# *Real-time effects*

MR-04-0188

## Using real-time effects

When you perform or record using real-time effects, each note can have a quality and loudness slightly different from the one preceding it and the one following it.

### *Expression input controllers*

You control the real-time effects of the keyboard timbre using **expression input controllers.** Some of these controllers are external, such as a pedal or the mod wheel. Some are internal, such as the velocity controller which responds to the speed of your keyboard attack. All expression input controllers are used to control dynamics and other timbre qualities on a note-by-note basis.

| expression input controller | keyboard effect |
|---|---|
| **velocity** | Timbre affected by the speed of your keyboard attack. |
| **pressure** | Timbre affected by the amount of after-attack pressure applied. |
| **pedal1 and pedal2** | Timbre affected by how far the pedal is depressed. |
| **mod wheel** | Timbre affected by the rotation of the inside wheel at the left of the keyboard. |
| **ribbon** | Timbre affected by the position of your finger on the black velvet ribbon just above the keyboard. |
| **breath controller** | Timbre affected by amount of breath blown into breath control ler. |
| **keyboard control voltage** | Timbre affected by where you are playing on the keyboard. The higher you play the more voltage produced. |

## Using real-time effects (con't)

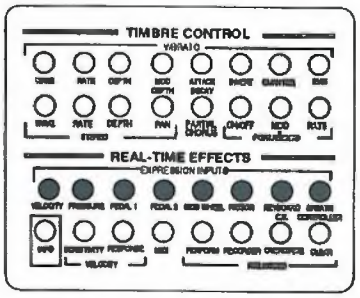
### *Patching real-time effects to timbre parameters*

You program a timbre for real-time effects by making a three-way "patch" between an expression input controller, one or more timbre parameters and one or more partial timbres of the keyboard timbre. Patching real-time effects is similar to using patch cords to connect parts of a timbre together.

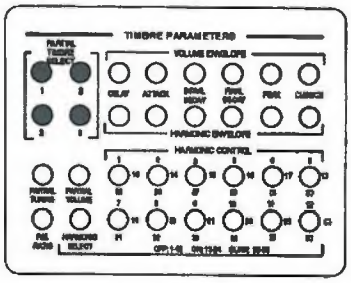
Many timbres are already programmed for real-time effects. When you recall a timbre, any **expression input controller** that has already been patched to a timbre parameter lights up. When you press the lit **expression input controller** button, the **timbre parameter** button(s) to which that controller is patched lights up and remains lit so long as the **expression input** button is held. If the paramter has been patched to the controller in the inverted mode, then the **timbre parameter** button blinks. The **partial timbre** button(s) to which it is patched blinks and remains blinking so long as the expression input button is lit.

Whenever you press an **expression input controller** button, whether or not it has been previously patched, all of the **timbre parameter** buttons which are available for patching flicker. The buttons for these paramters are marked with a small white dot immediately to the right of the button.

| button state | meaning |
|---|---|
| on-steady | The expression input is already routed to the parameter in the normal fashion. |
| blinking | The expression input is routed to the parameter in the inverted mode. |
| flickering | The parameter is available for patching. |




*expression input buttons panel 5*




*partial timbre select buttons panel 1*

## *Adding real-time effects to the keyboard timbre*

1. Press the desired **expression input** button and hold it down.

   The button lights and the display window shows:

   PRESS BUTTONS
   FOR RTE PATCHING

   One or more **partial timbre select** buttons starts blinking. The **timbre parameter** buttons are on, blinking or flickering.

2. Press one or more **partial timbre select** button(s) to select the partial timbre(s) you want the real-time effects routed to.

3. Continue to hold down the **expression input** button while you select the desired timbre parameter.

You can also add real-time effects to the keyboard timbre in the inverted mode. For example, if you patch **pressure** to **partial volume** in the normal fashion, then the harder you press the keys, the louder the sound. If you patch **pressure** to **partial volume** in the inverted fashion, then the harder you press the keys, the softer the sound will be.

To add real-time effects in the inverted mode, follow the instructions above, but press the desired **timbre parameter** button twice so that it is blinking.

## *Removing real-time effects from the keyboard timbre*

To remove a single expression input patch or parameter:

1. Press and hold the **clear** button.

   All patched **expression input, parameter** and **partial timbre select** buttons light.

2. Press the **expression input, partial timbre select** or **timbre parameter** button(s) you want to clear.

   Expression inputs no longer control patched parameters. Parameter settings remain in effect.

To remove all expression input routings simultaneously:

1. Press and hold the **clear** button.

2. Run a finger across all eight **expression input** buttons.

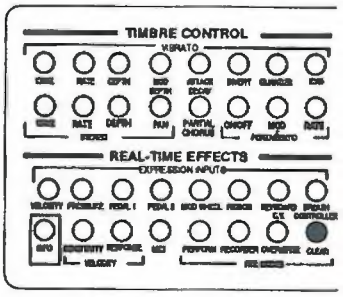
   All expression input routings are cleared. Routings between the partial timbres and timbre parameters remain in effect.

To remove only the partial timbre routings:

1. Press and hold the **clear** button.

2. Press all four **partial timbre select** buttons (one at a time, simultaneously or in any fashion).

   All partial timbres are cleared of real-time effects routings. Routings between the expression inputs and timbre parameters remain in effect.




*clear*
*panel 5*

## *Recorder controller movements*

When you record using real-time effects, you are recording the precise movements of the expression input controllers. The speed of your attack, each movement of the pitch or mod wheel, each change in pressure of your after-attack touch is recorded with the sequence.

Since it is the controller movements rather than the actual changes in sound that you are recording, you may find unexpected changes in sound when you interchange track timbres recorded with different expression input controllers.

When tracks contraining real-time effects are bounced, the controller movement information is merged with the already recorded controller movements on the destination track. Real-time effects assignments and movement on the originating track—but not on the destination, track—are added to the destination track. Assignments and movements present on both tracks are averaged.

## *Adding real-time effects to a previously recorded track*

You can add real-time effects to a track recorded previously, whether or not the track timbre was programmed for real-time effects.

1. Make sure the keyboard timbre is the same as the track timbre. If it is not, press **skt** and the appropriate **track select** button to bring the track timbre to the keyboard.

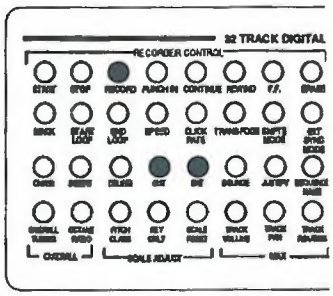
2. Patch the desired real-time effects to the keyboard timbre using the keyboard procedure described above.

3. **Smt** the keyboard timbre back to the track.

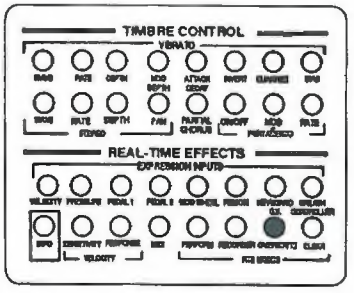
4. Press **record.**

5. As the sequence plays, add real-time effects by moving the selected expression input controller.

   If the track was recorded previously without the selected input controller, then the controller movements are recorded as you make them. If the track was recorded previously with the same input controller, then the controller movements are added to or subtracted from the original controller movements.




*record, smt, skt*
*panel 2*




*overwrite*
*panel 5*

## *Overwriting real-time effects*

The **overwrite** button is used to overwrite previously recorded expression input controller movements. It can be patched to any of the following expression input controllers:

**pedal 1**
**pedal 2**
**partial tuning** (for pitch wheel movements)
**mod wheel**
**ribbon**
**breath controller**

Note that these controllers are all continuous in nature and are not related to key location in any way. **Velocity, pressure** and **keyboard control voltage** are note over-written using this function.

## *Selecting controllers for overwriting*

Using the **overwrite** button, you select the controller movements to be overwritten.

1. Press and hold the **overwrite** button.

   The button lights, and the available expression inputs begin flickering.

2. Press any or all of the flickering buttons.

   The buttons light, and any subsequent recording overwrites previous controller movements.

To clear individual overwrite assignments:

1. Press and hold the **overwrite** button.

   The selected expression input buttons light.

2. Press the **expression input** buttons of the inputs you want to clear.

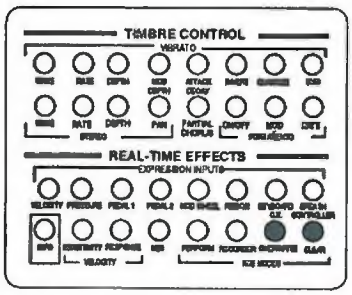
   The selected buttons begin flickering and are no longer assigned for overwriting.

To clear all overwrite assignments:

1. Press and hold the **clear** button.

2. Press the **overwrite** button.

   The overwrite button goes out and all assigned expression inputs are cleared.




*overwrite, clear*
*panel 5*