

ROCKMAN

STEREO CHORUS

OPERATING MANUAL





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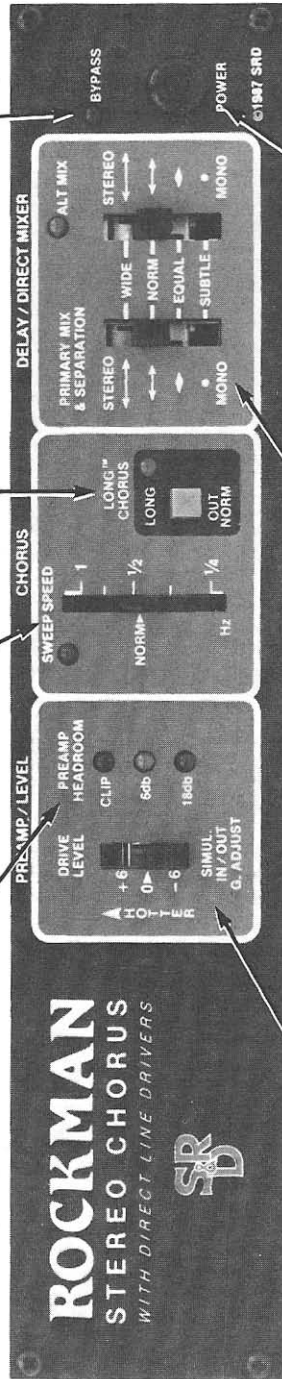
Front Panel Overview

SWEEP SPEED: LED flashes to indicate speed selected. Slider controls character and intensity of chorus effect. LED stays on when sweep stop is activated by footswitch.

PREAMP HEADROOM LED's: monitor internal signal levels. With proper setting of DRIVE LEVEL switch, YELLOW LED should light often; RED LED should seldom light.

BYPASS LED: indicates BYPASS mode. Can be activated by footswitch only.

LONG CHORUS™: selects normal delay for standard chorusing or longer delay for pronounced doubling effects. LONG CHORUS can be footswitch activated.



DRIVE LEVEL: provides optimum operating level for internal circuitry, to minimize both distortion and background noise. Does not change output levels.

PRIMARY MIX and SEPARATION: determines stereo or mono output mix of chorus setting. ALTERNATE MIX is automatically engaged when LONG CHORUS button is activated unless a separate footswitch is used. With mono output, the switches provide four intensities of effect.

POWER CAUTION: Turn STEREO CHORUS ON before the power amp. If no LED's are lit, the unit is OFF.

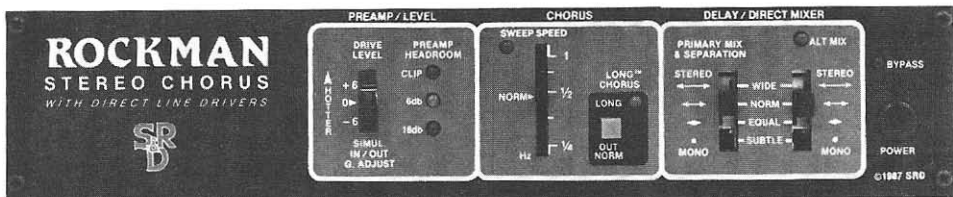
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General Operating Instructions

These General Operating Instructions will get you started using your ROCKMAN™ STEREO CHORUS right away. We urge you to read the rest of this manual soon, so that you will fully understand and be able to enjoy all the capabilities of this sophisticated signal processor.

1. Check that the STEREO CHORUS power switch is OFF (out), and then connect the power cord to an AC outlet. CAUTION: line voltage must match the voltage requirement printed on the rear panel of the unit.
2. Using two cables, connect the rear mounted STEREO CHORUS output jacks to two channels of a stereo power amp, stereo mixer or two guitar amps. For mono applications, use only the output marked "mono" and a single cable to your sound system.
3. Move all sliders and slide switches to their normal positions, as marked by the small triangles (◀). Set the LONG CHORUS push button to its "out" position. For mono applications, set both output mixes to MONO EQUAL position.
4. Plug your guitar, keyboard or other instrument into the rear input jack. If you are using the ROCKMAN SUSTAINOR™ or ROCKMAN DISTORTION GENERATOR, plug its output into the STEREO CHORUS input.
5. Set the volume control on your amplifier or mixer in the same way you would if you were not using the STEREO CHORUS. The STEREO CHORUS is a unity gain device, adding no amplification to its input signal.
6. Push the STEREO CHORUS POWER button ON before turning on your amplifier to keep power-up transients from reaching your speakers.

You are now ready to use the normal chorus mode of the STEREO CHORUS. Adjust the level switch so the YELLOW LED lights up often and the RED LED rarely lights.



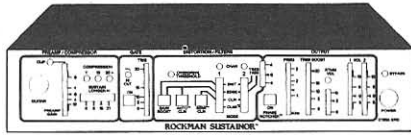
FRONT PANEL



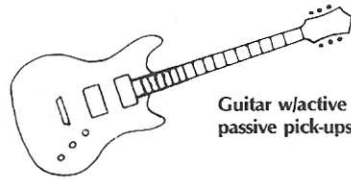
REAR PANEL



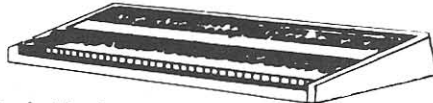
In/Out



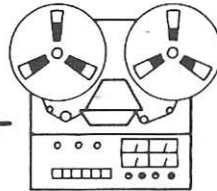
SUSTAINOR or DISTORTION GENERATOR with instrument source



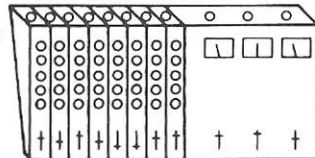
Guitar w/active or passive pick-ups



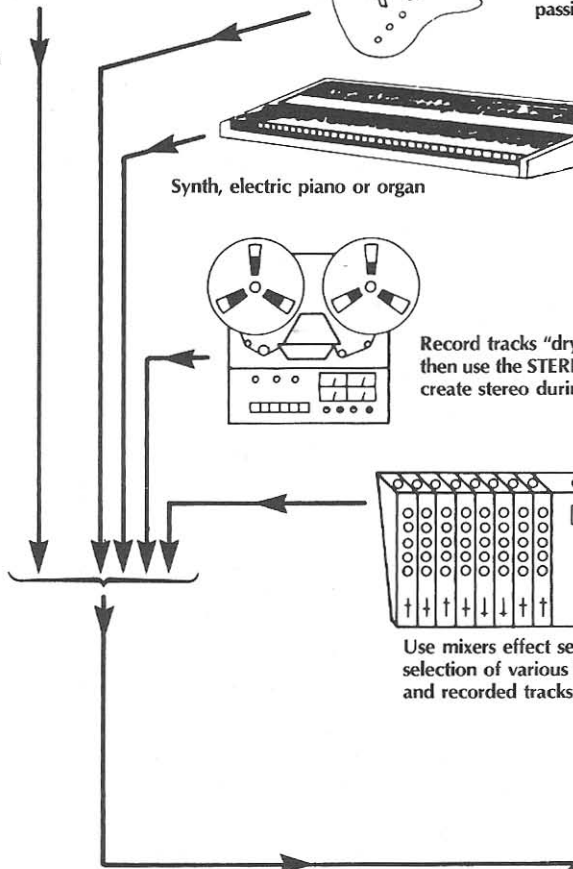
Synth, electric piano or organ



Record tracks "dry" in mono, then use the STEREO CHORUS to create stereo during mix down



Use mixers effect send for easy selection of various instruments and recorded tracks

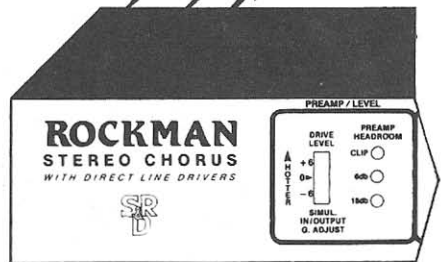


INPUT

OUTPUTS

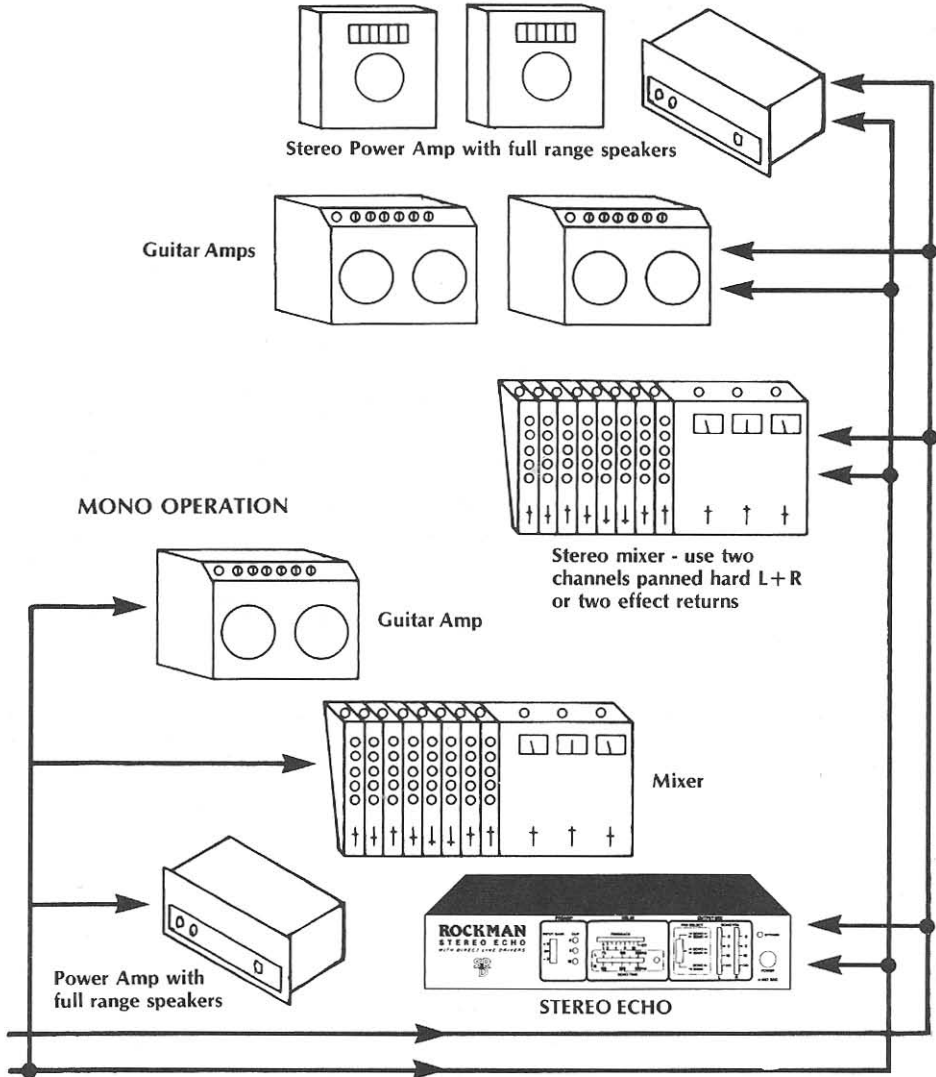
Right (Processed)

Left (Mono)

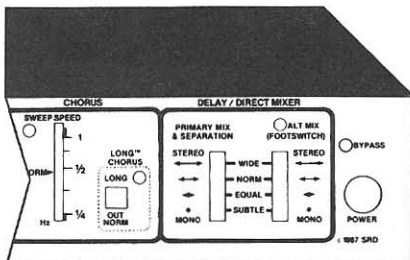


ROCKMAN

Connections

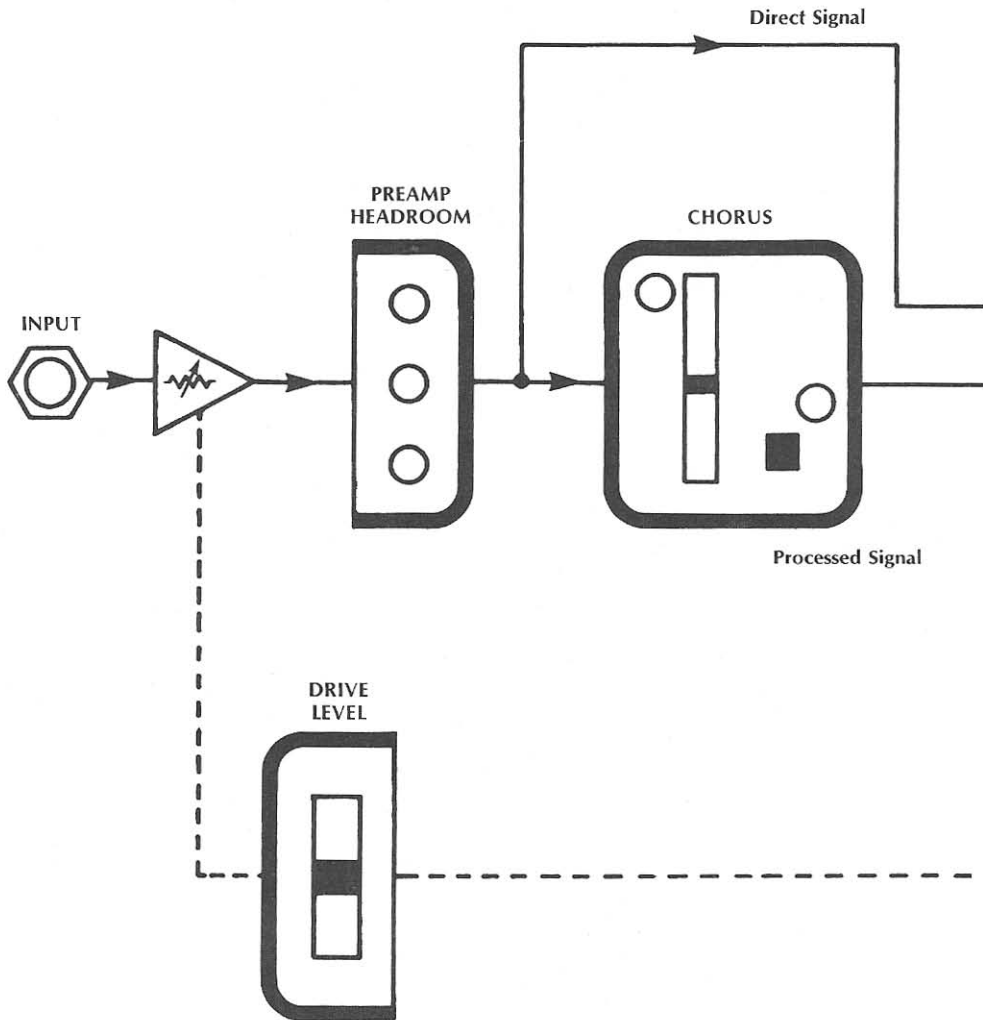


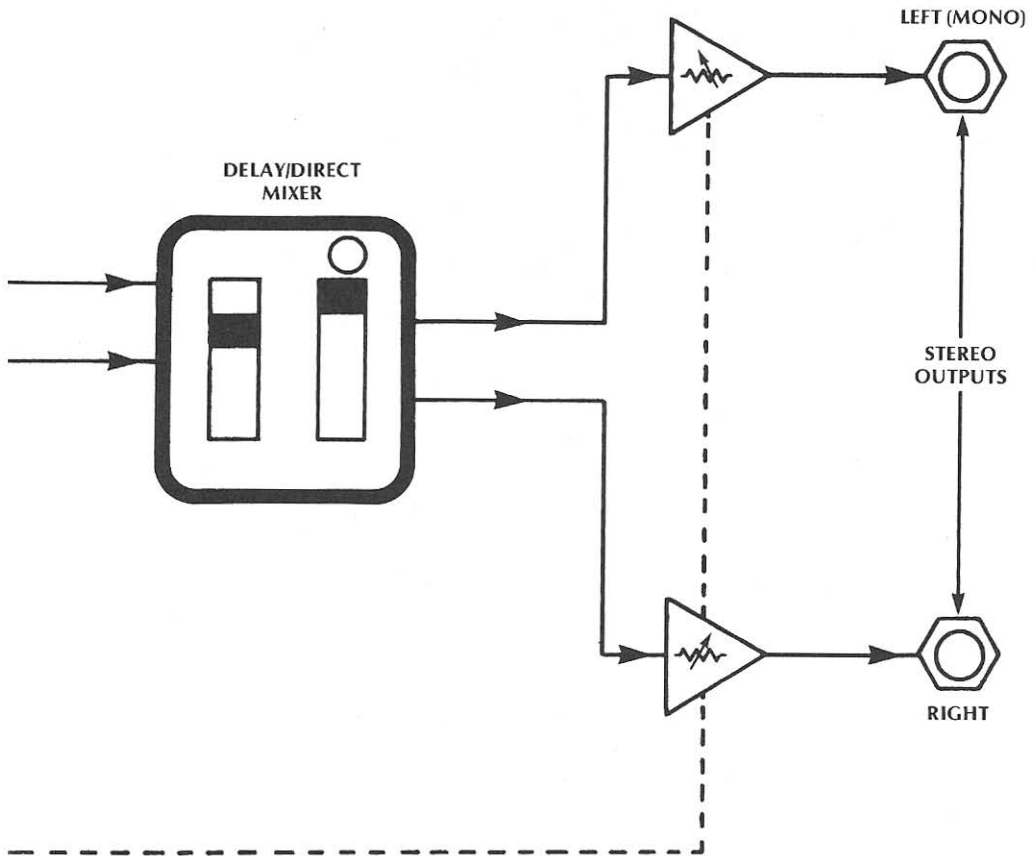
Stereo operation makes full use of the ROCKMAN STEREO CHORUS's capabilities.



STEREO CHORUS

Signal Path







Detailed Function Descriptions

PREAMP/LEVEL: Use the DRIVE LEVEL switch to match the STEREO CHORUS internal gain to the audio signal you are providing. The best match will minimize both distortion and background noise. In any switch position, the output level is the same as the input level.

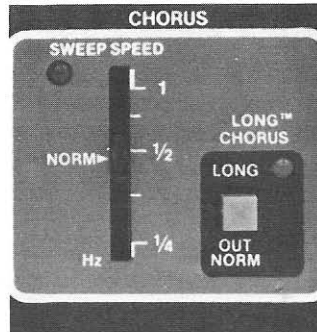


The HEADROOM LED's indicate the signal level in the circuitry. The RED LED indicates the level is approaching distortion, and should light infrequently. If the RED LED is on often, lower the level switch one notch. The YELLOW LED indicates the best signal level for minimum noise. If the YELLOW LED does not light at all raise the level switch one notch.

For typical line level signal, the "0" switch position is probably best. For a straight guitar input, you might need the +6 position. When using a ROCKMAN SUSTAINOR or DISTORTION GENERATOR, set the DRIVE LEVEL at -6. Be sure to monitor the LED's and adjust the switch for optimum operating level. NOTE: if RED LED is lit often, even in the -6 position, you must lower the signal level at its source.

Chorus Controls

The LONG CHORUS switch selects a nominal delay of 20 milliseconds (Normal) or 40 milliseconds (Long). The sweep oscillator causes the delay to vary between 20 to 24 milliseconds or 40 to 44 milliseconds in the 2 positions. The NORMAL CHORUS is just long enough to give a lifelike stereo image, while the LONG CHORUS creates a more intense effect that simulates two distinct sound sources.

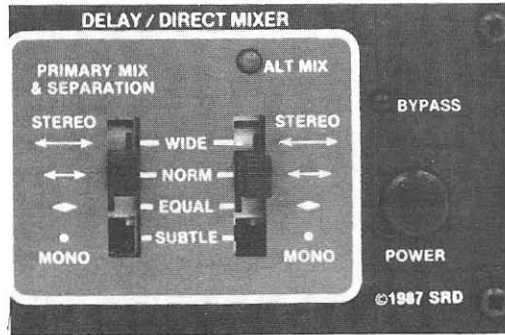


The SWEEP SPEED slider controls a low frequency oscillator which modulates the time delay. The range of the sweep oscillator is 1Hz to .25Hz, (one cycle per second to one cycle every 4 seconds), as indicated by the flashing SWEEP SPEED LED.* Slow speeds provide a subtle phasing effect, while faster speeds create a more rhythmic vibrato-like effect, with more pronounced pitch detuning. The nature of the chorusing effect is also dependent upon the setting of the output mix switch (see DELAY/DIRECT MIX section).

*In LONG CHORUS, the SWEEP SPEED is cut in half so that the amount of detuning remains the same.

SWEEP STOP, which removes pitch modulation while maintaining stereo imaging, is activated only by a footswitch. SWEEP STOP provides a choice of two fixed time delays (20ms Normal Mode or 40ms Long Mode).

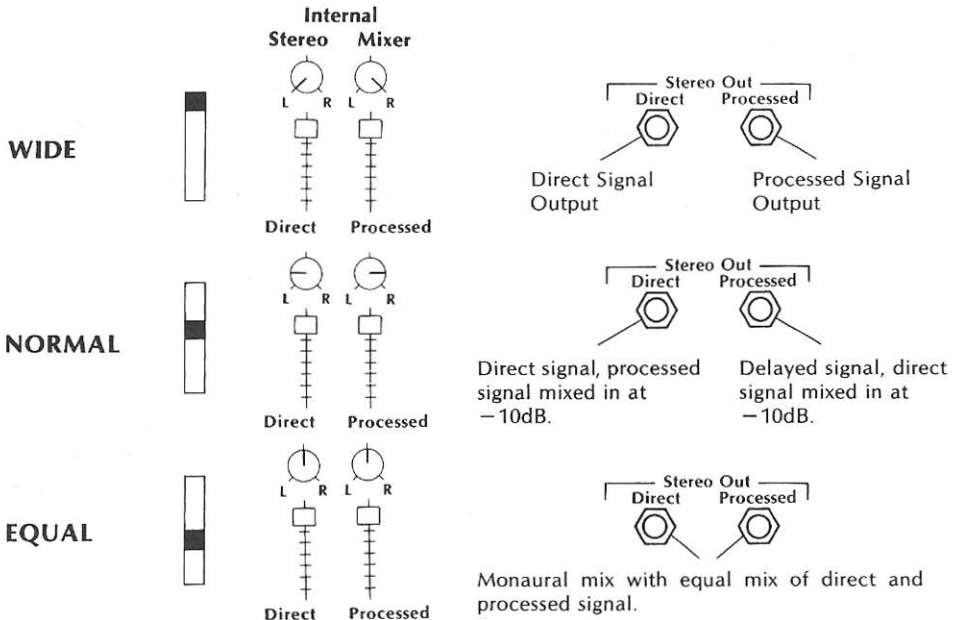
Delay/Direct Mixer

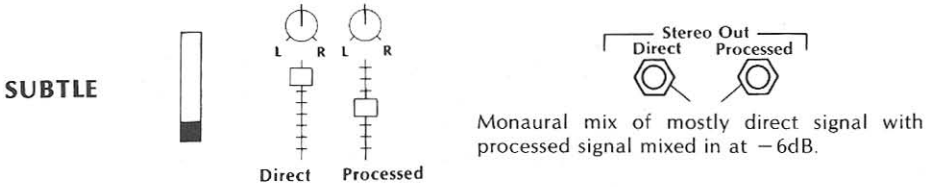


The DELAY/DIRECT MIXER section allows you to preset two separate mixes of direct and delayed signals. Only one mix switch can be active at a time. When the LONG CHORUS BUTTON is out (normal), the PRIMARY MIX and SEPARATION section is active. Depressing the LONG CHORUS button automatically activates the ALTERNATE MIX OUT. Use of a separate footswitch allows independent mix switch selection.

Stereo Operation

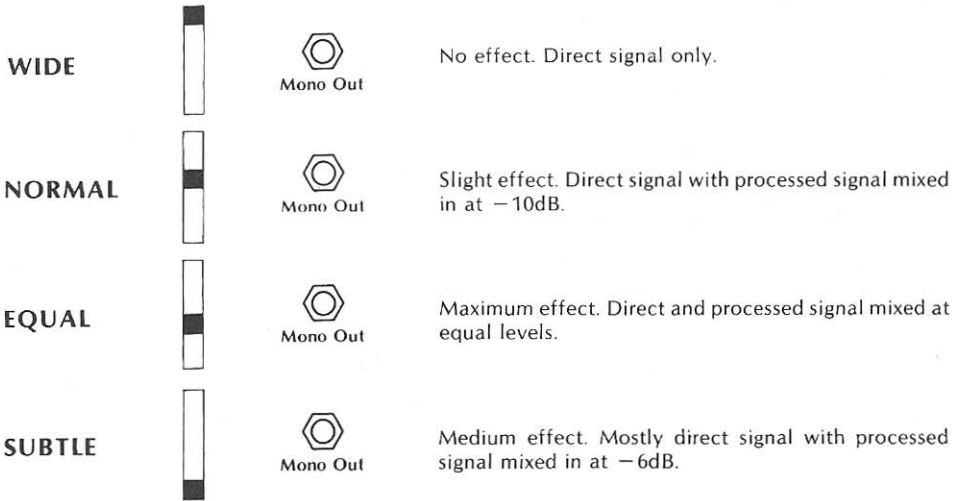
The DELAY/DIRECT MIXER section can best be understood by picturing the internal stereo mixer with direct (unprocessed) signal at one input and processed signal at another input.





Mono Operation

When the MONO output is used, the DELAY/DIRECT MIXER switch functions are different, providing four mono mixes.



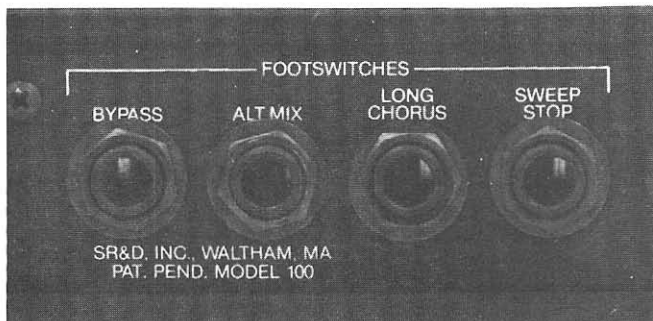
To Get Processed Only Output

Set the DELAY/DIRECT MIXER switch to STEREO WIDE and use the processed (right) output only. Use of this signal requires external mixing equipment to obtain useful effects.

NOTE: The DELAY/DIRECT MIXER circuit has been designed to provide the same apparent volume for all switch positions. In the STEREO WIDE position, the output amplitude matches the input's (unity gain). The mono settings, however, can create peaks in the output signal that are larger than the input. If clipping occurs when using the mono positions, as indicated by the RED "0" dB HEADROOM LED, set the DRIVE LEVEL switch to a lower position and, if necessary, reduce the level of your input signal.



Footswitching



The SWEEP STOP footswitch removes the modulation from the CHORUS effect and offers two useful fixed time delays; 20 milliseconds (normal), or 40 milliseconds (Long Chorus), depending on the front panel chorus mode select.

The LONG CHORUS footswitch selects between NORMAL and LONG CHORUS functions. Inserting a footswitch here de-activates the front panel LONG CHORUS button.

The ALTERNATE MIX footswitch allows remote access of the ALTERNATE MIX, as preset on the front panel. If no footswitch is inserted in the ALTERNATE MIX jack, the ALTERNATE MIX is activated whenever the unit is in LONG CHORUS mode, while the PRIMARY MIX corresponds to the NORMAL CHORUS MODE.

The BYPASS footswitch allows cancelling of any effects setup on the STEREO CHORUS. The audio signal still passes through a low noise buffer circuit, so power to the STEREO CHORUS must be ON for the signal to flow.

When you footswitch from CHORUS to BYPASS mode, the apparent volume of the mix remains unchanged. A 3dB increase in apparent volume that normally occurs when a chorused signal is replaced with a direct signal in the mix is automatically compensated for.

The rear mounted 1/4" mono footswitch jacks are designed to work with any push on/push off footswitch (short to ground) or the ROCKMAN FOOTSWITCH.

"Y" Cord Switching

One footswitch can perform more than one on-off function by splitting its control into two paths with a Y cord. By carefully choosing which functions to turn on and off simultaneously, you can greatly simplify the use of multiple ROCKMODULES™ in live performance situations. Any combination of ROCKMODULE footswitch functions can be "Y"ed together.

Use a Y cord that has a single female 1/4" mono jack splitting off to two 1/4" male mono plugs. The kind of cable used is not critical, as there is no audio signal passing through this circuit.

Applications

Use normal chorus and normal sweep speed (1/2Hz) to obtain the classic ROCKMAN chorus effect that works great with clean guitar and piano parts. For distortion guitar sounds, try increasing the sweep speed for stronger effect. Using LONG CHORUS gives an expanded spatial presence.

For keyboards, try a lower sweep speed to simulate the detuning effect of rotating speakers. For piano sounds, this setting can also simulate the beating sound caused by the multiple strings of an acoustic piano.

Use LONG CHORUS for vocals to create a double tracking effect. The pitch detuning helps smooth out slightly out of tune notes.

The MONO EQUAL mix position gives the strongest phasing and vibrato sounds by electrically combining the direct and processed signals. The varying time delay causes certain frequencies to cancel out (phasing) while the pitch differences cause rhythmic beating (vibrato).

Theory

Chorusing

The purpose of chorusing is to make one instrument, with clearly defined pitch and timing, sound like two or more instruments. Just as a string section, with its minute variations in pitch and timing, sounds richer and more interesting than a single fiddle, a chorused guitar or keyboard can sound more lifelike than an unprocessed instrument.

The ROCKMAN CHORUS works by splitting an instrument's sound into two different signals. One signal is the same as the input, while the other is slightly delayed in time and changed in pitch (detuned). The SWEEP oscillator affects the amount of delay and determines the depth of chorusing. When the delay time is shrinking, the pitch of the signal goes up, and when the delay is increasing, the pitch goes down. The faster the SWEEP oscillator fluctuates, the faster the time delay grows and shrinks, and the greater the amount of detuning.

RAILROADS

You can understand this process by imagining a train speeding toward you. Remember that sound takes time to travel through the air! The train's whistle sounds sharp as it approaches, because the time delay from the whistle to your ears is shrinking. As the train passes you, the whistle sounds flat, because the time delay is increasing. If the train goes very slowly past you, the pitch shift will be minimized, but a fast train's whistle will really dive in pitch. If you could make the train turn around, the pitch would rise again. We have replaced the train with electronic circuitry called a bucket brigade device.



Specifications

INPUT	Impedance: Over 2M Ω Maximum Level: 4.5Vrms (+13dBv)
CHORUS	Frequency Response: +1 to -3dB at 8kHz Sweep Speed Normal:25 to 1Hz Sweep Speed Long:12 to .5Hz Pitch Detuning Normal: approx 1/4 semitone Signal to Noise Ratio: over 90dB
STEREO OUTPUTS	Mix Controls: Four preset mixes Impedance: 100 Ω Maximum Level: 4.5Vrms (+13dBv)
DIMENSIONS	8½"W, 5½"D, 1¾"H. (Standard half-rack width)
POWER REQUIREMENT	3-watts, line voltage, see rear panel
ACCESSORIES Purchased Separately	19" ROCKMODULE RACKMOUNT (holds two units) ROCKMAN FOOTSWITCH

Specifications subject to change without prior notification.