Roland

A-70

EXPANDABLE CONTROLLER

Owner's Manual

	CAUTION	
⚡	RISK OF ELECTRIC SHOCK DO NOT OPEN	⚠
ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR		

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

⚡ The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

⚠ The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

WARNING - When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions before using the product.
2. Do not use this product near water — for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
3. This product should be used only with a cart or stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with its proper ventilation.
6. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.

8. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
9. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
10. The product should be serviced by qualified service personnel when:
   A. The power-supply cord or the plug has been damaged; or
   B. Objects have fallen, or liquid has been spilled onto the product; or
   C. The product has been exposed to rain; or
   D. The product does not appear to operate normally or exhibits a marked change in performance; or
   E. The product has been dropped, or the enclosure damaged.
11. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

───────────────── **For the USA** ─┐

   This product may be equipped with a polarized line plug (one blade wider than the other) . This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.

───────────────── **For Canada** ─┐

For Polarized Line Plug

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION: POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU' AU FOND.

───────────────── **For the U.K.** ─┐

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

        BLUE: NEUTRAL
        BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

Roland

A-70

EXPANDABLE CONTROLLER

Thank you, and congratulations on your choice of the Roland A-70 Expandable Controller.

Its 76-note synthesizer-action keyboard, outstanding ease of use, and ability to transmit and receive almost all types of MIDI messages make the A-70 a valuable asset in MIDI systems ranging from studio and stage use to DTM (Desk Top Music) applications at home. What's more, use of a special VE-RD1 Voice Expansion Board (optional piano board for the A-70 and A-90) transforms it into a 64-voice stage piano with comprehensive MIDI controller functions. Use of another Voice Expansion Board (the VE-JV1 or VE-GS1, both sold separately) allows the A-70 to be used as a JV series synthesizer, or GS sound-source keyboard.

The A-70 has everything it takes to become the heart of your MIDI rig: you can control synthesizers/tone generators, sequencers/drum machines, and even effects devices – simultaneously! Please bear in mind, though, that not all MIDI instruments receive all messages the A-70 transmits. Be sure to also read the user's manual that comes with the MIDI instruments or devices that you are connecting.

To get the most out of the A-70 and to ensure many years of trouble-free service, we urge you to read through this Owner's Manual thoroughly.

- To avoid confusion, let's agree to use the word "button" for all keys on the front panel, and only use "key" when referring to the A-70's keyboard.
- The content of the illustrations appearing in this manual may differ slightly from the settings you see when you start using your instrument. This is all the more likely since the A-70 features a page memory function that will always recall the last display page you used in a given mode.

Before using this instrument, carefully read the sections entitled: "IMPORTANT SAFETY INSTRUCTIONS", "USING THE UNIT SAFELY", and "IMPORTANT NOTES". These sections provide important information concerning the proper operation of the unit. The manual should be saved and kept as a convenient reference.

Table of Contents

1. Important Notes

In addition to the items listed under "IMPORTANT SAFETY INSTRUCTIONS" and "USING THE UNIT SAFELY", please read and observe the following:

Power Supply

- Do not use this instrument on the same power circuit with any device that will generate line noise (such as an electric motor or variable lighting system).
- Before connecting the A-70 to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to speakers or other devices.

Placement

- Using the A-70 near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this unit; or move it farther away from the source of interference.
- This device may interfere with radio and television reception. Do not use it in the vicinity of such receivers.
- Do not expose the A-70 to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the unit.

Maintenance

- For everyday cleaning wipe the A-70 with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a mild, non-abrasive detergent. Afterwards, be sure to wipe the instrument thoroughly with a soft, dry cloth.
- Never use benzene, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Repairs and Data

- Please be aware that all data contained in the unit's memory may be lost when the unit is sent for repairs. Important data should always be saved via MIDI (Bulk Dump) or written down on paper (when possible). During repairs, due care is taken to avoid the loss of data. However, in certain cases (such as when circuitry related to memory itself is out of order), we regret that it may not be possible to restore the data. Roland assumes no liability concerning such loss of data.

Memory Backup

- This instrument contains a battery which powers the unit's memory circuits while the main power is off. When this battery becomes weak, the message Internal Battery LOW will appear in the display. Once you see this message, have the battery replaced with a fresh one as soon as possible to avoid the loss of all data in memory. To have the battery replaced, consult with your dealer, or qualified Roland service personnel.

Additional Precautions

- Please be aware that the contents of memory can be irretrievably lost as a result of a malfunction, or the improper operation of the instrument. To protect yourself against the risk of loosing important data, we recommend that you periodically save a backup copy of important data you have stored in the unit's memory via MIDI.
- Use a reasonable amount of care when using the instrument's buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.
- Never strike or apply strong pressure to the display.
- When connecting/disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.
- A small amount of heat will radiate from the instrument during normal operation. This is perfectly normal.
- To avoid disturbing your neighbors, try to keep the unit's volume at reasonable levels. You may prefer to use headphones, so you do not need to be concerned about those around you (especially when it is late at night).
- When you need to transport the instrument, package it in the box (including padding) that it came in. Otherwise, you will need to use equivalent packaging materials, or a flightcase.

2. Panel Descriptions

2.1 Front Panel
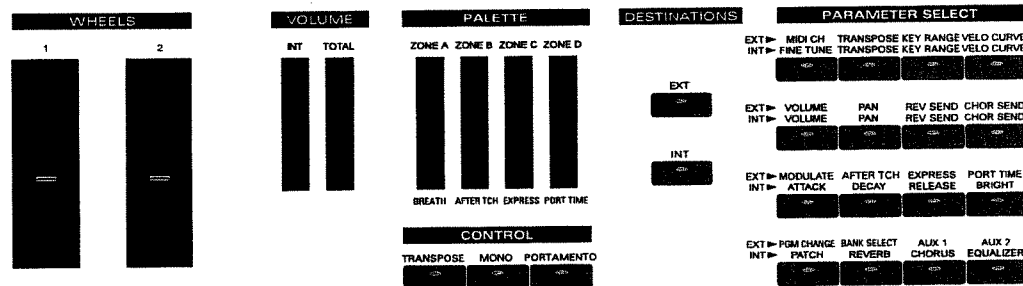
1. WHEELS 1/2
These are wheel controllers to which you can assign various parameters and functions. The factory assignments (see pages 15 and 61) of these wheels are Pitch Bend (1) and Modulation (2).

2. Pitch Bend/Modulation lever
This alters the pitch and adds vibrato but can also be used to control other parameters (see page 35).

3. VOLUME sliders
INT VOLUME adjusts the general (also called "master") volume of an installed Voice Expansion Board (see page 53). TOTAL VOLUME adjusts the overall volume (including the Voice Expansion Board's master volume) while preserving the balance between all zones (see page 11).

4. PALETTE sliders
These sliders allow you to control various parameters and functions. The factory assignments of these sliders are: Breath, Aftertouch, Expression, and Portamento Time (see pages 16 and 35). After selecting a PARAMETER SELECT function, you can use the PALETTE sliders to set the chosen parameter (see page 27).

5. CONTROL buttons
The TRANSPOSE button is used to transpose the entire keyboard. The MONO/PORTAMENTO buttons can be used to control assignable parameters and functions. The factory assignments of these buttons are: Mono/Poly Mode switching and Portamento On/Off switching.

6. DESTINATIONS/PARAMETER SELECT buttons
Use the DESTINATIONS buttons to select the zone type (internal or external) you wish to assign the PARAMETER SELECT buttons to. The PARAMETER SELECT buttons provide access to numerous functions that can be preset and saved as well as modified in realtime using the PALETTE sliders or the DATA ENTRY pad.
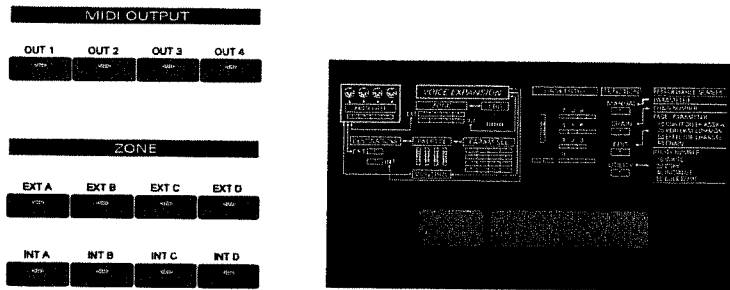
7. MIDI OUTPUT buttons
Use these buttons to switch on or off the corresponding MIDI OUT connector.

8. ZONE buttons
Use these buttons to switch on or off the corresponding zone.

9. Displays
This is where you will find information about to the current operation. The left display keeps you posted about the address of the function number (shortcut) or parameter value for the selected zone, while the right display contains more information about the selected parameter(s).
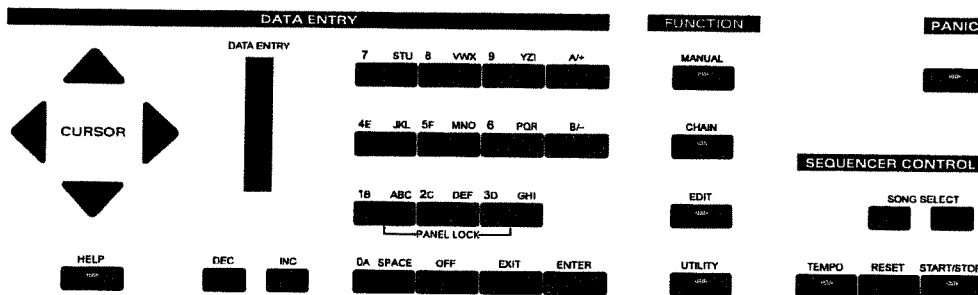
10. DATA ENTRY pad
This is used for selecting performances, entering values, performing menu operations, etc. (see page 26).

The [1] and [3] buttons double as PANEL LOCK buttons. Hold down [1] while pressing [3] to activate this function, and repeat this operation to unlock the panel. When locked, all operations on the front panel (pressing keys, moving sliders, etc.) with the exception of using the WHEELS and/or Bender/Modulation lever will be ignored.

11. HELP button
See page 29 for details. Use this button whenever you are not sure where you are and what you can do, or to remind you of the meaning of the current display page, possible values, status of controller assignments, etc.

12. FUNCTION pad
These buttons allow you to switch between operation modes. The button indicator of the selected operation mode lights. If no FUNCTION indicator lights, the A-70 is in Performance mode.

13. PANIC button
Use this button when you can't get sounds from a connected MIDI device, when the notes played by the Voice Expansion Board or an external instrument won't stop, or when you want to transmit the A-70's current settings via MIDI (see page 30) for updating purposes.

14. SEQUENCER CONTROL
These buttons can be used to control the basic functions of an external sequencer (remote control).

2.2 Rear panel

POWER AC MIDI OUT 4 OUT 3 OUT 2 OUT 1 THRU IN 2 IN 1 (REMOTE)
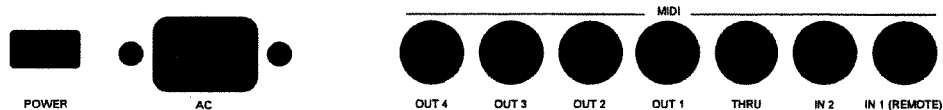
1. Power switch
Turns the power to the A-70 on and off.

2. AC inlet
The power cord is plugged in here.

3. MIDI connectors
This is where you connect the external MIDI devices you wish to control (MIDI OUT connectors), or that contain MIDI data you wish to transfer to the A-70 (MIDI IN connectors).

The MIDI THRU connector retransmits an unchanged copy of all MIDI messages received from external devices. This is the only socket that retransmits MIDI clock signals the A-70 receives.

Note: See pages 32 and 34 for the difference between MIDI IN1 and MIDI IN2.

CONTROL PEDAL HOLD FS FC TOTAL VOLUME OUTPUT R L(MONO) PHONES
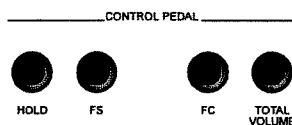
4. HOLD jack
This is where you can connect an optional pedal switch (DP-2/DP-6, BOSS FS-5U) that will function as Hold/Sustain pedal.

5. FS jack
This jack allows you to connect an optional pedal switch (DP-2/DP-6/BOSS FS-5U) that can be assigned a variety of parameters and functions.

6. FC jack
This jack allows you to connect an optional expression pedal (EV-5/EV-10/FV-300L) you can assign various parameters and functions to. You can also connect an optional pedal switch (DP-2/DP-6, BOSS FS-5U) to this jack.

7. TOTAL VOLUME jack
When you connect an optional Expression Pedal (EV-5/EV-10/FV-300L) here, it performs the same function as the TOTAL VOLUME slider.
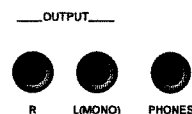
8. OUTPUT R/L(MONO) jacks
These jacks transmit the stereo output of a Voice Expansion Board (option). When using a monaural amplifier, please connect it to the L (MONO) jack.

9. PHONES jack
This is where headphones (e.g., Roland RH-20/80/120) can be connected. This is only meaningful if your A-70 is fitted with a Voice Expansion Board. When using headphones you may already have, check first to make sure they have an impedance of 8~150Ω.

3. First Steps

3.1 Connections

Your A-70 can be fitted with a Voice Expansion Board. Whether or not you install such an option determines the connections you must make.

The A-70 contains no internal amplifier or built–in speakers. In order to make its output audible, you need either an amplifier or audio set (such as one or two KC-100's, KC-300's or KC-500's), or a set of headphones. Please connect external devices to the A-70 while referring to the figure below.

Power outlet

MIDI Sound module

Headphones

Stereo set, etc. Speaker with built-in keyboard amp, etc.
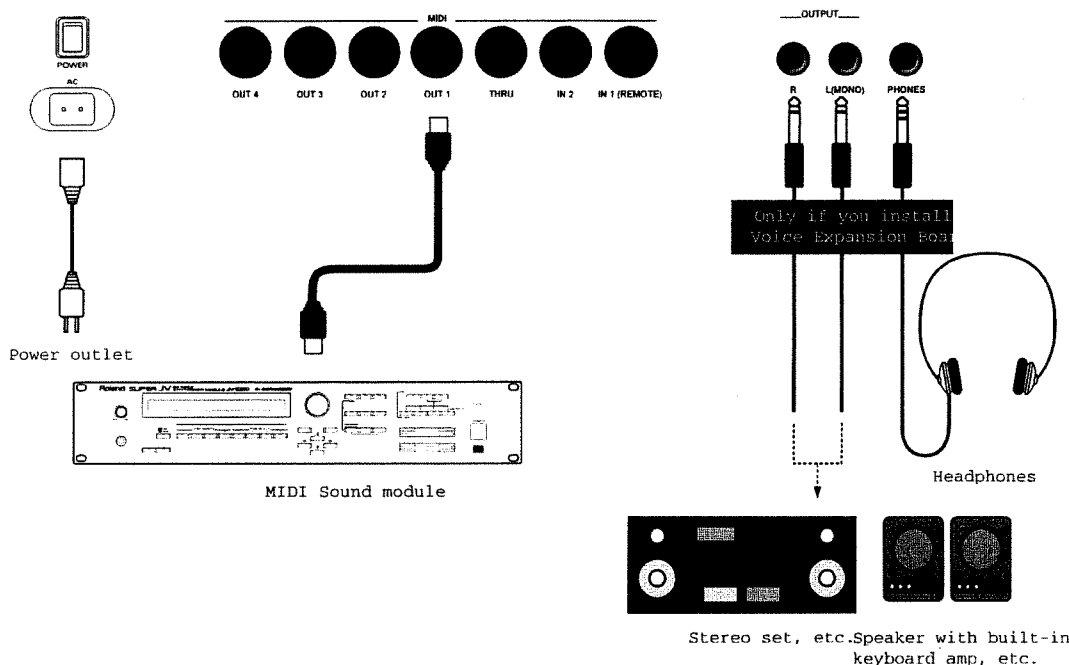
Note: Audio cables (e.g., PJ-1M) are not included.

1. Before making any connections, please confirm that the power to all equipment is turned off.

Note: Connecting equipment with the power on can become the cause of various problems, such as damaged (blown) speakers.

2. Connect MIDI cables as shown in the diagram.

Note: MIDI cables (e.g., MSC-15) are not included.

3. Connect the external instruments you wish to control to an audio set, a keyboard amplifier, etc.

For more details on these, please read the user's manuals included with each piece of equipment.

You may want to use a *multitimbral* tone generator (a MIDI sound source that can play back multiple parts simultaneously, e.g., JV-1080/JV-2080 or XP-80/XP-50).

4. Connect audio cables as shown in the diagram. When using headphones, insert the plug into the PHONES jack.

Note: To get the maximum performance from your A-70, we recommend that you use a stereo amp, etc. If your sound system is mono, please connect the output cable to the L/MONO jack.

5. After connecting the AC cord to the A-70, plug the other end into a power outlet.

Turning the power on

1. Before turning on the power, please confirm the following:

• All peripheral devices must be properly connected.

• The [TOTAL] Volume slider of the A-70 as well as the volume of any amplifier or mixer that is connected, is turned down completely.

2. Press the power switch on the rear panel of the A-70.

In order to protect the internal circuits, please refrain from playing immediately after turning the power on.

3. Turn on the power to any amplifiers you have connected.

4. (A-70 with Voice Expansion Board:) Play a few notes on the A-70's keyboard and adjust the internal volume with [INT] Volume slider. You will have to set [TOTAL] Volume slider first.

5. Set the desired volume on the amplifier, etc., as well as on the external instruments you are controlling.

Note: For more details about [TOTAL] Volume, please refer to "Volume ("Patch Mix")" on page 53.

Note: See "Listening to the Demo Songs" on page 49 if you installed a Voice Expansion Board and wish to listen to the demo.

Turning the power off

When turning off the power, first make sure the volume of the A-70 is turned completely down. Switch off your gear in the following order:

1. Turn off the power to connected amps or mixers.

2. Switch off the external MIDI instruments.

3. Turn off the power to the A-70.

4. Working with the A-70

4.1 Performance or Manual mode?

The A-70 provides 64 memories where you can store complete sets of settings. Performance mode is automatically selected when you switch on your A-70. To return to Performance mode from another mode, press the button in the FUNCTION pad (to the right of the display) whose indicator lights, and you're there.

Use the Data Entry [DEC]/[INC] buttons, the DATA ENTRY slider, or the numeric keypad to select the desired Performance memory. If you prefer to type in the number, use the numeric keypad and confirm by pressing [ENTER].

Note: See also "Five modes" on page 25 for details about Performance mode.

There is also a "bonus" memory, called *Manual mode* (known as "Panel Settings", "Tone Manual/Patch Manual", or something to that effect on certain synthesizers/modules). Select Manual whenever you need to make frequent adjustments to your settings but can't afford to lose them (because the clock is ticking). If you modify the settings of a Performance without saving them, they will be erased when you switch off the A-70 or select another Performance.

Manual mode is completely separate from the Performance mode: it does not use an edit buffer, so that selecting other Performances will not replace the contents of the Manual mode.

The Manual settings are saved automatically and preserved in case of a power failure. At the end of the session, you can still decide to save the Manual settings to a regular Performance memory (which may be necessary because the artist asks you to also do the tour).

- Same functionality as in Performance mode.
- Changes are saved automatically and immediately take effect. This can be dangerous, so be sure to save the important Manual settings to a "regular" Performance memory.

1. Press the Function [MANUAL] button, and check if the A-70's display looks like this:

You can switch between Manual and Performance modes without erasing the Manual settings.

2. Press Function [MANUAL] again to return to Performance mode.

Initializing the Manual memory

It may be useful at times to start from scratch because doing so is faster than disabling all settings you do not need. Here's how:

1. Press the Function [UTILITY] button twice in rapid succession (this is called double-clicking).

Note: Be sure to really double-click the [UTILITY] button. The function address in the left (3-character) display must start blinking – not one of the menu options in the right display.

2. Press [4], [2], [ENTER] on the numeric keypad.
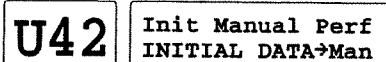
3. Press [ENTER] twice to confirm the question (Manual Perf Init (INITIALIZE) Sure?).

4.2 Controlling external MIDI instruments

The A-70 provides eight "zones". In a way, these zones are identical to the "Parts" of a multitimbral module (such as the Roland JV-2080) because they are completely separate from one another.

That may seem surprising because there is only one keyboard and one (impressive) set of controllers. But you can program up to eight splits ("key ranges") and assign a different MIDI channel to each keyboard zone (hence the name *zone*).

The zones are called EXT A–D (external) and INT A–D (internal). Don't let the INT fool you: these zones are just as "external" as the EXT zones, with the additional advantage that they can be linked to an optional Voice Expansion Board – and still communicate with the outside world if you like. Thus, you can control up to 4 (internal) + 4 (external) = 8 instruments/MIDI channels at any given moment. And by "control" we really mean just that because the A-70 can transmit all MIDI messages known to man.

See "Connections" on page 10 for how to connect your MIDI gear and mixer/amplifier.

PARAMETER SELECT functions

Before showing you some basic functions of your A-70, there is something you need to know. Every button in the PARAMETER SELECT pad has two

names: one for EXT (when you press Destination [EXT]) and one for INT (Destinations [INT]). Please ignore the INT names if your A-70 does not contain a Voice Expansion Board. In that case, only the EXT functions are available and apply to both the internal and external zones.

- PARAMETER SELECT functions when no Voice Expansion Board has been installed:
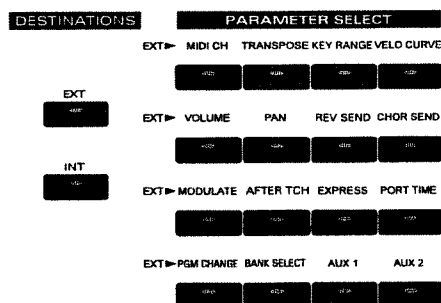
With the exception of the parameters assigned to the top-row PARAMETER SELECT buttons ([MIDI CH], [TRANSPOSE], [KEY RANGE], and [VELO CURVE]) whose settings apply more to the A-70 itself than the external instruments being controlled, the PARAMETER SELECT functions allow you to override the settings stored in the external instrument (such as selecting a different volume value, for example). That is why you have the option of deciding *not* to modify them. If you're happy with the Volume, Pan, Reverb Send, etc. values of the sounds you are controlling, press the [OFF] **button**. The OFF message then replaces the last value you set. To return to that value, press [OFF] again.

MIDI OUTPUT

The MIDI OUTPUT switches let you turn the A-70's corresponding MIDI OUTputs on and off. When switched off, a MIDI OUTput no longer transmits MIDI messages. MIDI communication between the A-70 and the external instruments can only take place if the indicator of the MIDI OUTPUT button whose number correspond to the MIDI OUT connector you are using lights.

To activate just one MIDI OUTput, while switching off all others, double-click the corresponding switch. Double-clicking the switch again returns the settings to their previous state (as long as no other MIDI OUTPUT switch has been pressed since you double clicked the first one).

The status of the switches is automatically saved as a System setting (*not* as a Performance setting), and remains in memory even after the power is switched off.
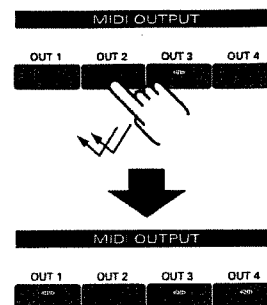
Note: Even if a MIDI OUTPUT switch is turned off while you are playing, the sound currently being played will not be cut off.

Note: You can also program which MIDI OUTputs can be used by each zone. See "Zone-to-MIDI OUT assignments" on page 31.

Setting MIDI channels for the zones

The MIDI channel assignments for the INT and EXT zones are the most important parameters as the MIDI channel determines which external instrument or multitimbral Part can be controlled. With a few exceptions, all parameter assignments are related to the MIDI channels you are using (*channel messages*). The relationship between zones and connected devices is as follows:

EXT A/INT A	MIDI channel 1
EXT B/INT B	MIDI channel 2
EXT C/INT C	MIDI channel 3
EXT D/INT D	MIDI channel 4

Note: For more about external MIDI equipment, please consult the user's manual included with each device.

1. In Performance or Manual mode, press DESTINA-TIONS [EXT] or [INT], followed by Parameter Select [MIDI CH].
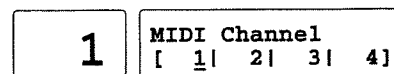
If you press [INT] while the A-70 contains a Voice Expansion Board, use the CURSOR ▼ button to call up the MIDI Channel page.

2. Use the CURSOR ◄/► buttons to select the zone whose MIDI channel you want to set.

3. Enter the desired value with the DATA ENTRY pad (see page 26 for details) or the PALETTE slider assigned to the desired zone.

Note: If a VE-RD1 is installed, its Parts receive on the MIDI channel you set using [MIDI CH]. When you take advantage of the MIDI IN1 (Remote) connector or disconnect the Voice Expansion Board using

V-Exp Local Control, however, channel-to-Expansion Part assignments are as follows: Part 1= RX channel 1, Part 2= RX channel 2, Part 3= RX channel 3, Part 4= RX channel 4. By "RX channel" we mean the receive channel of the Expansion Board's Parts when they are being controlled via the MIDI IN1 connector. In that case, the MIDI CH value of the internal zones is only used for transmission purposes. See "Using MIDI IN1 for external input (Remote)" on page 32 for details.

Controlling and layering MIDI channels

One of the advantages of the A-70 is that you do not need to use all zones all the time. You can also use just one zone if you like, though any combination of two or more zones is possible.

1. Double-click the Zone [EXT A] button. Its indicator lights, while the indicators of the remaining ZONE buttons go dark (assuming they were lit).
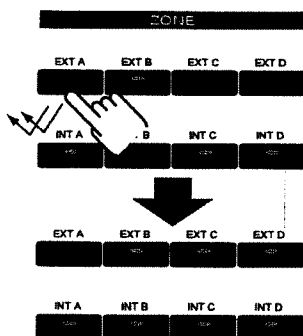
2. Play a few notes on the keyboard.

You should now hear the sound of the MIDI instrument/multitimbral part that receives on MIDI channel 1 (or the channel you assigned to EXT A).

3. To control another MIDI instrument/multitimbral part, switch off [EXT A] and activate another EXT button.

You could double-click that button to switch off [EXT A] while switching on the selected zone.

Note: After installing a Voice Expansion Board and initializing the A-70, INT A~D no longer transmit their MIDI messages to the MIDI OUTputs. See "INT zones and the outside (MIDI) world" on page 32 for how to change that.

4. To stack (or "layer") instruments/multitimbral parts, switch on two or more EXT or INT buttons.

Adjusting the volume of external MIDI instruments

Before starting to change the volume via MIDI, you should set the desired volume on the amplifier/mixer and MIDI instruments (using their volume knob).

Setting the volume via MIDI usually only allows you to reduce (or equal) the volume of the receiving instruments. You can thus never go past their master output volume setting. So be sure to set those physical controls to a suitable level.

If there is no sound, please check the following:

• Try moving [TOTAL] Volume.
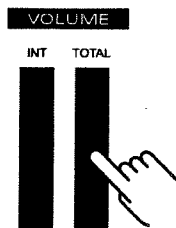
• Check the receive channels of the external MIDI instrument(s) against the zone settings.
• For details about [TOTAL] Volume, please see "Volume ("Patch Mix")" on page 53.
• [INT] Volume does not affect external MIDI equipment. It is used for setting the volume of a Voice Expansion Board.
• Check whether the MIDI OUTPUT indicator of the MIDI OUT connector you are using lights. (Example: if the external equipment is connected to MIDI OUT 1, the indicator of the [OUT 1] button must light.)

4.3 Main control functions

Adding expression

The A-70 is equipped with many controllers whose function depends on which parameter you assign to them. As a matter of fact, you can program (and store) different assignments for every Performance of your A-70. On the other hand, not all assignable parameters may be available on the external MIDI instruments. It is therefore important to put the manuals of the instruments you wish to control next to your A-70 and check whether the receiving instrument accepts the messages you wish to transmit. Most modules are equipped with a number of MIDI filters that must be disabled if you wish to take advantage of the A-70's potential.

Let's have a look at the most obvious (and therefore factory-set) performance functions:

Pitch Bend

There are two ways of temporarily lowering or raising the pitch of the notes you play (very effective for brass sounds, for example):

1. Turn the BENDER/MODULATION lever towards the right to bend the notes you are playing upwards, or to the left to lower the pitch. Release the lever to return to the standard pitch.

2. Push WHEEL1 away from you to raise the pitch, and turn it towards you to lower the pitch.
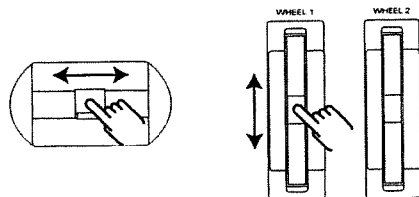
Modulation: adding vibrato

Modulation can also be applied in (at least) two ways.

1. Push the BENDER/MODULATION lever away from you to increase vibrato. Release it to return to the "standard sound".

2. Rotate WHEEL2 away from to increase the vibrato. Return it to its minimum position to remove the manual vibrato.

Note: WHEEL2 does not return to its origin when you release it. Depending on the setting of the *CC Reset w/ Perf*(E43) parameter (see page 44), the CC01 message may (or may not) be reset to 0 whenever you select another Performance – regardless of the position of WHEEL2.

By moving the BENDER/MODULATION lever away from you and simultaneously turning it left or right, you can get both effects, pitch bend and modulation.

Sustain (Hold) pedal

Connect a pedal switch (an optional DP-6 or DP-2) to the HOLD jack on the rear panel. Play a few notes and press the pedal switch before releasing the keys. Those notes, as well as all subsequently played notes, will be sustained until you let go of the pedal switch.

Transposing the keyboard

The A-70 provides two transpose functions: one that applies to the entire keyboard, and another one that can be set for each zone individually. Here's how to transpose the entire keyboard:

Note: See also "Global Transpose (interval and status)" on page 36 for additional information.

1. Press the Function [EDIT] button, followed by the Control [TRANSPOSE] button.
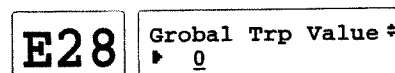
2. Use the Data Entry [DEC]/[INC] buttons to set the desired transposition.

Note: Simultaneously press [DEC] and [INC] to quickly return to the original setting ("0", no transposition).

Example: "+7" equals a fifth and allows you to play in C, while what you hear is actually in G.

3. Press [EDIT] (indicator must go out) to return to Performance mode.

You have just set the desired transposition interval but you won't hear the change until you switch on the Transpose function:

4. Press [TRANSPOSE] (indicator must light) to transpose the keyboard. Press it once more to switch off the Transpose function.

This Transpose function applies to all zones, which is why we call it Global Transpose (or *Global Trp*). See "Setting the transposition of each zone (TRANSPOSE)" on page 18 for how to transpose each zone individually.

Note: The Global Trp setting is saved automatically and not linked to any particular Performance (it is a System parameter). You will have to change it using the above procedure every time you need a different transpose interval – and that interval will apply to all Performances.

Aftertouch

Another way of altering the sound is by pressing a key even further down after playing a note. Aftertouch is usually used to modulate the notes in various ways (add vibrato, change the volume, etc.) and does not allow you to "switch" between two sounds. See the manual of the external instrument being controlled for which parameters can be controlled using Aftertouch.

Monophonic playing

It may be useful at times to prevent the keyboard from sending more than one note-on command at any one time. This usually adds to the realism of sax or wind instrument solos. Besides, playing in Mono mode allows you to use some typical synthesizer techniques (keep one key depressed while briefly pressing various others in succession so that the notes alternate between your "root" and the newly played notes). The [MONO] button could be put to good use when controlling a Roland JP-8000, for example.

This buttons is "assignable". You can thus have it perform a different function (see "Functions for assignable controllers" on page 35).
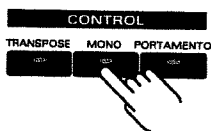
Portamento

The effect whereby the pitch glides smoothly from one note to the next is called *Portamento*. When combined with the Mono function, an effect resembling bowed sounds (violin, etc.) can be produced.

1. Press the [PORTAMENTO] button to switch the Portamento effect on or off.

2. Use the Palette [PORT TIME] slider to change the speed at which one note glides to the next.

Doing so will change the Portamento Time value of all zones that are active at that time.
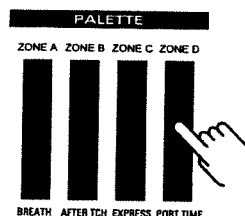
Note: The statuses of the [MONO] and [PORTA-MENTO] buttons are not part of the Performance parameters. If you select another Performance after switching them on, their indicators remain lit, yet neither the Mono nor the Portamento effect is applied to the new Performance. You will have to switch them off and on again. This is the same as for the WHEEL2 controller. However, you can change that with "To CC reset or not to CC reset" on page 44.

Breath Control & "manual" Aftertouch and expression

The A-70's PALETTE sliders can be used to control various functions. You can change their assignments, which is probably what you will do for the AFTER TCH and EXPRESS sliders as they duplicate the functions of other controllers (keyboard and foot controller). See "Functions for assignable controllers" on page 35 for how to change the assignments.

When used while no DESTINATIONS button ([EXT] or [INT]), or the [EDIT] button lights, these sliders control the assigned function of all active zones. Here's an example: if the Zone [INT A], [EXT B], and [EXT D] indicators light, the PALETTE sliders apply to all three of them. See also "PALETTE sliders" on page 27.

The **BREATH** slider allows you to change the attack, volume and tone (depending on the settings of the receiving instrument). Breath Control messages are yet another way of temporarily altering the volume and brightness in much the same way as velocity or Aftertouch.

Originally conceived for an optional mouth piece, Breath Control messages were intended for enhancing brass and woodwind parts. On the A-70, the MIDI message (CC02) is still there, but you cannot use the mouthpiece as there is no connector. Like most other controllers, the BREATH slider can also perform other functions (you could assign it to the Reverb Send Level, CC91, for example.)

AFTER TCH allows you to transmit Aftertouch messages. This slider thus duplicates the keyboard's Aftertouch. The latter is probably more convenient. But there is also this slider, and you can use it whenever you need precise control over the Aftertouch value you wish to send. Try moving the AFTER TCH slider

after playing a note. The effect deepens the more you move the slider up.

The **EXPRESS** slider allows you to change the volume. Expression can also be assigned to an "expression pedal" (hence the name), which is probably more convenient than using a slider.

5. Basics

Here are some basic functions you may need at regular intervals. This chapter doesn't cover all functions on offer, so be sure to also read the remaining chapters.

5.1 Setting the transposition of each zone (TRANSPOSE)

The following function allows you to individually transpose each zone, so that EXT B could be shifted a major fifth (+7) with respect to EXT A, for example.

1. Press a DESTINATIONS button ([INT] or [EXT]).

2. Press Parameter Select [TRANSPOSE] to call up the following display page:
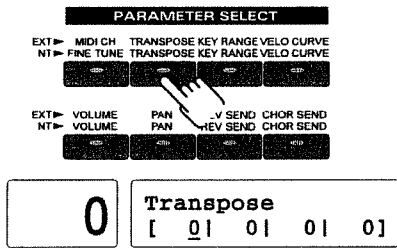
3. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set (EXT/INT A~D).

4. Enter the desired value with the DATA ENTRY pad (see page 26 for details) or the PALETTE slider assigned to the desired zone.

You can use [A/+] and [B/−] to specify "+" (up) or "−" (down) before pressing [ENTER]. Press either [A/+] or [B/−] followed by [ENTER] to quickly return to the value "0" (no transposition). The setting range is (−36~+36 semitones).

5.2 Key Range (splits)

At first, every zone is set to transmit all MIDI note numbers. You, can however, narrow down the range (or "window") of each zone and thus program splits. For example, if you want to play a bass in the left hand and a piano in the right, assign a bass Patch to EXT A and a piano Patch to EXT B (on the external instrument). Now set zone A to transmit only note messages up to the B2, while zone B sounds in the range above B2.

Bass (EXT A)   Piano (EXT B)

1. Press Destinations [INT] or [EXT] (indicator must light).

2. Press Parameter Select [KEY RANGE].

3. Press CURSOR ▲ to select the following display page:

Key Range Lower ▾
[C-1|C-1|C-1|C-1]
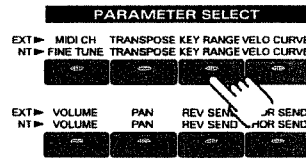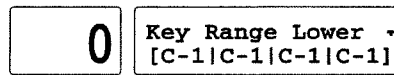
4. Use the CURSOR ◄/► buttons to select the zone whose lower limit you wish to set (INT A~D or EXT A~D).

5. Hold down the [ENTER] button and press the key (on the keyboard) that is to become the lowest note the selected zone will receive.

For our bass/piano example, you only need to set the lower limit of the EXT B (piano) zone. Press the C3 key.
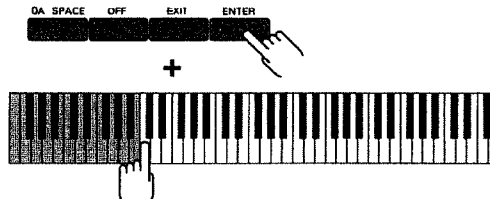
Let us now set the upper limit:

6. Press CURSOR ▼ to select the Key Range Upper page.

7. Again select the zone (INT/EXT A~D) you wish to edit with the CURSOR ◄/► buttons, and hold down [ENTER] while pressing the key that corresponds to the rightmost note the zone in question may transmit.

Here, you only need to set the upper limit of the EXT A (bass) zone. Press the B2 key.

5.3 Changing the keyboard's response (VELO CURVE)

The A-70 provides three parameters that allow you to fine-tune the keyboard's response. After all, you may need a different response for playing strings than for playing piano.

As you know, the "feel" of the keys themselves does not change. The way in which the velocity values generated by your playing are interpreted, however, is customizable. You can select a velocity curve (V-Crv), offset the velocity values (V-Sns), and specify the maximum velocity value the A-70 will transmit to the active zones (V-Max).

1. Press Destinations [INT] or [EXT] (indicator must light).

2. Press Parameter Select [VELO CURVE].
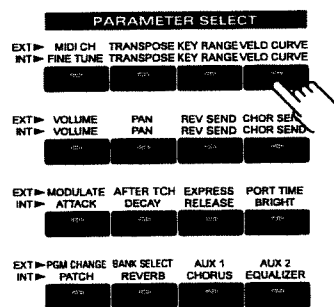
Like most other buttons in the PARAMETER SELECT pad, [VELO CURVE] provides access to several functions that are related to how your playing strength is "translated".

3. Use the CURSOR ▲/▼ buttons to select the V-Crv page.

The lower display line contains the numbers of the curves currently assigned to the four INT or EXT zones (depending on whether you pressed Destination [INT] or [EXT]). The left display also contains a graphic representation of the curve assigned to the zone indicated by the cursor. The value in the top right corner is the V-Max value for the selected zone (see below). Select the curve that best suits your playing style.
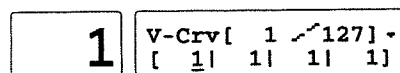
4. Use the CURSOR ◄/► buttons to select the zone whose velocity sensitivity you wish to set (INT/EXT A~D).

5. Use the DATA ENTRY pad or the PALETTE sliders to set the value for each zone.

You can also key in the desired value using the numeric keypad. Confirm by pressing [ENTER].

6. Press CURSOR ▼ to select the V-Sns page.

"V-Sns" represents the dynamic range of the velocity values. The maximum value is "+32". "0" provides the smallest dynamic range (no variations). In this case, there is no change in velocity, no matter how hard or soft you play: the zone will always transmit the maximum value. "0" could thus be chosen for controlling organ sounds. You can also set a negative value, in which case the velocity sensitivity is reversed: harder playing will then result in smaller velocity values, which may be ideal for "velocity mixed" (or *crossfaded*) sounds consisting of two Patches on the receiving instrument: one for soft playing, and another one for fortissimo.

The setting range is +63~0~–63.
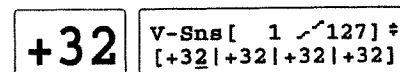
7. Use the DATA ENTRY pad or the PALETTE sliders to set the value for each zone.

8. Press CURSOR ▼ once more, to call up the V-Max page:
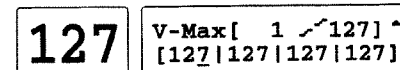
"V-Max" indicates the maximum velocity value the zone in question will transmit. Use this parameter if you don't like the sound of fortissimo notes (because they are too brittle, for example) but don't feel like editing the sound being controlled.

9. Use the DATA ENTRY pad or the PALETTE sliders to set the value for each zone.

These settings can be saved to a Performance memory (see page 23). As always, you don't have to save the Manual mode settings, but it would be wise to do so anyway.

5.4 Volume (CC07) and Pan (CC10)

T. Volume (zone volume)

Suppose you wish to control two or more external MIDI channels and notice that [TOTAL] Volume keeps selecting the same volume for all channels. If you are controlling a pad and a brass sound, the brass sound may be way too loud. In other words: you may be looking for a parameter that allows you to preset the volume balance on the A-70 itself.

Entre the T. Vol parameter. It allows you to specify the volume the zones will have when the [TOTAL] Volume slider is set to its maximum value. If you set T. Vol of, say, the INT C zone to "20", for example, the volume of that zone will equal "20" only when the [TOTAL] Volume slider is all the way up. In all other cases, a correspondingly smaller volume value will be used.

T. Vol is an offset parameter and thus similar to the channel faders of a mixing console: it allows you to set the "channel level" (channel= zone), while the overall ("master") volume can be set with the [TOTAL] Volume slider. The balance between zones, however, remains the same regardless of the [TOTAL] Volume value you set.

1. Press Destinations [INT] or [EXT] (indicator must light).

2. Press Parameter Select [VOLUME].

```
100   Volume[T.Vol ▶■■■]
      [100|100|100|100]
```

3. Set the [TOTAL] Volume slider to its maximum value.

This is necessary to ensure that T. Vol can be set to the desired value. All cursor bars in the upper right corner of the display should be visible. (If [TOTAL] Volume is all the way down, T.Vol can only be "set" to "0".)

4. Use the CURSOR ◀/▶ buttons to select the zone whose value you wish to set (EXT/INT A~D).

5. Enter the desired value with the DATA ENTRY pad (see page 26 for details) or the PALETTE slider assigned to the desired zone.

Stereo placement (Pan)

You can adjust the stereo placement of the zones by modifying their Pan value (L64~0~R63). For stereo Patches of an internal Voice Expansion Board (such as the St. Concert Patches), this setting shifts the stereo image in the desired direction. Don't be surprised if such a Patch is still audible (albeit to a lesser extent) in the "other" speaker.

1. Press Destinations [INT] or [EXT] (indicator must light).

2. Press Parameter Select [PAN].

3. Use the CURSOR ◀/▶ buttons to select the zone whose value you wish to set (EXT/INT A~D).

```
0   Pan
    [   0|   0|   0|   0]
```

4. Enter the desired value with the DATA ENTRY pad (see page 26 for details) or the PALETTE slider assigned to the desired zone.

You can use [A/+] and [B/–] to specify "L" or "R" before pressing [ENTER] ("L" means "left", and "R" stands for "right"). Press either [A/+] or [B/–] followed by [ENTER] to quickly return to the value "0" (dead center).

Along with a few other settings, the volume and pan values you set are transmitted every time you select the Performance these settings belong to (see page 24) – unless you change the setting of the *CC Reset w/Perf* parameter (see page 44). The status of the Zone INT/EXT A~D buttons (on or off) is thus of little importance. If you assign the same MIDI channel to two or more zones, only the Volume and Pan values of the last INT or EXT zone in line (B, C, or D) will be used by the external instrument.

You may be wondering why even deactivated zones transmit their settings when you select a Performance. That is because you may need them at a later stage – and transmitting all values every time a zone is switched on would almost certainly confuse the receiving MIDI instrument. Hence the "once and for all" approach.

5.5 Sound selection

Program changes

The A-70 allows you to remotely select sounds on your external MIDI instruments. You can assign a program change and two bank select numbers (CC00 and CC32, also known as MSB and LSB) to each zone. The numbers you set here will be transmitted on the corresponding MIDI channel every time you select a Performance – whether a given zone is active or not.

But watch out: if you assign the same MIDI channel to two or more zones, only the program change and bank select numbers of the "last" zone in line (B, C, or D) will be received by the external instrument.

Note: If your external instrument doesn't seem to respond to these messages, check whether its program change filter is off (reception of these messages must be possible) and whether you have selected the right receive channel.

Here is how to "preset" the program change numbers that will be transmitted every time you select this (future) Performance (see "Bank Select messages" for how to preset Bank Select numbers):

1. Press Destinations [EXT] or [INT] to assign the PARAMETER SELECT buttons to the EXT or INT zones.

The "EXT" functions of these buttons appear in the upper line (to the right of NEXT►).

2. Press Parameter Select [PGM CHANGE] (lower left).

The lower line of the right display now contains the program numbers for external/internal zones A, B, C, and D (left to right). Depending on the Map you select (see page 42), the name of the sound corresponding to the selected program change number may appear in the upper line.

```
 ____       _____
|    |     | PGM [ * * * * * * * * * * * * ] |
| 1  |     | [  1 |   1 |   1 |   1 ] |
|____|     |_____|
             ↑      ↑     ↑     ↑
           EXT A  |  EXT C  |
              EXT B     EXT D
```
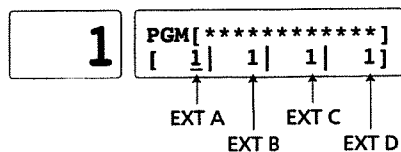
3. Use the CURSOR ◄/► buttons to select the zone whose program change number you wish to set.

4. If you want to check your setting in isolation (by playing on the keyboard), double-click the corresponding EXT or INT A~D button to switch off all other zones that may be active.

The A-70 displays "actual" program change numbers. Most instruments, however, use a Group/Bank/Number memory structure. See page 42 for how to make the A-70 display GBN numbers if you prefer to use that system.

5. Enter the desired value with the DATA ENTRY pad (see page 27 for details) or the PALETTE slider assigned to the desired zone.

The settable range is 1~128. This system can also be used when the A-70 is set to display GBN numbers (i.e. to enter "B11", type "65" instead).

6. Repeat steps (3.)~(5.) to set the program change numbers for the remaining zones.

Note: Most recent instruments provide more than 128 sound memories, so be sure to also read "Bank Select messages" for how to select those sounds.

Bank Select messages

Most MIDI instruments provide more than 128 sounds, so that program change messages alone will not cover all sounds on offer. That is why two control changes are used to expand the number of memory addresses: CC00 (MSB) and CC32 (LSB). These control changes are referred to as "Bank Select" messages. Here is how to set them:

1. Press Destinations [EXT] or [INT], followed by Parameter Select [BANK SELECT].

2. Use CURSOR ▼ to select the "BM" (Bank Select MSB= CC00) page.

```
 ____       _____
|    |     | BM [ * * * * * * * * * * * * ] ▾ |
| 0  |     | [  0 |   0 |   0 |   0 ] |
|____|     |_____|
```
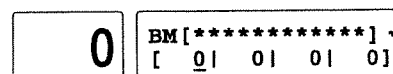
Note: Before setting the CC00 and CC32 numbers, be sure to read the manual of the instrument you wish to control. Not all modules accept Bank Select messages – and some of them may be muted by these messages.

3. Use the DATA ENTRY pad or the PALETTE sliders to set the value.

Press [OFF] if you don't want a zone to transmit CC00 and CC32 messages (OFF applies to both BM and BL).

4. Use CURSOR ▼ to select the "BL" (Bank Select LSB= CC32) page.

```
 ____       _____
|    |     | BL [ * * * * * * * * * * * * ] ▴ |
| 0  |     | [  0 |   0 |   0 |   0 ] |
|____|     |_____|
```
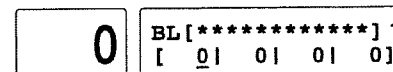
This is where you can set the value for Bank Select CC32. On the SC-88Pro, for example, CC32 allows you to select the SC-55 Map, the SC-88 Map, or the SC-88Pro (Native) Map.

These settings can be saved to a Performance memory (see page 23). As always, you don't have to save the Manual mode settings, but it would be wise to do so anyway.

Note: The fact that an instrument accepts CC00 messages doesn't automatically mean it will also accept CC32 messages. Please see the manual of the instrument you wish to control for details.

Note: After installing a Voice Expansion Board, Parameter Select [BANK SELECT] can still be used to set Bank Select numbers for internal Zones. However, these values only apply to external instruments being controlled from the internal zones – never to the VE-RD1.

5.6 Portamento time

You can also set the Portamento time for each zone. The control change number that corresponds to this parameter is CC05. Please note that not all external MIDI instruments recognize this message. As a rule, it is always a good idea to have a look at the MIDI Implementation Chart of the instruments you are using to find out which MIDI messages they receive,

1. Press Destinations [EXT] or [INT] to assign the PARAMETER SELECT buttons to the EXT or INT zones.

2. Press PARAMETER SELECT [PORT T].

The display now shows the Portamento Time values the zones will transmit when you select this Performance (after saving it, of course).
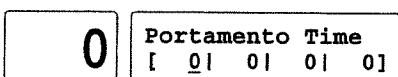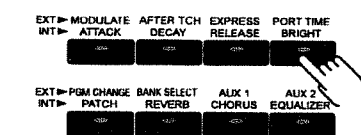
3. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set (EXT/INT A~D).

4. Enter the desired value with the DATA ENTRY pad (see page 26 for details) or the PALETTE slider assigned to the desired zone.

5. By pressing Control [PORTAMENTO], you can switch the Portamento effect on and off.
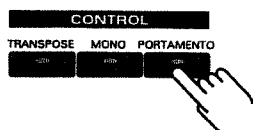
5.7 Effect send levels

These two parameters allow you to specify the Reverb Send Level (CC91) and Chorus Send Level (CC93) for the receiving instrument or Part. Again, not all modules/synthesizers receive these MIDI messages (especially those that don't have on-board effects processors), or may have assigned other functions to these control change numbers. See the user's manual included with each device.

Reverb Send Level (REV SEND)

This parameter allows you to specify the amount of Reverb effect that is added to the instrument Patch/Part in question.

1. Press Destinations [INT] or [EXT] (indicator must light).

2. Press Parameter Select [REV SEND] to call up the following display page:
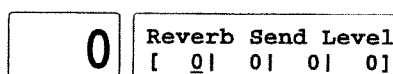
3. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set (EXT/INT A~D).

4. Enter the desired value with the DATA ENTRY pad (see page 26 for details) or the PALETTE slider assigned to the desired zone.

The setting range is 0 (no effect) to 127 (maximum Reverb level).

Double-clicking Parameter Select [REV SEND] will cause the indicator to flash and the Reverb Send Levels of all four INT or EXT zones to turn to zero. Double-clicking it again will cause the indicator to stop flashing and the Reverb Send Level to return to the previous levels. This operation in effect allows you to switch on/off the Reverb.

When set to off, it will remain off even when you select another Performance. It will be activated again when the A-70 is switched off and on again.

Chorus Send Level (CHOR SEND)

This parameter allows you to modify the Chorus Send level (i.e. the amount of Chorus effect that is added to the zone in question).

See above for the procedure but use [CHORUS SEND] rather than [REV SEND].

5.8 Saving your settings

Suppose you like the changes you have just made. In that case, you should write them to a Performance memory. After all, your changes will only be preserved until you switch off the A-70 or select another Performance memory.

The Manual settings, on the other hand (see "Performance or Manual mode?" on page 12) are automatically saved and will be used until you initialize the Manual memory or until you make further changes in Manual mode. You should thus save important Manual settings to a "regular" Performance memory.

Another good reason for saving the Manual settings to a Performance memory is that the Manual settings cannot be used alongside Performances (and therefore not be included in a Chain, see "Using Performance Chains" on page 40).

Pay attention to the following when saving your settings: the status of the ZONE INT and EXT buttons (on or off) is also memorized. So be sure to activate the zones that should be available when you select your new Performance, and turn off all zones you don't want to use right away.

1. Double click the Function [UTILITY] button, and type [1], [0], [ENTER] on the numeric key pad to select the following display page:

```
U10   Temp To    1
      ▶INITIAL DATA
```

Note: See "Housekeeping (Write, Copy, etc.)" on page 59 for details about the Utility mode.

2. Use the Parameter [DEC]/[INC] buttons or the numeric keypad + [ENTER] to select the Performance memory to which you wish to write your settings.

Note: The Performance whose name appears on the lower line of the display will be overwritten by your new settings. Be careful not to overwrite important data.

3. Press [ENTER]. A confirmation message appears.

```
U10   Performance Write
      Temp→  1     Sure?
```

4. If you really want to save your settings to the selected Performance memory, press [ENTER] again. Otherwise press [EXIT].

The message "Complete" appears in the display to confirm your settings have been stored. These settings can now be selected like any other Performance memory.

6. Coming to grips with the A-70

This chapter provides an overview of the A-70 and describes some handy functions that haven't been covered so far.

6.1 Basic structure of the A-70

The A-70 allows you to transmit MIDI messages on four internal zones, four external zones, and four effect lines:

Controller (Keyboard, Pitch Bend lever, etc
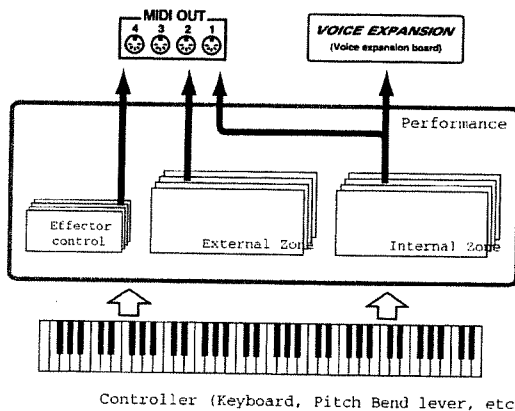
Controllers

The controllers are the keyboard, the sliders on the keyboard's front panel and the pedals that plug into the rear panel. Performance data from these controllers is sent to the various zones.

External zones (EXT A~D)

These zones allow you to control MIDI instruments connected to the MIDI OUT sockets (1~4). These sockets are switchable (on/off), so that you could actually control up to four independent MIDI rigs. The status of the zones (on or off) can be saved to a Performance memory. Each external zone can transmit on a separate MIDI channel. If you like, you can program these zones so that they each address a separate MIDI OUTput (see "Zone-to-MIDI OUT assignments" on page 31).

Internal zones (INT A~D)

The internal zones are originally intended for controlling a Voice Expansion Board installed in the A-70 but can also be used for controlling external MIDI equipment. A MIDI channel can be set for each zone, so that you can play up to four different sounds at any given moment. If your A-70 doesn't contain a Voice Expansion Board, the INT work just like the EXT zones.

Use the PARAMETER SELECT pad to select the parameters of the external or internal zone you wish to set. The parameter values function as (user-defin-

able) "presets" that can, however, be modified in real time using the controllers (see above) as well as the four PALETTE sliders.

Effects controls (EFFECTOR 1 to 4)

These are used to control effect processors connected to the MIDI OUT sockets. See page 46 and following for details.

Performance (1~64)

A collection of settings for the four internal (INT) zones, the four external (EXT) zones, and the effects controls is called a "Performance." You can save 64 Performances in internal memory.

By switching Performances, you can instantly reconfigure your entire MIDI system from your A-70.

The following block diagram shows the basic structure of the A-70:
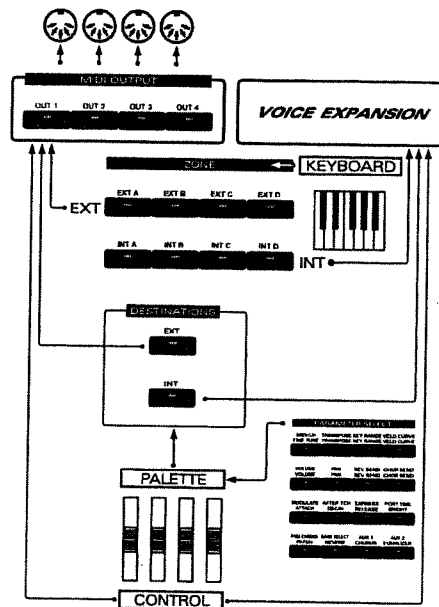
6.2 Memory structure

The A-70 has the following types of memory:
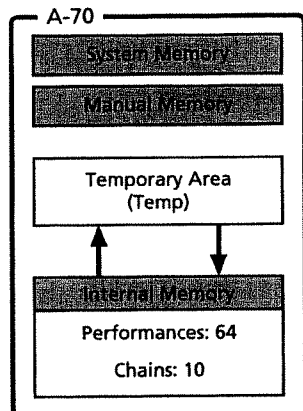
- **Temporary area**
  This is where the Performance and Chain settings you are using reside. These settings specify how the internal Voice Expansion Board (if available) and the external MIDI instruments are controlled. The actual memories are thus only "baskets" into which you can put a complete set of settings, but you will have to "put them back on your desk" (the Temporary area) before being able to use them.

  Editing takes place in the Temporary area (except for the System parameters and Manual mode, see below). Thus, to edit a given Performance, you first have to select it in order to copy its settings to the Temporary area.

  This copy process also means that the settings in the Temporary area are overwritten as soon as you select another Performance memory. Also, power to the Temporary area is only supplied for as long as the A-70 switched on. You should therefore save your changes to a Performance memory before recalling another one.

- **Internal memory**
  This memory is for storing Performance and Chain settings. Settings for up to 64 Performances and 10 Chains can be saved here.

- **System Memory**
  This memory contains the System parameters, which determine the operating environment of the A-70. Changing a setting alters the System parameters directly, so data is always updated and remains in memory even if the power is switched off.

- **Manual memory**
  This memory is used to store a special kind of "Performance". See also "Performance or Manual mode?" on page 12.

6.3 Five modes

The A-70 has five modes, each of which can be accessed via a dedicated FUNCTION button:
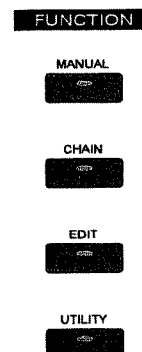
Performance mode: stage use 1

This mode is selected when the A-70 is powered up. The Performance mode is handy for switching settings (Performances), thereby reconfiguring your MIDI setup while playing on stage. You can return to the Performance mode from any other mode by again pressing the FUNCTION button that corresponds to the mode you want to exit.

Here are some of the characteristics of this mode:

- A variety of controllers can be used to control external MIDI instruments and/or a Voice Expansion Board.
- You can select other Performances as and when you need them.
- You can change some settings in real time using the PARAMETER SELECT keypad.
- Settings can be made in even greater detail when in Edit mode.
- Settings that have been changed are lost when the Performance is switched or the power is turned off, (unless they have been saved as a new Performance).
- The SEQUENCER CONTROL buttons can be used to remotely control an external sequencer.

Manual mode

See "Performance or Manual mode?" on page 12 for details.

Chain mode – stage use 2

Pressing FUNCTION [CHAIN] (so the indicator lights) activates the Chain mode. In this mode, you can call up a Chain (or predefined sequence) of Performances. That makes this mode convenient when you want to select non-consecutive Performances in keeping with the songs or progressions during an on-stage performance. To go back to the original mode, just press [CHAIN] again (so the indicator goes out).

- Same functionality as in Performance mode. You cannot edit Performances in real time, however.
- Performance sequence is determined by their position in the (user-definable) chain.
- You can select other Chains (10 memories)
- Settings can be made in even greater detail when in Edit mode. (Performance-related settings cannot be changed.)
- Don't forget to save your new Chains after setting them (and before taking them on the road – otherwise they won't even be there).
- The sequencer controls can be used to control an external sequencer.

Edit mode: making settings in greater detail

Pressing FUNCTION [EDIT] (so the indicator lights) activates the Edit mode. The Edit mode uses a menu format that ensures easy selection of the desired parameter. Shortcut numbers are available for each item so you can also use the numeric keypad to directly access the parameters you need. To go back to the original mode, just press [EDIT] again (so the indicator goes out).

Utility mode: saving settings

Pressing FUNCTION [UTILITY] (so the indicator lights) activates the Utility mode. This mode lets you do your "administration": save settings that have been changed, copy settings, and initialize settings/memories. The Utility mode uses a menu format that ensures easy selection of the desired parameter. Shortcut numbers are available for each item so you can also use the numeric keypad to choose the item you want. To go back to the original mode, just press [UTILITY] again (so the indicator goes out).

6.4 Basic operations

The A-70 offers several handy methods for selecting numbers or changing parameter values/menus.

DATA ENTRY pad

1. DATA ENTRY slider

Use this slider to rapidly increase or decrease the value of the selected parameter. You can also use it to select Performances, but then you will need to confirm your choice by pressing [ENTER].

2. [DEC]/[INC] buttons

These buttons serve the same purpose as the [DATA ENTRY] slider, except that they allow you to increase/decrease values (or memory numbers) one unit at a time. If you want to change a value rapidly, hold down one of these buttons and press the other one.

3. CURSOR buttons

These buttons are used to change pages and to select parameters.

In Performance or Manual modes, the functions assigned to the controllers are displayed by means of icons:
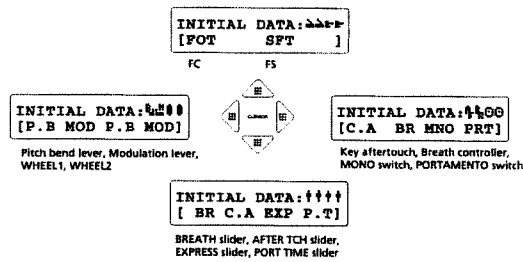
When you access parameters via the PARAMETER SELECT pad, the display indicates which CURSOR buttons you can press to gain access to other parameters:
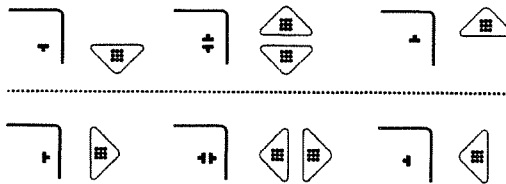
In Chain Mode, CURSOR ◄/► are used to switch Performances in a Chain, while ▲/▼ allow you to select the edit mode of a Chain.

In Edit or Utility modes, ◄/► are used to move the cursor and to select an item, while ▲/▼ allow you to switch menus. When ♦ is displayed in the right-hand corner of the screen, the CURSOR ▲/▼ buttons can be used to select display pages. When ◄ ► is displayed, the CURSOR ◄/► buttons can be used for page selection.

4. Numeric keypad

1. Performance mode

• *Performance selection*

Use [0]~[9] to input the Performance number, then press [ENTER] to confirm. You can cancel the setting by pressing [EXIT] before you press [ENTER]. There are 64 Performances (1~64).

• *Choosing the lower digit of a Performance number*

(GBN format, see page 42).

Use the [1]~[8] buttons ([9] and [0] cannot be used) to choose the lower digit of the Performance number (e.g. 11, 12, 13, 14,...), in which case you don't need to press [ENTER]. If you wish to set the entire Performance address, pres [A/+] first and then enter the two digits. In that case , the number will only be programmed when you press [ENTER].

• *PARAMETER SELECT functions*

For the currently selected Parameter, you can input a numeric value with the [0] to [9] buttons and confirm the value by pressing [ENTER]. To input a positive or negative number, first use [A/+]/[B/−] to select either "+" or "−", then input the value with the [0]~[9] buttons and press [ENTER] to confirm the value. You can cancel the setting by pressing [EXIT] before you press [ENTER].

Depending on the parameter, it may be possible to disable to deactivate it using the [OFF] button. (The value of the setting remains unchanged.) Each press of [OFF] toggles between disabled and enabled.

2. In Manual mode

The numeric keypad allows you to enter values.

3. In Chain mode

• *Selecting Chains*

Use the [0]~[9] buttons to input the Chain number and press [ENTER] to confirm. You can cancel the setting by pressing [EXIT] before you press [ENTER]. Pressing [0] selects Chain number 10.

• *Choosing a Performance during Chain editing*

The buttons that can be used are the same as in Performance mode.

4. In Edit mode

• *Entering numeric values*

The [0]~[9] buttons allow you to assign a value to the currently selected parameter. This value must be confirmed by pressing [ENTER].

To input a positive or negative number, press [A/+]/[B/−] to select either "+" or "−", then input the value with the [0]~[9] keys and press [ENTER] to confirm. You can cancel the setting by pressing [EXIT] before you press [ENTER].

Use [A/+] and [B/−] to specify the group number of Patches (if you activated the GBN display function, see "What would you like to see?" on page 42).

Depending on the parameter, it may be possible to disable it by pressing [OFF]. (The last value you set for such a parameter is memorized, however.) Each press of [OFF] toggles between disabled and enabled.

• *Entering text (Performance or Map name & zone comments)*

The letters of the alphabet are assigned to the [0]~[9] buttons. As these buttons allow you to select two or even three characters, you may have to press them repeatedly.

The [0] button allows you to enter the number "0" as well as a space. Holding down [A/+] while pressing a button causes upper-case letters to be input. You can erase the character indicated by the cursor by pressing [B/−].

Note: The cursor does not move when text is input. Use the CURSOR buttons to move it.

• *When assigning exclusive messages (SysEx) to the AUX1/2 buttons (see page 38)*

Data is entered as two bytes (two digits) at a time, in hexadecimal format. The digits 0 to 9 can be entered directly, but letters A through F must be entered by holding down [A/+] while pressing the button with the letter shown at the upper left. For instance, the hexadecimal value "7F" is entered by pressing [7], [A/+] + [5], then [ENTER]. The value is placed just before the current position of the cursor.

Navigating through the screens

After pressing [EDIT] or [UTILITY], use [ENTER] to change to the flashing menu item, and [EXIT] to return to the previous menu.

PALETTE sliders

In Performance mode, these sliders act as additional controllers (for sending MIDI messages). After selecting one of the PARAMETER SELECT functions, however, the PALETTE sliders can be used for direct value input. Consider the following illustration:
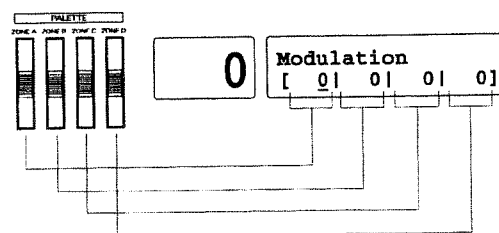
Selecting parameters/options

The Edit and Utility modes provide a menu-style display page layout that you can use for calling up the desired parameters. Using the shortcut numbers (see below), however, is a lot faster.

Selecting items via the menus

1. Press [EDIT] (or [UTILITY]) to call up the menu page (Top Menu).

$$\boxed{\text{E00}} \quad \boxed{\begin{array}{l}\texttt{Edit}\blacktriangleright\texttt{System} \\ \underline{\texttt{:SYS:}}\texttt{CTRL|PERF}\end{array}}$$
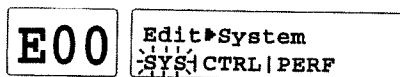
When you switch to another mode from the Edit mode or the Utility mode and back, the A-70 returns to the last page you used in that mode. This means that the Top Menu may not appear next time around. In that case, press [EXIT] several times to bring up the Top Menu.

2. Use the CURSOR ◄/► buttons to select the desired item (it starts flashing), and press either CURSOR ▼ or [ENTER].

If the menu screen continues, repeat step 2.

"Turning" pages

The "▲" symbol means there is a page above the current one. Use CURSOR ▲ to select it. The "▼" symbol means there is a display page below the current one (use CURSOR ▼).

$$\boxed{1} \quad \boxed{\begin{array}{l}\texttt{V-Crv[1 }\diagup\texttt{127]\cdot} \\ \texttt{[1| 1| 1| 1]}\end{array}}$$

$$\boxed{+32} \quad \boxed{\begin{array}{l}\texttt{V-Sns[1 }\diagup\texttt{127]\cdot} \\ \texttt{[+32|+32|+32|+32]}\end{array}}$$

$$\boxed{127} \quad \boxed{\begin{array}{l}\texttt{V-Max[1 }\diagup\texttt{127]\cdot} \\ \texttt{[127|127|127|127]}\end{array}}$$
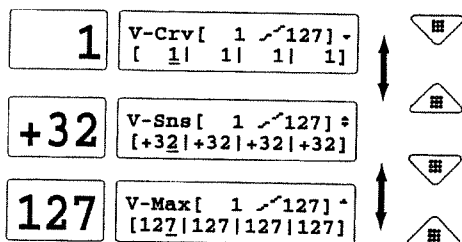
The "◄" and "►" symbols mean there are more parameters to the left or right of the current display page. Use CURSOR ◄/► to select such additional parameter pages.

$$\boxed{\text{E02}} \quad \boxed{\begin{array}{l}\texttt{N-Map Assign \_\_\_}\diamondsuit \\ \texttt{EXT A}\blacktriangleright\texttt{ 4(JV-1080)}\end{array}}$$

$$\boxed{\begin{array}{l}\texttt{V-Exp1 Assign \_}\diamondsuit \\ \texttt{EXT A}\blacktriangleright\texttt{ 2(Pop \_\_\_)}\end{array}}$$

$$\boxed{\begin{array}{l}\texttt{V-Exp4 Assign \_}\diamondsuit \\ \texttt{EXT A}\blacktriangleright\texttt{ 7(Dance \_)}\end{array}}$$
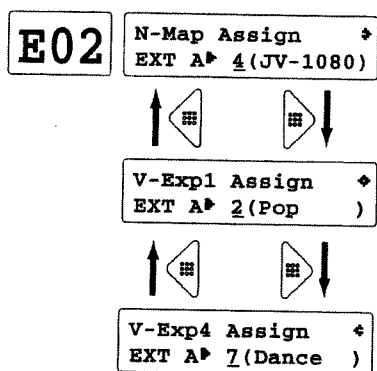
Using shortcuts to jump to the desired item

1. Depending on the mode you need, double-click the Function [EDIT] or [UTILITY] button.
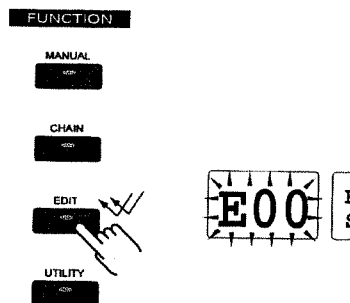
(You double-click a button by pressing it twice in rapid succession.) This makes the button's indicator and the value in the left-hand screen flash.

2. Use the numeric keypad to input the shortcut number for the item you want, then press [ENTER].

The shortcut number now lights steadily in the 3-character display, while the A-70 jumps to the desired parameter/function.

How menus and shortcut numbers are indicated

In the explanations that appear in this manual, the menus that must be chosen until the desired parameter appears on-screen and the assigned shortcut number are given at the start of each section.

Here's an example: (EDIT: PERF: COMMON, E43). This means that in Edit mode, you need to choose "PERF" from the Top Menu and "COMMON" from the next menu. "43" is the shortcut number.

Here are the shortcuts you can use:

Edit	
E00	Edit mode top menu

EDIT: SYS	
E01	Control channel/device ID
E02	Program Name Map assignments
E03	User Name Map creation
E04	Sequencer control output
E05	System defaults
E06	Application of received MIDI messages to zone settings
E08	Voice Expansion Local control
E09	LCD contrast
E09	Double-click speed

EDIT: CTRL (not accessible from the Chain mode)	
E10	Function of the BREATH slider
E11	Function of the AFTER TCH slider
E12	Function of the EXPRESS slider
E13	Function of the PORT TIME slider
E14	Function of the FC pedal
E16	Function of the FS pedal
E18	Function of the [MONO] button
E19	Function of the [PORTAMENTO] button
E20	Function of the keyboard's Aftertouch
E21	Function of WHEEL1
E22	Function of WHEEL2
E23	Function of the Pitch Bend axis of the lever
E24	Function of the Modulation axis of the lever
E26	Function of the [AUX1] button

E27	Function of the [AUX2] button
E28	Global Transpose interval
E29	Zone assignments to the TOTAL VOLUME slider
E30	Zone assignments to the TOTAL VOL pedal
E31	Zone assignments to the HOLD pedal
E32	Reset All Controllers on/off

EDIT: PERF/MANUAL
(not accessible from the Chain mode)

EDIT: PERF/MANUAL: COMMON

E40	COMMON Group for the Performance and Manual modes
E41	Performance Name
E42	MIDI output settings for the zones
E43	Zone assignment setting for MIDI IN1
E44	Zone assignment setting for MIDI IN2
E45	Local keyboard switch
E46	Enter comments/explanations for the zones

EDIT: PERF/MANUAL: EFFECT

E50	Group for effector control
E51	MIDI channel setting for effector control
E52	Bank Select MSB setting for effector control
E53	Bank Select LSB setting for effector control
E54	Program Change setting for effector control
E55	Note message assignment setting for effector control
E56	MIDI output setting for effector control
E60	Specify the Chain mode

UTILITY

U00	Utility mode top menu

UTILITY:WRITE

U10	Save Temporary area data/Manual mode settings as a Performance

UTILITY: CPY: PERF/CHAIN

U20	Copy a Performance or Chain

UTILITY: BLK

U50	Output contents of internal memory to MIDI (Bulk Dump)

UTILITY: INT

U40	Menu for initializing settings

UTILITY: INT: TMP

U41	Initialize the temporary area

UTILITY: INT: MAN

U42	Initialize Manual mode settings

UTILITY: INT: SYS

U43	Initialize system settings and Master Tune in the Voice Expansion Board

UTILITY: INT: I-ALL

U44	Initialize Performances and Chains

Note: To assign another function to a controller (see page 35), you only need to select the Edit mode and move or press the controller in question: the corresponding display page will automatically be selected.

6.5 Switches and other useful functions

ZONE buttons

The ZONE buttons let you turn the A-70's zones (internal and external) on and off. When a ZONE has been turned off, no performance information from the controllers or keyboard is output on that MIDI channel (however, changes made with PARAMETER SELECT are output). To switch on a zone, press the corresponding ZONE button (indicator must light). Each press of these switches turns the corresponding zone on or off.

If you want to switch on just one zone, double-click the corresponding button. The other seven (INT and EXT) zones are switched off.

Double clicking the button again returns the settings to their previous state (if no other ZONE button has been pressed since you double-clicked the first one).

The status of the ZONE buttons is saved as a Performance setting (see page 23). (In Manual mode, the status of the ZONE buttons is saved automatically.)
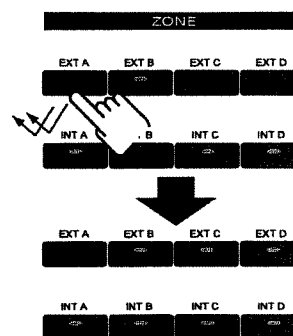
Note: Even if the ZONE switch is turned off during performance, the sound currently being played will not be cut off.

Help function

The A-70 provides a context-sensitive Help function (much like most computer software). Press [HELP] to get information about the current display page, the parameters and their setting ranges, about controller assignments, and the current values for many different settings.
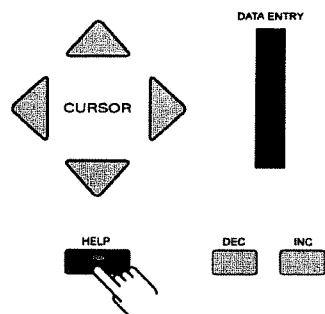
When a button has been pressed and an indicator is flashing, the CURSOR ◄/► can be used to select an item. Pressing [HELP] again displays more details about the item. To return to the original mode, just press [HELP] once more.

Panic function

The Panic function can be used when the A-70's Voice Expansion Board or an external MIDI instrument won't stop playing because of some erratic operation. Press the [PANIC] button. What happens next depends on how you press this button.

PANIC	
One press	Note-off and Hold-off MIDI messages are sent for the notes being played on the keyboard, and the A-70's current settings are sent.
Double-click	MIDI messages for Volume (127), Note-off for all notes (C-1 to G9), Pitch Bend (center), Channel Aftertouch (0), Modulation (0), and Hold 1 (0) are sent to all selected (and active) MIDI channels, along with A-70's current settings.

Note: If you want to send the current A-70 settings (which may be necessary if you've switched on a MIDI instrument after selecting a Performance on the A-70), press [PANIC] once without playing any keys.

The [PANIC] indicator flashes while the Panic function is working. During this time, all other operations are disabled, and no information is received via the MIDI INputs.

7. Configuring the A-70

Unless specified otherwise, the following settings can be saved to a Performance memory (see page 23). As always, you don't have to save the Manual mode settings, but it would be wise to do write them to a Performance anyway.

7.1 MIDI INs and OUTs

The A-70 lets you freely route the data of the zones to any of the four independent MIDI OUTputs. What's more, data received via the MIDI INputs can not only be routed to the Voice Expansion Board (if available) but also to the MIDI OUTputs.
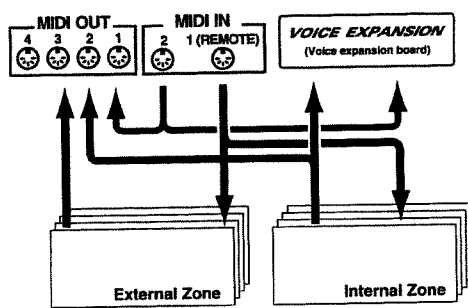
Zone-to-MIDI OUT assignments
(EDIT: PERF: COMMON, E42)

The Zone Output parameter allows you to decide which MIDI OUTputs should transmit the MIDI data coming from a given internal or external zone. At first, all zones are routed to all MIDI OUTputs. If your A-70 contains a Voice Expansion Board, the internal zones are not connected to these sockets, but you can change that.

Note that you will still have to activate the desired MIDI OUTPUT buttons manually as only the Zone Output settings will be saved to a Performance memory (not the status of the MIDI OUTPUT buttons).

If you have no particular reason for assigning different MIDI OUTputs to one or more INT and EXT zones, we recommend you keep at least two MIDI OUTs free: one for sequencer control (see page 45) and one for controlling external effects devices (see page 46). The reason for this is simple: if all MIDI OUTputs transmit the same messages, you may inadvertently trigger the MIDI instruments connected to the external sequencer (if its MIDI Thru/Soft Thru function is active). Furthermore, separating the effects devices from the zones (by using separate MIDI OUTputs) gives you more freedom for selecting MIDI channels for effects control.

Zone Output can be set either in Edit mode or directly via the front panel buttons:

Setting Zone Output in Edit mode
1. Select the Zone Output page (E42).

The "hard" way: Press [EDIT] to select the Edit mode, press [EXIT] until the top menu appears, select Common, then use CURSOR ▼ to call up page E42.

The "soft" way: Double-click the [EDIT] button and press [4], [2], [ENTER] to call up page E42.

2. Press the INT A~D or EXT A~D button whose MIDI output routing you wish to set.

The indicator of that button lights, as do the indicators of the MIDI OUTPUT buttons that zone is currently assigned to.

3. Press the MIDI OUTPUT buttons to route the selected zone to the corresponding MIDI OUT sockets.

A lit MIDI OUTPUT indicator means the zone is assigned to the MIDI OUTput in question. Here's an example:
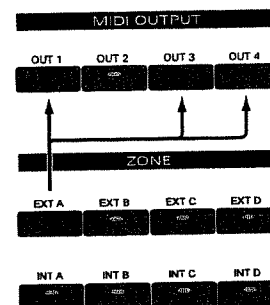
You can also make these settings on-screen: Press the ZONE button for the desired INT or EXT zone, use the CURSOR buttons to choose OUT 1~4, and use [DEC]/[INC] to switch it on (1) or off (0).

Setting Zone Output on the front panel
1. In Performance (or Manual) mode, hold down the INT A~D or EXT A~D zone button you want to make settings for.

• After a few seconds the MIDI OUTPUT indicators of the sockets the selected zone is currently assigned to start flashing. If no MIDI OUTPUT indicator flashes, the zone in question doesn't transmit MIDI data to the MIDI OUTputs.

2. Keep holding the ZONE button while pressing the desired MIDI OUTPUT button(s). The indicator(s) of the latter start(s) flashing.
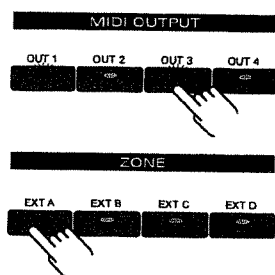
Note: Assigning a zone to a given (set of) MIDI OUT-PUT button(s) doesn't mean its MIDI data will be transmitted: you still have to activate the MIDI OUT-PUT buttons while playing.

INT zones and the outside (MIDI) world

As stated above, the A-70's zones can be disconnected from the MIDI OUTputs, which only makes sense if your A-70 contains a Voice Expansion Board. After installing such a board and initializing the A-70 (see page 49), the INT zones will be disconnected from the MIDI OUTputs. We just showed you what to do in order to restore that connection. Doing so still allows you to control the Voice Expansion Board, so that the INT zones can then access both the internal sound source and external MIDI instruments.

Using MIDI IN1 for external input (Remote)

If you are used to playing on two keyboards (or wish to use bass pedals, such as the Roland PK-5 alongside the A-70), you should connect the external keyboard/bass pedals to the A-70's MIDI IN1 (Remote) socket. All MIDI channel data (no sync messages, etc.) are received (Omni On mode).

What happens to data received via MIDI IN1 (*not* via MIDI IN2), however, depends on which zone type receives them and on how the zone's parameters are set:

1. EXT and INT zones (no Voice Expansion)

All incoming MIDI channel messages are merged, processed by the parameters of the selected zone (see "Selecting zone(s) for remote control"), and retransmitted to the selected MIDI output(s). You could thus transpose the note messages before sending them to the external module, etc. But bear in mind that everything will be re-transmitted on one single MIDI channel.

The advantage is that you don't have to worry about setting the right transmit channel on the external MIDI instrument because the receiving zone does

that for you. However, this approach is not suited for receiving MIDI sequences for multiple channels because all data received via MIDI IN1 are merged and assigned to the MIDI channel you selected for the INT or EXT zone. (Use the MIDI IN2, page 34, for multiple-channel purposes).

Note: There is a parameter that allows you to specify that the zone's parameters also change in response to the received settings. See "Editing zones via MIDI" on page 33 for details. This also applies to INT zones.

2. INT zones (when a VE-RD1 is installed, see page 49)

When you take advantage of the MIDI IN1 facility and activate the reception of MIDI IN1 data for an INT zone (see "Selecting zone(s) for remote control"), the A-70 does something highly interesting to the Voice Expansion Board: it separates the board's MIDI receive channels from the parameters you can set via [MIDI CH]. In that case, Part 1 receives on MIDI channel 1, Part 2 on channel 2, and so on. If you assign such an internal zone to a MIDI output (see "Zone-to-MIDI OUT assignments" on page 31), the MIDI messages played by the VE-RD1 Part will also be retransmitted. As for the EXT zones, data on all MIDI channels will be merged.

You can, however, select the MIDI channel these messages should be *transmitted* on by the A-70 (see "Setting MIDI channels for the zones" on page 13). It is thus perfectly possible, for example, to assign MIDI channel 15 to INT A, so that the incoming messages played by VE-RD1 Part 1 (receiving on MIDI channel 1) will be doubled by an external MIDI instrument receiving on MIDI channel 15 (provided you assign INT A to a MIDI output, see above).

Note: This system only works if the INT zone in question is active (i.e. its indicator must light) and connected to a MIDI OUTput (see page 31).

In either case (reception with or without a VE-RD1), you can add data by playing on the A-70's keyboard. If you don't want that, see "Local KBD Sw (separating the keyboard from a zone)" on page 33.
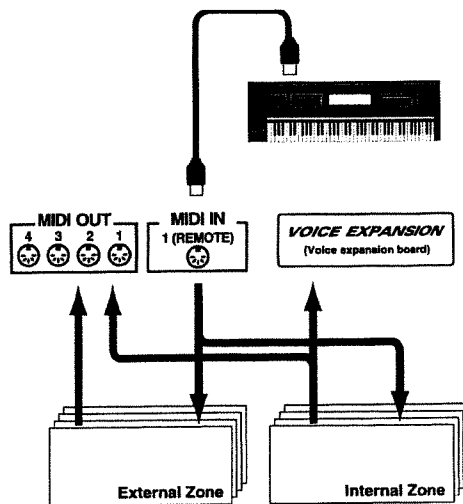
Note: Both MIDI IN1 (Remote) and MIDI IN2 can be used for receiving program change messages that allow you to select Performances via MIDI (see "Performance control channel").

Selecting zone(s) for remote control
(EDIT: PERF: COMMON, E43)

The *IN1 (Remote) Asgn* parameter allows you to select which zones are to respond to MIDI data received via the A-70's MIDI IN 1 connector. This parameter thus acts as MIDI receive switch. As a rule, you should only allow one zone to receive external MIDI messages.

1. Switch from the Performance (or Manual) mode to the Edit mode (see "Functions for assignable controllers" on page 35 for the two possible approaches) and use the menu or the shortcut number to select "IN1 (Remote) Asgn."
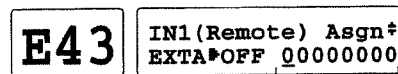
EXTA–D, INTA–D
from the far left of the screen

2. Press the ZONE button of the zone whose setting you want to change.

OR: Use the CURSOR ◄/► buttons to select the zone.

3. Use DATA ENTRY to switch it on or off.

Local KBD Sw (separating the keyboard from a zone)
(EDIT: PERF: COMMON, E45)

As explained above, data generated on the A-70's keyboard are merged with the data received via MIDI IN1 (Remote), which is probably not what you want

because that would mean that a receiving zone (see Asgn above) would produce highly unpredictable results. That is why you should separate a receiving zone from the A-70's keyboard. Here is how:

1. Switch from the Performance (or Manual) mode to the Edit mode (see "Functions for assignable controllers" on page 35 for the two possible approaches) and use the menu or the shortcut number to select "Local KBD Sw."
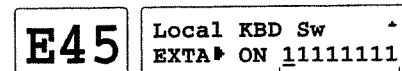
EXTA–D, INTA–D
from the far left of the screen

2. Press the ZONE button of the zone whose setting you want to change.

3. Press the ZONE switch for the zone to be isolated.

OR: Use the CURSOR ◄/► buttons to select the zone.

4. Use DATA ENTRY to switch Local Control on or off.

If you switch off the Local parameter, the zone in question still receives MIDI data (via MIDI IN1) and retransmits them. Note, however, that reception via MIDI IN1 is only possible if you set the IN1 (Remote) Asgn parameter accordingly.

These settings can be saved to a Performance memory (see page 23). As always, you don't have to save the Manual mode settings, but it would be wise to do so anyway.

Editing zones via MIDI
(EDIT: SYS, E06)

It is also possible to modify the settings of the INT and EXT zones via MIDI. This function (E06) allows you to route messages received via MIDI IN1 or MIDI IN2 to the INT or EXT zone parameters, or both.
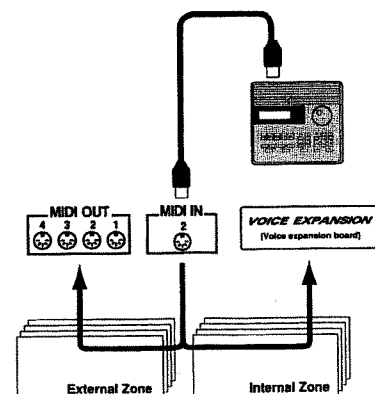
1. Switch to the Edit mode, and use the menu or the shortcut number to choose page E06.

```
E06   Rx▶In1→ExtPalete↕
      In1→EPal▶OFF 0000
```
           a   b   c   d
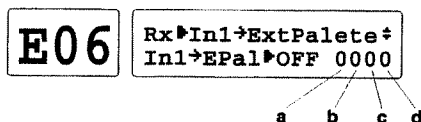
2. Use the CURSOR ◄/► buttons to choose a parameter, and set it with DATA ENTRY.

There are four possibilities (2 MIDI inputs x 2 zone types), and the setting matrix looks like this:

a. Set whether MIDI messages received from IN1 are applied to the *external* zone settings.

b. Set whether MIDI messages received from IN1 are applied to the *internal* zone settings.

c. Set whether MIDI messages received from IN2 are applied to the *external* zone settings.

d. Set whether MIDI messages received from IN2 are applied to the *internal* zone settings.

OFF/0 means "no change of the zone settings", and *ON/1* means "values of received messages affect the zone settings".

The settings of these receive switches are saved automatically as a System setting. The *results* of these settings (i.e. the modification of the zone parameters in question), however, are regular Performance parameters that can be saved or will be memorized automatically if the A-70 is currently in Manual mode.

MIDI IN2: working with external sequencers

(EDIT: PERF: COMMON, E44)

Unlike MIDI messages received via MIDI IN1, messages transmitted to the A-70's MIDI IN2 connector are not processed by the zones before being re-transmitted. That means that no data are combined and "rechannelled".

Here, the MIDI channels assigned to the internal zones will also be used as receive channels by the Voice Expansion Parts (if available), except when you disconnect the Voice Expansion Board from the INT zones (see "V-Exp Local Control" on page 57).

Use MIDI IN2 when you wish to transmit sequence data to your MIDI rig via the A-70. You can also decide to use the internal Voice Expansion Board (if available) as tone generator for some or all sequencer parts.

Note: Use this connector to receive Bulk data from an external device. See page 62.
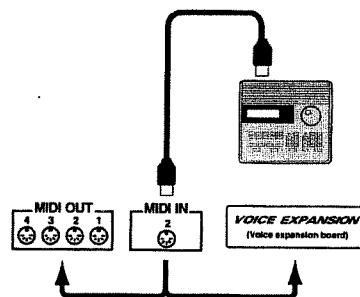
1. Switch from the Performance (or Manual) mode to the Edit mode (see "Functions for assignable controllers" on page 35 for the two possible approaches) and select "IN2 Asgn".
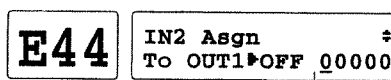
```
E44   IN2 Asgn         ↕
      To OUT1▶OFF 00000
```
OUT1–4, Voice Expansion Board
from the far left of the screen

2. Press the MIDI OUTPUT button for the MIDI OUT socket you want to use for output. If you want the sequence data to be transmitted to the Voice Expansion Board, press an INT zone button (it doesn't matter which one you press).

Alternatively, you can use the CURSOR ◄/► buttons to select the OUT connector and switch it on or off with [DEC]/[INC].

Note: The MIDI timing clock (synchronization signal) received via MIDI IN2 is *not* transmitted to the MIDI OUTputs. Connect other devices you wish to synchronize to the A-70's MIDI THRU socket.

Performance control channel

(EDIT: SYS, E01)

As stated earlier, you can select Performances using MIDI program change messages received via MIDI IN1 or IN2. This parameter allows you to specify the channel these messages must be transmitted on.

1. Switch to the Edit mode, and use the menu or the shortcut number to select page E01.

```
E01   Ctrl Ch |Dev ID ▾
      ▶16      |▶17
```
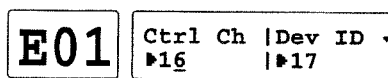
2. Use CURSOR ◄/► to select the Control Ch. parameter.

3. Set the value using the DATA ENTRY controls (see page 26 for details).

Press [OFF] if you don't want the A-70 to respond to program change messages for Performance selection. This is a System setting that affects all Performances as well as the Manual mode.

Functions for assignable controllers

The A-70 comes with a large number of controllers, most of which can perform the function you want. Here's how to assign the desired functions to the controllers. Bear in mind, however, that some controllers are only available if you purchase an optional foot switch or foot controller.

1. Press the [EDIT] button (indicator must light).

2. Activate the controller that you want to assign a function to. This makes the display switch to the page for assigning functions.

You can also use the menus or a shortcut number to change to the page for setting functions (EDIT: SYS: CTRL, E10~E25).

The assignable controllers are (an asterisk (*) indicates a switch-type controller):

- BREATH slider (E10)
- AFTR TCH slider (E11)
- EXPRESS slider (E12)
- PORT TM slider (E13)
- FC switch (E14)*
- FS pedal (E16)
- MONO button (E18)*
- PORTAMENTO button (E19)*
- Aftertouch (E20)
- WHEEL1 (E21)
- WHEEL2 (E22)
- Pitch Bend axis of the lever (E23)
- Modulation axis of the lever (E24)

3. Use the CURSOR buttons and DATA ENTRY to assign the function. The items on the left-hand side indicate the function's group, and the items on the right-hand side specify the type. To disable the controller, press [OFF].

```
E**   ********* Asgn  ♦
      ► OFF► ----------
```
Group   Parameter
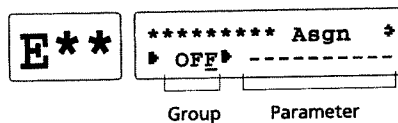
Here are the functions that can be assigned to (almost) any of the above controllers. Be careful not to assign the same function to too many controllers because using them all simultaneously may lead to data errors (the A-70 can send these messages, yet the receiver may be in trouble).

- CC (MIDI control change)
Any number between 0 and 119 can be used. Bear in mind, though, that CC00 and CC32 are usually used as Bank Select messages. See the manual of the external instruments being controlled for which CC numbers you can use.

Note: For your reference, all CC messages that have a widely used function are indicated with their names (such as Pan= CC10, Volume= CC07, etc.), while the remaining CC numbers (e.g. CC25, 26, etc.) are displayed without names.

- Ch.M (MIDI Channel messages)
  – Ch AFTER (channel Aftertouch)
  – P-AFT (polyphonic Aftertouch) Here, you can select which notes should send Aftertouch: High (highest note played), Low (lowest note), First (first note), or Last (last note). (So it is not entirely polyphonic.)
  – Pitch Bend

- Mode (MIDI Mode message) – only for switch-type controllers.
  – AllSund OFF (All Sound Off)
  – RESET CTRL (Reset All Controllers)
  – LOCAL CTRL (Local Control)
  – AllNote OFF (All Notes Off)
  – OMNI ON/OFF (Omni mode on or off)
    – MONO/POLY (MIDI Mono mode or Poly mode)

- Others
  – Tempo: Assign it to a slider or foot controller to be able to vary the tempo setting (also assigned to the [TEMPO] button). This can be useful for controlling the tempo of an external sequencer or of effects parameters of the receiving instrument (the JV-1080 and JV-2080 contain a number of "sync'able" parameters, such as Delay Time, for example). See also "Controlling a sequencer" on page 45 and "Controlling an effects device/drum machine/sampler" on page 46.
  – PGM UP: When in Performance mode, this allows you to select the next Performance number. In Chain mode, it switches to the next Performance in the currently selected Chain.
  – PGM DOWN: Opposite of PGM UP. Allows you to select the previous Performance memory/Chain step.
  – FADE OUT: This gradually lowers the TOTAL VOL value.

4. Use the ZONE buttons to assign (indicator lights) the currently selected controller to the desired zones, or to disconnect it (indicator off).

If you use the CURSOR ◄/► buttons to move the cursor even farther to one side, the display changes to the page for setting the controller's maximum and minimum values (or values for on or off).

```
E**   ***** ⊟A***⊟***** ◄
      Range► ± 0  ⊤127
```
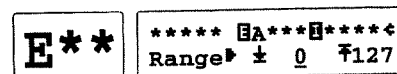
Note: The minimum and maximum values for controllers in the Mode and Others groups are common for all zones, while the others can be set independent-

ly for each zone. For FADE OUT, this specifies the time until the volume reaches "0" after the switch is pressed.

5. Use the ZONE buttons to select the zones whose minimum and maximum values you wish to set. (When the A-70 is shipped, all zones have the same setting.) You can make settings independently for each zone.

If you want to make the same settings for more than one zone, press the relevant ZONE buttons simultaneously. (You can also press and hold down one button and then press another one.) Zones with illuminated buttons are the ones that currently have controllers assigned.

6. Use the CURSOR buttons and DATA ENTRY to set the value.

The controller function settings are System settings. (And there is only one System memory, so any changes affect all Performances and zones.)

The controller On/Off settings, along with the minimum- and maximum-value settings (or values for on and off status for switches) are Performance parameters (and are automatically memorized in Manual mode).

Other controllers (on/off for zones)

Some controllers have a dedicated function that cannot be changed. You can, however, decide, whether or not their settings should apply to a given zone.

TOTAL VOLUME slider

1. Press the [EDIT] button (indicator must light).

2. Move the [TOTAL] Volume slider.

This selects the "Total Vol Sldr" page. You can also select this page by entering the shortcut (EDIT: SYS: CTRL, E29). See page 28 for details.

```
┌─────┐ ┌──────────────────────┐
│ E29 │ │ Total Vol Sldr    ⇕ │
└─────┘ └──────────────────────┘
```
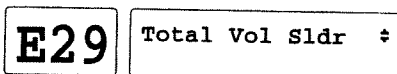
3. Use the ZONE buttons to assign (indicator lights) the [TOTAL] Volume slider to the desired zones, or to disconnect it (indicator off).

TOTAL VOL pedal

This parameter is only meaningful when you connect an optional foot controller to the TOTAL VOL jack.

1. Press the [EDIT] button (indicator must light).

2. Move the TOTAL VOL pedal.

This selects the "Total Vol Pedal" page. You can also select this page by entering the shortcut (EDIT: SYS: CTRL, E30). See page 28 for details.

```
┌─────┐ ┌──────────────────────┐
│ E30 │ │ Total Vol Pedal   ⇕ │
└─────┘ └──────────────────────┘
```
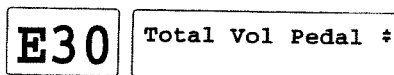
3. Use the ZONE buttons to assign (indicator lights) the TOTAL VOLUME pedal to the desired zones, or disconnect it (indicator off).

HOLD pedal

1. Press the [EDIT] button (indicator must light).

2. Move the HOLD pedal.

This selects the "Hold Pedal" page. You can also select this page by entering the shortcut (EDIT: SYS: CTRL, E31). See page 28 for details.

3. Use the ZONE buttons to assign (indicator lights) the HOLD pedal to the desired zones, or disconnect it (indicator off).

Global Transpose (interval and status)

1. See "Transposing the keyboard" on page 15 for the procedure.

You can also select this page by entering the shortcut (EDIT: SYS: CTRL, E28). See page 28 for details.

```
┌─────┐ ┌──────────────────────┐
│ E28 │ │ Global Trp Value⇕   │
│     │ │ ▶ 0                 │
└─────┘ └──────────────────────┘
```
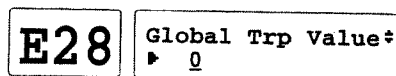
2. Use the ZONE buttons to determine which zones will be affected by the status of the [TRANSPOSE] button.

The Global Transpose status for each zone (enabled or disabled) can be saved as a Performance setting and is memorized automatically in Manual mode.

The Global Transpose *interval*, however, is a System parameter. Changing it thus affects all Performances as well as the Manual mode.

7.2 Zone-related settings (PARA-METER SELECT)

In Performance and Manual modes, you can use the PARAMETER SELECT pad to fine-tune the zone settings. This section only describes the functions that were neither covered in "First Steps" on page 10 nor in "Basics" on page 18.

Slider modulation/preset modulation value

The MODULATE function can be used for customizing modulation, i.e. applying it to only one zone. Usually, WHEEL2 and the Modulation axis of the lever are assigned to all zones (even though that can be changed, see "Functions for assignable controllers" on page 35).

That means that if you are using several zones simultaneously, WHEEL2 or the Modulation axis of the lever applies to all active zones. There may be times when you only wish to modulate one zone without wading through all the assignment possibilities to edit them.

Enter the [MODULATE] button. If you press it, the PALETTE sliders (assigned to EXT or INT A~D from left to right) can be used for sending modulation (CC01) values – this time only for the zone you want.

1. Press Destinations [EXT] or [INT], followed by Parameter Select [MODULATE].
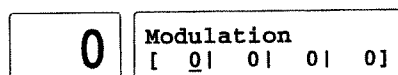
```
 0  | Modulation
    | [  0|  0|  0|  0]
```

2. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set.

3. Enter the desired value with the DATA ENTRY pad, or better still, use the PALETTE slider that is now assigned to the desired zone.

(After activating one of the PALETTE SELECT functions, the PALETTE sliders are used for data entry, as you may remember.)

By the way, the modulation values you set here will be saved to a Performance memory and recalled next time you select this memory (or return to Manual mode, if that is where you pressed Parameter Select [MODULATE]). So be sure to return all values to "0" before saving you Performance or exiting Manual mode.

MODULATE can also be used to apply modulation to internal zones (see "INT zones and the outside (MIDI) world" on page 32). However, these settings will not be transmitted to the Voice Expansion Board (if installed).

Slider Aftertouch/preset Aftertouch value for EXT zones

The AFTER TCH function is to Aftertouch what MODULATE is to modulation, so please see above for details.

1. Press Destinations [EXT], followed by Parameter Select [AFTER TCH].

```
 12  | After Touch
     | [ 12|  0|  0|  0]
```
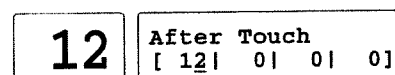
2. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set.

3. Enter the desired value with the DATA ENTRY pad, or better still, use the PALETTE slider that is now assigned to the desired zone.

The Aftertouch values you set here can also be saved to a Performance memory and will be used next time you select this memory (or return to Manual mode, if that is where you pressed Parameter Select [AFTER TCH]).

AFTER TCH can also be used to apply Aftertouch to internal zones (see "INT zones and the outside (MIDI) world" on page 32). However, these settings will not be transmitted to the Voice Expansion Board (if installed).

Slider Expression/preset Expression value for EXT zones

The EXPRESS function is to Expression messages (CC11) what MODULATE is to modulation, so please see above for details.

1. Press Destinations [EXT], followed by Parameter Select [EXPRESS].

2. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set.

3. Enter the desired value with the DATA ENTRY pad, or better still, use the PALETTE slider that is now assigned to the desired zone.

The Expression values you set here can also be saved to a Performance memory and will be used next time you select this memory (or return to Manual mode, if that is where you pressed Parameter Select [EXPRESS]).

EXPRESS can be applied to INT zones but will not be transmitted to the Voice Expansion Board (if installed).

AUX1 and AUX2: Control changes, SysEx, RPN, and NRPN

The Parameter Select [AUX1] and [AUX2] buttons can be assigned parameters that are not available via the PARAMETER SELECT pad. Use these buttons for further control of a given instrument, or for sending SysEx (system exclusive) or RPN/NRPN messages. You can define two functions per zone (one for [AUX1], and another one for [AUX2]).

Assigning parameters

1. Press the [EDIT] button (indicator must light).

2. Press Parameter Select [AUX1] or [AUX2].

This selects the page where you can assign the desired parameters to the [AUX1] and [AUX2] buttons. You can also select this page via the menu or its shortcut number (EDIT: SYS: CTRL, E26 or E27).
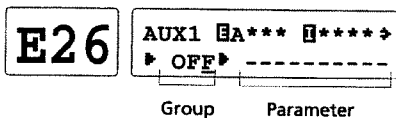
3. Press the ZONE button of the zone whose [AUX1] or [AUX2] assignment you wish to program.

At first, all A-70 zones assign the same functions to [AUX1] and [AUX2], but you are free to make individual AUX1/2 assignments for each zone.

If you want to make the same settings for more than one zone, press them so that their indicators light.

4. Use the CURSOR buttons and the DATA ENTRY pad to assign the parameters.

The entry on the left-hand side allows you to select a parameter group, while the right entry allows you to specify a parameter of that group. Press [OFF] to cancel the assignment of [AUX1] or [AUX2].

```
┌──────────┐  ┌───────────────────────┐
│          │  │ AUX1  ▤A*** ▯****♪     │
│   E26    │  │ ▶ OFF▶ --------------- │
│          │  │       ̲    ̲ ̲ ̲ ̲ ̲ ̲ ̲ ̲ ̲    │
└──────────┘  └───────────────────────┘
                 Group      Parameter
```

- **CC (MIDI control change)**
  Any number between 0 and 119 can be used. Bear in mind, though, that CC00 and CC32 are usually used as Bank Select messages. See the manual of the external instruments being controlled for which CC numbers you can use.

- **Ch.M (MIDI Channel messages)**
  – Ch AFTER (channel Aftertouch)
  – P-AFT (polyphonic Aftertouch) Here, you can select which notes should send Aftertouch: High (highest note played), Low (lowest note), First (first note), or Last (last note). (So it is not entirely polyphonic.)
  – Pitch Bend

- **RPN (Registered Parameter Number)**
  – P.B.SENS (Pitch Bend sensitivity)
  – FINE TUNE
  – COARSE TUNE

– Settings made with MSB and LSB: You will notice that some RPN and NRPN messages already have a predefined function – much like the "common" control change messages that also contain an explanation of what they're for, e.g. "CC: BALANCE: 8" (this means "CC08 is the control change message for setting the balance"). However, both the RPN (GM system) and NRPN (GS format) sets are likely to be expanded in the future. That is why you can also define your own RPN and NRPN messages. Both are coded on two bytes: MSB and LSB. The receiving instrument will only recognize them as RPN or NRPN messages if both values have been set (correctly), hence the "NRPN▶ 0▶ 0" values, for example. See the manual (probably the fine print) of the instrument being controlled for the right values of "non-standard" RPN or NRPN parameter addresses.

Note: Some instruments only accept RPN and NRPN messages after you have initialized them for GM or GS (GM System On, GS Reset).

- **NRPN (Non-registered Parameter Number)**
  – GS: VIB RATE (GS vibrato rate)
  – GS: VIB DEP (GS vibrato depth)
  – GS: VIB DLY (GS vibrato delay)
  – GS: CUTOFF (GS cutoff)
  – GS: RESONANC (GS resonance)
  – GS: ATTACK (GS attack)
  – GS: DECAY (GS decay)
  – GS: RELEASE (GS release)
  – Settings made with MSB and LSB
  Note: For more information, see the MIDI Implementation of the connected MIDI instrument.

(*) See page 27 for how to enter SysEx values. Checksums are automatically calculated and sent.

Note: SysEx messages can only be entered manually. It is thus impossible to dump the desired SysEx messages to the A-70.

The functions assigned to the [AUX1] and [AUX2] buttons (except for SysEx messages) are meant as realtime controllers, which explains why you can't set a value here (but see below for how to use the AUX buttons). You can, however, decide on the setting range for realtime control:

5. Press CURSOR ▶ to move the cursor even farther to the left to select the following page:

```
┌──────────┐  ┌───────────────────────┐
│   E26    │  │ AUX1  ▤A***▯****¢      │
│          │  │ Range▶ ♭  0̲  ♯127      │
└──────────┘  └───────────────────────┘
```
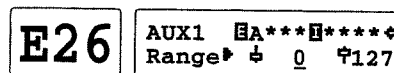
Here, you can define the minimum and maximum values the PALETTE slider assigned to a given zone can transmit in Performance mode.

6. Press the ZONE button for the zone you want to select and use the standard procedure for setting the minimum and maximum values.

By the way, it is perfectly possible to select a minimum (left) value that is higher than the maximum (right) value, in which case the operation is reversed.

Press two or more ZONE buttons if you wish to make the same settings for these zones.

Please note that the assignments of the AUX buttons are System parameters. That means you don't have to save them, but it also means they are shared by all Performances and the Manual memory. The minimum and maximum values, however, are Performance parameters and can vary from memory to memory (and between Performance and Manual modes).

Even if you use a Voice Expansion Board, Parameter Select [AUX1]/[AUX2] can also be defined for INT zones. Yet that will only affect external instruments you control using these zones (see also "Zone-to-MIDI OUT assignments" on page 31). The VE-RD1, on the other, hand, ignores all messages related to the [AUX1]/[AUX2] buttons.

Using the AUX buttons

As stated earlier, the above procedure only *defines* what the AUX buttons *allow* you to do (for each zone). As such, they do nothing it all. Instead, you have to send values for the functions "selected" with the AUX buttons:

1. Press [EDIT] again (indicator must go off) to leave the Edit mode.

2. Press Destinations [EXT] or [INT], followed by Parameter Select [AUX1] or [AUX2] (depending on which function set you wish to use).

Remember that AUX 1/2 can be defined for each zone individually.

3. Use the DATA ENTRY pad (less likely) or the PALETTE slider to set the parameters for the selected zones.

The parameter for the currently selected zone appears in the upper row of the right-hand screen. Here's an example:

```
0    AUX1[GS:Vib Rate]
     [OFF|-63|  0|   0]
```
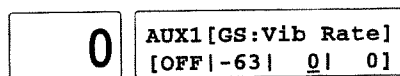
The values you set here can be saved in a Performance or will be saved automatically in Manual mode. Nice though that may sound, it also means that, after some experimenting with these functions, you may end up saving the wrong values. So be sure to double-check these values before you actually commit your settings to a Performance memory. If you only use the AUX 1/2 functions for realtime changes with no specific starting point, press the [OFF] button after selecting each zone while the above page is displayed, then save your settings. That

way, there are no undesirable "presets" in your Performance.

Note: Messages sent using Parameter Select [AUX1]/[AUX2] plus DATA ENTRY or the PALETTE SLIDERS are ignored by the VE-RD1.

8. Using Performance Chains

The A-70 lets you string together up to 64 Performances in the sequence that you require, and to save up to ten such strings as "Chains." You can use these Chains to call up non-consecutive Performances in the right order for your gig or session.

8.1 Creating a Chain

Name of the Performance currently selected   Type of the selected Chain

Number of the selected Chain

C 1 - C10

```
C 1    INITIAL DATA: <±₮>
       1◄ 34► 75: 1/ 2
```

Performance assigned to the previous step

Performance assigned to the next step

Number of Performances used in the Chain

Performance assigned to the current step

Current position

1. Select the Chain mode by pressing Function [CHAIN], and use DATA ENTRY to choose the Chain Number.

2. Press either CURSOR ▲ or ▼ (either one is OK) to enter the Chain-creation mode.

Current input mode

```
C 1    INITIAL DATA:SEL
       TOP◄  1► 34: 1/ 2
```
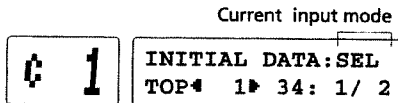
3. Start programming your Chain:

- Use CURSOR ◄/► to select a step (its number starts flashing) and [DEC]/[INC] to input a Performance number for that step. The message in the upper right corner will read SEL. This procedure is convenient for editing an existing Chain.
  Note: You cannot assign Performances to the TOP position.

- To insert a new step before an existing one, select the existing step with CURSOR ◄/►, and enter the number of the Performance memory you wish to 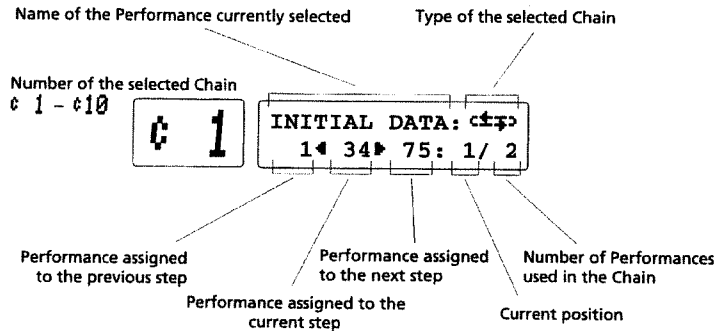assign to that step (numeric keypad). The message in the upper right corner will read INS (insert). Confirm by pressing [ENTER].
  To add new steps to a Chain, select the END position and "insert" the Performance memory number (see above).

- To remove a step and the Performance number assigned to it (RM), press [OFF]. The display will ask you to confirm this command:

```
C 1    Remove Sure?:RM
       TOP◄  1► 34: 1/ 2
```
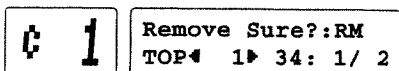
Press [ENTER] for "Yes" or [EXIT] for "No."

4. Press [EXIT] to leave the Chain creation mode.

Next, you need to specify the Chain type (EDIT: Chain, E60). Two types are available:

Loop: After cycling through the available steps (up to the END position), the sequence return to the first step (Performance).

```
        74 ◄─► 75
       /          \
      12           34
       \          /
          1
```
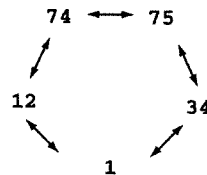
One-way: After cycling through the series of Performances to the last one, the Chain ends.

```
1 ◄─► 34  ◄─► 75  ◄─► 74  ◄─► 12
```
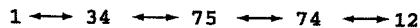
5. Change to the Edit mode, and use the menu or the shortcut number to select "Chain Mode" (EDIT: CHAIN, E60).

```
E60    Chain Mode
       ►1:Loop    [ <±₮> ]
```
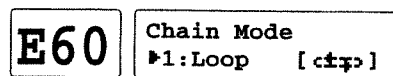
6. Use DATA ENTRY to choose the type of Chain.

These settings can be saved as a Chain (see page 60). If you don't save the settings, they will be erased when you switch off the power or select another Chain.

8.2 Using Chains

1. Press [CHAIN] (indicator must light).

2. Use DATA ENTRY to choose a Chain number.

3. Use the CURSOR ◄/► buttons to select the Performances assigned to this Chain.

The name of the selected Performance appears in the upper line of the right display.
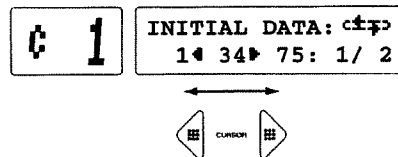
Note: If PGM DOWN has been assigned to the optional footswitch (connected to FS) (see page 35), you can decrement the step numbers by foot.

9. System & related settings

The A-70 offers a variety of settings that make it easier to use. These are saved in the System memory. There is one System memory, so any changes you make will affect all Performances as well as the Manual mode.

9.1 What would you like to see?

Display format

While working with Destinations [INT] and [EXT] and the PARAMETER SELECT pad, you can select one of two ways in which the parameter values are displayed.

Hold down [A/+] while pressing either CURSOR ◄ or ►. Here are the options:

Parameter	[A/+] + ►	[A/+] + ◄
FINE TUNE	*Bar graph	Numerical display
KEY RANGE	Note names	MIDI note numbers
VOLUME	Bar graph	Numerical display
PAN	Bar graph	Numerical display
REV SEND	Bar graph	Numerical display
CHOR SEND	Bar graph	Numerical display
MODULATE	Bar graph	Numerical display
AFTER TCH	Bar graph	Numerical display
EXPRESS	Bar graph	Numerical display
PORT TIME	Bar graph	Numerical display
ATTACK*	Bar graph	Numerical display
DECAY*	Bar graph	Numerical display
RELEASE*	Bar graph	Numerical display
BRIGHT*	Bar graph	Numerical display
PGM CHANGE	Group-Bank-Number	MIDI numbers
PATCH*	Group-Bank-Number	MIDI numbers
REVERB	Bar graph	Numerical display
CHORUS	Bar graph	Numerical display
EQUALIZER	*Bar graph	Numerical display
AUX 1/2	Bar graph	Numerical display

Please pay attention to the above button names: some refer to the INT zones (when Destination [INT] lights) and are only available if your A-70 contains a Voice Expansion Board.

Name Maps for sound identification

A very convenient function of the A-70 is the fact that program changes/bank select messages can also be named, so that you can easily identify the sounds you are after. The A-70 even provides a few preset maps for widely used Roland instruments, and also allows you to program your own maps (User 1~4).

Assigning maps to zones
(EDIT: SYS, E02)

The *N-Map Assign* parameter allows you to select a Name Map for each zone. If you are controlling a JV-1080 module via zones EXT A~D, for example, you may want to assign the JV-1080 Name Map to these zones. That will allow you to select the desired Patches by names (rather than by numbers). Please bear in mind that you can only select a Name Map

for the INT zones if no Voice Expansion Board is installed, or if you disconnect it from the keyboard (see page 57). Otherwise, the Name Map of the Voice Expansion Board will be used, which makes sense, of course: after all, you want to know which Patches are on offer.

1. Switch to the Edit mode, and use the menu or the shortcut number to select page E02.

```
┌─────┐ ┌─────────────────────┐
│ E02 │ │ N-Map Assign      ↕ │
└─────┘ │ EXT A► 1(No Asgn)   │
        └─────────────────────┘
```
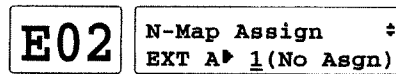
2. Press the ZONE button of the zone you want to select, then choose a map with DATA ENTRY.

The name of the selected zone appears to the right of the "►".

The following Name Maps are available.

1	No Asgn	No Name Map is used (bank select and program change are shown instead of the sound name)
2	JV-80	Presets of the JV-80
3	JV-90	Presets of the JV-90 (*)
4	JV-1080	Presets of the JV-1080 (*)
5	JD-990	Presets of the JD-990
6	SC-55	SC-55
7	SC-88	SC-88
8	P-55	P-55
9	M-SE1	M-SE1
10	M-OC1	M-OC1
11	M-VS1	M-VS1
12	M-DC1	M-DC1
13–16	USER1~4	For your own maps (see below)
17	SC-88Pro	SC-88Pro
18	JV-2080	JV-2080 module
19	JP-8000	JP-8000 Analog Modeling synthesizer

For maps indicated marked with (*), you can use the CURSOR ◄/► buttons to change the page and specify the Wave Expansion Board you are using (W-Exp):
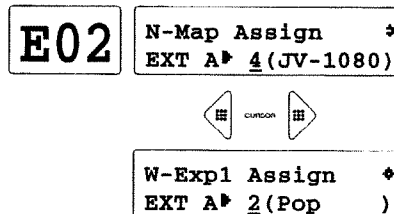
```
┌─────┐ ┌─────────────────────┐
│ E02 │ │ N-Map Assign      ↕ │
└─────┘ │ EXT A► 4(JV-1080)   │
        └─────────────────────┘
           ◄╲         ╱►
            CURSOR
        ┌─────────────────────┐
        │ W-Exp1 Assign     ↕ │
        │ EXT A► 2(Pop     )  │
        └─────────────────────┘
```

Note: When PARAMETER SELECT is used to select a sound, its name is displayed when the bank select and program change messages match up. For more information on the bank select and program change messages used by each instrument, check out the manual that came with the equipment.

Note: The Name Map settings for the zones are System parameters and thus common to all Performances and Manual mode.

Creating your own Name Maps
(EDIT: SYS, E03)

You can also program your own Name Maps, so as to be able to select the User sounds of the external instrument(s) by name. Furthermore, you can also program maps for instruments not included in the above list, of course.

1. Switch to the Edit mode, and use the menu or the shortcut number to select page E03.
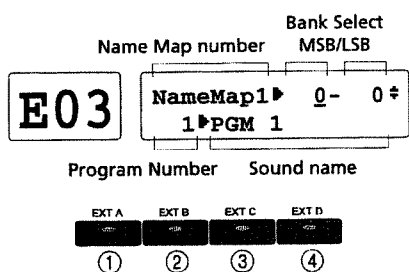
2. Press the EXT button assigned to the desired user map (see illustration: [EXT A] for USER 1, [EXT B] for USER 2, [EXT C] for USER 3, or [EXT D] for USER 4).

3. Use the CURSOR buttons and input the Bank Select MSB and LSB, as well as the program change number.

4. Use the standard naming procedure (DATA ENTRY) for entering the Tone names.

Note: If the external instrument doesn't use bank select messages, you should set MSB and LSB to OFF.

Note: The Name Map settings for the zones are System parameters and thus common to all Performances and Manual mode.

Note: When PARAMETER SELECT is used to select a sound, its name is displayed when the bank select and program change messages match up. For more information on the bank select and program change messages used by each instrument, check out the manual that came with the equipment. (However, if you select OFF for either or both bank select values, program change and bank select number no longer need to match for the names to be displayed.)

9.2 Zone comments/explanations
(EDIT: PERF: COMMON, E46)

The A-70 also provides a function that allows to to clarify what each zone does. Use this function for entering explanations like the one shown in the following illustration. To *see* those comments in a real-life situation, you need to press and hold a ZONE button until the MIDI OUT indicators start flashing. The display will then tell you what the zone in question does.

Here's how to enter comments:

1. Switch to the Edit mode, and use the menu or the shortcut number to select page E46.
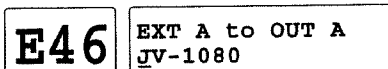
Note: If you have not yet programmed any comments/explanations, the right display will be blank.

2. Press the ZONE button assigned to the zone you wish to enter an explanation for.

Your comments may contain 17 characters x 2 lines.

9.3 Useful defaults

(EDIT: SYS, E05)

The E05 page allows you to change three default settings of your A-70. Select the settings that best suit your purpose.

1. Select the EDIT: SYS, E05 page.

See page 31 for the two possible approaches.

```
┌─────────┐  ┌─────────────────────┐
│  E05    │  │ Sys▶PowerUp  Mode‡  │
│         │  │ Power  Up▶DEF   000  │
└─────────┘  └─────────────────────┘
                PowerUp Mode ─┘│ │
                 Perf No Type ──┘ │
                    Illuminat ────┘
```

2. Use the CURSOR buttons to select a parameter, and make the settings with DATA ENTRY.

• **PowerUp Mode**
DEF/0: Performance "1" is selected every time you switch on the A-70.

LST/1: The last memory you used will be loaded (Performance, Manual, or Chain). If it was a Performance or Chain, the A-70 will load the saved version of that memory (all unsaved changes are erased at power-off).

• **Perf No Type**
This selects the way that Performance numbers are displayed.

GBN/0: Group-Bank-Number format (I11~to I88)

DEC/1: Decimal format (1~64)

• **Illuminat:** MIDI OUTPUT indicator settings
OFF/0: The indicators of the MIDI OUTPUT and ZONE buttons show which MIDI OUTput/zone is active.

ON/1: The indicators of the MIDI OUTPUT and ZONE buttons show which MIDI OUTput/zone is active, and flash when MIDI information is being sent.

9.4 LCD Contrast

(EDIT: SYS, E08)

This function is used to adjust the contrast (brightness) of the two displays.

1. Select the EDIT: SYS, E08 page.

See page 31 for the two possible approaches.

```
┌─────────┐  ┌─────────────────────┐
│  E08    │  │ LCD  Contrast    ‡  │
│         │  │ ▶ 9[DARK■◍■LIGHT]    │
└─────────┘  └─────────────────────┘
```

2. Use DATA ENTRY to adjust the contrast.

9.5 Double-click speed

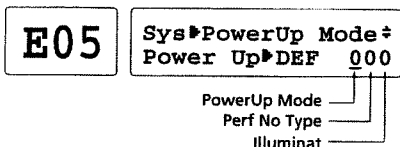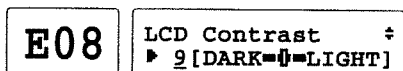(EDIT: SYS, E09)

Use this function to adjust the double-click speed, i.e. how soon you need to press the [EDIT] or [UTILITY] button the second time to be able to enter a shortcut number.

1. Select the EDIT: SYS, E09 page.

See page 31 for the two possible approaches.

```
┌─────────┐  ┌─────────────────────┐
│  E09    │  │ Dbl  Click  Speed  ▲ │
│         │  │ ▶  4[SLOW■◍■FAST]    │
└─────────┘  └─────────────────────┘
```
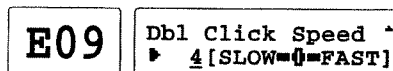
2. Use DATA ENTRY to adjust the speed. While you're doing this, the indicators on the MIDI OUTPUT switches flash to show you the current double-click speed.

Note: You can also select OFF, in which case the double-click feature is no longer available.

9.6 To CC reset or not to CC reset

(EDIT: SYS: CTRL, E32)

By default, the A-70 transmits a Reset All Controllers message every time you select another Performance. That message causes the Pitch Bend, modulation, etc. parameters of the receiving instrument to return to their default value ("0" or "no effect"), after which the new settings are sent. There may be times when you don't want this to happen – or maybe not to all zones. This parameter allows you to suppress the Reset All Controllers message and to prevent the selected zones from sending their new values whenever you select another Performance:

1. Switch to the Edit mode, and use the menu or the shortcut number to select page E32.

```
┌─────────┐  ┌─────────────────────┐
│  E32    │  │ CC  Reset  w/Perf    │
│         │  │                      │
└─────────┘  └─────────────────────┘
```
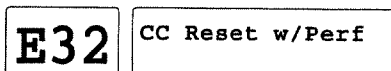
2. Use the ZONE buttons to specify which zones should (indicator lights) or should not (indicator dark) transmit a Reset All Controllers message when you select the Performance in question.

By turning off this CC Reset parameter, the Part/MIDI instrument receiving on the MIDI channel assigned to such a zone will preserve the last settings (volume, pan, modulation, expression, Pitch Bend, Aftertouch) you or your A-70 made. This is more or less the same as deactivating the "reset on stop" function of certain sequencer programs. Switch this parameter on for all zones that should update their receivers every time you select a Performance.

Note: This is a System setting that applies to all Performances (as well as the Manual mode).

10. Sequencers, drum machines, effects devices

10.1 Controlling an external sequencer

The A-70 provides several functions for controlling an external sequencer.
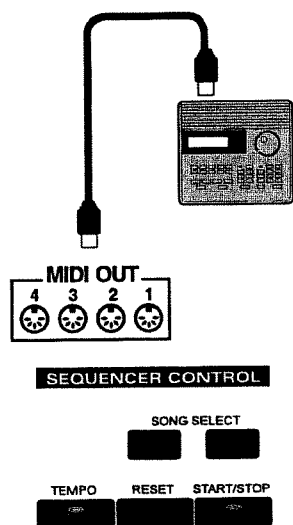
MIDI OUT

SEQUENCER CONTROL-to-MIDI OUT assignments

(EDIT: SYS, E04)

Like the zones, the SEQUENCER CONTROL buttons can be assigned to the desired MIDI OUTput(s). This selectivity may come in handy when you also control a drum machine (as sound source) and don't want it to start every time you press the A-70's [START/STOP] button.

1. Select the EDIT: SYS, E04 page.

See page 31 for the two possible approaches.
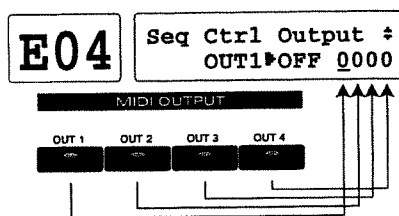
2. Press a MIDI OUTPUT button to assign the SEQUENCER CONTROL buttons to the corresponding MIDI OUTput.

The MIDI OUTput you select here will transmit a MIDI timing clock signal to which an external sequencer can be synchronized. See also "TEMPO button & setting" below. Of course, the remaining SEQUENCER CONTROL messages are also transmitted via this output.

Note: See also "Zone-to-MIDI OUT assignments" on page 31 for considerations regarding the use of the MIDI OUTputs.

Note: This is a System parameter that affects all Performances as well as the Manual mode. This setting is saved automatically.

Controlling a sequencer

The SEQUENCER CONTROL functions are available in all modes.
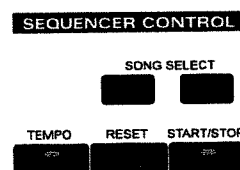
TEMPO button & setting

Pressing this button calls up the screen for setting the tempo that is transmitted as MIDI clock signals.

As always, the fact that the A-70 *transmits* MIDI clock signals does not mean the external sequencer or receiving instrument *receives* them. You will need the synchronization function of the external device to "MIDI Sync" (or "MIDI").

It goes without saying that this MIDI cock signal can also be used to synchronize any other function that relies on MIDI timing clock signals, such as the JP-8000's Arpeggiator, the JV-2080's Delay Time or LFO frequency, etc.

Seeing that the timing clock is also transmitted to the internal Voice Expansion Board (if available), you can also set the modulation of some of the VE-RD1's Patches using the [TEMPO] function.

Please note that this is the only MIDI clock signal that can be transmitted via the A-70's MIDI OUTputs. If you wish to synchronize other MIDI devices to a MIDI clock signal received via the MIDI IN2 socket, connect the external receiving devices to the A-70's MIDI THRU socket.

SEQ [TEMPO | SongNo]
[12Q(120) | OFF]
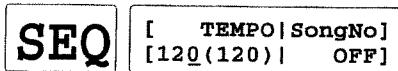
1. Use the DATA ENTRY slider to set the default tempo.

Use this value to preset the tempo for the song you wish to synchronize. If you don't need a default tempo, press the [OFF] button.

2. Use the Palette [ZONE A/BREATH] slider to set tempo changes.

You may wonder what the difference is. The default tempo is a Performance parameter that will be saved along with the other settings. The latter (value between brackets, called "Current" in the Help explanations) is a function that allows you to change the tempo in realtime. Intended for temporary changes, this value will be reset to equal the default tempo next time you select this Performance.

You can also use the DATA ENTRY slider for temporary tempo changes, thus changing the default. But doing so is a bit hazardous. If you change another setting and then decide to save your changes, you may end up with the wrong tempo.

Just for your information: the MIDI clock signal sent by the A-70 contains no time signature information.

On this page, you can also preset the song number to be transmitted every time you select this Performance (to be). Select the SongNo value by pressing CURSOR ▶ and enter the number using the DATA ENTRY pad.

Note: The default tempo and song number are Performance/Manual parameters.

RESET button

Pressing this button returns you to the start of the currently selected song (a Song Position Reset message is sent). When pressed during a performance, the external sequencer stops and returns to the beginning. Note, however, that not all sequencers or sequencer programs understand this message.

START/STOP button

This button allows you to start or stop the sequencer. After stopping the external device, will need to press [RESET] to return to the beginning of the currently selected song.

Note: If you press [START/STOP] once to start playback, its indicator remains lit until you press again – even if the external sequencer song is finished. You will need to press [START/STOP] again to make the indicator go dark.

SONG SELECT buttons

Use these buttons to select a song number (transmit a Song Select message). To check whether you've selected the right song, press [TEMPO] and watch the rightmost value in the display.

Pressing this button has no effect while playback is in progress (i.e., while the START/STOP indicator is lit).

Note: Do not forget to assign the SEQUENCER CONTROL functions to at least one MIDI OUTput. Otherwise setting them will have no effect.

10.2 Controlling an effects device/drum machine/sampler

The A-70 lets you make four sets of settings for controlling externally connected equipment like effectors or rhythm machines.
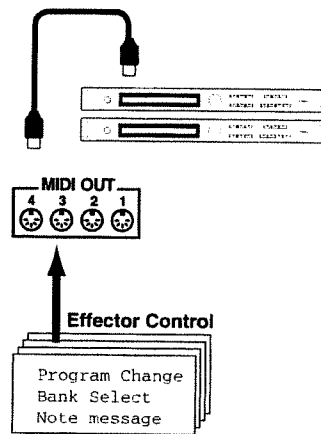
MIDI channels for controlling an effects device

(EDIT: PERF: EFFECT, E51)

The MIDI channels for the four "Effector" memories are not related to the MIDI channels of the INT and EXT zones. Seeing that MIDI only supports 16 channels, though, it would be a wise decision to assign the Effector memories to a separate MIDI output (see below).

1. Select the EDIT: PERF: EFFECT, E51 page.

See page 31 for the two possible approaches. The EXT A~D buttons are now assigned to the four internal "Effector" memories.

E51 Effector MIDI Ch⁑
Effector1▶ 9
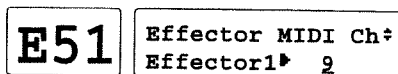
2. Press the EXT A~D button assigned to the desired Effector memory (1~4) and use DATA ENTRY to select the MIDI channel.

```
┌─────────────────────────┐
│ Effector MIDI Ch⁺       │
│ Effector1▶ 9            │
└─────────────────────────┘
    └───────┘    └───┘
    Effector    MIDI channel
         ↑
┌─────────────────────────┐
│        ZONE             │
│  EXT A  EXT B  EXT C  EXT D │
│  ▄▄▄▄  ▄▄▄▄  ▄▄▄▄  ▄▄▄▄  │
│   1     2     3     4    │
└─────────────────────────┘
```
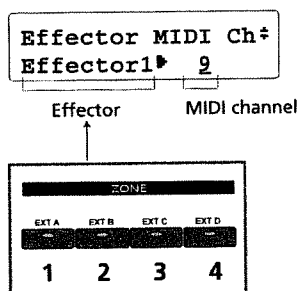
The MIDI channel assignments are Performance/Manual parameters that will be saved along with the other settings or automatically (Manual).

Effector-to-MIDI OUT assignments

(EDIT: PERF: EFFECT, E56)

Use this function to assign the Effector memories to one or more MIDI OUTputs.

Note: See also "Zone-to-MIDI OUT assignments" on page 31 for considerations regarding the use of the MIDI OUTputs.

1. Select the EDIT: PERF: EFFECT, E56 page.

See page 31 for the two possible approaches. The EXT A~D buttons are now assigned to the four internal "Effector" memories.

```
┌──────┐ ┌─────────────────────┐
│ E56  │ │ Effector Output  ⁺  │
└──────┘ │ Ef1 OUT1▶ ON 1000   │
         └─────────────────────┘
```
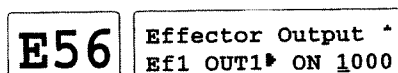
2. Press the EXT A~D button assigned to the desired Effector memory (1~4) and use the MIDI OUTPUT buttons to establish (indicator lights) or break (indicator goes dark) the connection.

You can also use the DATA ENTRY pad for assigning the Effector memories to the MIDI OUTputs. As always, the status of the MIDI OUTPUT buttons is no Performance/Manual parameter. You may have to activate the desired MIDI OUTputs manually.

These settings can be saved to a Performance memory (see page 23). As always, you don't have to save the Manual mode settings, but it would be wise to do so anyway.

Selecting effects programs via MIDI

(EDIT: PERF: EFFECT, E52, 53, and 54)

The Effector Bank MSB & LSB, and PGM functions allow you to specify the MIDI address of the effects memories that should be loaded every time you select a Performance.

You may remember that bank select MSB stands for control change CC00, while LSB represents CC32. "PGM" is short for "program change".

1. Select the EDIT: PERF: EFFECT, E52, 53 or 54 page.

See page 31 for the two possible approaches. The EXT A~D buttons are now assigned to the four internal "Effector" memories.

```
┌──────┐ ┌─────────────────────┐
│ E52  │ │ Effector Bnk MSB⁺   │
└──────┘ │ Effector1▶OFF       │
         └─────────────────────┘
┌──────┐ ┌─────────────────────┐
│ E53  │ │ Effector Bnk LSB⁺   │
└──────┘ │ Effector1▶OFF       │
         └─────────────────────┘
┌──────┐ ┌─────────────────────┐
│ E54  │ │ Effector PGM     ⁺  │
└──────┘ │ Effector1▶  1       │
         └─────────────────────┘
```

2. Press the EXT A~D button assigned to the desired Effector memory (1~4) and use the DATA ENTRY pad to enter the desired value.

If you do not wish to transmit a value for the selected parameter, press the [OFF] button.

These settings can be saved to a Performance memory (see page 23). As always, you don't have to save the Manual mode settings, but it would be wise to do so anyway.

Playing samples/drum sounds

(EDIT: PERF: EFFECT, E55)

The Effector Key function allows you to isolate one key per Effector memory from the zones and remap those keys to the desired MIDI notes. These keys will no longer be available to the zones – no matter how you set their Key Range parameters (see page 18). This can be invaluable for several applications:

- Triggering one sound of a drum machine (the bass drum, for example)
- Triggering a sample (for that impressive intro or rap/loop) (*)
- Setting a parameter on an external effects device (some effects devices indeed allow you to set the Pitch Shifter value using MIDI note messages, for example).
  (*) For this application, you may want to ignore the advice we gave you about separating effects/drum machine MIDI OUT assignments from the zones.

1. Select the EDIT: PERF: EFFECT, E55 page.

See page 31 for the two possible approaches. The EXT A~D buttons are now assigned to the four internal "Effector" memories.

2. Press the EXT A~D button assigned to the desired Effector memory (1~4).
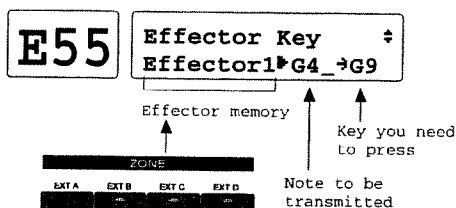
3. Use CURSOR ◄/► to select the note name to the right of the "►" symbol.

This is the MIDI note that will be sent when you press the key to the right of the "→ " symbol. If you do not wish to remap and use MIDI note messages, press the [OFF] button. Press it again if you decide to take advantage of this function after all.

4. Hold down [ENTER], and...

• ...either press a key on the A-70's keyboard, or...

• ...type in the note number ("36" for "C2", for example) using the numeric keypad and press [ENTER] once more. The A-70 will automatically convert that number to the corresponding note name. This approach may come in handy, when all the information you have refers to MIDI note numbers.

5. Press CURSOR ► to move the cursor to the note name to the right of the "→ " symbol.

6. See step (4) for how to specify a key on the A-70's keyboard.

Remember that this key will be "stolen" from the INT and EXT zones, so be sure to select a note you hardly ever use.

These settings can be saved to a Performance memory (see page 23). As always, you don't have to save the Manual mode settings, but it would be wise to do so anyway.
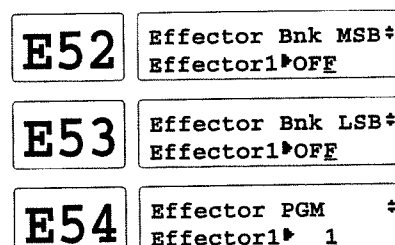
11. Working with a Voice Expansion Board

This chapter only applies to an A-70 fitted with a VE-RD1 (VE-GS1, or VE-JV1) Voice Expansion Board

11.1 Installing a Voice Expansion Board

While the A-70 is primarily a MIDI master keyboard, you can install a Voice Expansion Board to turn it into a stage piano, a synthesizer, or a GS keyboard. True to the Roland philosophy, you can install such an optional Voice Expansion Board yourself. There are a few things to bear in mind, however:

- Be sure to read the user's manual that comes with the Voice Expansion Board you purchased.
- The A-70 accepts one of the following Voice Expansion Boards:

Board	Description
VE-RD1	64-voice polyphonic board (see "VE-RD1 Patch List (Factory Set)" on page 58 for the available sounds).
VE-JV1	28-voice JV-80 synthesizer board. This board has the same sound architecture as the acclaimed Roland JV series instruments.
VE-GS1	GM/GS compatible board based on the ground-breaking Roland Sound Canvas series featuring the outstanding sounds associated with Roland's GS (General Standard) format.

1. Switch off the A-70.

2. Remove the screws of the blind on the bottom panel of the A-70.

To avoid the risk of damage to internal components that can be caused by static electricity, please carefully observe the following whenever you handle the board.

- Before you touch the board, always first grasp a metal object (such as a water pipe) to discharge any static electricity you may be carrying.
- When handling the board, grasp it only by its edges. Avoid touching any of the electronic components or connectors.

3. Connect the board as shown on the diagram.
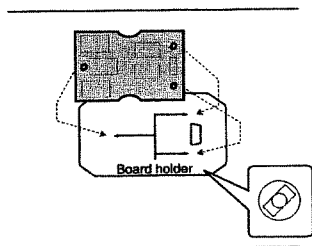
4. Securely insert the board's connector into the connector in the A-70. The three board holder pins should be protruding through the board's three holes.

Never use excessive force when installing a Voice Expansion Board. If it doesn't fit properly on the first attempt, remove the board, turn the holder pins, and try again.

5. Using the locking tool included with the board, turn the board holders clockwise just 1/4 of a turn, and the board will be fixed to the unit.

6. Finally, attach the blind again.

If you ever need to remove the board, first turn off the power to the A-70, and then remove the board by reversing the order of the steps used to install the board.

11.2 Initializing the A-70 for the Expansion Board

The A-70 also contains settings related specifically to the Voice Expansion Board. After installing a board, you should therefore initialize the A-70 and use those data as a starting point for your own settings.

Caution: This will erase your own settings. We therefore strongly advise you to dump the contents of the A-70's memories to a sequencer or data filer. See page 62.

1. Turn on the power to the A-70.

2. Double-click the Function [UTILITY] button.

3. Press [4], [4], and [ENTER] on the numeric keypad.

4. If it is all right to initialize, press [ENTER] twice.

```
U44    All IntPerf Init
       (FACTORY)  Sure?
```

11.3 Listening to the Demo Songs

1. Simultaneously press the [PGM CHANGE] and [AUX2] buttons in the Parameter Select pad.

2. Use the Sequencer Control SONG SELECT ◄/► buttons to select the demo song you want to listen to.

3. Press the Sequencer Control [START/STOP] button to start playback of the selected song.

4. Press [START/STOP] again to stop playback.

5. Press the Data Entry [EXIT] button to return to the previous mode.

The available demo songs are:

SONGS 1, 2 composed and performed by Scott Wilkie (Copyright © 1995, Scott Wilkie for Beach House Music)

SONG 3 composed and performed by Scott Tibbs (Copyright © 1995, Buoy Music)

Note: All rights reserved. Unauthorized use of this material for purposes other than private, personal, enjoyment is a violation of applicable laws.

11.4 Differences between Voice Expansion Boards

This section explains the differences between the various Voice Expansion Boards that can be installed in the A-70.

The performance data in the A-70's internal Zones is normally sent to the Voice Expansion Board installed in the unit. The flow of this performance data varies slightly from one model of Voice Expansion Board to another.

VE-RD1

The VE-RD1 can only be used on an A-90 and an A-70. That explains why the INT functions of the PARAMETER SELECT buttons correspond exactly to the VE-RD1's parameters.

See also "Using the A-70 as a stage piano".

The VE-RD1 has four Parts. You can assign whichever Patch you like to each of these Parts. *Parts* are "containers" to which you can assign a Patch and a number of settings affecting the Patche's behavior (MIDI channel, transposition, etc.).

The correspondences with the internal Zones are as follows.

Internal Zone A →	Part 1 of the VE-RD1
Internal Zone B →	Part 2 of the VE-RD1
Internal Zone C →	Part 3 of the VE-RD1
Internal Zone D →	Part 4 of the VE-RD1

See also "Using MIDI IN1 for external input (Remote)" on page 31 for important remarks about MIDI channel assignments for the INT zones.

Polyphony (VE-RD1)

The VE-RD1 is capable of generating 64 voices at the same time. These "voices" are produced by 64 tone generators. The number of *notes* that you will be able to play depends on the Patches you are using. Some of the VE-RD1's Patches require 2, 3, or even 4 polyphonic voices for every note you play because they are either layers of two or more Tones or velocity-switched Patches (whereby the sound you hear depends on how hard you strike a key).

If you select a "V2" Patch (see the list on page 58), for example, you will only be able to play 32 notes – and only if no other INT zone is active. The maximum number of notes you can play indeed also depends on the number of zones you are using. Extensive use of the Hold pedal further decreases the VE-RD1's polyphony.

But not to worry, we just wanted to explain why it is possible that certain notes may be cut off at times. On the whole, 64 polyphonic voices go a long way and should pose no polyphony problems. Just remember that massive 4-zone stacks may come in handy at times but should be avoided whenever you want to play a demanding piano part.

Assignments of the PARAMETER SELECT buttons (VE-RD1)

• PARAMETER SELECT functions after pressing Destinations [INT]:
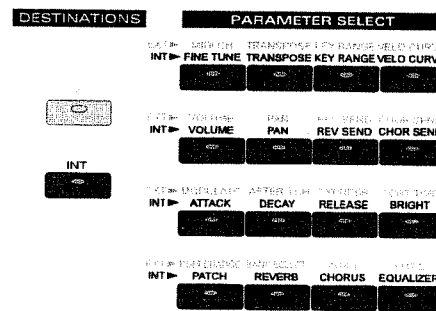
Note: If you disconnect the board from the internal zones (see "V-Exp Local Control" on page 57), or if you don't have a Voice Expansion Board installed, the INT zone PARAMETER SELECT functions are exactly the same as those of the EXT zones.

VE-GS1 and VE-JV1

The VE-GS1 (the "Sound Canvas" board) has 16 Parts, and one Tone can be assigned to each of these Parts. The Part/MIDI channel assignment is 1:1 (Part 1= channel 1..., Part 5= channel 5..., Part 16= channel 16).

The MIDI channels set for the respective zones determine which Part is assigned to which zone.

Note: The internal Zones have four Parts, so only four Parts can be controlled from the A-70.

The VE-JV1 (the "JV-80" board) has seven Parts and one Rhythm Part. MIDI receive channels 1~7 (melodic Parts) and 10 (Rhythm Part) are assigned to the respective Parts.

The MIDI channels set for the respective Zones determine which Part is assigned to what Zone.

Assignments of the PARAMETER SELECT buttons (VE-GS1/VE-JV1)

- PARAMETER SELECT functions after pressing Destination [INT]:
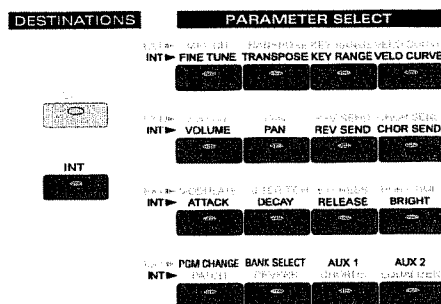
The bottom row of the PARAMETER SELECT pad is assigned to PGM CHANGE, BANK SELECT, AUX1, and AUX2, just as with the external zones. You can use AUX1 and AUX2 to control a wide variety of parameters.

Note: Be careful to only use bank select CC00 (MSB) for the VE-JV1. Otherwise the Part in question may not sound. See the booklet that comes with the VE-JV1 for details.

Note: Program changes transmitted to the VE-JV1 on MIDI channel 16 are used for selecting Performances (other sets of 7 +1 Parts, just like on the A-70).

Note: If you disconnect the board from the internal zones (see "V-Exp Local Control" on page 57), or if you don't have a Voice Expansion Board installed, the INT zone PARAMETER SELECT functions are exactly the same as those of the EXT zones.

11.5 Using the A-70 as a stage piano

This part only applies to an A-70 fitted with a VE-RD1 Voice Expansion Board. The A-70 contains 64 memories we shall call *Performances*. These Performances include settings that specify which of the 128 Patches of the VE-RD1 will be used. Selecting different sounds is thus just a matter of recalling another Performance.

Selecting sounds

**1.** Please check if the screen resembles the figure below.

The number of the currently selected Performance appears in the left (3-character) display, while its name appears in the top right corner of the right display. (Sometimes, there are also "hidden" pages. See

"3. CURSOR buttons" on page 26 for how to access them).
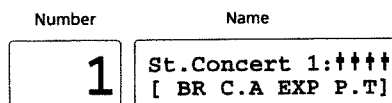
If your display doesn't look like the one shown above, please check the following:

- None of the buttons in the FUNCTION pad must light. If one of those indicators lights, turn it off by pressing its button.
- None of the PARAMETER SELECT buttons must light. Press the button in question to turn its indicator off.

2. Play a few notes on the keyboard.

3. Use the DATA ENTRY [DEC]/[INC] buttons to select other Performances. [INC] increases the number, [DEC] decreases it.
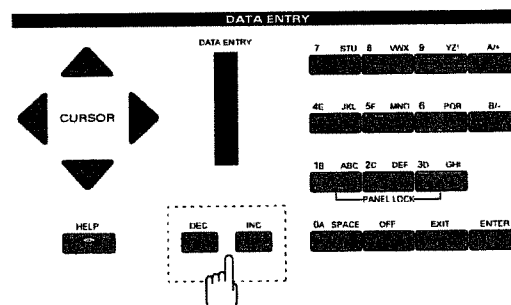
To speed up Performance selection, you can hold down the [DEC] (or [INC]) button and press the [INC] (or [DEC]) button. Yet another way of selecting Performances is by entering the desired number using the numeric key pad and confirming your selection by pressing [ENTER].

Note: See "A-70 Performance List (Factory Set)" on page 58 for more information about the Performances on offer.

Quick sound changes & layers

Thanks to its four internal (INT) zones, the A-70 allows you to play up to four different sounds simultaneously. You can assign different sounds to these internal zones and combine them in any way you like. (The "sounds" assigned to the internal zones are called *Patches*.)

You could also use the zones for switching between individual sounds while playing: just activate one INT zone at the time. Doing so allows you to prepare 64 (Performances) x 4 (Patches)= 256 different sounds.

Let's have a listen at a few Patches:

1. Use the Data Entry [DEC]/[INC] buttons to select Performance "1".

2. Double-click the Zone [INT A] button.

Its indicator lights, while the indicators of the remaining ZONE buttons go off.

3. When you play the keyboard, only the Patch assigned to INT A will sound.

4. Now first press [INT A] and then another INT button to listen to the sound assigned to the other zones. Don't forget to switch every internal zone off again before moving on to the next one.

Note: Do not press [EXT A]~[EXT D] at this stage because those buttons are assigned to the external (MIDI) zones.

5. To layer two or up to four sounds, press the corresponding INT buttons *without* switching off the other internal zones.

Switch on [INTA] and [INT B] for example.
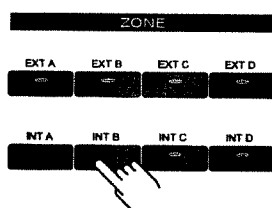
Proceeding in this fashion, you can play new sounds depending on the way you combine multiple zones.

You can also program splits, so as to play a bass with the left hand and an organ with the right hand, for example. See "Key Range (splits)" on page 18 for details.

11.6 First editing steps (VE-RD1)

Like on most Roland synthesizers and modules, VE-RD1 Performances are the highest ranking units to which you can assign up to four Patches (one for each INT zone).

Assigning Patches to the Parts

1. Start by selecting the Performance you wish to edit (see above).

For reasons of simplicity, let's use Performance "1".

As you are about to edit an internal zone, you need to assign the PARAMETER SELECT pad to the internal zones:

2. Press Destinations [INT] (indicator must light).

The main functions to look for are printed in the second row (INT▶), see "Assignments of the PARAMETER SELECT buttons (VE-RD1)".

3. Press Parameter Select [PATCH].

The left display now shows the numbers of the Patches assigned to (from left to right) INT A, B, C, and D. The Patch number assigned to the INT zone indicated by the cursor ("_") also appears in the right (3-character) display, while its name appears in the upper line of the left display.
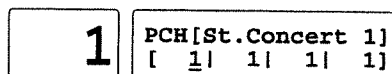
4. Double-click [INT A] if its indicator doesn't light. That way you are sure to hear the changes you are about to make.

5. Use the CURSOR ◄/▶ buttons to select the Patch assigned to zone INT A.

6. Use Data Entry [DEC]/[INC] to select another Patch (1~128).

You can also use the numeric keypad for entering the number of the desired Patch. Don't forget to confirm by pressing [ENTER].

Note: See page 58 for a list of the available Patches.

7. Now assign different Patches to the remaining zones (B~D). Remember you must first select the desired zone with the CURSOR ◄/▶ buttons.

Don't forget to double-click the INT button of the zone you wish to edit in order to hear the changes in isolation. You can layer several zones if you like by switching on two or more INT buttons.

You do not have to layer the Patches you assigned to INT A~D. Assigning different Patches to the remaining INT zones has the advantage that you can switch sounds while playing without having to select another Performance.

As a rule, it is a good idea to group as many settings as possible into one Performance because doing so

"expands" the memory capacity of your A-70 (4 Patches x 64 Performances). As long as the MIDI settings don't change and you don't want to use different 2-, 3- or 4-zone layers or splits (see below) for every song, there is no reason for "wasting" Performance memories. It may require some thorough thinking ("can I use the same MIDI settings for song X as for song Y?") but it is bound to be more rewarding in the long run.

Adding expression, etc.

See page 15 for how to use Pitch Bend, modulation, the Hold pedal, the transpose function and other realtime performance functions. Don't forget to activate an INT button, otherwise you'll control an external zone.

11.7 Sound-related settings (volume & pan)

Volume ("Patch Mix")

The T. Vol parameter allows you to specify the volume for each zone that will be used when the [TOTAL] Volume slider is set to its maximum value. See "T. Volume (zone volume)" on page 20 for details but be sure to press the Destinations [INT] button.

The [INT] Volume slider acts as additional master volume control for the Voice Expansion Board: use it to set the output level of all four Parts.


Keep in mind, though that [TOTAL] Volume is the highest-ranking volume control. If you set it to its minimum value, you will not be able to hear the Voice Expansion Board.

Stereo placement (Pan)

You can also adjust the stereo placement of the Patches by modifying their Pan value (L64~0~R63). For stereo Patches (such as the St. Concert Patches), this setting shifts the stereo image in the desired direction. Don't be surprised if such a Patch is still audible (albeit to a lesser extent) in the "other" speaker.

1. Press Destinations [INT] (indicator must light).

2. Press Parameter Select [PAN].

3. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set (INT A~D).
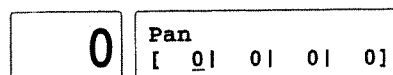
4. Enter the desired value with the Data Entry [DEC]/[INC] buttons, the [DATA ENTRY] slider, or by inputting the value via the numeric keypad and confirming with [ENTER].

You can use [A/+] and [B/−] to specify "L" or "R" ("L" means "left", and "R" stands for "right"). Press either [A/+] or [B/−] followed by [ENTER] to quickly return to the value "0" (dead center).

Transposing and fine-tuning Patches

A Patch's pitch can be modified in semitone as well as in smaller (Fine Tune) steps. While the former induces a noticeable pitch change (and will thus usually be used to transpose a Patch in octave or fifth steps), the latter broadens the sound. Combined with Pan (see above), Fine Tune allows you to create thick stereo sounds.

1. See "Setting the transposition of each zone (TRANSPOSE)" on page 14 for transposing the INT Zones.

2. Press Parameter Select [FINE TUNE].

3. Use the CURSOR ▲/▼ buttons to select the Fine Tune page.

4. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set (INT A~D).
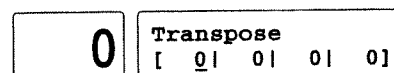
5. Enter the desired value with the DATA ENTRY pad (see page 23 for details) or the PALETTE slider assigned to the desired zone.

One cent equals 1/100th of a semitone. The setting range is −50~+50 cents.

Envelope settings (Attack, Decay, Release)

The envelope is one of the most important sound parameters because it literally makes or breaks a sound. Using the right waveform is, of course, a prerequisite for obtaining a satisfactory sound, but if the Attack value (see below) is too slow, it will be difficult to recognize a piano sound, for example. All VE-RD1 Patches come with a preset envelope that you may need to modify at times to speed up the strings, slow down the piano, or shorten the bass, for example.

That is why the VE-RD1 provides three parameters that allow you to apply relative changes to the envelope, i.e. changes that are added to or subtracted from the preset envelope values. These parameters are:

Parameter	Meaning
Attack	The speed at which a note reaches its highest volume when you strike a key.
Decay	The speed at which the volume drops to the preset "sustain" value, i.e. to the point where the volume no longer changes (for percussive sounds, such as piano, this will be 0).
Release	The time from when a key is released to when the sound stops.
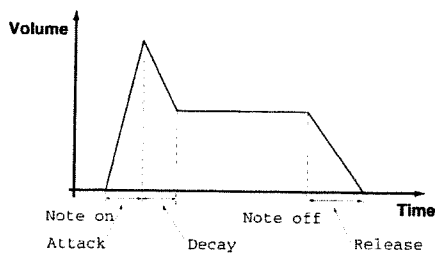
For these parameters, positive values (+) mean "slower/longer", while negative values (−) should be taken to mean "faster/shorter". Not all settings will produce audible changes. If the preset envelope already uses the maximum Attack value, for example, even "−50" will not make it faster.

1. Press Destinations [INT] (indicator must light).

2. Press Parameter Select [ATTACK] to call up the following display page:
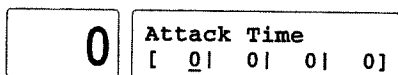
3. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set (EXT/INT A~D).

4. Enter the desired value with the DATA ENTRY pad (see page 23 for details) or the PALETTE slider assigned to the desired zone.

You can use [A/+] and [B/−] to specify "+" or "−". Press just [A/+] or [B/−] followed by [ENTER] to quickly return to the value "0" (no change).

5. Press Parameter Select [DECAY] to call up the following display page:
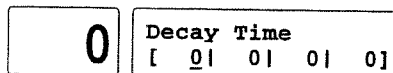
6. See steps (**3.**) and (**4.**) for how to set the desired value.

7. Press Parameter Select [RELEASE] to call up the following display page:
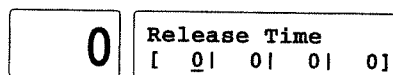
8. See steps (**3.**) and (**4.**) for how to set the desired value.

Changing the brightness

The term "brightness" refers to the "timbre" of the Patches. It affects the Cutoff frequency of the filter (TVF). Like the above parameters, Brightness is a relative setting that is added to or subtracted from the preset value. That explains why not all settings produce audible changes.

1. Press Destinations [INT] (indicator must light).

2. Press Parameter Select [BRIGHT] to call up the following display page:
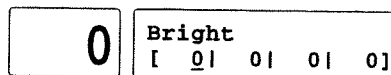
3. Use the CURSOR ◄/► buttons to select the zone whose value you wish to set (EXT/INT A~D).

4. Enter the desired value with the DATA ENTRY pad (see page 23 for details) or the PALETTE slider assigned to the desired zone.

You can use [A/+] and [B/−] to specify "+" (brighter) or "−" (mellower). Press either [A/+] or [B/−] followed by [ENTER] to quickly return to the value "0" (no change).

Adding effects

The VE-RD1 comes with three effects – Chorus, Reverb, and Equalizer.

Reverb & Chorus Send Levels

These parameters allow you to modify the Reverb and Chorus Send Levels (i.e. the amount of Reverb or Chorus effect that is added to the zone in question). See "Reverb settings" and "Chorus settings" on page 57 for how to edit the effects parameters (type, length, etc.), and page 19 for how to set the Reverb and Chorus Send Levels for each INT zone.

Double-clicking Parameter Select [REV SEND] or [CHOR SEND] will cause the indicator to flash and the Reverb/Chorus Send Levels of all four zones to turn to zero. Double clicking it again will cause the indicator to stop flashing and the Send Levels to return to the previous levels. This operation allows you to switch on/off the Reverb/Chorus effect. (When set to off, it will remain off even when you select another Performance. It will be activated again when the A-70 is switched off and on again.)

Equalizer

This three-band equalizer with parametric mid applies to all four INT zones, which is why you cannot select zones here. Use it to compensate for an exaggerated or feeble bass, mid or high-frequency response of your amplification system. For studio use, it is probably wiser to set these values to "0".
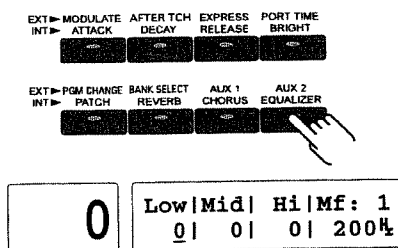
Note: The Equalizer is only available on the VE-RD1.

1. Press Destinations [INT] (indicator must light).
2. Press Parameter Select [EQUALIZER].

3. Select the frequency band you wish to set with the CURSOR ◄/► buttons.

4. Enter the desired value with the DATA ENTRY pad (see page 23 for details) or the PALETTE slider assigned to the desired zone.

You can use [A/+] and [B/–] to specify "+" (boost) or "–" (cut). Press either [A/+] or [B/–] followed by [ENTER] to quickly return to the value "0" (no change) for Low, Mid, and Hi. The settable range is –15~+15 for Low, Mid, and Hi, and 200Hz~8000Hz for Mf. The latter represents the middle frequency that can be boosted (positive values) or cut (negative values) with the Mid parameter.

VE-RD1 parameters

If you are familiar with the Roland JV series synthesizers and modules, the Reverb and Chorus parameters will be easy to understand. Like on most other instruments, there is *one* Reverb and *one* Chorus processor whose settings apply to all four VE-RD1 Parts, so be sure to program your effects in such a way as to make them generally usable – or switch of the REV or CHOR SEND parameters for Parts you do not wish to process with these effects.

These settings can be saved to a Performance memory (see page 20). As always, you don't have to save the Manual mode settings, but it would be wise to do so anyway.

Reverb settings

Here are the parameters you can set for the VE-RD1's Reverb processor.

1. Press Destinations [INT] (indicator must light).

2. Press Parameter Select [REVERB].

3. Use CURSOR ▲ to call up the display page where you can set the "Type" (Reverb type), "Levl" (output level of the Reverb or Delay sound), and "Tim" (Reverb time) parameters.
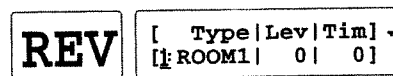
4. Use DATA ENTRY or the PALETTE sliders to make the settings for these parameters.

You can also use the PALETTE sliders ZONE A~C for setting the desired value. The rightmost slider is inactive.

- Type: There are eight types of Reverb.

1: ROOM1:	dense Reverb with short decay
2: ROOM2:	sparse Reverb with short decay
3: STGE1:	Reverb with greater main reverberation
4: STGE2:	Reverb with strong early reflections
5: HALL1	Reverb with clear reverberance
6: HALL2:	Reverb with rich reverberance
7: DELAY:	a conventional delay
8: P_DLY:	a delay with echoes that move left and right

- Levl (level): This parameter sets the output level of the Reverb processor (depending on the type you selected, this will be the Reverb or Delay "return" level).

- Tim (time): This parameter sets the Reverb Time (duration of the lingering sounds) for ROOM1~HALL2, or the Delay Time (the time interval until the first delayed sound is heard) for DELAY or P_DLY.

5. Press CURSOR ▼ to call up the following page:

```
REV   [ HF Damp|Fbk]   ▲
      [ 1: 200%|   0]
```

6. Use DATA ENTRY or the Palette ZONE A and B sliders to set these parameters.

- **HF Damp (high-frequency damp):** The lower the value you set here, the more high-frequency components are cut, resulting in a mellower Reverb/delay sound. If you don't want to cut any high frequencies, set this to "BYPASS."

- **Fbk (feedback):** This parameter only applies to the DELAY and P_DELAY algorithms (but can also be set for the other types (even though you can set it for any Type). Please note that this value is reset to "0" every time you select the DELAY or P_DELAY algorithm.

Chorus settings

Use this effect to create a "stereo" sound image or to give the impression that several instruments are playing in unison. You can also program other, more exotic, effects.

To turn a piano sound into a honky-tonk version, for example, set Rate to "8", Dep to "127", and "P-Dly & Fbk to "0".

1. Press Destinations [INT] (indicator must light).

2. Press Parameter Select [CHORUS].

3. Use CURSOR ▲ to call up the display page where you can set the "Levl" (volume of the Chorus sound), "Rate" (modulation speed, i.e. the "wobble"), and "Dep" (depth of the undulations).

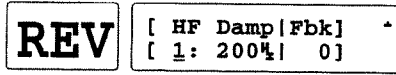**4.** Use DATA ENTRY or the PALETTE sliders to make the settings for these parameters.

You can also use the PALETTE sliders ZONE A~C for setting the desired value. The rightmost slider is inactive.

```
CHO   [Levl|Rate| Dep] ▼
      [   0|   0|   0]
```
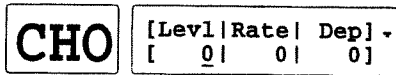
5. Use CURSOR ▲ to call up the display page where you can set the "P-Dly" (pre-delay: the interval between the original sound and the first Chorus signals), Fbk" (Feedback, allows you to program Flanger-like effects), and "Out" (how Chorus and Reverb are combined). Use DATA ENTRY or the PALETTE sliders to make the settings for these parameters.

```
CHO   [P-Dly|Fbk| Out] ▲
      [   0|  0 |1:MIX
```
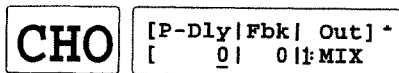
Meaning of the Out settings:

- *1: MIX:* The Chorus and Reverb outputs are kept separate (parallel connection).
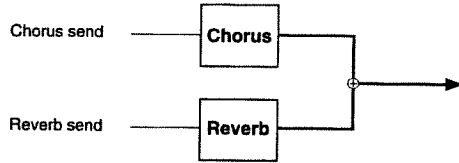
- *2: REV:* The Chorus's output is connected to the Reverb processor (series). If you set the Reverb Lev parameter to "0", there will be no Chorus either.
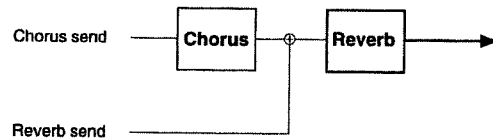
- *3: M+R:* Combination of 1 and 2. The Chorus signal is split and directly transmitted to the OUTPUT jacks as well as to the Reverb effect.
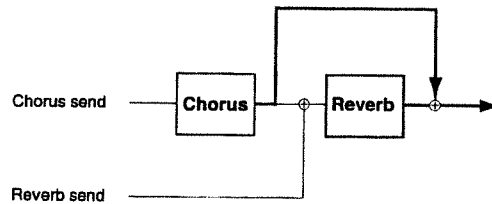
11.8 Using the Voice Expansion Board as sound module

If you take advantage of the MIDI IN2 connector (see "MIDI IN2: working with external sequencers" on page 31), you can use the Voice Expansion Board as tone generator and even disconnect it from the internal zones.
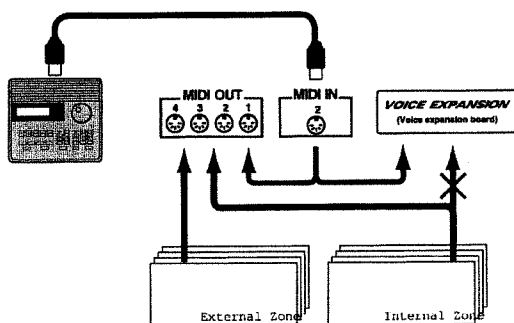
Depending on the board you are using, up to 16 multitimbral Parts can be played back:

• VE-RD1: The VE-RD1 is four-part multi-timbral. The MIDI channels assigned to the INT zones become the MIDI receive channels for the Parts.

• VE-GS1: The VE-GS1 can be controlled as a 16-part, multi-timbral sound source.

• VE-JV1: The VE-JV1 can be controlled as a multi-timbral sound source with seven melodic Parts and one Rhythm Part.

V-Exp Local Control
(EDIT: SYS, E07)

Disconnecting the Voice Expansion Board from the INT zones may be necessary if you need more than four zones for controlling your MIDI rig and don't want the data received via MIDI IN2 to interfere with your other MIDI messages. When V-Exp Local Control is off, the VE-RD1's Parts are set to channels 1, 2, 3, and 4, respectively.

1. Switch from the Performance (or Manual) mode to the Edit mode (see "Functions for assignable controllers" on page 32 for the two possible approaches) and select "V-Exp Local Ctrl".
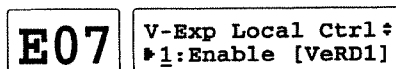
2. Use DATA ENTRY to select "2: Disable" to break the link between the INT zones and the Voice Expansion Board. (The model name of the installed Voice Expansion Board appears at the bottom right of the right-hand.)

Note: This is a System setting that affects all Performances as well as the Manual mode.

When you disconnect the Voice Expansion Board from the INT zones, they function exactly like the EXT zones. In that case, the upper row names of the PARAMETER SELECT also apply to the INT zones (as if the A-70 didn't contain an expansion board). Furthermore, you can then assign Name Maps to the INT buttons (see "Name Maps for sound identification" on page 40).

11.9 Master Tune
(UTILITY: INIT: SYS, U43)

Like any electronic instrument, you can tune the Voice Expansion Board installed into the A-70, which may be necessary for accompanying acoustic instruments (or cassettes) that cannot be tuned.

1. Change to the Utility mode, and use the menu or the shortcut to select "INIT System&Ctrl".
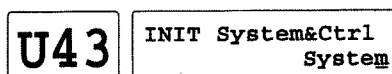
2. Use the DATA ENTRY pad to select "V-EXP Master Tune", then press [ENTER].
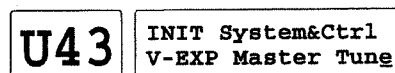
3. Use the DATA ENTRY pad (probably [DEC]/[INC]) to set the Master Tune value and press [ENTER].

If you change your mind about setting the Master Tune value, press [EXIT] instead. The setting range is 452.6~427.4Hz.
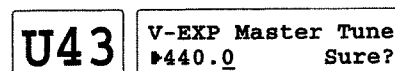
Note: This is a System setting that affects all Performances as well as the Manual mode.

11.10 A-70 Performance List (Factory Set)

No.	Name	No.	Name	No.	Name	No.	Name
1	St.Concert 1	17	E.Grand 80	33	Pno & Str	49	Warm Strings
2	St.Concert 2	18	RD1000 Pno3	34	Pno & Choir	50	Syn.Str 1
3	St.Concert 3	19	E.Grand	35	Pno & Hmng	51	Syn.Str 2
4	St.SemiGrd 1	20	Suitcase	36	Piano/Bass	52	OB Soft Pad
5	St.SemiGrd 2	21	Mr.Suitcase	37	SoftDist Bee	53	LFO Strings
6	Euro Piano 1	22	Stage Rhodes	38	E.Organ	54	A90 Prologue
7	Euro Piano 2	23	DynoRhodes 1	39	Perc Bee	55	Beauty Vox
8	Semi Grand 1	24	DynoRhodes 2	40	60s Organ x3	56	Synth Vox x4
9	Semi Grand 2	25	DynoRhodes 3	41	Vibe&Marimba	57	Pulse Vox
10	Semi Grand 3	26	Wurly	42	Clavi x3	58	A90 Hamming
11	Full Grand 1	27	E.Piano 1	43	PulseKey x3	59	Dawn 2 Dusk
12	Full Grand 2	28	E.Piano 2	44	BrassSect x4	60	Flange Pad 1
13	Full Grand 3	29	D50 EP	45	Bass&Lead 1	61	7th Sand
14	JV80 Piano	30	D50 Stack	46	Bass&Lead 2	62	E.Pno Pad
15	Bright Piano	31	Stack X	47	Bass&Lead 3	63	Sweep Waltz
16	Honky Tonk	32	Stack Piano	48	St.Strings	64	LFO Pad x4

11.11 VE-RD1 Patch List (Factory Set)

| No.	Name	V	No.	Name	V	No.	Name	V	No.	Name	V
1	St.Concert 1	2	33	SA E.Grand 1	1	65	60s Organ 2	1	97	Square Pad	2
2	St.Concert 2	2	34	SA E.Grand 2	3	66	Sqr Organ	2	98	EPno Pad	2
3	St.Concert 3	2	35	CP E.Grand	2	67	Vibe	2	99	7th Sand	4
4	St.Concert 4	2	36	SA Rhodes 1	2	68	Warm Vibes	2	100	Sweep Pad	2
5	St.Concert 5	2	37	SA Rhodes 2	3	69	AmbienceVibe	3	101	A90 Prologue	2
6	St.Concert 6	2	38	Suitcase	2	70	Dyna Marimba	1	102	A90 Rand Pad	2
7	St.Concert 7	2	39	STAGE Rhodes	1	71	Clav 1	2	103	LFO Strings	2
8	St.Concert 8	2	40	Mr.Suitcase	3	72	Clav 2	2	104	A-90 Aurora	3
9	St.Concertff	1	41	Rhodes p	1	73	Clav 3	2	105	A-90 Waltz	4
10	St.SemiGrd 1	2	42	Rhodes m	1	74	Juno Clav	1	106	A-90 Strobe	2
11	St.SemiGrd 2	2	43	Rhodes f	1	75	Poly Synth	2	107	Fooled Again	1
12	St.SemiGrd 3	2	44	DynoRhodes 1	3	76	Pulse Key 1	3	108	Beauty Vox	2
13	St.SemiGrd 4	2	45	DynoRhodes 2	3	77	Pulse Key 2	1	109	Syn Vox 1	1
14	Euro Piano 1	1	46	Wurly	1	78	Square Key	2	110	Syn Vox 2	1
15	Euro Piano 2	1	47	Wurly p	2	79	St.Strings	2	111	Angel Ooohz	2
16	Euro Piano 3	2	48	Wurly mf	2	80	Warm Strings	2	112	Heaven	1
17	Euro Piano 4	2	49	Wurly f	2	81	Slow Strings	2	113	Sawteeth	3
18	Full Grand 1	2	50	D-50 EPiano1	1	82	Strings	1	114	Pulse Lead	4
19	Full Grand 2	2	51	D-50 EPiano2	2	83	OB Thick Pad	3	115	Synth Lead 1	2
20	Full Grand 3	2	52	D-50 Stack	4	84	OB Soft Pad	3	116	Synth Lead 2	1
21	Full Grand 4	2	53	Like Dee	2	85	Soft Pad	1	117	GR Lead	2
22	Full Grand 5	2	54	FM EPiano 1	3	86	Pulse Pad	4	118	20 Years ago	3
23	Full Grand 6	2	55	FM EPiano 2	4	87	SynStrings 1	2	119	SquareLead	2
24	Semi Grand 1	1	56	FM EP 3_1	1	88	SynStrings 2	2	120	Finger Bass1	1
25	Semi Grand 2	1	57	FM EP 3_2	1	89	SynStrings 3	1	121	Finger Bass2	2
26	Semi Grand 3	2	58	FM EP 3_3	1	90	After Rave	2	122	Pick Bass	1
27	Semi Grand 4	2	59	FM EP 3_4	1	91	JP-8Haunting	4	123	Ac.Bass	2
28	Semi Grand 5	2	60	B-3 Organ 1	2	92	Synth Brass1	2	124	Wonder Bass	2
29	Semi Grand 6	2	61	B-3 Organ 2	2	93	Synth Brass2	1	125	Super JX Bs	2
30	JV80 Piano 1	2	62	B-3 Organ 3	1	94	Synth Brass3	1	126	Synth Bass	1
31	JV80 Piano 2	2	63	B-3 Organ 4	1	95	Synth Brass4	1	127	Rubber Bass	2
32	JV80 Piano 3	2	64	60s Organ 1	1	96	Dawn 2 Dusk	3	128	Pedal Bass	2

V : number of voices

12. Housekeeping (Write, Copy, etc.)

Settings that you've edited (changed) can –and should– be saved. After all, any changes carried out in Performance/Chain mode will be lost when you select another Performance/Chain memory or switch off the A-70. The Manual mode and System settings, however, will be memorized automatically. See also "Performance or Manual mode?" on page 8.

Please note that the mode you are in (Performance, Manual, or Chain) when you select some of the following functions is critical for which settings are saved.

12.1 Naming your settings
(EDIT: PERF: COMMON, E41)

Naming a Performance
This function lets you assign a name to a Performance. Don't forget to save your settings (that also include the name).

1. Check whether all FUNCTION indicators are dark (which means that you're in Performance mode).

2. Select the EDIT: PERF: COMMON, E41 page. See page 28 for the two possible approaches.

E41	Performance Name ▾
	▶Initial Data
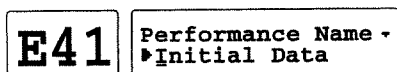
3. Use DATA ENTRY to input the Performance name (see page 24 for how to enter text).

Naming the Manual settings
You can also assign a name to the settings in Manual mode. This name is automatically memorized and will be used as Performance name when you save the Manual settings to a Performance memory.

1. Check whether the Function [MANUAL] button's indicator lights (which means that you're in Manual mode).

2. Select the EDIT: PERF: COMMON, E41 page. See page 28 for the two possible approaches.

E41	Performance Name ▾
	▶VE-RD Init
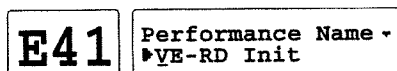
3. Use DATA ENTRY to input the Performance name (see page 24 for how to enter text).

12.2 Saving settings
(UTILITY: WRITE, U10)

Temporary area to Performance (Temp To)
This function lets you save settings in the Temporary area (edit buffer) to memory as a Performance.

1. Check whether all FUNCTION indicators are dark (which means that you're in Performance mode).

2. Press (or double-click) the [UTILITY] button, and use the menu (or enter the shortcut number) to select the following display page:

U10	Temp To 1
	▶Initial Data
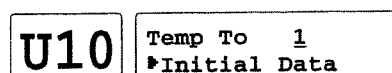
3. Use the DATA ENTRY pad to select the Performance memory where you wish to save your settings (1~64).

The number of the selected memory is displayed in the upper line of the right display. The name of the settings that currently reside in that Performance memory appear in the lower line of the right display.

Note: If you go ahead, you will overwrite the settings in the selected target memory.

4. Press [ENTER]. A confirmation message asking you if you want to save the Performance appears. Press [ENTER] for "Yes" or [EXIT] for "No".

U10	Performance Write
	Temp→ 1 Sure?
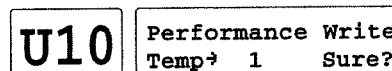
Manual settings to Performance (Man To)
This function lets you save settings of the Manual mode to a Performance memory.

1. Check whether the Function [MANUAL] button's indicator lights (which means that you're in Manual mode).

2. Press (or double-click) the [UTILITY] button, and use the menu (or enter the shortcut number) to select the following display page:

U10	Man To 1
	▶Initial Data
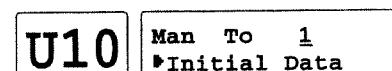
3. See steps (3.) and (4.) above.

Saving a Chain (Temp to ¢)

This function lets you save Chain settings.

1. Check whether the Function [CHAIN] button's indicator lights (which means that you're in Chain mode).

2. Press (or double-click) the [UTILITY] button, and use the menu (or enter the shortcut number) to select the following display page:

```
┌──────┐ ┌─────────────────────┐
│ U10  │ │ Temp To ¢ 1         │
│      │ │ ▶Internal Chain 1   │
└──────┘ └─────────────────────┘
```
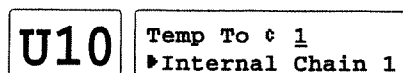
3. See steps (3.) and (4.) above.

12.3 Copying settings

Copying Performances

(UTILITY: CPY: PERF, U21)

This function allows you to copy the settings from one Performance to another. As you will see in a minute, you can also decide to copy only the settings of a given zone or Effector memory (see page 45), which may come in handy when you need the same settings for several Performances.

1. Check whether all FUNCTION indicators are dark (which means that you're in Performance mode).

2. Press (or double-click) the [UTILITY] button, and use the menu (or enter the shortcut number) to select the following display page:

```
┌──────┐ ┌─────────────────────┐
│ U21  │ │ ┌ 1:Initial Data    │
│      │ │ ┗ 1:Initial Data    │
└──────┘ └─────────────────────┘
```
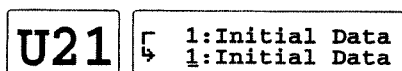
3. Use the CURSOR ◄/► buttons and the DATA ENTRY pad to select the Performance to be copied (upper line) and the Performance you wish to copy your settings to (lower line)

4. Use the ZONE and MIDI OUTPUT buttons to select the settings that you want to copy.

Here's how the buttons work:

```
┌─────────────────────────────────┐
│    ■■■ MIDI OUTPUT ■■■           │
│  OUT 1   OUT 2   OUT 3   OUT 4   │
│  ■(1)■  ■(2)■  ■(3)■  ■(4)■      │
│      Effector 1–4 settings       │
└─────────────────────────────────┘
```

```
┌─────────────────────────────────┐
│    ■■■ ZONE ■■■                  │
│  EXT A   EXT B   EXT C   EXT D   │
│  ■■■■  ■■■■  ■■■■  ■■■■          │
│                                  │
│  INT A   INT B   INT C   INT D   │
│  ■■■■  ■■■■  ■■■■  ■■■■          │
│   Settings of the desired zone(s)│
└─────────────────────────────────┘
```
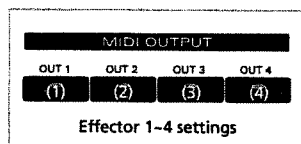
- ZONE buttons: Use these buttons to select the zones whose settings you wish to copy. A flashing indicator means that the settings of that zone will be copied.

- MIDI OUTPUT buttons: Use these buttons to select the Effector memories whose settings you wish to copy. A flashing indicator means that the settings of that zone or Effector memory will be copied.
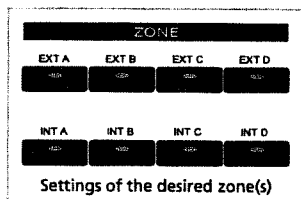 Note: All selected settings (with the exception of the System parameters that are shared by all above memories) are copied.

5. Press [ENTER]. A confirmation message asking you if you want to go ahead with copying appears. Press [ENTER] for "Yes" or [EXIT] for "No."

```
┌──────┐ ┌─────────────────────┐
│ U21  │ │ Performance Copy    │
│      │ │   1→ 1      Sure?    │
└──────┘ └─────────────────────┘
```
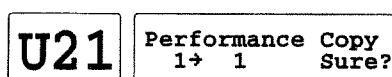
Copying Chains

(UTILITY: CPY: CHAIN, U21)

This function copies the settings from one Chain to another.

1. Check whether the Function [CHAIN] button's indicator lights (which means that you're in Chain mode).

2. Change from the Chain mode to the Utility mode, and use the menu or the shortcut to select the page for copying Chains.

```
┌──────┐ ┌─────────────────────┐
│ U21  │ │ ┌¢ 1:Int Chain  1   │
│      │ │ ┗¢ 1:Int Chain  1   │
└──────┘ └─────────────────────┘
```
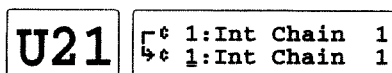
3. Use the CURSOR ◄/► buttons and the DATA ENTRY pad to select the Chain to be copied (upper line) and the target Chain memory (lower line).

4. Press [ENTER]. A confirmation message asking you if you want to go ahead with copying appears. Press [ENTER] for "Yes" or [EXIT] for "No."

12.4 Initializing (Factory or Initial)

Use one of the following procedures to initialize some or all settings of the A-70. As you will notice, you are given the opportunity to single out the settings you really do wish to initialize. We therefore urge you to consider all the options on offer.

Before initializing whatsoever, however, you may wish to archive your settings using a MIDI sequencer, a computer or a MIDI data filer. See "Bulk Dump: external storage" on page 64 for details.

Initializing the Temporary Performance or Chain area

(UTILITY: INT: TMP, U41)

This function allows you to recall the factory settings for the Temporary Performance or Chain memory. You can even decide to only initialize the settings of one zone or Effector memory.

If your A-70 contains a Voice Expansion Board, you can specify which default settings to use: those of the board (Factory) or those of the A-70 itself. The former would appear a wise choice for the INT zones.
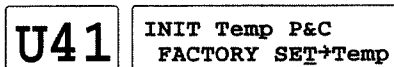
1. Change to the Utility mode, and use the menu or the shortcut to select "Init Temp P&C".

```
U41  | INIT Temp P&C
     | FACTORY SET→Temp
```

2. Use the ZONE and MIDI OUTPUT buttons to select the items you want to initialize.

The ZONE buttons allow you to specify the zones. Select the Effector memories with the MIDI OUTPUT buttons. See page 62 for details.

3. Use DATA ENTRY to choose whether to use to the default settings of the Voice Expansion Board (if available, "FACTORY SET") or of the A-70 itself ("INITIAL DATA").

4. Press [ENTER]. A confirmation message asking you if you want to go ahead with initialization appears. Press [ENTER] for "Yes" or [EXIT] for "No."

Since this initialization only bears on the Temporary area, nothing is destroyed (provided you saved your last changes). To keep the new (initialized) settings, however, you will have to save them. See page 60.

Initializing the Manual settings

(UTILITY: INT: MAN, U42)

This function initializes the settings in the Manual mode to their factory-default values. Though you can specify which items to initialize (some or all zones, some or all Effector memories), there is only one data set that can be loaded (the A-70's settings).

1. Change to the Utility mode, and use the menu or the shortcut to select "Init Manual Perf".
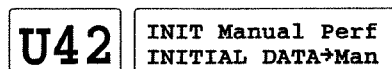
```
U42  | INIT Manual Perf
     | INITIAL DATA→Man
```

2. Use the ZONE and MIDI OUTPUT buttons to select the items you want to initialize.

The ZONE buttons allow you to specify the zones. Select the Effector memories with the MIDI OUTPUT buttons. See page 62 for details.

3. Press [ENTER]. A confirmation message asking you if you want to go ahead with initialization appears. Press [ENTER] for "Yes" or [EXIT] for "No."

Initializing the System settings

(UTILITY: INT: SYS, U43)

This function initializes the System settings (except the User Name Maps) to their factory-default values.

1. Change to the Utility mode, and use the menu or the shortcut to select "INIT System&Ctrl."

```
U43  | INIT System&Ctrl
     |            System
```
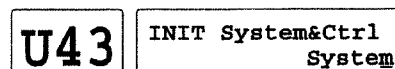
2. Use the DATA ENTRY pad to choose the exact System parameter group you want to initialize:

- **System:** All System settings except the User Name Maps and controller assignments.
- **Control Assign:** Controller assignments (see page 32).
- **System+Ctrl:** All system settings except the User Name Maps
- **V-EXP Master Tune :** See page 58.
3. Press [ENTER]. A confirmation message asking you if you want to go ahead with initialization appears. Press [ENTER] for "Yes" or [EXIT] for "No."

Initializing all memories (IAll)

(UTILITY: INT: I-ALL, U44)

This function returns the 64 Performances and 10 Chains stored in the internal memory to their factory-default values. Again, you could restrict this initialization to just a few zones or Effector memories, while you can also choose between the A-70's presets and the factory settings of the Voice Expansion Board you are using.

1. Change to the Utility mode, and use the menu or the shortcut to select "Init Int All P&C".

```
U44  | INIT Int All P&C
     | FACTORY SET→IAll
```

2. Use the ZONE and MIDI OUTPUT buttons to select the items you want to initialize.

The ZONE buttons allow you to specify the zones. Select the Effector memories with the MIDI OUTPUT buttons. See page 62 for details.

3. Use DATA ENTRY to choose whether to use to the default settings of the Voice Expansion Board (if available, "FACTORY SET") or of the A-70 itself ("INITIAL DATA").

4. Press [ENTER]. A confirmation message asking you if you want to go ahead with initialization appears. Press [ENTER] for "Yes" or [EXIT] for "No."
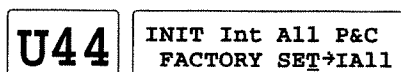
12.5 Bulk Dump: external storage

You can send the contents of the A-70's memories to a sequencer or another MIDI device that can record MIDI Bulk (SysEx) data. Data that has been recorded in this way can be received via MIDI IN2 at any time.

Note: The contents of the internal memory are overwritten by any data that is received.

First of all, you need to set the Device ID (EDIT: SYS, E01). This is the identification number of the desired A-70 in the (unlikely) event you are using several A-70s. We thus recommend you do not change this number unless you have a specific reason for doing so.

1. Change to the Edit mode, and use the menu or the shortcut to select the E01 page.

```
E01  | Ctrl Ch |Dev ID ▾
     | ►16     |►17
```
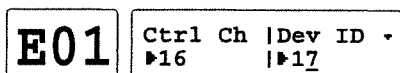
2. Use the CURSOR buttons to move the cursor to the right, set the Device ID using the DATA ENTRY pad (the initial setting is "17").

Note: If you're exchanging data between two A-70s, they should both be set to the same device ID.

Note: The Device ID is a System setting that will be saved automatically. It applies to all memories.

3. Change to the Utility mode, and use the menu or the shortcut to select "Bulk Dump".

```
                          User Name Maps ─────────┐
        All Performances and Chains ──────────┐   │
              Controller assignments ──────┐  │   │
                                           │  │   │
U50  | Bulk Dump                           ↓  ↓   ↓
     | TmpP&C►OFF 000000
Performance or Chain in Temporary area ──┘│ │
                       Manual settings ───┘ │
                       System settings ─────┘
```
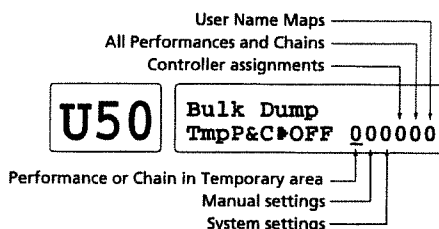
4. Use the CURSOR ◄/► buttons to select the data type (see the above illustration) and [DEC]/[INC] to specify whether ("1") or not ("0") these settings should be included in the Bulk Dump.

Don't forget to switch on the MIDI OUTput to which your sequencer/computer, etc., is connected.

5. Press [ENTER]. A confirmation message asking you if you want to send the data appears. Press [ENTER] for "Yes" or [EXIT] for "No".

```
U50  | Bulk Dump
     |          Sure?
```
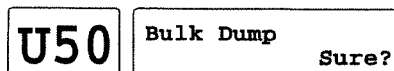
13. Appendix

If no sound is produced, or if you suspect there is a problem, check the points described here first. If you can't solve the problem, contact the store where you purchased the A-70, or your nearest Roland Service Station.

13.1 Troubleshooting

No sound when the keys are played

Is the volume turned down too low?
→ Check the settings of the [INT] and [TOTAL] sliders on the A-70, as well as the following volume settings: T.Vol (Parameter Select [VOLUME]), the connected MIDI instruments, and the connected amps or mixers.

Is expression turned down too low?
→ Check the setting of the EXPRESS slider on the A-70.

Is a Voice Expansion Board installed?
→ The OUTPUT and PHONES jacks only work if you install a Voice Expansion Board.

Are all the connections correct?
→ If you can hear sounds through headphones, it may mean that a cable is damaged, or the amp or mixer is malfunctioning. Check your cable connections and equipment again.

Are the MIDI send and receive channels set correctly?
→ Check whether the transmit channels of the A-70's zones match the receive channels for the Parts of the MIDI instruments and the Voice Expansion Board.

Are the zones or the MIDI OUTputs turned off?
→ No performance data is output if all ZONE or MIDI OUTPUT indicators are dark. Switch on the zones and activate the MIDI OUTput(s) you wish to use.

Are the keys you're playing outside the zone range?
→ Check the PARAMETER SELECT [KEY RANGE] settings.

→ If only one or a maximum of four notes don't seem to work, see "Playing samples/drum sounds" on page 46 and select "OFF" for the Effector Key parameter of the four Effector memories.

Is Local Control turned off?
→ If "Local KBD Sw" (EDIT: PERF: COMMON, E43) is set to "OFF," the A-70's keyboard becomes inactive. Check the Zone settings.

→ If "V-Exp Local Ctrl" (EDIT: SYS, E07) is set to "Disable", the Voice Expansion Board cannot be controlled from the A-70. To allow control from the A-70's keyboard, set this parameter to "Enable".

Wrong pitch

Is the FINE TUNE setting for the internal zones correct?
→ Check the PARAMETER SELECT [FINE TUNE] setting (for the internal Zones).

Are Pitch Bend messages reset to the central (neutral) value?
→ This can easily happen if Pitch Bend is assigned to a controller other than WHEEL1 or the BEND lever. Double-click the [PANIC] button, set the Pitch Bend messages to the center value, and check the minimum and maximum values of the controller to which Pitch Bend is assigned (the central value is 64).

Is TRANSPOSE active?
→ Check the settings of the Parameter Select [TRANSPOSE] function and the [TRANSPOSE] button.

Sound doesn't stop

Has a MIDI cable become disconnected?
→ Check the MIDI cable connections, and double-click [PANIC].

13.2 Error messages

Message appearing at power-up

Internal Battery LOW!
The A-70's backup battery is almost depleted.

→ Have it replaced by the nearest Roland Service Center.

Messages about MIDI

MIDI Buffer Full
An excessive amount of MIDI data has been received by the A-70.

→ Reduce the amount of MIDI data from the transmitting device.

MIDI Communication Error
A MIDI cable may have been disconnected or damaged.

→ Check whether the cables are in good working order and that all the connections are secure.

Excl:Check Sum Error

The checksum of the received SysEx data was wrong.

→ Check the checksums for the data being sent and carry out the operation again. If this doesn't stop the message from reappearing, check the MIDI cable connections.

Other messages

Now Chain Mode Can't Edit Perf

An attempt was made to edit a Performance while in Chain mode.

→ Performances cannot be edited while in Chain mode. Select the Performance mode, then change to Edit mode.

14. Specifications

A-70 Expandable Controller

- Keyboard: 76 keys (weighted synthesizer action; velocity and channel Aftertouch)

- Zones: Internal x4 (also usable for external devices), External x4

- Internal memory
  System Setup: 1

  User Name Maps: 4

  Preset Name Maps: 9

  Performances: 64

  Chains: 10

  Manual: 1

- Display: 3 characters (backlit LCD), 17 characters, 2 lines (backlit LCD)

- Nominal output level and impedance: -10 dBm/300 Ω (only if optional Voice Expansion Board is installed)

- Recommended load impedance: 10kΩ or greater

- Connectors: MIDI (IN x2, THRU, OUT x4), Foot Controller (FC), Foot Switch (FS), Total Volume pedal, Hold pedal, Output (L(Mono), R), Phones, AC Inlet (AC 230 V, AC 240 V)

- Power Supply: AC 100 V, 117 V, AC 230 V or AC 240 V

- Power Consumption: 15W (AC 100 V), 17W (AC 117 V), 20 W (AC 230/240 V)

- Dimensions:
  1245 (W) x 357 (D) x 136 (H) mm

  49 (W) x 14-1/16 (D) x 5-3/8 (H) inches

- Weight: 16 Kg

- Accessories:
  Owner's Manual

  Power Cord (AC 230 V, AC 240 V)

- Options:
  Pedal Switch (DP-6/DP-2, BOSS FS-5U), Stereo headphones (RH-20/80/120), Expression pedal (EV-5), Audio connecting cable (PJ-1M, PCS-100PW), MIDI/SYNC cable (MSC-15/25/50), Voice expansion board (VE series)

0 dBm = 0.775 Vrms

Note: In the interest of product improvement, the specifications and/or contents of this package are subject to change without prior notice.

MIDI Implementation Chart

Expandable Controller

Model A-70

MIDI Implementation Chart

Date : June 1997

Version : 1.00

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	1–16	1–16	
	Changed	1–16	1–16	Memorized
Mode	Default	Mode 3	Mode 3	
	Messages	x	Mode 3, 4(M=1)	* 3
	Altered	* * * * * * * * * * * * *		
Note Number :		0–127	0–127 * 2	
	True Voice	* * * * * * * * * * * * *	0–127 * 2	
Velocity	Note ON	O	O * 2	
	Note OFF	O	O * 2	
After Touch	Key's	O * 1	O * 2	
	Ch's	O * 1	O * 2	
Pitch Bend		O * 1	O * 2	
Control Change	0–119	O *1		
	1		O *2	Modulation
	2		O *2	Breath Type
	4			Foot Type
	5		O *2	Portamento time
	6, 38		O *2	Data entry
	7		O *2	Volume
	8		O *2	balance
	10		O *2	Panpot
	11		O *2	Expression
	64		O *2	Hold 1
	65		O *2	Portamento
	66		O *2	Sostenuto
	67		O *2	Soft
	69		O *2	Hold 2
	84		O *2	Portamento control
	91		O (Reverb) *2	Effect1 depth
	93		O (Chorus) *2	Effect3 depth
	98, 99		O *2	NRPN LSB, MSB
	100, 101		O *2	RPN LSB, MSB
Prog Change	: True #	O * * * * * * * * * * * * *	O 0–127	Prog. 1–128
System Exclucive		O	O	
System Common	: Song Pos	x	x	
	: Song Sel	O	x	
	: Tune	x	x	
System Real Time	: Clock	O	x	
	: Commands	O	x	
Aux Message	: All sound off	O *1	O *2	
	: Reset all controllers	O *1	O *2	
	: Local ON/OFF	O *1	x	
	: All Notes OFF	O *1	O (123–127) *2	
	: Active Sense	O *1	O	
	: Reset	x	x	
Notes		* 1 O x is selectable. * 2 Indicates an A-70 Equipped with VE-RD1. * 3 Recognized as M=1 even if M≠1.		

Mode 1 : OMNI ON, POLY   Mode 2 : OMNI ON, MONO   O : Yes

Mode 3 : OMNI OFF, POLY   Mode 4 : OMNI OFF, MONO   X : No

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Information

When you need repair service, call your local Roland Service Station or the authorized Roland distributor in your country as shown below.

ARGENTINA
Instrumentos Musicales S.A.
Florida 638
(1005) Buenos Aires
ARGENTINA
TEL: (01) 394 4029

BRAZIL
Roland Brasil Ltda.
R. Coronel Octaviano da Silveira
203
05522-010 Sao Paulo BRAZIL
TEL: (011) 843 9377

CANADA
Roland Canada Music Ltd.
(Head Office)
5480 Parkwood Way
Richmond B. C., V6V 2M4
CANADA
TEL: (0604) 270 6626

Roland Canada Music Ltd.
(Toronto Office)
Unit 2, 109 Woodbine Downs
Blvd, Etobicoke, ON M9W 6Y1
CANADA
TEL: (0416) 213 9707

MEXICO
Casa Veerkamp, s.a. de c.v.
Av. Toluca No. 323
Col. Olivar de los Padres
01780 Mexico D.F. MEXICO
TEL: (525) 668 04 80

La Casa Wagner de
Guadalajara s.a. de c.v.
Av. Corona No. 202 S.J.
Guadalajara, Jalisco Mexico
C.P.44100 MEXICO
TEL: (03) 613 1414

PANAMA
Productos Superiores, S.A.
Apartado 655 - Panama 1
REP. DE PANAMA
TEL: 26 3322

U. S. A.
Roland Corporation U.S.
7200 Dominion Circle
Los Angeles, CA. 90040-3696,
U. S. A.
TEL: (0213) 685 5141

VENEZUELA
Musicland Digital C.A.
Av. Francisco de Miranda,
Centro Parque de Cristal,
Nivel C2 Local 20
Caracas VENEZUELA
TEL: (02) 285 9218

AUSTRALIA
Roland Corporation
Australia Pty. Ltd.
38 Campbell Avenue
Dee Why West. NSW 2099
AUSTRALIA
TEL: (02) 982 8266

NEW ZEALAND
Roland Corporation (NZ) Ltd.
97 Mt. Eden Road, Mt. Eden,
Auckland 3, NEW ZEALAND
TEL: (09) 3098 715

CHINA
Beijing Xinghai Musical
Instruments Co., Ltd.
2 Huangmuchang Chao Yang
District, Beijing, CHINA
TEL: (010) 6774 7491

HONG KONG
Tom Lee Music Co., Ltd.
Service Division
22-32 Pun Shan Street, Tsuen
Wan, New Territories,
HONG KONG
TEL: 2415 0911

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PT Galestra Inti
Kompleks Perkantoran
Duta Merlin Blok E No.6—7
Jl. Gajah Mada No.3—5,
Jakarta 10130,
INDONESIA
TEL: (021) 6335416

KOREA
Cosmos Corporation Service
Station
261 2nd Floor Nak-Won Arcade
Jong-Ro ku,
Seoul, KOREA
TEL: (02) 742 8844

MALAYSIA
Bentley Music SDN BHD
No.142, Jalan Bukit Bintang 55100
Kuala Lumpur, MALAYSIA
TEL: (03) 2443333

PHILIPPINES
G.A. Yupangco & Co. Inc.
339 Gil J. Puyat Avenue Makati
Metro Manila 1200,
PHILIPPINES
TEL: (02) 899 9801

SINGAPORE
Swee Lee Company
BLOCK 231, Bain Street #03-23
Bras Basah Complex,
SINGAPORE 0718
TEL: 3367886

Cristofori Music Pte Ltd.
335, Joo Chiat Road
SINGAPORE 1542
TEL: 3450435

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Siruba Enterprise (Taiwan)
Co., LTD.
Room. 5, 9fl. No. 112 Chung Shan
N.Road Sec.2
Taipei, TAIWAN, R.O.C.
TEL: (02) 561 3339

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Bangkok 10100, THAILAND
TEL: (02) 2248821

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Bad Al Bahrain Road,
P.O.Box 20077
State of BAHRAIN
TEL: 211 005

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Mir Emad Ave. No. 15, 10th street
P. O. Box 15875
4171 Teheran, IRAN
TEL: (021) 875 6524

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Halilit P. Greenspoon &
Sons Ltd.
8 Retzif Ha'aliya Hashnya St.
Tel-Aviv-Yafo ISRAEL
TEL: (03) 6823666

JORDAN
Amman Trading Agency
Prince Mohammed St.
P. O. Box 825
Amman 11118 JORDAN
TEL: (06) 641200

KUWAIT
Easa Husain Al-Yousifi
P.O. Box 126 Safat
13002 KUWAIT
TEL: 5719499

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A. Chahine & Fils
P.O. Box 16-5857 Gergi Zeidan St.
Chahine Building, Achrafieh
Beirut, LEBANON
TEL: (01) 335799

OMAN
OHI Electronics & Trading Co.
LLC
P. O. Box 889
Muscat Sultanate of OMAN
TEL: 706 010

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Badie Studio & Stores
P.O.Box 62,
DOHA QATAR
TEL: 423554

SAUDI ARABIA
Abdul Latif S. Al-Ghamdi
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Middle East Commercial Center
Al-Khobar Dharan Highway
W/hamood st.
P. O. Box 3631 Al-Khober
31952 SAUDIARABIA
TEL: (03) 898 2332

SYRIA
Technical Light & Sound
Center
Khaled Ebn Al Walid St.
P.O.Box 13520
Damascus - SYRIA
TEL: (011) 2235 384

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Barkat Sanayi ve Ticaret
Siraselvier Cad. Guney Ishani No.
86/6 Taksim,
Istanbul TURKEY
TEL: (0212) 2499324

U.A.E
Zak Electronics & Musical
Instruments Co.
Zabeel Road, Al Sherooq Bldg.,
No. 14, Grand Floor
DUBAI U.A.E.
P.O. Box 8050 DUBAI, U.A.E
TEL: (04) 360715

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Al Fanny Trading Office
9, Ebn Hagar Ai Askalany Street,
Ard El Golf, Heliopolis,
Cairo, 11341 EGYPT
TEL: (02) 4171828
         (02) 4185531

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P.O Box 12183 Moi Avenue
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House Sir William Newton Street
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25 Rue Jules MermanZL
Chaudron - BP79 97491
Ste Clotilde REUNION
TEL: 28 29 16

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11 Melle Street (Cnr Melle and
Juta Street)
Braamfontein 2001
Republic of SOUTH AFRICA
TEL: (011) 403 4105

Paul Bothner (PTY) Ltd.
17 Werdmuller Centre
Claremont 7700
Republic of SOUTH AFRICA
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Neu-Rum Siemens-Strasse 4
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A–6040 Innsbruck AUSTRIA
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Oevel-Westerlo BELGIUM
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UL. Rabkorovskaya 17
220001 MINSK
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Radex Sound Equipment Ltd.
17 Diagorou St., P.O.Box 2046,
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TEL: (02) 453 426
         (02) 466 423

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DK-1023 Copenhagen K.
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Les Echets Miribel FRANCE
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Roland Scandinavia As,
Filial Finland
Lauttasaarentie 54 B
Fin-00201 Helsinki, FINLAND
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22844 Norderstedt, GERMANY
TEL: (040) 52 60090

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54 St.
106 82 Athens, GREECE
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H-2046 Torokbalint, HUNGARY
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IRELAND
The Dublin Service Centre
Audio Maintenance Limited
11 Brunswick Place
Dublin 2 Republic of IRELAND
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20020 Arese Milano, ITALY
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Lilleaker
N-0216 Oslo NORWAY
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03624 Warszawa POLAND
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Caius - Tecnologias Audio e
Musica , Lda.
Rue de Catarina 131
4000 Porto, PORTUGAL
TEL: (02) 38 4456

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Petroshop Ltd.
11 Sayanskaya Street
Moscow 11531, RUSSIA
TEL: 095 307 4892

Slami Music Company
Sadojava-Triumfalnaja st., 16
103006 Moscow, RUSSIA
TEL: 095 209 2193

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Danvik Center 28 A, 2 tr.
S-131 30 Nacka SWEDEN
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Musitronic AG
Gerberstrasse 5,
CH-4410 Liestal, SWITZERLAND
TEL: (061) 921 1615

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TIC-TAC
Mira Str. 19/108
P.O.Box 180
295400 Munkachevo, UKRAINE
TEL: (03131) 414-40

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For Nordic Countries

Apparatus containing Lithium batteries

ADVARSEL!
Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

VARNING!
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!
Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VAROITUS!
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

For E.C. Countries

This product complies with EC directives
- LOW VOLTAGE 73/23
- EMC 89/336"

Dieses instrument entspricht folgenden EG-Verordnungen:
- NIEDRIGE SPANNUNG 73/23
- EMC 89/336"

Cet instrument est conforme aux directives CE suivantes:
- BASSE TENSION 73/23
- EMC 89/336"

Questo prodotto é conforme alle seguenti direttive CEE
- BASSA TENSIONE 73/23
- EMC 89/336"

Dit instrument beantwoordt aan de volgende EG richtlijnen:
- LAGE SPANNING 73/23
- EMC 89/336"

Este producto cumple con las siguientes directrices de la CE
- BAJO VOLTAJE 73/23
- EMC 89/336"

$C\epsilon$

For the USA

FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Canada

NOTICE

CLASS B This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B   AVIS

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Règlement des signaux parasites par le ministère canadien des Communications.

Roland®

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