Roland®

A-37

MIDI KEYBOARD CONTROLLER

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.

For Canada

CLASS B **NOTICE**

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.

For E.C. Countries

This product complies with EC directives
- EMC 89/336"

Dieses instrument entspricht folgenden EG-Verordnungen:
- EMC 89/336"

Cet instrument est conforme aux directives CE suivantes:
- EMC 89/336"

CE

Questo prodotto é conforme alle seguenti direttive CEE
- EMC 89/336"

Dit instrument beantwoordt aan de volgende EG richtlijnen:
- EMC 89/336"

Este producto cumple con las siguientes directrices de la CE
- EMC 89/336"

Roland

A-37

MIDI CONTROLLER

Owner's Manual

Thank you, and congratulations on your choice of the Roland A-37 MIDI Controller. The A-37 is a powerful, easy-to-operate, dedicated keyboard controller for MIDI sound modules (whether or not they are GM2/GM/GS compatible). Please take the time to read through this Owner's Manual. That way, you can feel assured that you understand every feature the A-37 offers, and will enjoy many years of trouble-free operation.

The Roland A-37 is a MIDI keyboard controller. It does not contain any sound-generating circuitry. It is designed to transmit note messages, program changes, bank select messages as well as a variety of other MIDI messages (such as Reverb and Chorus Send levels) to an external sound module.

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-37's keyboard.
- ...say "sequencer" when referring to both hardware sequencers (like the Roland MC-80) and computers with sequencer software.
- ...talk about "MIDI instruments" to signify both isolated ("monotimbral") instruments and parts/timbres/voices/multi channels of a multitimbral module or synth.

The contents of the illustrations appearing in this manual may differ slightly from what you see when you start using your instrument.

Before using this instrument, carefully read the sections entitled "Using the unit safely" and "Important notes". These sections provide important information concerning the proper operation of the A-37. Be sure to keep this manual in a safe place for future reference.

USING THE UNIT SAFELY

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠WARNING and ⚠CAUTION Notices

⚠WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠ CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

⚠	The △ symbol alerts the user to important instructions or warnings.The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
⃠	The ⃠ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
●	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING

⚠WARNING

- Before using this instrument, make sure to read the instructions below, and the Owner's Manual.
- Do not open (or modify in any way) the instrument, and avoid damaging an optional adapter.
- Do not attempt to repair the instrument, or replace parts within it. Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.
- Never use or store the A-37 in places that are:
  - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are
  - Damp (e.g., baths, washrooms, on wet floors); or are
  - Humid; or are
  - Exposed to rain; or are
  - Dusty; or are
  - Subject to high levels of vibration.
- When using an optional adaptor, make sure the line voltage at the installation location matches the input voltage specified on the name plate.
- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the instrument.
- Immediately turn the power off, remove the adaptor from the outlet, and request servicing by your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page when:
  - Objects have fallen into, or liquid has been spilled onto the instrument; or
  - The instrument has been exposed to rain (or otherwise has become wet); or
  - The instrument does not appear to operate normally or exhibits a marked change in performance.

⚠WARNING

- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit.
- Protect the instrument from strong impact.
  Do not drop it!
- When using an optional adaptor, do not force it to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through.
- Before using the instrument in a foreign country, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

⚠ CAUTION

- The instrument and the optional adaptor should be located so their position does not interfere with their proper ventilation.
- Whenever the instrument is to remain unused for an extended period of time, disconnect the optional adaptor if you have one.
- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children.
- Never climb on top of, nor place heavy objects on the instrument.
- Never handle the batteries or optional adaptor with wet hands when plugging into, or unplugging from, an outlet or the A-37.
- Before cleaning the A-37, turn off the power and unplug the optional adaptor from the outlet.

Important notes

In addition to the items listed under "USING THE UNIT SAFELY" (page 2), please read and observe the following:

Power supply

- The A-37 can be operated using batteries or an optional adaptor. Be careful to insert the batteries the right way around. If you prefer to use an adaptor, be sure to purchase a Roland ACA model.
- Before connecting the A-37 to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to other devices.

Placement

- Using the A-37 near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this instrument; or move it farther away from the source of interference.
- This instrument may interfere with radio and television reception. Do not use it in the vicinity of such receivers.
- Do not expose the A-37 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 instrument.

Maintenance

- For everyday cleaning wipe the A-37 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 instrument's memory may be lost when it is sent for repairs. Important data should always be backed up via MIDI (see p. 12). 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.

Additional precautions

- Please be aware that the memory contents can be irretrievably lost as a result of a malfunction, or the improper operation of the instrument. To protect yourself against the risk of losing important data, we recommend that you periodically save a backup copy of important data in the instrument's memory.
- Use a reasonable amount of care when using the instrument's buttons, other controls, and jacks/connectors. Rough handling can lead to malfunctions.
- Never strike or apply strong pressure to the display.
- When connecting/disconnecting MIDI 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.
- 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.

Contents

1. The A-37 in a nutshell

Four keyboard modes

The A-37's semi-weighted 76-note keyboard can be used in Layer, Split, and Whole modes.

Perfect control

The A-37 puts you in control of all things MIDI in your keyboard rig. Velocity sensitivity, Aftertouch, Modulation, and Pitch Bend are built in – and can be set for the Upper and Lower sections independently. Then there is also a DATA ENTRY slider that can be assigned to any control change number between CC00 and CC119. Finally, the A-37 sports connectors for an optional Sustain foot switch and an expression pedal.

Of course, you can also transpose the Upper and Lower sections – either in octave or semitone steps. This would allow you, for instance, to play a meaningful bass line with your right hand and a solo part with your left.

128 Patch memories

The A-37 comes with 128 Patch memories where you can save almost all settings, plus the MIDI channels for the Upper and Lower sections, and Bank Select/Program Change numbers to be transmitted on both section channels (where applicable) whenever you select the Patch in question.

Once you have used up all 128 internal Patch memories and need even more setups, you can archive your existing settings via MIDI (Bulk Dump function).

Two independent MIDI loops and sequencer control

The A-37 comes with two MIDI OUT sockets (A and B). By assigning an "A" channel (1A~16A) to the Upper and/ or Lower section, you tell the A-37 to transmit the related note and other MIDI messages to its MIDI OUT A socket. Select a "B" channel (1b~16b) if you wish to control a separate MIDI rig via MIDI OUT B.

You can also set the tempo for an external sequencer and store that value in a Patch – along with the setting that specifies whether such messages should be transmitted to the MIDI OUT A or B socket – or both.

Supports Roland's GS Format

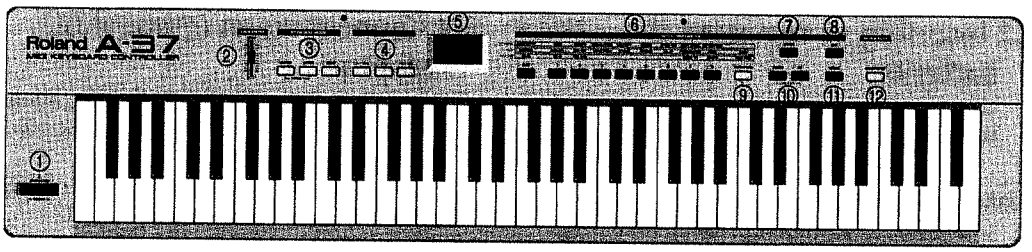
The GS Format is a standardized set of specifications for Roland's sound sources which defines the manner in which multitimbral sound modules will respond to MIDI messages. All devices compatible with the GS Format bear the GS logo. Every module or instrument bearing the GS logo will respond in the same way to the MIDI messages sent from the A-37.

All Roland GS sound modules also fully support Level 1 of the General MIDI System. The A-37 is also GM2-compatible.

Important note

When using an AC adaptor, use only the specified device (Roland ACA series). Use of any other AC adaptor could result in damage, malfunction or electric shock.

2. Panel descriptions



① BENDER/MODULATION lever

Use this lever to transmit Pitch Bend (left/right movements) or Modulation messages (CC01, movements towards the back of the A-37).

② DATA ENTRY slider

This slider can be used to transmit the assigned MIDI messages in realtime.

③ KEYBOARD MODE buttons

Press one of these buttons to select a Whole mode, or the Layer or Split mode. See page 8.

④ EDIT buttons

Press one of these buttons ([CONTROL], [DATA], or [PRG CHG]) to select the corresponding EDIT level. You can then use the numeric keypad to call up the parameter you wish to set.

⑤ Display

This three-character display keeps you posted about the selected Patch memory, the tempo, or the parameter value you set.

⑥ A/B button, numeric keypad (PATCH/PARAMETER)

If none of the EDIT buttons lights, the buttons [A/B] and [1]~[8] allow you to enter the number of the desired Patch memory (two banks of 64 memories each). After pressing one of the EDIT buttons, the buttons [A/B], [1]~[8] and [TRANSPOSE] (which then functions as [9]) can be used for selecting the desired parameter (see p. 9).

⑦ ENTER button

Press this button to confirm a setting or a selection.

⑧ EXIT button

Press this button to leave the currently selected EDIT level, or to ignore the value you just set (thus returning to the previously set value).

⑨ TRANSPOSE button

Usually, this button allows you to switch the A-37's keyboard transposition on and off and for setting the transposition interval. When [CONTROL], [DATA], or [PRG CHG] lights, however, this buttons can be used for selecting a parameter (in which case it functions as [9]).

⑩ DOWN/UP buttons

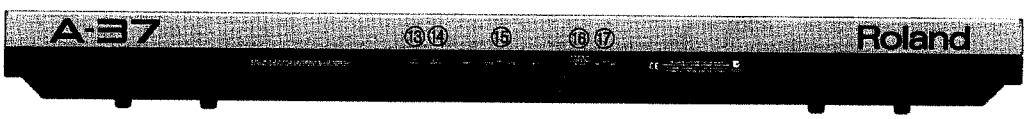
These buttons can be used for entering Patch memories, EDIT parameters, or parameter values. In certain cases, pressing them simultaneously will switch the selected parameter on and off. Pressing them simultaneously recalls the default value of the selected parameter.

⑪ WRITE button

Press this button to save the current settings to one of the A-37's Patch memories. Writing a Patch also involves pressing other buttons (see p. 16).

⑫ SEQUENCER [START/STOP] button

This button allows you to transmit MIDI Start and Stop messages to start or halt playback of an external sequencer.



⑬ FOOT PEDAL socket

This is where you can connect an optional Roland EV-5 or FV-300L expression pedal.

⑭ HOLD SWITCH socket

This is where you can connect an optional DP-2, DP-6, or BOSS FS-5U footswitch to sustain the notes you are playing (Hold, CC64).

⑮ MIDI THRU, OUT B, OUT A, IN sockets

Connect these sockets to the MIDI sockets of the devices you wish to control, or the devices that should transmit MIDI messages to the A-37.

⑯ DC IN socket

This is where you can connect an optional ACA adaptor.

⑰ POWER switch

Set this switch to the ON position to switch the A-37 on. Select the OFF position to power off your A-37.

3. The basics

3.1 Inserting or replacing the batteries

The A-37 can be powered either by batteries or an AC adaptor.

Battery replacement

Six AA batteries are required to run the A-37 on battery power. We recommend the use of alkaline batteries because they will provide a more stable, long-lasting source of power. With alkaline batteries, you can expect about 25 hours of continuous operation, although this depends on how the A-37 is being used.

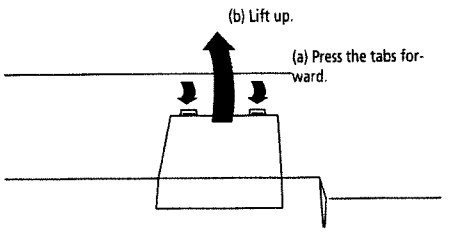
Note: Avoid using new batteries together with old ones. In addition, avoid mixing different types of batteries (e.g. regular carbon and alkaline batteries).

Note: When replacing batteries, be sure to insert them correctly (ensure correct polarity).

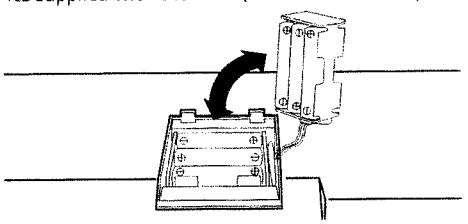
Note: Remove the batteries whenever the A-37 is to remain unused for an extended period of time.

(1) Switch off the A-37.

(2) Remove the battery cover located on the bottom of the instrument.



(3) Take out the battery case, then insert the six batteries supplied with the A-37 (three on either side).



(4) Insert the battery case and close the battery cover.

3.2 Connecting an optional AC adaptor

Be sure to use only the specified AC adaptor (Roland ACA series). Using any other type may cause malfunction or electric shock.

Note: If the A-37 is to remain unused for an extended period of time, unplug the adaptor.

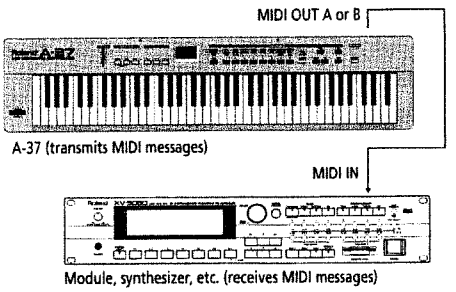
(1) Switch off the A-37.

(2) First connect the AC adaptor to the A-37's DC IN socket, then connect the large plug to a power outlet.

3.3 Connecting the A-37

Note: Switch off both the A-37 and the external instrument(s) before establishing or breaking the MIDI connections.

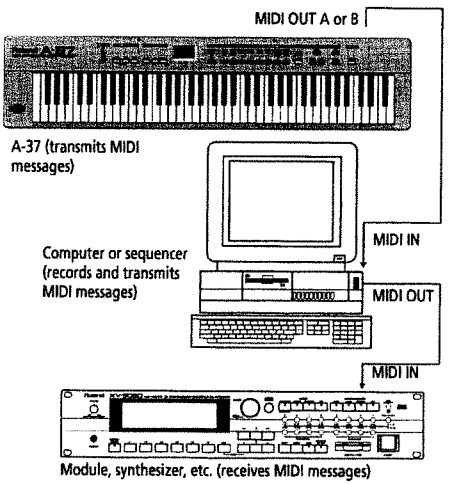
The A-37 is a MIDI controller. It contains no sound-generating circuits of its own. You need to connect it to at least one external MIDI instrument in order to hear what you are playing. Here are the basic connections:



Note: Do not forget to connect the module, synthesizer, etc., to an amplifier. See its manual for details.

Working with a computer or sequencer

If you want to use the A-37 as Master keyboard for recording applications that involve a computer with sequencing software or a hardware sequencer (like the Roland MC-80), here is the most useful connection system:



This setup only works as expected if the following conditions are met:

- The computer (if that is what you use) must be equipped with a MIDI interface.
- You need to switch on the sequencer's MIDI Soft Thru/MIDI Echo function. Otherwise you won't hear what you are playing. (See the sequencer's/software's manual for details.)

Note: The MIDI channel you set on the A-37 (see p. 11) may be changed to another number by the sequencer. If that is not the case, be sure to set at least one of the A-37's zones to the MIDI channel the module (not the sequencer) is receiving on.

Note: Yet other configurations are possible, but the above usually cover most of your MIDI needs. You could connect the MIDI IN socket of a second module to the a MIDI THRU socket of the module pictured above for an even larger system.
Or you could establish the following connection:
[Sequencer] MIDI OUT → [A-37] MIDI IN
[A-37] MIDI THRU → [Module] MIDI IN
(Alternative: [A-37] MIDI OUT A → [Module] MIDI IN, see also "About MIDI Thru" (p. 16)).

Note: It is also possible to use the A-37 MIDI OUT A and MIDI OUT B sockets simultaneously for controlling two separate MIDI chains.

3.4 Powering up

Power to the various devices should be turned on in the appropriate order. First, turn on the units that transmit MIDI messages (computer, A-37). Next, turn on the sound module(s)/synthesizers, then the amplification system.

Set the A-37's power switch (rear panel) to the ON position.

Power off your system in the reverse order.

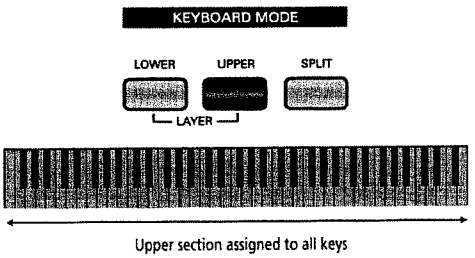
Note: The A-37 is equipped with a circuitry protection feature. At power-up, a brief interval is required before it will operate normally.

Note: If the A-37 is powered using batteries, be sure to switch it off whenever you are not planning to use it for a while (5 minutes or more). But before doing so, you may wish to save the current settings to a Patch memory (see p. 16).

4. Keyboard modes

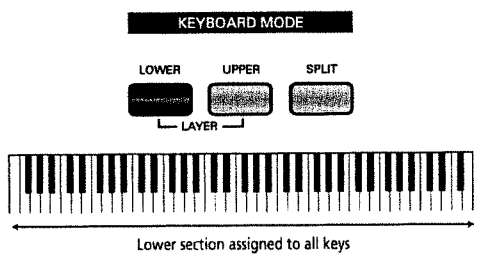
Your A-37 has three buttons that allow you to select one of four Keyboard modes. The KEYBOARD MODE determines how many zones and/or MIDI channels can be used simultaneously.

Whole Upper



This mode means that the Upper section is assigned to the entire keyboard. All messages generated on the A-37 are therefore transmitted on the Upper channel. Press the [UPPER] button to select this mode.

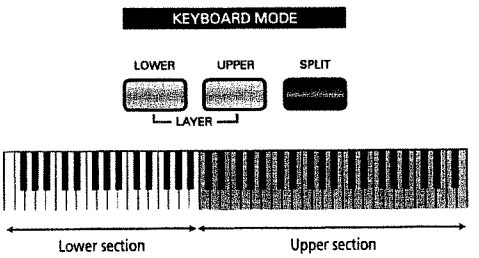
Whole Lower



This mode means that the Lower section is assigned to the entire keyboard. All messages generated on the A-37 are therefore transmitted on the Lower channel. Press the [LOWER] button to select this mode.

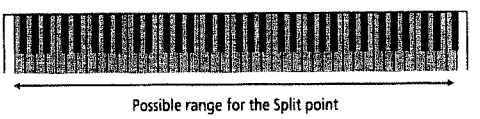
Alternately pressing [UPPER] and [LOWER] allows you to control different MIDI instruments as and when needed. Example: you could use the Lower section for controlling an organ sound of one module (or part), and the Upper section for playing a lead synthesizer part using a different MIDI instrument.

Split



In Split mode, the Lower section is assigned to the left half of the keyboard, while the Upper section is assigned to the right. This allows you to control two different MIDI instruments via separate channels (Lower and Upper). Press the [SPLIT] button to select this mode.

At first, the Split point is located at the "C" key slightly left off center. This key is called the C4. Here's how to select another split point between the "F1" and the "Gb7" (see the following illustration):



(1) Press and hold the [SPLIT] button.

(2) While still holding that button, press the key that should become the lowest note of the Upper section.

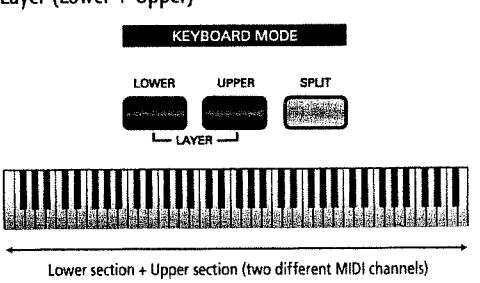
You can also use the [DOWN]/[UP] buttons.

(3) Release both the [SPLIT] button and the key you pressed.

Note: This setting can be saved to a Patch. Your KEYBOARD MODE selection is also saved.

Note: To return to the default setting (C4), simultanesouly press [DOWN]/[UP].

Layer (Lower + Upper)

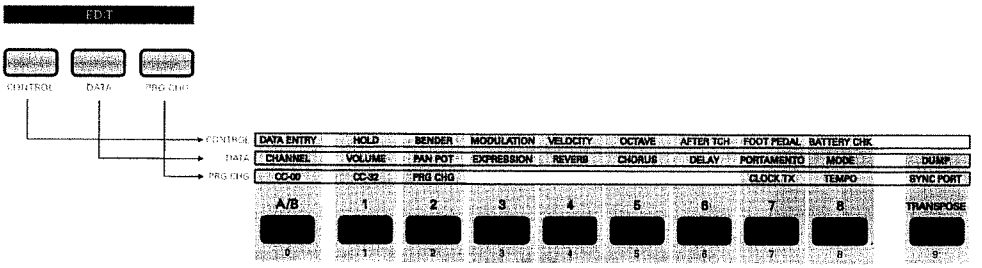


In Layer mode, the A-37 transmits on two MIDI channels simultaneously (assigned to Lower and Upper). Every action on the A-37 is thus translated into two MIDI message strings. Hold down [LOWER] while pressing [UPPER] to select this mode.

To leave it, press [LOWER], [UPPER], or [SPLIT].

5. Configuring the A-37

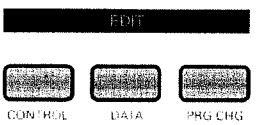
Your A-37 comes with a great many MIDI parameters, or message types that can be transmitted so as to control your MIDI rig to your liking. Most of the following parameters can be set for the Upper and Lower sections independently - and most of them can be saved to a Patch memory (see p. 16).



Note: The available EDIT parameters will be presented in the order they can be selected. See page 11 if all you want to do for the time is being is assign different MIDI channels to the Upper and/or Lower sections.

5.1 Selecting the parameter to be edited

The A-37's Edit parameters can be accessed via three buttons:



Button	Function
[CONTROL] (page 10)	Provides access to all parameters related to the available (or optional) performance functions, like Pitch Bend, modulation, Aftertouch, etc.
[DATA] (page 11)	Provides access to more specific and static MIDI parameters: transmit channel, volume, etc., but also the Dump function.
[PRG CHG] (page 14)	Allows you to set and transmit memory selection clusters (Bank Select, Program Change), to set the MIDI tempo, and to specify to which MIDI OUT socket to use for these messages.

When none of the above buttons lights, you are in "play mode" (i.e. where you cannot change the above parameters). That also means that the numeric keypad ([A/B], [1]~[8]) can be used for selecting Patch memories.

After pressing [CONTROL], [DATA], or [PRG CHG], however, the buttons [0] (A/B) [1]~[8] and [9] (TRANSPOSE) allow you to select the desired parameter. These numbers appear below the buttons and are printed in orange (just like the EDIT button legends). See the illustration at the top of this page.

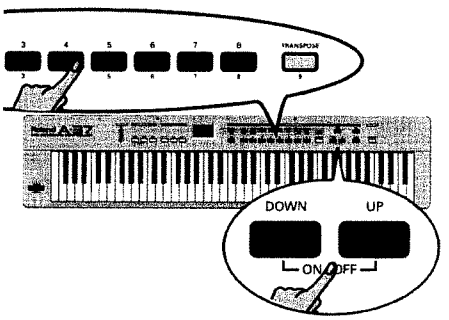
Here is how to select the desired parameter:

(1) Look at the legends above the [0]~[9] buttons to find out which EDIT button you need to press.

(2) Press [CONTROL], [DATA], or [PRG CHG], depending on the row that contains the desired parameter.

The number of the first parameter now flashes in the display.

(3) Use the [0]~[9] buttons or [DOWN]/[UP] to select a parameter.



After about three seconds, the display shows the value currently set for the selected parameter.

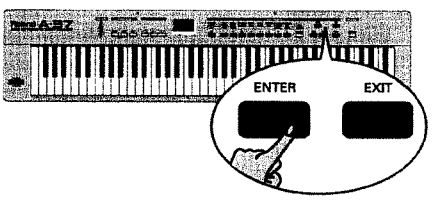
(4) Press [LOWER] or [UPPER] to select the keyboard section whose settings you wish to change.

Note: It is now no longer possible to select a different KEYBOARD MODE. You need to leave the EDIT mode altogether before being able to do that.

(5) Use [0]~[9] or [DOWN]/[UP] to make the desired setting.

Some parameters can be set to OFF. To do so, simultaneously press [UP] and [DOWN].

(6) Press [ENTER] to confirm the value or setting.



Press [EXIT] to return to the previous value.

(7) Press [EXIT] if you want to select another parameter from the active EDIT group.

To select a parameter from a different group, press the corresponding EDIT button ([CONTROL], [DATA], [PRG CHG]), then return to step (3) above.

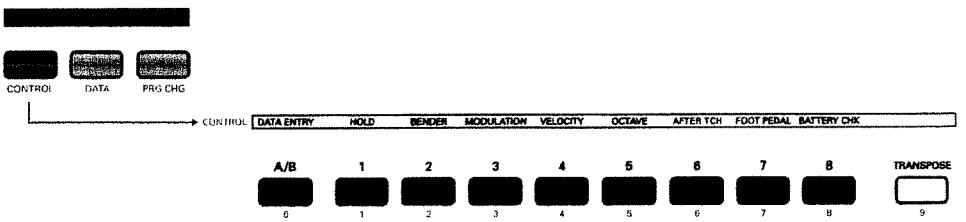
(8) Press [EXIT] yet again to leave the EDIT mode.

You will achieve the same result by pressing the lighting EDIT button (it then goes dark).

Note: See page 16 if you wish to save the settings you have just made as a Patch.

5.2 CONTROL parameters

As stated earlier, this is where you will find all parameters that are related to the A-37's on-board or optional performance functions. This level also contains a parameter that allows you to check the state of the batteries.



[0] dEn (Data Entry) — Upper, Lower

This parameter allows you to assign a control change number (CC) to the A-37's [DATA ENTRY] slider. The slider can then be used for realtime control of the related function. You can assign any number between CC00 and CC119. Given their dedicated use for memory bank selection (see p. 14), CC00 and CC32 are unlikely candidates for other assignments. Assigning them to the [DATA ENTRY] slider therefore makes little sense.

If you assign CC10 (Pan) to this slider, positions below the center correspond to the left side, while settings above the center correspond to the right.

Note: Certain MIDI instruments may not respond in realtime to CC10 changes, because they only implement Pan changes at the beginning of a new note (Note-on message).

It is also possible to select OFF (by simultaneously pressing [DOWN]/[UP]), which means that the [DATA ENTRY] slider performs no function at all.

Note: See the manual of the MIDI instrument to be controlled for the CC numbers it supports for realtime control.

Note: The CC assignment can be different for the Upper and Lower sections. This allows you, for example, to control the Pan setting (CC10) via the Upper section, and the Delay Send Level (CC94) via the Lower section.

[1] hLd (Hold) — Upper, Lower

This parameter allows you to specify (for Upper and Lower separately) whether the selected section should (On) or should not (OFF) transmit Hold (CC64) messages. This is only relevant if you connect an optional DP-2, DP-6, or BOSS FS-5U to the A-37's HOLD SWITCH socket.

[2] bnd (Pitch Bend) — Upper, Lower

This parameter allows you to specify whether the selected section should (On) or should not (OFF) transmit Pitch Bend messages when you use the A-37's BENDER/MODULATION lever.

[3] Mod (Modulation) — Upper, Lower

This parameter allows you to specify whether the selected section should (On) or should not (OFF) transmit Modulation messages (CC01) when you use the A-37's BENDER/MODULATION lever.

CC01 messages can be used for creating vibrato, tremolo, or WahWah effects. This depends on how the receiving MIDI instrument uses these messages.

[4] UEL (Velocity) — Upper, Lower

This parameter allows you to assign a velocity curve to the selected section. The A-37's keyboard is velocity sensitive and very responsive to nuances of your playing. You may, however, be controlling a MIDI instrument that does not interpret the velocity values in the desired way. Rather than reprogram the sound (if that is at all possible), you can simply select another curve on the A-37 so that your striking force is translated in a different way and thus more usable for the part you wish to play.

Select L (light) if the section in question should send high velocity values even when you strike the keys with light-to-medium force. M (medium) is the default setting, which produces a natural response. H (heavy), is the way to go if the external MIDI instrument is too loud/bright when you play normally.

Select LL if all note messages of the section in question are to be transmitted with more or less the same velocity value. Extreme differences in dynamics (hitting very hard and very soft) will, however, allow you to trigger velocity switches if the receiving MIDI instrument supports that feature. This setting is thus not the same as "off" on other instruments - but it is very similar.

5 oct (Octave) — Upper, Lower

This parameter is especially useful in Split mode (see p. 8), when you wish to use your left hand for a chord backing whose register is close to the part you play with your right hand. Of course, you can also transpose (or "shift") the Upper part in octave steps, which may be useful in Layer mode.

The setting range is -2, -1, 0, 1, 2 octaves (down or up). Note that the A-37's keyboard can also be transposed in semitone steps. See page 16.

6 AFt (Aftertouch) — Upper, Lower

The A-37's keyboard transmits channel Aftertouch messages - if you want it to. Select On if the active section should indeed do so. Select OFF to keep a section from transmitting Aftertouch messages.

Especially when working with a sequencer, it is usually wiser to select On only if you really want Aftertouch messages to be recorded. Aftertouch indeed generates a continuous stream of values that take up a lot of memory. If the receiving MIDI instrument does not respond to them, it would be a good idea not to transmit them in the first place.

Note: "Channel Aftertouch" refers to the fact that only one Aftertouch value (the highest) is transmitted at any one time, even though you may be playing chords.

7 FtP (Foot Pedal/Expression) — Upper, Lower

This parameter allows you to specify whether the selected section should (On) or should not (OFF) transmit expression (CC11) messages.

The third possibility, mU, is very interesting indeed for the Layer mode (see p. 8): by assigning On to the Upper section, and mU to the Lower section, for example, you can increase the volume of the Upper MIDI channel and simultaneously decrease that of the Lower MIDI channel by pressing the pedal down (toe down) - and vice versa. This allows for some nifty "sound morphing".

This parameter is only relevant if you connect an optional EV-5 or BOSS FV-300L expression pedal to the A-37's FOOT PEDAL socket.

8 bch (Battery Check)

This parameter allows you to check the voltage of the batteries (0~100). The value "0" means that the batteries should be dead by now, while "100" represents the highest value. A dot in the left part of the display will flash whenever the battery power is less than 30%.

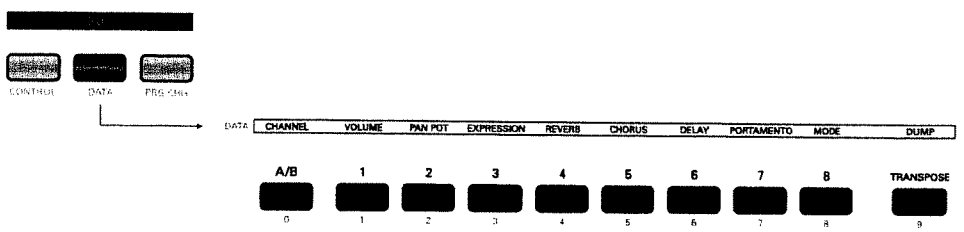
Note: This value is only meaningful if *no* adaptor is connected to the DC IN socket (if an adaptor is connected, the value will always be 100).

Note: For important occasions, it may be wiser to work with an optional ACA adaptor. That way, you can rest assured that you will not run into problems during the session or gig.

5.3 DATA parameters

The DATA parameters represent MIDI messages you can use for configuring the receiving MIDI instrument up to a certain point by specifying things like its main and expression volume, its Reverb and/or Chorus depth, etc.

These are "static" settings that are transmitted whenever you select a Patch. With the exception of ch, ndE, and dnP, the corresponding control change numbers can also be assigned to the DATA ENTRY slider for continuous realtime control (see p. 10).



Note: Be sure to select OFF for any MIDI message that should not be transmitted.

Note: See page 9 for how to select and set these parameters.

0 ch (MIDI channel) — Upper, Lower

This parameter allows you to assign the desired MIDI channel to the Upper or Lower section. In fact, this parameter does two things at a time:

- it specifies the MIDI channel (1~16)
- it specifies the MIDI OUT socket via which the section's MIDI messages are transmitted (A or B).

Here is an example: if you select 11b for the Upper section, it will transmit its messages on MIDI channel "11" to MIDI OUT B. Though you can also select OFF (by simultaneously pressing [DOWN]/[UP]), there is little point in doing so. After all, you can achieve the same result by switching off the KEYBOARD MODE button of the section you do not need.

1 UoL (Volume) — Upper, Lower

This parameter allows you to specify the volume value (CC07) to be transmitted by the Upper and/or Lower section whenever you select the Patch that contains this setting. The setting range is 0~127, Off. Remember that selecting "0" will silence the receiving MIDI instrument.

Note: Even if you set this parameter to "127", you will hear nothing at all if you set EHP (see below) to "0".

2 PAn (PanPot) — Upper, Lower

This parameter allows you to specify the Pan value (CC10) to be transmitted by the Upper and/or Lower section whenever you select the Patch that contains this setting. The setting range is 0~127, Off. The value "0" corresponds to hard left, "64" to the center, and "127" to hard right.

Note: Some MIDI instruments work the other way round (0= right/127= left). See the manual of the instrument you are controlling for details.

3 EHP (Expression) — Upper, Lower

This parameter allows you to specify the expression value (CC11) to be transmitted by the Upper and/or Lower section whenever you select the Patch that contains this setting. The setting range is 0~127, Off. Selecting "0" will silence the receiving MIDI instrument. In most instances, you will probably select OFF or 127.

Note: Even if you set this parameter to "127", you will hear nothing at all if you set UoL (see above) to "0".

4 rEU (Reverb Send Level) — Upper, Lower

This parameter allows you to specify the Reverb Send Level value (CC91) to be transmitted by the Upper and/or Lower section whenever you select the Patch that contains this setting. The setting range is 0~127, Off.

Selecting "0" will set the receiving MIDI instrument to "dry" (no Reverb), while "127" represents the maximum Reverb Send level.

Note: If there is no audible change, you may have to check the Reverb effect settings on the receiving MIDI instrument.

Note: Not all MIDI instruments have a Reverb effect, and even if they do, they may not support this control change number (this is especially true of older instruments).

5 cho (Chorus Send Level) — Upper, Lower

This parameter allows you to specify the Chorus Send Level value (CC93) to be transmitted by the Upper and/or Lower section whenever you select the Patch that contains this setting. The setting range is 0~127, Off. Selecting "0" will set the receiving MIDI instrument to "dry" (no Chorus), while "127" represents the maximum Chorus Send level.

Note: If there is no audible change, you may have to check the Chorus effect settings on the receiving MIDI instrument.

Note: Not all MIDI instruments have a Chorus effect, and even if they do, they may not support this control change number (this is especially true of older instruments).

6 dEL (Delay Send Level) — Upper, Lower

This parameter allows you to specify the Delay Send Level value (CC94) to be transmitted by the Upper and/or Lower section whenever you select the Patch that contains this setting. The setting range is 0~127, Off. Selecting "0" will set the receiving MIDI instrument to "dry" (no Delay), while "127" represents the maximum Delay Send level.

Note: If there is no audible change, you may have to check the Delay effect settings on the receiving MIDI instrument.

Note: Not all MIDI instruments have a Delay effect, and even if they do, they may not support this control change number.

7 Por (Portamento) — Upper, Lower

This parameter allows you to set two parameters simultaneously: the Portamento switch (CC065) and the Portamento time (CC05). By selecting a value between "0" and "127", the Portamento switch is automatically set to "on" (127). If you set the Por parameter to OFF, however, the Portamento switch (CC65) is turned off (0).

Portamento is an effect that produces gradual pitch changes between the notes you play. The higher the value, the longer it takes before the pitch of the newly played note is reached.

8 MdE (MIDI mode) — Upper, Lower

This parameter allows you to select the monophonic (Mon) or polyphonic mode (PoL) on the receiving MIDI instrument. Mono (CC126= 0) can come in handy for solo lines based on special tricks (such as not releasing one key, while pressing others in succession to create a "fast" line with little effort). If the MIDI instrument should sound chords, however, be sure to select PoL (CC127= 0).

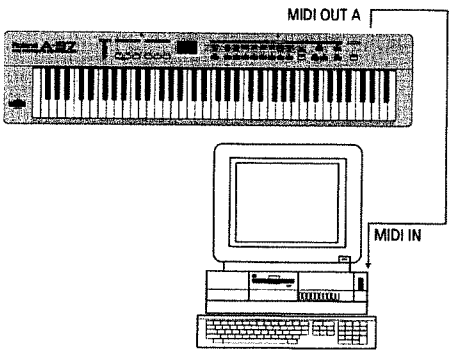
9 dMP (Bulk Dump)

This is not really a parameter but a function that allows you to transmit the settings of the 128 Patches (see also page 16) to an external MIDI instrument as SysEx data chunks. In most instances, the recipient will be a sequencer.

Here is what you need to do in order to archive the A-37's settings:

(1) Switch off the A-37 and the sequencer.

(2) Connect the sequencer's MIDI IN socket to the A-37's MIDI OUT A socket.



The MIDI OUT B port cannot be used for this function.

(3) Switch on the A-37.

(4) Boot the sequencer and select an empty song. Then activate its recording standby mode.

If the sequencer's MIDI OUT socket is connected to the A-37's MIDI IN socket: on some sequencers, you may have to temporarily defeat the Soft Thru/MIDI Echo function.

(5) Select the dMP parameter by pressing [DATA], followed by [9].

The display now shows Ent to signal that the A-37 is ready to transmit the data.

(6) Check whether the sequencer receives SysEx data (see its manual), then start recording.

(7) Press the [ENTER] button on the A-37.

The display now counts down from 128 to 1 (thus informing you about the Patch whose settings are being transmitted).

(8) Wait until the Ent message reappears in the display, then stop the sequencer's recording function.

(9) Save the "song" (with the Bulk data) to hard disk or floppy.

That file now contains your archive of the 128 Patch memory settings.

Here's how to retransmit such an archive from the sequencer to the A-37 at a later stage:

(1) Switch off the A-37 and the sequencer.

(2) Connect the sequencer's MIDI OUT socket to the A-37's MIDI IN socket. Switch on both devices.

(3) On the sequencer, load the "song" file that contains the Bulk archive you wish to transmit to the A-37.

Warning: with the following step, you will erase the 128 Patches that currently reside in the A-37's internal memory. If you think you may need them at a later stage, first archive them on the sequencer (see above).

(4) Start playback on the sequencer.

As soon as the A-37 receives the first Bulk data, the rH (RX) message appears.

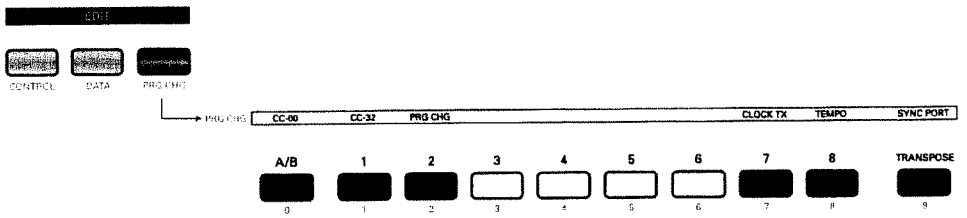
(5) Wait until the rH message disappears, then stop playback on the sequencer.

The A-37 now once again contains the Patch settings contained in the archive.

5.4 PRG CHG parameters

As can be inferred from the assigned buttons [3]~[6] have no function), this EDIT level in fact consists of two groups: the first three parameters can be set for both zones independently, while the last three apply to the A-37 as a whole. Nevertheless, even these parameters are saved along with the remaining settings (see p. 16).

See page 9 for how to select and set these parameters.



[0] cOO, [1] c32 (Bank Select messages)
[2] Pc (Program Change) Upper, Lower

Nowadays, most MIDI instruments and effects devices contain a lot more than 128 sounds/memories. When the MIDI standard was developed, some 20 years ago, 128 memories seemed a lot, which is why it was decided to use a dedicated message type (Program Change) for selecting memories on an external device.

The entire MIDI standard evolves around the magical number "128". Given that there is no way of expanding that number, so-called Bank Select messages were later added to accommodate the growing number of memories (synthesizers with more than 2,000 sounds are quite common these days).

At the time, neither CC00, nor CC32 had dedicated functions, and so these two control change messages were appointed Bank Select messages (by Roland, by the way, with the introduction of its GS Format).

Two bank addresses (MSB and LSB aka CC00 & CC32) with 128 possibilities each, plus 128 Program Change numbers provide 128 x 128 x 128 possibilities - a lot more than you can eat.

Mind you, nobody has even contemplated releasing instruments with over 2 million memories, but at least this system provides enough flexibility for many years to come.

On the A-37, these three messages (CC00, CC32 and Program Change) are always sent as a set. Transmitting only Bank Select messages does nothing at all, while working only with Program Change messages means that you are stuck with 128 memories in the currently active memory bank.

That is why you need to transmit:

- A value for control change CC00 (MSB)
- A value for control number CC32 (LSB)
- A Program Change number

See the manual of the receiving MIDI instrument for the MSB and LSB values it supports.

As soon as you press [ENTER] to confirm the Program Change number (after first entering and confirming the CC00 and CC32 values), the selected section (Upper or Lower) immediately transmits the memory selection cluster. If you save your settings to a Patch, these values will also be memorized and transmitted each time you select that Patch.

As you will notice, this procedure is very user-friendly indeed: after pressing [0] to select cOO, and entering the desired value for CC00, pressing [ENTER] to confirm your setting will immediately take you to [1], where you can enter the value for CC32.

When you confirm that value by pressing [ENTER], you can enter the Program Change number. (There is thus no real need to press [1] or [2] to select the c32 and Pc parameters).

As soon as you confirm the Pc value (by pressing [ENTER]), the memory selection cluster is transmitted to the MIDI OUT socket assigned to the active section (A or B).

Note: While the setting range for CC00 and CC32 is 0~127, that of the Pc parameter is 1~128.

Note: You can also select OFF for these three parameters to prevent the section in question from sending that message.

Note: If Pc is set to OFF, the cOO and c32 are not transmitted (CC00/CC32 must always be followed by a Program Change number).

Note: These memory selection clusters can be programmed for the Upper and Lower sections individually.

[7] cLt (MIDI Clock on/off)

This parameter (and the following two) allow you to set the tempo and control playback of an external sequencer.

With this parameter, you can specify whether (On) or not (OFF) the A-37 should transmit the MIDI Clock messages set with the following parameter. Selecting OFF also means that the A-37 transmits the MIDI Clock messages received via MIDI IN. This is not the case if you select On, because then, the A-37 transmits its own MIDI Clock signal.

Note: The A-37 is also capable of receiving MIDI Clock messages and of retransmitting them to the MIDI OUT A socket.

[8] tMP (Tempo/BPM)

Here, you can set the tempo (MIDI Clock) to be transmitted to an external sequencer. The setting range is 20~250 BPM. This value will be transmitted if cLt is set to On.

[9] SYP (Sync Port)

This parameter allow you to specify which MIDI OUT socket to use for the transmission of MIDI Start/Stop ([START/STOP] button) and MIDI Clock messages. The possibilities are: -A-, -b-, and A-b.

6. Miscellaneous

6.1 Transpose

Your A-37 comes with a TRANSPOSE function you may want to use for playing songs in difficult keys.

To set the desired transposition interval:

(1) Hold down the [TRANSPOSE] button and wait until the current transposition interval is displayed.

(2) Keep holding the [TRANSPOSE] button while you press the key assigned to the note you wish to assign to every C key (-6~5 semitones, i.e. from Gb~G).

The [TRANSPOSE] indicator now lights steadily to indicate that the Transpose interval has been set and is being used.

You can also set the interval with the [DOWN]/[UP] buttons. Pressing them simultaneously recalls the default value (0).

(3) Once the desired interval has been set, you can switch it off by pressing the [TRANSPOSE] button. Press it again to switch the Transpose function back on.

The button lights to indicate that the Transpose interval is being used.

Note: The Transpose on/off setting applies to both keyboard sections (Upper and Lower) and can be saved to a Patch memory.

6.2 About MIDI Thru

The A-37 has a MIDI THRU socket that retransmits the messages received via its MIDI IN socket.

It can also merge the MIDI messages received via its MIDI IN socket with the data generated on the A-37 itself, and retransmit the lot via its MIDI OUT A socket.

6.3 Working with Patches

A "Patch" is a memory where you can store your own settings. The A-37 provides 128 such memories (in 2 banks of 64 memories).

Like on many Roland instruments, only 8 buttons ([1]~[8]) are used for specifying the Patch numbers (11~88), so that numbers like "30" or "59" are impossible. That explains why the 11~88 range adds up to 64 possibilities (or memories). The bank can be selected using the [A/B] button.

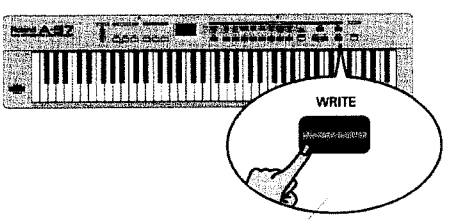
Storing settings in a Patch memory

After setting all parameters to your liking, you can store them in one of the A-37's Patch memories. If you have spent a lot of time fine-tuning your settings, you should definitely store them before switching off the A-37. It would also be a good idea to save all settings your are satisfied with, even though you may have to change them (or others) at a later stage. You could then simply overwrite the memory in question.

You can store everything in the A-37's Patch memories except Dump (see p. 12) and Battery Check (see p. 11).

All entries marked "Upper, Lower" are saved in duplicate: one set for the Lower section, and a second for the Upper section.

(1) Press and hold the [WRITE] button.



(2) Enter the address of the desired Patch memory by pressing:

- [A/B] to select bank A or b (example: b--).
- [1]~[8] to select a bank (example: b5-)
- [1]~[8] to select a memory within that bank (example: b57)
- Press [ENTER] to confirm your setting.

Note: You can release [WRITE] at any of these stages if you do not wish to save the Patch after all.

The display shows the number of the Patch memory that contains your new settings.

Note: The previous settings in the selected Patch memory will be overwritten.

Note: In case of a power failure while you are saving a Patch, the A-37 may display a scrolling message to the effect of PAtch A15 rEcoUErEd (or another number). This means that the Patch memory in question (but only that one) has been reset to the factory settings for safety reasons. Your other Patches are fine, however.

Selecting Patches

(1) If you haven't yet saved your current settings, do it now (see above).

(2) Leave the currently selected EDIT mode by pressing [CONTROL], [DATA], or [PRG CHG] (depending on which of these buttons lights).

(3) Use the [A/B] and [1]~[8] buttons to select the desired Patch memory.

You can also use [DOWN]/[UP]. If, after selecting Patch b88, you press [UP] yet again, you return to Patch A11. Conversely, if you press [DOWN] after selecting Patch A11, you will go to Patch b88.

6.4 Restoring the factory settings

You can reset the A-37 to its factory settings, which means that your own Patches will be overwritten with the settings the A-37 contained when you first got it. You may wish to archive your Patches before initializing the A-37 (see p. 12).

Power on the A-37 while holding down the [WRITE] button. The display will read FActorY SEtuP (scrolling message) as soon as the factory settings have been loaded.

See page 109 for a list of the A-37's factory settings.

6.5 Specifications

Keyboard:	76 keys, velocity sensitive, with channel Aftertouch
Display	3 x 7 segments
Realtime controllers	Data Entry slider, Bender/Modulation lever, channel Aftertouch, Hold Foot Switch socket, Foot Pedal socket
Memories	128 Patches
Connections:	MIDI In, Out A, Out B, Thru, Expression Pedal, Sustain Footswitch, DC IN (adaptor)
Compatibility:	GM/GM2/GS, all MIDI messages
Power supply:	Batteries, AC/DC adaptor (DC 9V)
Dimensions:	1195 (W) x 270 (D) x 113 (H) mm
Weight:	7.7 kg
Supplied accessories:	6 x dry batteries (AA type), MIDI cable, Owner's Manual, Music Rest
Options:	Roland ACA adaptor (9V, 200mA) DP-2, DP-6, or BOSS FS-5U footswitch EV-5, Boss FV-300L expression pedal

Note: Specifications are subject to changes without prior notice.

7. Reference

7.1 MIDI implementation chart

[MIDI Controller]
Model: A-37

Date: June 2001
Version: 1.00

	Function...	Transmitted	Recognized	Remarks
Basic	Default	1~16	X	Default: Upper= 1,
Channel	Changed	1~16, Off	X	Lower= 2
Mode	Default	Mode 3	X	
	Message	X	X	*2
	Altered	*****	X	
Note		4~127	X	
Number	True Voice	*****	X	
Velocity	Note ON	O	X	
	Note OFF	X	X	
After	Key's	X	X	
Touch	Ch's	O *1	X	
Pitch Bend		O *1	X	
Control Change	0~119	O *1	X	*3
	0,32	O *1	X	Bank Select
	1	O *1	X	Modulation
	5	O *1	X	Portamento Time
	7	O *1	X	Volume
	10	O *1	X	Panpot
	11	O *1	X	Expression
	64	O *1	X	Hold 1
	65	O *1	X	Portamento SW
	91	O *1	X	Effect 1 Depth
	93	O *1	X	Effect 3 Depth
	94	O *1	X	Effect 4 Depth
	126	O	X	Mono Mode
	127	O	X	Poly Mode
Program		1~128	X	
Change	True #	*****	X	
System Exclusive		O	O	
System	Song Position Pointer	X	X	
Common	Song Sel	X	X	
	Tune	X	X	
System	Clock	O *1	X	
Real Time	Commands	O	X	
Aux	Local On/Off	X	X	
	All Notes Off	X	X	
Messages	Active Sense	O	X	
	Reset	X	X	
Notes		*1 O X is selectable *2 Recognized as M=1 even if M≠1 *3 Assignable to the DATA ENTRY slider		Messages received via MIDI IN are retransmitted via MIDI OUT A, merged with the messages generated by the A-37, with no effect on the A-37.

Mode 1: OMNI ON, POLY
Mode 2: OMNI ON, MONO
O: Yes
Mode 3: OMNI OFF, POLY
Mode 4: OMNI OFF, MONO
X: No

7.2 Factory settings (based on the GM Tone Map)

	A11 Piano 1		A12 Piano 2		A13 Piano 3		A14 Honky-tonk		A15 E.Piano1		A16 E.Piano2		A17 Harpsichord		A18 Clavinet	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Data Entry	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7	CC7
Hold	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Bender	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Modulation	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Velocity	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Octave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
After Tch	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Foot Pedal	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Channel	1A	2A	1A	2A	1A	2A	1A	2A	1A	2A	1A	2A	1A	2A	1A	2A
Volume	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
Panpot	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
Expression	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127	127
Reverb	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Chorus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portamento	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Mode	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly
CC00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CC32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prg Chg	1	90	2	50	3	51	4	90	5	51	6	1	7	50	8	39
Clock	On		On		On		On		On		On		On		On	
Tempo	120		120		120		120		120		120		120		120	
Sync Port	A		A		A		A		A		A		A		A	
Kbd Mode	Whole Upper		Whole Upper		Whole Upper		Whole Upper		Whole Upper		Whole Upper		Whole Upper		Whole Upper	
Split	C4		C4		C4		C4		C4		C4		C4		C4	
Transp on/off	Off		Off		Off		Off		Off		Off		Off		Off	
Transp value	1		1		1		1		1		1		1		1	

Same as A11–A18, except:	A21 Celesta		A22 Glockenspiel		A23 Music Box		A24 Vibraphone		A25 Marimba		A26 Xylophone		A27 Tubular bell		A28 Santur	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	9	15	10	104	11	90	12	90	13	116	14	116	15	11	16	9

Same as A11–A18, except:	A31 Organ1		A32 Organ2		A33 Organ3		A34 Church Org		A35 Reed Organ		A36 Accordion Fr		A37 Harmonica		A38 Bandoneon	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	17	95	18	19	19	17	20	53	21	20	22	45	23	80	24	21

Same as A11–A18, except:	A41 Nylon Str Gt		A42 Steel Str Gt		A43 Jazz Gt		A44 Clean Gt		A45 Muted Gt		A46 Overdrive Gt		A47 Distortion Gt		A48 Gt Harmonics	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	25	90	26	51	27	5	28	90	29	52	30	94	31	85	32	94

Same as A11–A18, except:	A51 Acoustic Bass		A52 Fingered Bass		A53 Picked Bass		A54 Fretless Bass		A55 Slap Bass1		A56 Slap Bass2		A57 Synth Bass1		A58 Synth Bass2	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	33	27	34	6	35	84	36	100	37	100	38	91	39	91	40	84

Same as A11–A18, except:	A61 Violin		A62 Viola		A63 Cello		A64 Contrabass		A65 Tremolo Str		A66 Pizzicato Str		A67 Harp		A68 Timpani	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	41	50	42	50	43	61	44	42	45	42	46	45	47	50	48	49

Same as A11–A18, except:	A71 Strings		A72 Slow Strings1		A73 SynStrings1		A74 SynStrings2		A75 Choir Aahs		A76 Voice Oohs		A77 SynVox		A78 OrchestraHit	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	49	74	50	5	51	6	52	88	53	92	54	13	55	25	56	40

Same as A11–A18, except:	A81 Trumpet		A82 Trombone		A83 Tuba		A84 Muted Trmpt		A85 French Horns		A86 Brass		A87 Synth Brass1		A88 Synth Brass2	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	57	59	58	59	59	61	60	61	61	5	62	63	63	88	64	69

Same as A11–A18, except:	B11 Soprano Sax		B12 Alto Sax		B13 Tenor Sax		B14 Baritone Sax		B15 Oboe		B16 English Horn		B17 Basson		B18 Clarinet	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	65	69	66	59	67	59	68	67	69	64	70	65	71	73	72	71

Same as A11–A18, except:	B21 Piccolo		B22 Flute		B23 Recorder		B24 Pan Flute		B25 Bottle Blow		B26 Shakuhachi		B27 Whistle		B28 Ocarina	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	73	55	74	49	75	74	76	55	77	95	78	95	79	5	80	27

Same as A11~A18, except:	B31 Square Wave		B32 Saw Wave		B33 Syn Calliope		B34 Chiffer Lead		B35 Charang		B36 Solo Vox		B37 5th Saw Wave		B38 Bsdd & Lead	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	81	89	82	88	83	64	84	39	85	31	86	8	87	95	88	95

Same as A11~A18, except:	B41 Fantasia		B42 Warm Pad		B43 Polysynth		B44 Space Voice		B45 Bowed Glass		B46 Metal Pad		B47 Halo Pad		B48 Sweep Pad	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	89	6	90	2	91	6	92	30	93	6	94	31	95	6	96	61

Same as A11~A18, except:	B51 Ice Rain		B52 Soundtrack		B53 Crystal		B54 Atmosphere		B55 Brigthness		B56 Goblin		B57 Echo Drops		B58 Star Theme	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	97	51	98	6	99	93	100	53	101	52	102	88	103	81	104	90

Same as A11~A18, except:	B61 Sitar		B62 Banjo		B63 Shamisen		B64 Koto		B65 Kalimba		B66 Bagpipe		B67 Fiddle		B68 Shanai	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	105	89	106	97	107	104	108	90	109	90	110	90	111	109	112	104

Same as A11~A18, except:	B71 Tinkle Bell		B72 Agogo		B73 Steel Drums		B74 Woodblock		B75 Taiko		B76 Melo Tom1		B77 Synth Drum		B78 Reverse Cym	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	113	116	114	14	115	13	116	12	117	13	118	117	119	117	120	103

Same as A11~A18, except:	B81 Gt FretNoise		B82 Breath Noise		B83 Seashore		B84 Bird		B85 Telephone		B86 Helicopter		B87 Applause		B88 Gun Shot	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Prg Chg	121	25	122	74	123	126	124	123	125	124	126	127	127	126	128	125

7.3 Blank Chart

	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Data Entry																
Hold																
Bender																
Modulation																
Velocity																
Octave																
After Tch																
Foot Pedal																
Channel																
Volume																
Panpot																
Expression																
Reverb																
Chorus																
Delay																
Portamento																
Mode																
CC00																
CC32																
Prg Chg																
Clock																
Tempo																
Sync Port																
Kbd Mode																
Split																
Transp on/off																
Transp value																

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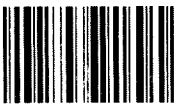

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