" (PROGRAM [8]) keys. The actual velocity values of the accents — "ACC1" through "ACC3" - can be set via the UTILITY SEQ SETUP mode SEQUENCER Accent screen, described on page 220 of the Feature Reference manual. If the "Fix" parameter is set to "kbd", then "kbd" will appear on the display when you press the FIX (PROGRAM [8]) key, and the notes will be entered at the velocity with which they are played on the keyboard.

4. Select the Desired Note Length

Select the note length for the first note by pressing the corresponding GROUP key (standard notes are displayed above the keys), or by incrementing/decrementing using the [-1] and [+1] keys. The number of 32nd-note segments corresponding to the selected note length will be emphasized on the display. If you select 8th notes in 4/4 time, for example, the display will look something like this:

Four 32nd notes equal one quarter note.

```
M001-01|▆▆▆▆————+————————+————————+————————|
   ♪    Gate=NORM Vel=norm[ERASE][PGM]=P▓A1
```

● **Dotted Notes**
Pressing the dot key (PROGRAM key [1]) adds half the value of the currently displayed note length. If this results in a standard note length, it is displayed as a dotted note. Otherwise it is displayed as a numeric value.
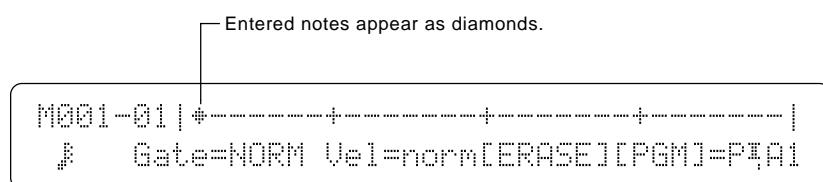
● **Triplets**
8th and 16th-note triplets can be entered via the GROUP [G] and [H] keys, respectively. When a note is being displayed "-3-" appears to the right of the note, while numeric values are divided by two-thirds (since triplets squeeze three notes in the space normally occupied by two, triplet notes are two-thirds the length of their standard counterparts). You should normally enter triplet notes in groups of 3, 6, 9, 12 or other multiples of 3, in order to end up with standard note lengths.

● **Ties**
Press the TIE key (GROUP key [2]) immediately after entering a note to tie that note to the next note entered. The tie function is cancelled if you move the cursor between pressing the TIE key and entering the second note.

5. Enter the Required Notes and Rests

When you've selected the required note length, play the note to be entered on the keyboard. The entered note will appear as a diamond (u) on the step record input display line. The cursor will move to the beginning of the next note.

┌ Entered notes appear as diamonds.

```
M001-01|◆————————+————————+————————+————————|
  ♪   Gate=NORM Vel=norm[ERASE][PGM]=P¶A1
```

Press the REST key (PROGRAM key [3]) instead of playing a note if you want to enter a rest of the currently specified length.

6. Continue Until the Track Is Complete

Repeat steps 3 through 5 until the required material is entered. You can move the cursor back and forth using the data entry dial, adding notes wherever you like — even on top of other notes to create chords. The SEQUENCER [◄◄] and [►►] keys can be used to move backward and forward a measure at a time.

● Erasing Notes

To erase a note, move the cursor to that note and press the [F6] function key, immediately below "[ERASE]" on the display. The diamond note marker will disappear. If the diamond marks a chord, the entire chord will be erased.

● Switching Voices Mid-track

You can switch to a different voice anywhere in a track by entering a program change command at the required point. After moving the cursor to the point at which you want to change voices in the step record edit display, press the [F7] function key.

```
Program Change
                    PFM  ¶A1:SP Makro  [GO]
```

Use [CS4] to select "PFM" if you want to switch to a performance combination or "VCE" if you want to switch to a voice, select the performance combination or voice in the normal way, the press [F8] (under "[GO]" on the display) to enter the specified program change (or [EXIT] to quit and return directly to the step-record display). The display will return to the step record edit display, and a "p" will occur at the point at which the program change command was entered. Program change commands can be erased in the same was as notes by using the [ERASE] key.

7. Press [STOP]

When the track is finished, press [STOP] to return to the SONG play mode. Now you can press [RUN] and hear how the sequence sounds.

■ Creating A Rhythm Track

SY85 rhythm tracks are most easily and efficiently created by creating a sequence of rhythm "patterns". The SY85 has memory for 100 internal patterns, initially containing 100 pre-programmed patterns covering a wide variety of musical styles. You can use these patterns as they are, edit them, or record totally new ones as required (the pre-programmed patterns can be re-loaded from the disk supplied with the SY85 at any time).

● LISTEN TO THE INTERNAL PATTERNS

1. Press [PATTERN]

Press the [PATTERN] key to engage the pattern mode.

```
PATTERN PLAY    Meas Tempo Time
I00w:Funk   V     1   120  4/ 4
```

2. Select a Pattern

Use [CS1] (or any of the other data entry controls as long as the cursor is below the pattern number) to select a pattern number (00 … 99). The name of the pattern appears to the right of the number. The letter to the right of the pattern name indicates whether it is a verse ("V"), fill-in ("F"), or chorus ("C") pattern. The number below "Meas" on the display indicates how many measures long the patterns is (1 … 4). [CS5] can be used to adjust the tempo, below "Tempo" on the display. The number below "Time" is the pattern's time signature.

Three variations are provided for most of the pre-programmed patterns (verse, fill-in, and chorus) so you can create complete songs with minimum editing.

3. Play the Selected Pattern

Press the SEQUENCER [RUN] key to play the selected pattern. The pattern will repeat continuously unil the [STOP] key is pressed. You can select a different pattern while a pattern is playing, and the new pattern will only begin playing as soon as the current pattern finishes (the new pattern number will flash in the meantime).

● RECORDING AN ORIGINAL PATTERN — REAL TIME

1. Select a Pattern Number

In the PATTERN mode, select the number of the pattern you want to edit or record.

Optional Clear the Current Pattern.

If you want to record a totally new pattern from scratch, clear the existing pattern: press the SUB MODE [JOB] key, use the PAGE [◄] and [►] keys to locate the "PTN JOB Clear Pattern" screen.

```
PTN JOB Clear Pattern      ptn
[PTN] ALL  KEY <Funk   V> I00w
```

Press [F1] so that the square brackets appear around "PTN" on the display. This means that you want to clear a single pattern. If necessary, use [CS6]. to select the pattern you want to clear, then press [ENTER/YES].

```
PTN JOB Clear Pattern     Are you sure ?
[PTN] ALL  KEY <Funk   V> I00w
```

Respond to this "Are you sure ?" display by pressing [ENTER/YES] again if you want to go ahead and clear the pattern, or press [EXIT/NO] to cancel the operation.

2. Set the Pattern Record Parameters

2-1 Engage the Record Mode.

Press the sequencer [RECORD] key to engage the record standby mode. The red [RECORD] indicator will light.

```
PATTERN RECORD Meas Tempo Time Qntz Vel
  REAL  PTN=I00    1  120  4/ 4  1/4 norm
```

2-2 Select a Record Mode.

Use [CS1] to select the desired record mode. The different record modes are:

● **REAL** (Real-time Overdub)
   Material recorded in the overdub mode is recorded "over" any previous material, so you end up with a combination of the previous and newly-recorded data.

● **STEP**

The STEP record mode will be described in "Recording an Orignal Pattern — Step Record" beginning on page 58.

2-3 **Select the Pattern Number to Be Recorded.**

If necessary, use [CS3] to select the pattern number to be recorded.

2-4 **Set the Number of Measures.**

Use [CS4] to set the length of the pattern in measures (1 … 4).

2-5 **Set the Record Tempo.**

Use [CS5] to set the tempo you want to record at (shown in beats per minute on the display). The tempo can be set from 30 to 240 beats per minute.

2-6 **Set the Time Signature.**

Use [CS6] to set the time signature of the pattern to be recorded. The time signature can only be set if the pattern selected for recording is "clear" and does not contain any previous data.

2-7 **Set the Quantize Value.**

Use [CS7] to set the quantize value at which you want to enter the pattern data. The available quantize values are 1/4, 1/6, 1/8, 1/12, 1/16, 1/24, and 1/32. Quantization can also be turned "off" if you want maximum note resolution.

2-8 **Set the Velocity Value.**

The velocity of the notes to be entered is set via the "NORM" (PRO-GRAM [4]), "ACC1" through ACC3" (PROGRAM [5] through [7]), and "FIX" (PROGRAM [8]) keys. The actual velocity values of the accents — "ACC1" through "ACC3" - can be set via the UTILITY SEQ SETUP mode SEQUENCER Accent screen, described on page 220 of the Feature Reference manual. If the "Fix" parameter is set to "kbd", then "kbd" will appear on the display when you press the FIX (PROGRAM [8]) key, and the notes will be entered at the velocity with which they are played on the keyboard.

3. Press [RUN] To Start Recording

Press the [RUN] key and start recording. The [RUN] key indicator flashes to indicate the tempo — red on the first beat of every measure and green on all other beats.

4. Record

The voice assigned to sequencer rhythm track (page ??) is automatically selected when the PATTERN mode is engaged. While the metronome (or the existing pattern data) is playing, anything you play on the keyboard will be recorded. Of course, you don't have to record everything at once. The pattern continuously cycles as you record. You can start with just the bass drum, for example, then record the snare, cymbals, and so on until your pattern is complete.

● Erasing Notes

To erase a note while recording, hold the [SHIFT] key ("ERASE" will flash in the lower left corner of the display) and press the key on the keyboard corresponding to the instrument you want to erase, for the duration of the notes you want to erase.

While recording you can change the tempo, quantize value, or velocity value as required.

5. Press [STOP] To Stop Recording

When you have finished playing the part for the current track, press the [STOP] key to stop recording. Both the [RUN] and [RECORD] key indicators will go out and the SY85 will return to the pattern play mode.

6. Check the Pattern just Recorded

You can now listen to the part you've just recorded by pressing the sequencer [RUN] key.

You can also use the PATTERN NAME function, described on page 207 of the "Feature Reference" manual, to give your pattern an original pettern name.

● RECORDING AN ORIGINAL PATTERN — STEP RECORD
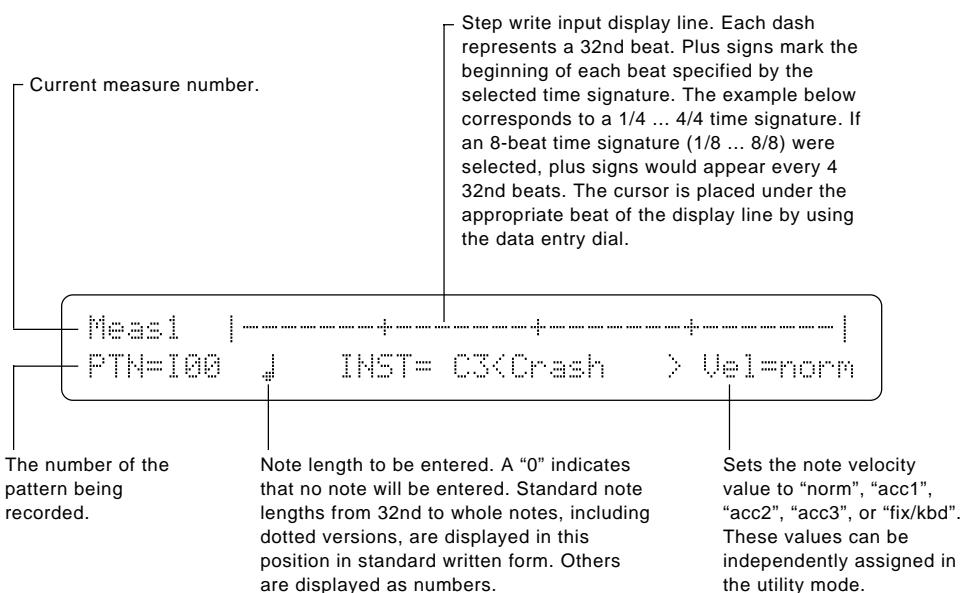
Step recording in the pattern mode is much the same as step recording in the song mode.

1. Select the "Step" Record Mode

The record mode is entered in the same was as described in the "RECORDING AN ORIGINAL PATTERN — REAL TIME" section, above. Instead of choosing the "real" record mode, select "step" and set the other record parameters as rquired.

2. Press [RUN]

Press the [RUN] key to call the step record display.

Step write input display line. Each dash represents a 32nd beat. Plus signs mark the beginning of each beat specified by the selected time signature. The example below corresponds to a 1/4 ... 4/4 time signature. If an 8-beat time signature (1/8 ... 8/8) were selected, plus signs would appear every 4 32nd beats. The cursor is placed under the appropriate beat of the display line by using the data entry dial.

Current measure number.

```
Meas1   |————————+————————+————————+————————|
PTN=I00  ♩   INST= C3<Crash   > Vel=norm
```

The number of the pattern being recorded.

Note length to be entered. A "0" indicates that no note will be entered. Standard note lengths from 32nd to whole notes, including dotted versions, are displayed in this position in standard written form. Others are displayed as numbers.

Sets the note velocity value to "norm", "acc1", "acc2", "acc3", or "fix/kbd". These values can be independently assigned in the utility mode.

3. Set the Velocity

The velocity of the notes to be entered is set via the "NORM" (PROGRAM [4]), "ACC1" through ACC3" (PROGRAM [5] through [7]), and "FIX" (PROGRAM [8]) keys. The actual velocity values of the accents — "ACC1" through "ACC3" - can be set via the UTILITY SEQ SETUP mode SEQUENCER Accent screen, described on page 220 of the Feature Reference manual. If the "Fix" parameter is set to "kbd", then "kbd" will appear on the display when you press the FIX (PROGRAM [8]) key, and the notes will be entered at the velocity with which they are played on the keyboard.

4. Select the Desired Note Length

Select the note length for the first note by pressing the corresponding GROUP key (standard notes are displayed above the keys), or by incrementing/decrementing using the [-1] and [+1] keys. Dotted notes, triplets, and ties are entered in the same was as they are in the song step record mode (page 53).

5. Enter the Required Notes and Rests

When you've selected the required note length, play the key corresponding to the instrument to be entered on the keyboard. The cursor will move to the beginning of the next note.

Only one instrument is shown on the step write display line at a time. The name of the instrument (and the key via which it is played) is displayed following "INST=" on the lower display line. To change the displayed instrument, press the key corresponding to the desired instrument on the keyboard while holding the [F4] key. Entered notes appear as a dot (●) if they fall precisely on a beat, or as a cross (**X**) if slightly off the beat.

6. Continue Until the Track Is Complete

Repeat steps 3 through 5 until the required material is entered. You can move the cursor back and forth using the data entry dial, adding notes wherever you like — even on top of other notes.

Erasing Notes

To erase a note at the current cursor position, hold the [SHIFT] key ("ERASE" will flash on the display) and press the key on the keyboard correpsonding to the instrument to be erased.

7. Press [STOP]

When the pattern is finished, press [STOP] to return to the PATTERN play mode. Now you can press [RUN] and hear how the pattern sounds.

● BUILDING A RHYTHM TRACK

A rhythm track is built up as a sequence or "parts," each part corresponding to a single pattern. The part sequence is specified in the SONG EDIT mode.

When the track edit mode is engaged while the rhythm track (track 9) is selected, or when the rhythm track is selected while the track edit mode is engaged, the following display will appear:

```
SONG EDIT
Part: 001   ptn  *** [INS][DEL][CPY][SCH]
```

This initial display allows any existing rhythm part to be selected via [CS2] (001 … 999), the event located at that part to be changed via [CS3], and the parameter associated with the event to be changed via [CS4]. The various event types and their parameters are as follows:

● **ptn** (Pattern number)
Use [CS4] to select a different pattern number as required (I00 … I99).

● **||:** (Begin repeat)
This symbol indicates the beginning of a range of rhythm parts to be repeated. The begin repeat event has no other parameter.

● **:||** (End repeat)
A "||:" must always be followed at some point by a ":||" symbol signifying the end of the range of parts to be repeated. Use [CS4] to set the number of times the specified section is to be repeated (x 0 … x99).

● **vol** (Volume change)
This event produces a volume change at the selected part. The [CS4] slider sets the new volume level (0 … 127).

● **tmp** (Tempo change)
This event indicates a tempo change to occur over a specified number of beats. The numbers above the [CS4] slider define the tempo change: the number to the left of the slash (-99 … 0 … +99, or atmp for "a tempo") sets the number of beats per minute by which the tempo will decrease or increase, and the number to the right of the slash (0 … 99) sets the number of beats from the "tmp" mark over which the change will occur. A setting of "+20/8", for example, would increase the tempo by 20 beats per minute over 8 beats (2 measures of 4/4 time). The [F4] function key is used to toggle the cursor between the left and right numbers, and [CS4] is used to change the selected number.

● **mark** (Search mark)
This sets one of 16 markers to be used by the rhythm track search function described on page 63. [CS4] is used to specify the marker (A … P).

The [F5] through [F8] function keys are used to access the rhythm track edit functions described below:

● **[F5]: "INS" = Rhythm Track Insert**

```
SONG EDIT Insert Part
  Part:001= ptn  ***
```

This function is used to insert a new part at any point in an existing rhythm track. Press [F5] to engage the rhythm track insert function after locating the desired insert point via the main rhythm track edit screen, described above. Then use [CS3] and [CS4] to specify the event to be inserted. The event types that can be inserted and their parameters are exactly the same as those described for the main rhythm track edit screen, above. Once the event to be inserted has been specified, press [ENTER/YES] to begin the insert procedure. "Are you sure?" will appear on the display. Press [ENTER/YES] again to confirm that you want to go ahead with the insert operation, or press [EXIT/NO] to cancel.

When the event has been inserted, "Completed!" will appear briefly on the display, then the display will return to the main rhythm track edit mode.

● **[F6]: "DEL" = Rhythm Track Delete**

```
SONG EDIT Delete Part
  Part:001= ptn  ***
```

This function is used to delete a part from an existing rhythm track. Press [F6] to engage the rhythm track delete function after locating the part to be deleted via the main rhythm track edit screen, described above, the press [ENTER/YES]. Press [ENTER/YES] again to confirm that you want to go ahead with the delete operation, or press [EXIT/NO] to cancel.

When the part has been deleted, "Completed!" will appear briefly on the display, then the display will return to the main rhythm track edit mode.

● **[F7]: "CPY" = Rhythm Track Copy**

```
SONG EDIT Copy Part      from      To
  Part:001= ptn  ***     001~ 001  001
```

This function is used to copy a part or a range of parts to any other point in a rhythm track. Press [F7] to engage the rhythm track copy function. Then use [CS6] to select the number of the first part in the range of parts to be copied (001 … 999), [CS7] to select the number of the last part in the range of parts to be copied (001 … 999), and [CS8] to select the part number to which the source parts will be copied (001 … 999). Press [ENTER/YES] to begin the copy procedure. "Are you sure?" will appear on the display. Press [ENTER/YES] again to confirm that you want to go ahead with the copy operation (which will overwite existing parts from the destination part number), or press [EXIT/NO] to cancel.

When the parts have been copied, "Completed!" will appear briefly on the display, then the display will return to the main rhythm track edit mode.

● **[F8]: "SCH" = Rhythm Track Search**

```
SONG EDIT Search Mark
   A    B    C    D    E    F    G    H
```

This function makes it possible to directly locate "marks" entered in the track using the "mark" event in the main rhythm track edit screen. The [SHIFT] key is used to toggle between marks A through H and I through P. Square brackets appear around marks that exist within the rhythm track. To go directly to a marked location, simply press the function key immediately below the desired mark. The main rhythm track edit screen will appear with the marked part selected.

6. Data Management

In this section we'll offer a few hints on how to efficiently organize and manage your SY85 data for performance applications.

Refer to the THE UTILITY MODE section beginning on page 209 of the Feature Reference manual for complete information on card and disk operations.

■ Cards or Disks?

The SY85 allows data to be saved to and loaded from 3.5" floppy disks or Yamaha MCD64 RAM data cards. Whether you use disks or RAM cards will depend on your individual needs.

● MCD64 RAM Cards

RAM cards are the right choice if you will be dealing with relatively small amounts of data. They are also an excellent supplement to a disk-based data library — see "Make Separate Performance Disks or Cards," below.

[Advantages]
• Compact and convenient to carry.
• Fast data transfer.
• Reliable.

[Disadvantages]
• More expensive than disks.
• Only stores synthesizer data
  (this is not a problem for most performance applications).
• Limited capacity.

Never attempt to force a voice card into the waveform slot, or vice versa. Doing so can cause serious damage to the card connectors.

● Floppy Disks

There's no substitute for floppy disks if you need to store and organize large amounts of data. Make sure you keep backup disks of important data in a safe place so accidental loss or erasure of disks doesn't' completely wipe out all your data.

[Advantages]
• Compact and convenient to carry.
• Inexpensive.
• Large data capacity.
• Data can be grouped in files.
• Can store synthesizer, sequencer, and all other SY85 data.

[Disadvantages]
• Slower data transfer than card.
• Improper handling or storage (i.e. exposure to magnetic fields) can result in lost or damaged data.

■ Create a Well-organized Data Library
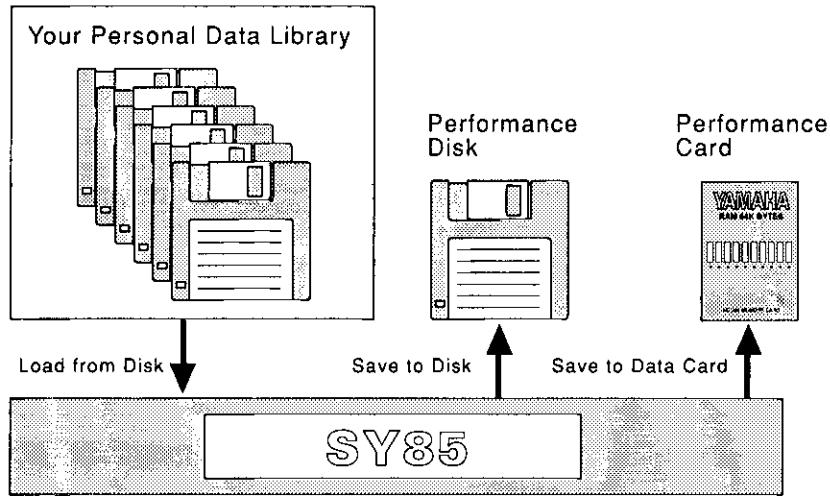
It's amazing how quickly you can lose track of what voices, performance combinations, and sequences you've stored where. A well-organized data library is essential.

It's a good idea to store different categories of voices or performance combinations on different disks (or at least in different files). In the same way, it's obviously a good strategy to store voices/performance combinations, and sequences on separate disks. If you're looking for a particular bass voice, for example, you can simply load your "Bass" disk (make sure your disks are labelled) and select the requisite voice. You could even have further categories — acoustic bass, fretless bass, funky bass, and so on. The bigger your data library is, the more you should categorize and organize.

■ Make Separate Performance Disks or Cards
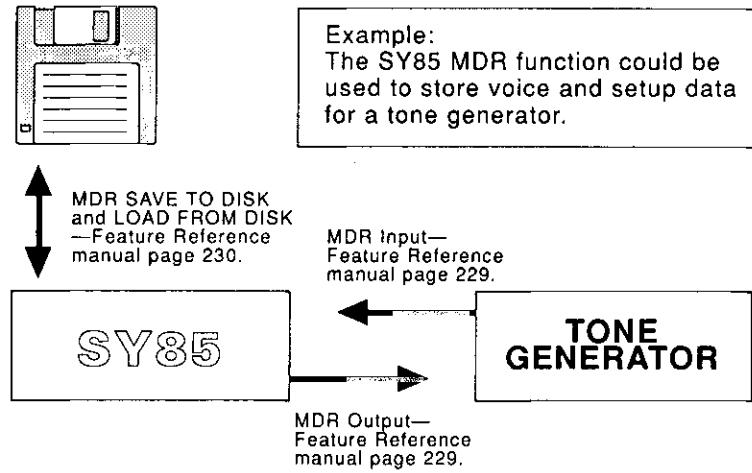
If you will be working in the studio or some other situation in which you don't know exactly what data you'll need, it's probably a good idea to take your entire data library along. (Actually, it's better to take a copy of your data library and leave the master disks at home so all your data can't be lost or destroyed at once.) If you will be performing on stage or in any situation involving predetermined sets and voices, it's far more efficient to make separate "performance" disks or cards specifically tailored to the job.

Ideally, you want all the voices, performance combinations, and perhaps sequences you'll be using for a performance or set loaded into the SY85 INTERNAL memory. Loading each voice individually from your data library is not practical when time is limited — and time is severely limited in most performance situations. If you prepare by transferring the voices you need from your library to a separate performance disk or card, you can load everything you need from a single disk file or card in one operation.

Your Personal Data Library

Performance Disk

Performance Card

Load from Disk   Save to Disk   Save to Data Card

SY85

■ MIDI Data Recorder Capabilities

In addition to handling data that will be used by the SY85 itself, the SY85 features an MDR (MIDI Data Recorder) function that allows data from other MIDI equipment to be retained in memory or saved to disk, and then transferred back to the appropriate MIDI devices as required. This means the SY85 can serve as a central data storage facility for your entire performance system.

Example:
The SY85 MDR function could be used to store voice and setup data for a tone generator.

MDR SAVE TO DISK and LOAD FROM DISK —Feature Reference manual page 230.

MDR Input— Feature Reference manual page 229.

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TONE GENERATOR

MDR Output— Feature Reference manual page 229.

Refer to the "MDR" section beginning on page 228 of the Feature reference manual for operational details.

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