

IMPORTANT SAFETY INSTRUCTIONS

For the continued safety of yourself and others we recommend that you read the following safety and installation instructions. Keep this document in a safe location for future reference. Please heed all warnings and follow all instructions.

Do **not** use this equipment in a location where it might become wet. Clean only with a damp cloth.

This equipment may be installed in an industry standard equipment rack. We recommend that all mounting holes be used, providing the best physical support. The equipment may be used as a table top device, although stacking of the equipment is dangerous and not recommended.

Do not directly block any of the ventilation openings. If rackmounting, please provide adequate ventilation. Equipment may be located directly above or below this unit, but note that some equipment (like large power amplifiers) may cause an unacceptable amount of hum or may generate too much heat and degrade the performance of this equipment.

Protect the power cord and plug from damage caused by being walked on or pinched. Protect the line cord, where it exits the unit, from excessive strain. Only use attachments and accessories specified by Rane.

Unplug this equipment during lightning storms or when unused for long periods of time.

Do not defeat the safety purpose of the grounding type plug. This plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug damage, spilled liquid, fallen objects into an opened chassis, exposure to rain or moisture, a dropped unit, or abnormal operation.



Quick Start

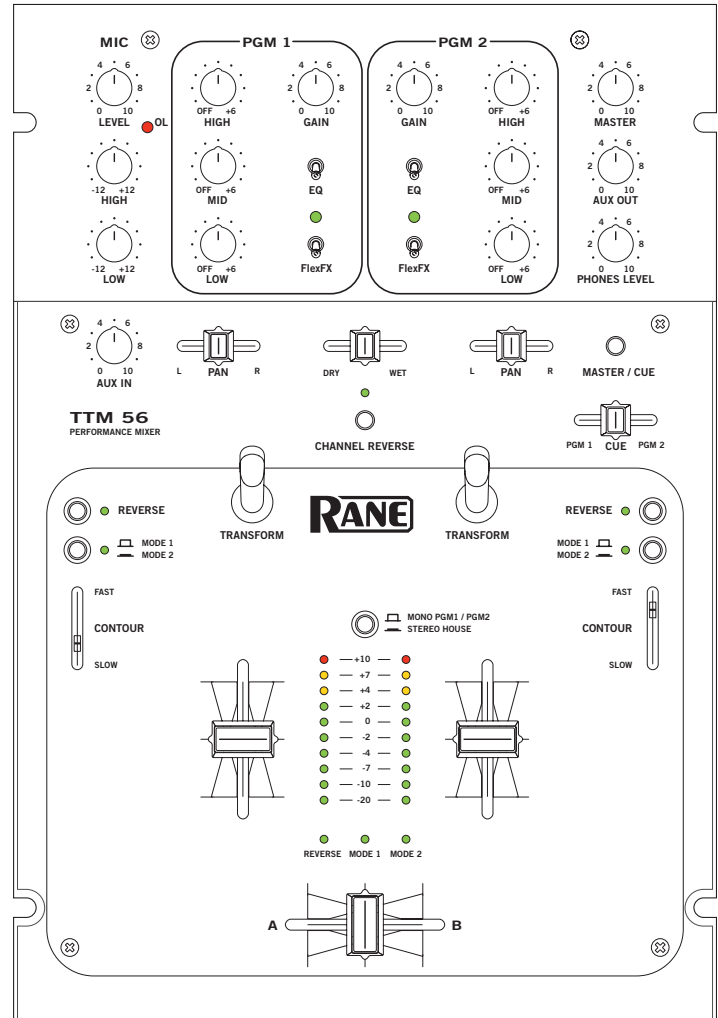
Congratulations! You are the proud owner of an exceptional performance instrument. Experienced turntablists will find the TTM 56 comfortable and familiar. The TTM 56 has many unique features which are mastered quicker if you read the manual. Right! We know you can't resist jumping right in, but please *read at least this portion of the manual*. It will help you get a good start.

About the faders: *The program faders and crossfader are magnetic, non-contact faders.* This means **No travel noise – No bleed – Ever!** The electrical performance of the faders is unaffected by use. Old habits are hard to break, but you really don't have to mess with these faders. The magnetic faders in this mixer are very different from what you are used to. Be sure and read the **Q** and **A** section on page Manual-8.

Special Features:

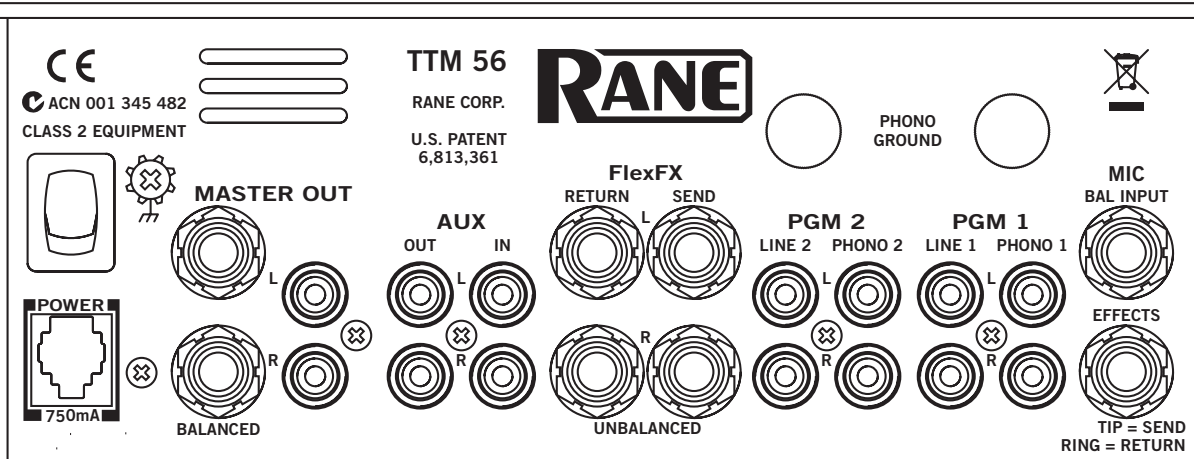
- Program fader **MODE** switches allow selecting two sets of curves:
MODE 1 gives the familiar stereo fader response.
MODE 2 gives a left/right pan effect.
- Both curves allow continuous adjustment of **CONTOUR**, giving smooth blend or fast cut.
- The **CHANNEL REVERSE** switch allows the left-hand or right-hand fader to control PGM 1 or PGM 2.
- The **CROSSFADER MODE** switch allows selecting two sets of curves:
MODE 1 gives the familiar PGM 1 to PGM 2 cross-fade response.
MODE 2 gives a center cut response (PGM 1 and PGM 2 are *off in the center*).
- *Independent CONTOUR* controls for each side of the crossfader allow cut on one side and blending on the other (or any combination).
- Auxiliary Inputs and Outputs, with independent level controls, give session mixing ability.
AUX Inputs may be used for a drum machine, tape, etc.
AUX Input is after the crossfader and after the effects loop.
AUX Outputs may be used for recording, booth monitoring, or a second zone.
AUX Output is the same as the Master Mix.
- **FlexFX™** allow assignment of PGM 1, PGM 2 or both to the effects loop. The effects loop is *post-fader*. You get great results when using the program faders or crossfader with reverb or other delay effects. **WET/DRY** pan lets you control how much effect is in the mix.
- Three-band *Accelerated-Slope™* EQ allows full cut of each band. The **EQ** engage switch lets you A/B compare or quickly transform the EQ effect.
- Two 10-segment meters provide dual-mono-Cue *or* stereo-Master operation.
- Yes, we included a power switch on the rear.

The flexibility of the TTM 56 faders can result in some initial confusion. We highly recommend trying one thing at a time to avoid this. *Make sure the CHANNEL REVERSE switch is off.* Start by changing the Mode and Contour of each fader, one at a time. See the diagrams on pages Manual-6-7 to understand the fader responses under different settings. Once you understand the controls, start creating!



WEAR PARTS: This product contains the following wear parts subject to the ninety (90) day warranty period described on page Warranty-1: ST 2 Phono/Line Switch Assembly (2).

Rear Panel Hook-up



Inputs

PGM 1 and **PGM 2** each have stereo **PHONO** and stereo **LINE** inputs.

PHONO 1 and **PHONO 2** inputs are RIAA compensated inputs, for *turntables* only!

PHONO GND terminals provide independent ground connect points for turntables. It is very important that each turntable have a very good ground connection to one of these terminals. The thumbscrews will come off if they are over-rotated, so be careful not to spin them off and lose them.

LINE 1 and **LINE 2** inputs are unbalanced line-level inputs with a sensitivity of -10 dBV (max gain).

AUX INPUT may be used with a drum machine, groovebox, sampler, or another mixer's output for session mix. This Input is mixed *after* the Crossfader and Effects loop.

MIC INPUT is a balanced input specifically designed for a dynamic microphone.

Power

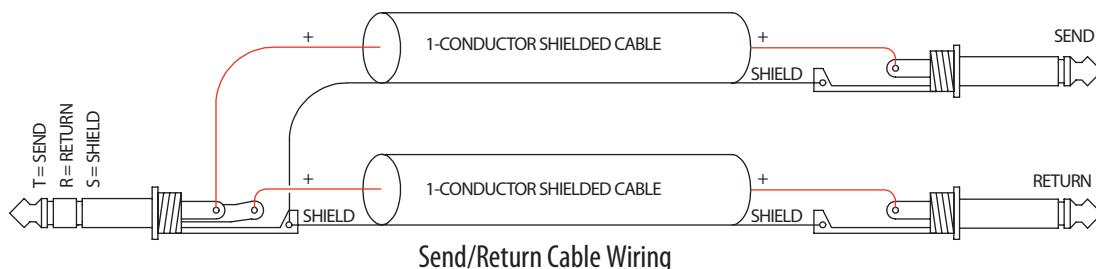
POWER connector. This is not a telephone jack! Connect only the Rane RS 1 power supply included with your TTM 56.

The **POWER** switch is located just above the power connector. You know what to do with this one, but leave it off until everything is connected.

Effects Loops

MIC EFFECTS insert jack is unbalanced. It is wired for TRS, Tip=Send, Ring=Return. This is an independent Effects Loop for the Mic. There is no engage switch, so the Mic signal is always processed when you have an effects box connected. If you are connecting to an effects processor with a Send/Return jack, a single TRS cable will work. If your effects processor has separate Send and Receive jacks, you need a "Y" cable. You can buy a Send/Return cable from your local music store, or you can make one of your own, as shown below.

FlexFX EFFECTS jacks are unbalanced mono ¼" TS (Tip/Sleeve). This stereo loop is used for output to (send) and input from (return) an effects processor. The **SEND** jacks provide the output *to* your effects processor. The **RETURN** jacks provide input for the signal returning *from* your effects processor. To use with effects insert devices with a single TRS, tip=send, ring=return jack, you need a "Y" cable, as shown below.



Outputs

AUX OUT may be used for recording, booth monitoring, a second zone, or for connecting to another mixer for session mix. **AUX OUT** is the same as the Master Mix with independent Level control.

MASTER OUT includes two sets of stereo outputs: The ¼" TRS jacks provide high current balanced (Tip-Ring-Sleeve) output.

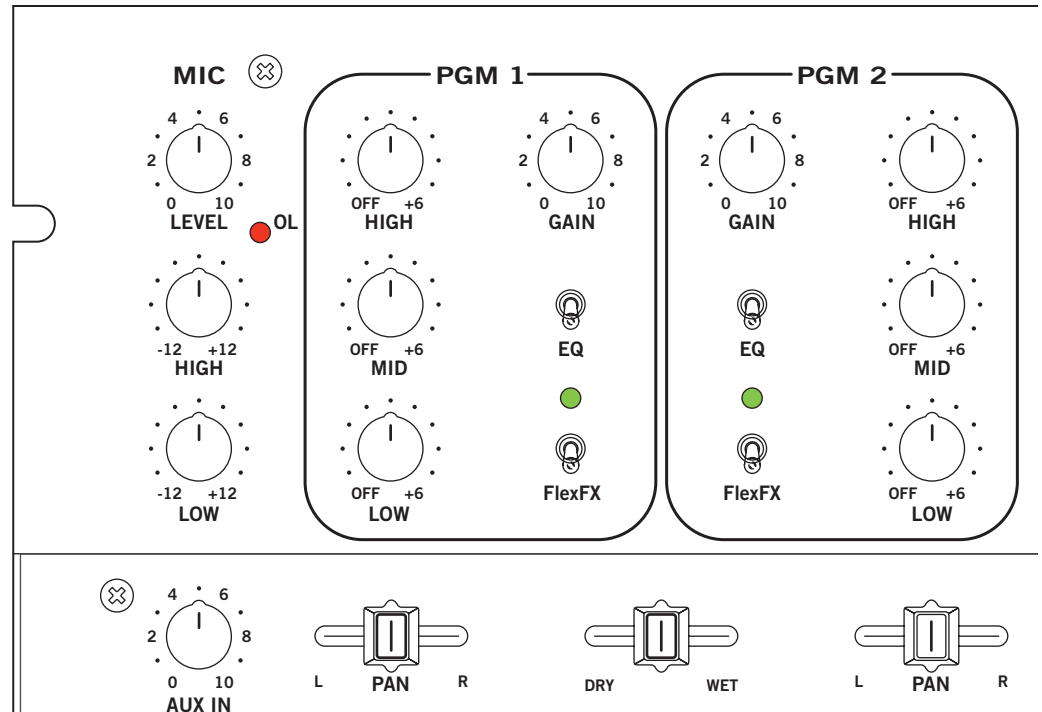
Use the balanced output whenever driving equipment with a balanced input, or when running distances greater than 10 feet (3 meters). Due to the high drive capability and low impedance, *never* use a mono ¼" Tip/Sleeve (no ring) plug in this jack. Use the RCA unbalanced outputs for shorter runs connecting to unbalanced devices. See the RaneNote "Sound System Interconnection" if you need to convert between balanced and unbalanced or run long distances.

Mic Section

MIC LEVEL sets the gain of the Mic Input. The range of operation is OFF to +50 dB. There is no engage switch, so set the MIC LEVEL to zero (0) when not in use.

The **OL** indicator lights 6 dB before clipping. Adjust MIC LEVEL so the OL indicator flashes only when you shout into the mic.

MIC HIGH and **LOW** tone controls provide as much as 12 dB of boost or 12 dB of cut. These controls have no effect when the controls are set to their center detent (12 o'clock).



Program and Aux Input Section

PGM 1 inputs are sent to the left side of the crossfader. (with the REVERSE switch *out*)

PGM 2 inputs are sent to the right side of the crossfader. (with the REVERSE switch *out*)

AUX INPUT adds another line-level input to the mix. This input comes in *after* the crossfader and FlexFX Loop.

GAIN controls adjust the signal level before it gets to the Faders. Set the GAIN controls to indicate an average signal level of +4 on the meter with the program faders set to maximum. Don't use the GAIN controls to set the output level...use the MASTER LEVEL control to set the output level. This is a very simple thing, yet makes a huge difference in the performance of your mixer.

EQ switches engage the 3-band tone controls. EQ switches may be used in conjunction with the Hi, Mid and Low controls as "kill" switches. Set the rotary controls and flip the switch.

HIGH tone controls affect frequencies above 4 kHz. The range of control is +6 dB to OFF (full kill). The center detent position leaves this filter inactive. This filter is just above the vocal range, and can make small tonal changes, or eliminate high frequency signals.

MID tone controls affect frequencies from 300 Hz to 4 kHz (vocal midrange). The range of control is +6 dB to OFF (full kill). The center detent position leaves this filter inactive. Use for small tonal changes or to cut midrange signals.

LOW tone controls affect frequencies below 300 Hz. The range is +6 dB to OFF (full kill). The center detent position leaves the filter inactive. These filters influence signals below the vocal range. Use to adjust or eliminate bass beats.

PAN controls adjust the Left and Right balance of PGM 1 and PGM 2. Don't use these excessively for left/right pan effect, they are not as durable as the Faders. For left/right pan effect, use the program faders in Mode 2.

CHANNEL REVERSE switch allows the left-hand or right-hand Fader to alternately control PGM 1 or PGM 2. (Don't confuse with the program fader REVERSE switch, see below.)

TRANSFORM switches provide two functions:

- PHONO / LINE source selection for PGM 1 and 2.
- Quick cut between the used and unused input. The switches are easily field replaceable and may be rotated in 45° increments. See page Manual-10 for instructions.

Faders

The **program faders and crossfader** are *magnetic, non-contact* faders. This means ***No travel noise or bleed!*** The electrical performance of the faders is unaffected by use. The program faders and crossfader each have their own **CONTOUR**, **REVERSE** (hamster) and **MODE** controls. Magnetic faders are very different from what you are used to. Read **Maintaining Magnetic Faders** on pages Manual 8-9.

Program fader MODE switches: allow selecting two sets of curves. **MODE 1** gives the familiar stereo fader response. **MODE 2** gives left/right pan effect.

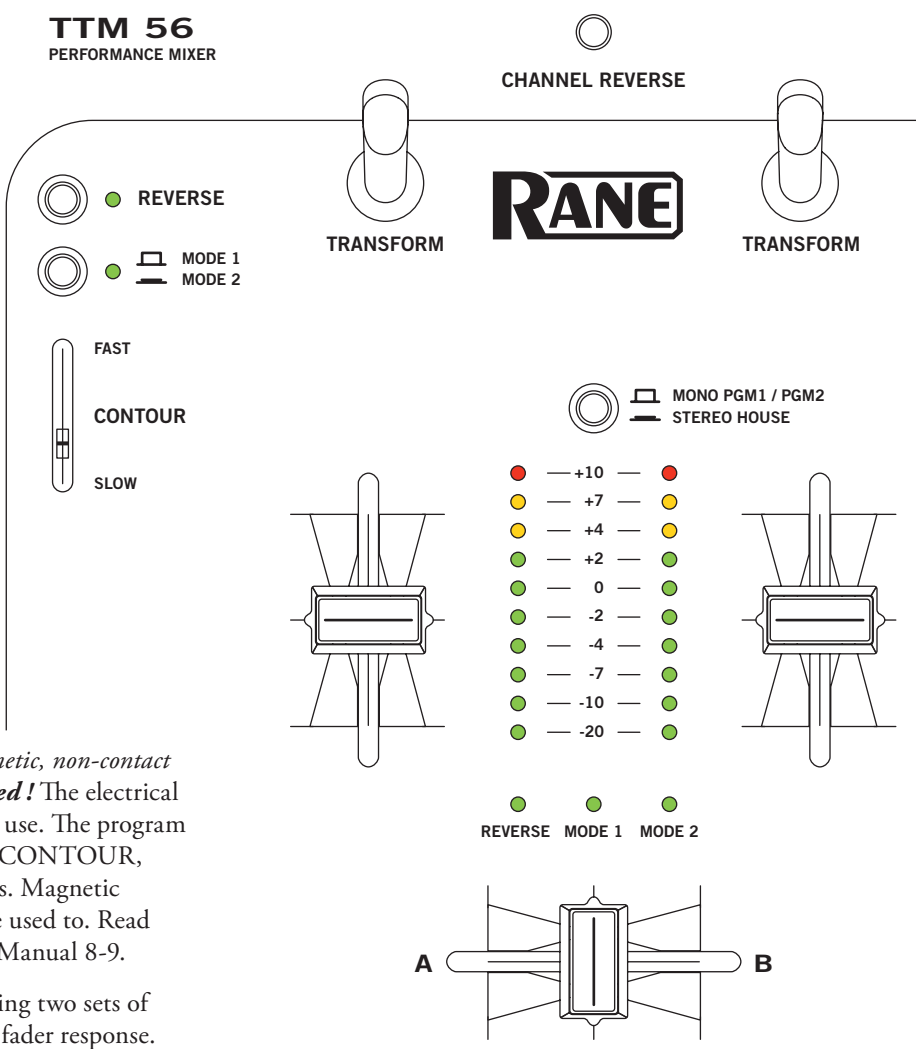
Program fader CONTOUR controls: allow smooth, continuous adjustment of contour for both **MODE 1** and **MODE 2**. The range of control is from **SLOW** blend to **FAST** cut.

Program fader REVERSE switches change the direction of the program faders. When the reverse switch is engaged, up is down and down is up (hamster).

CROSSFADER MODE switch allows selecting two sets of crossfader curves. **MODE 1** gives the familiar PGM 1 / PGM 2 crossfade response. **MODE 2** gives a center cut response (PGM 1 and PGM 2 off in the center).

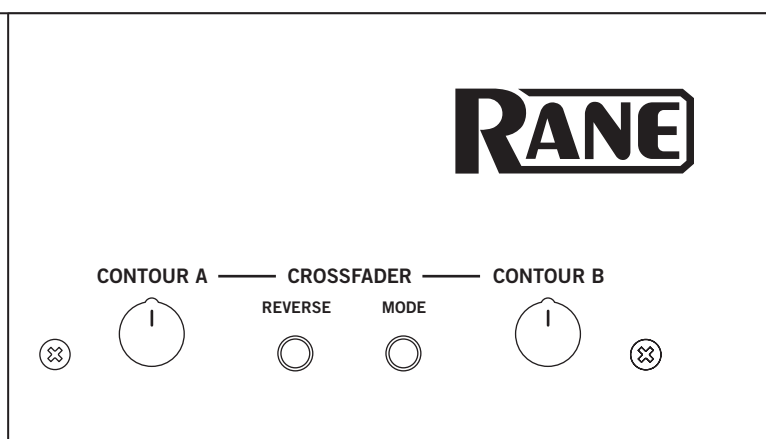
CROSSFADER CONTOUR A & B provide independent control for each side of the crossfader. This allows a fast cut on one side and slow blending on the other (or any combination you choose).

TTM 56 PERFORMANCE MIXER



Meters

Meters provide switchable true stereo Master Mix or dual-mono PGM1 / PGM2 indication of Pre-Program fader signal levels. Ten-segment resolution is provided with a one second, peak hold. Use the meter to set the **GAIN** controls. With the program fader set to maximum, the input **GAIN** should be set to indicate an average level of about +4 dB.



FlexFX Loop

FlexFX switches send PGM 1, PGM 2 or both to the stereo effects loop. The effects loop is post-fader and post-crossfader. You get great results when using the program faders or crossfader with reverb or other delay effects. The effects loop provides separate stereo send and return jacks. The green indicators light when FlexFX is engaged.

WET/DRY pan control lets you set the amount of effect in the mix. DRY equals no effect, WET gives maximum effect.

Output Section

MASTER control sets the level for both the unbalanced and balanced Master Outputs.

AUX OUTPUT control sets the level of the Auxiliary Outputs.

Headphone Cueing

The headphone amp in the TTM 56 has a high power output (unlike most you have used before). There are notable differences...

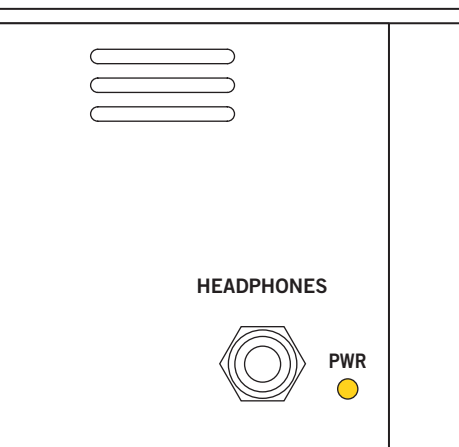
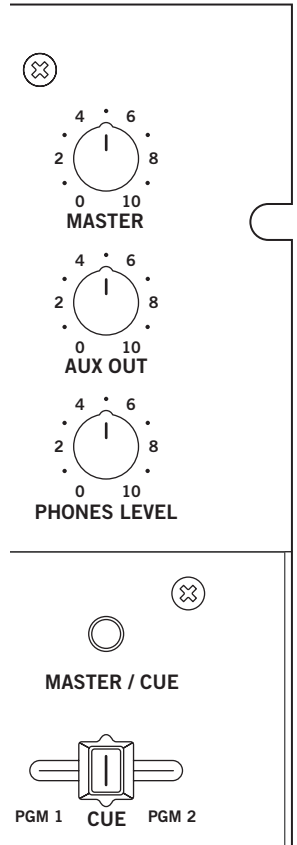
- The headphone output of the TTM 56 delivers very high volume to your headphones.
- To avoid pain, never put headphones on your head before plugging them in.
- Always start with the PHONES LEVEL turned down, and then turn it up to the desired level.
- Because of the high current and low output impedance, never short one side to ground, or short left and right together as is possible with mono cup headphones.
- Low power headphone stages typically use large resistors on their outputs, which allow shorting, but prevent high power. The TTM 56 gives you high power, but does not allow shorting.

MASTER / CUE switch is used to select the headphone monitor source:

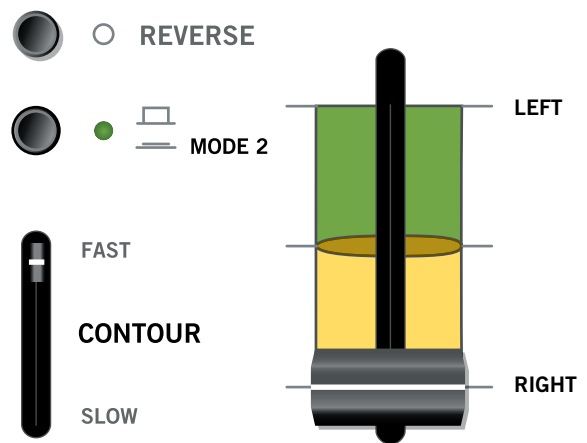
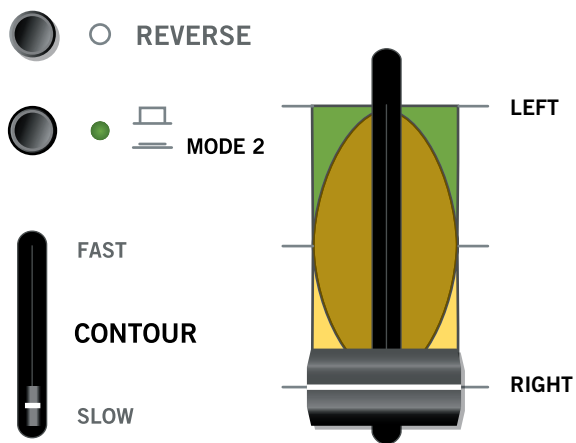
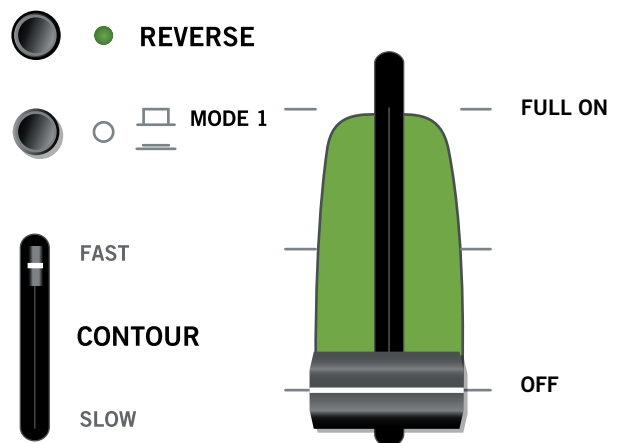
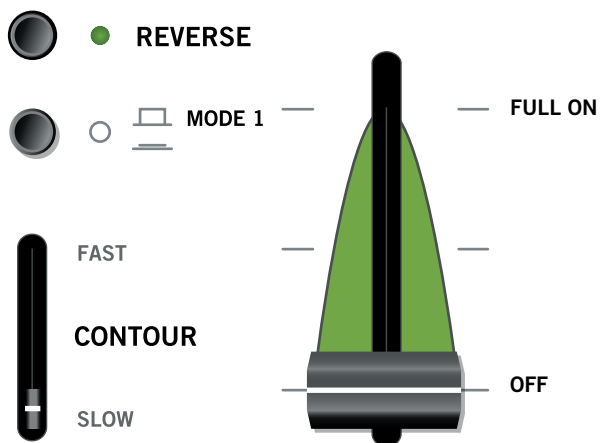
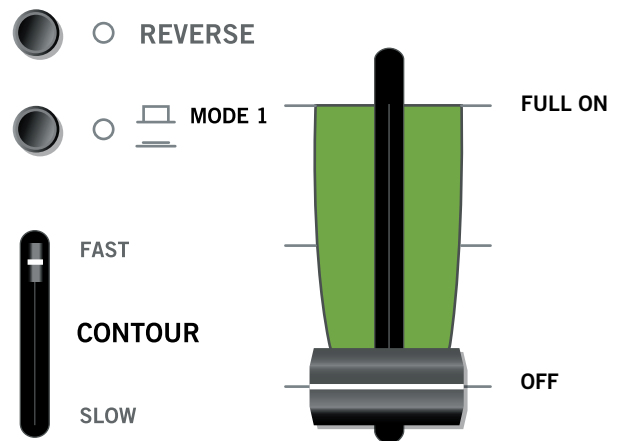
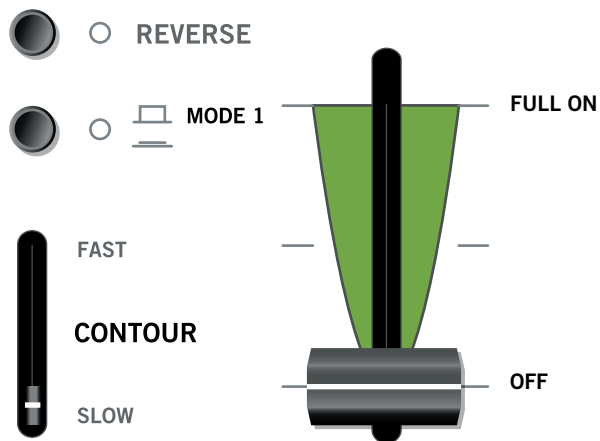
- Use **MASTER** (*out*) to rehearse your performance. This signal is the same as the MASTER OUT, but is not affected by the MASTER LEVEL control.
- Use **CUE** (*in*) to monitor the Program Input signal before fading in. This signal is not affected by the Program Faders or Crossfader. *Because the Effects Loop is after the Fader, you will not hear effects in the Cue.*

CUE slider allows you to PAN between PGM 1 and PGM 2 in the headphones when the MASTER / CUE switch is depressed. When the switch is released, this control has no effect.

PHONES LEVEL control sets the output level of the headphone amplifier.

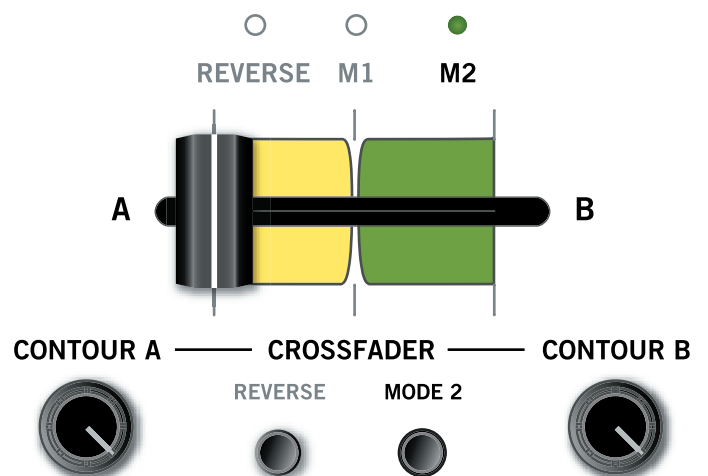
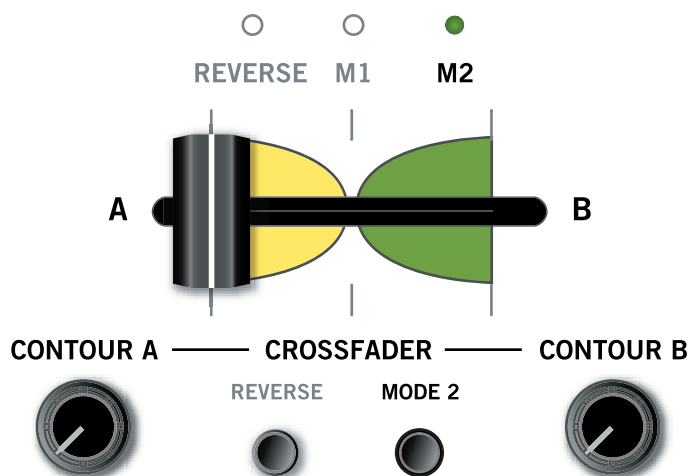
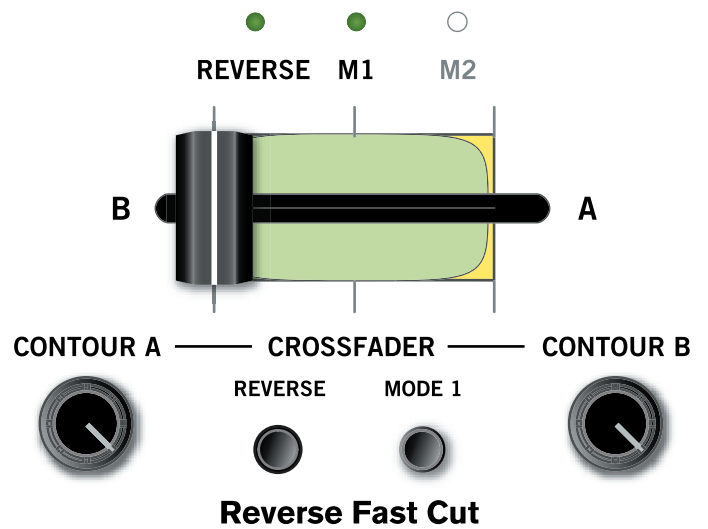
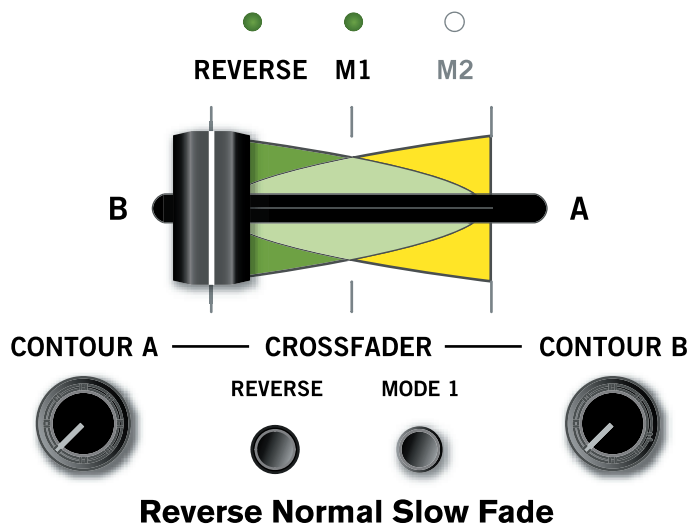
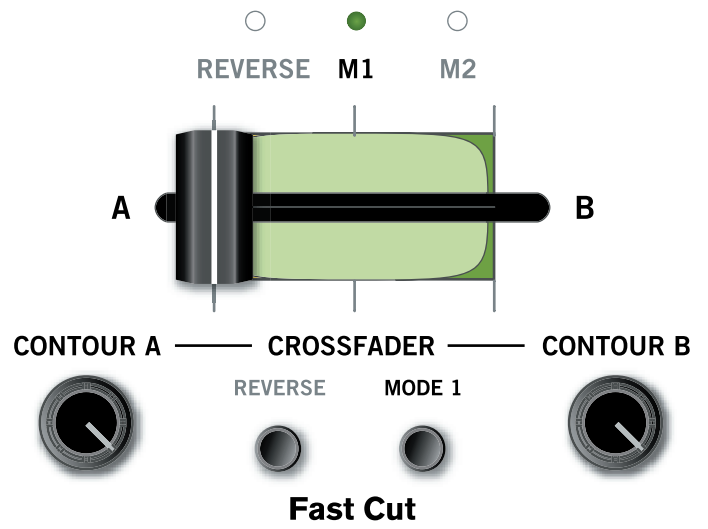
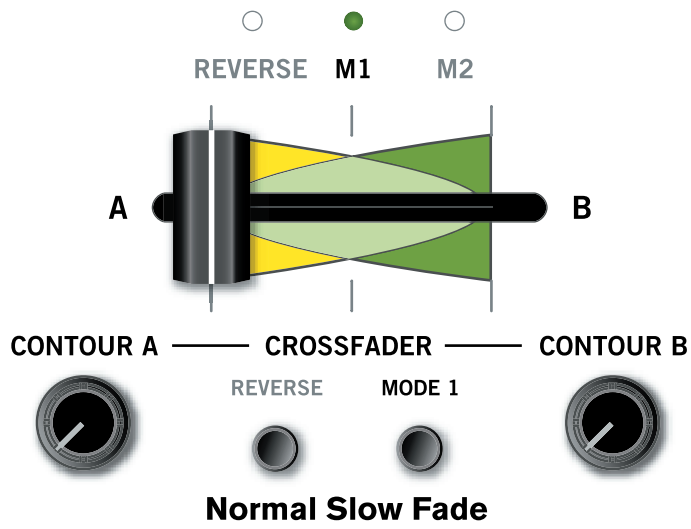


Channel Fader Response



Channel Fader Response showing effect of Reverse, Mode 1, Mode 2, and Contour controls.

Crossfader Response



Crossfader Response showing effect of Reverse, Mode 1, Mode 2, and Contour controls.

Magnetic Fader Q and A

Q: Will I damage the faders if I spray them with bad stuff or spill bad things in them?

A: *No.* The faders in the TTM 56 are designed with materials highly resistant to corrosion and most chemicals. *There are no electrical contacts to clean or damage.* While bad things may change the feel of the faders, bad things will not affect the sound. To clean faders that have had a bad thing put in them, follow the simple instructions on page Manual-8.

Q: Can I install magnetic faders in any other mixer?

A: *Sorry.* The connectors may be similar, but the circuits are very different. Connecting the faders to anything other than the intended cable in the TTM 56 could permanently damage them.

Q: Can I install other faders in my TTM 56?

A: *No.* The cable connections are specially designed for Rane magnetic faders.

Q: Can I install a different magnetic fader in my mixer or swap the position of my faders?

A: *No.* In order to achieve the highest possible accuracy, each magnetic fader is factory calibrated for the location in which it was shipped. For information about replacement or calibration, contact Rane Customer Service. If you remove the faders for cleaning, make sure you mark them. This helps you to put them back in the same location.

Maintaining Magnetic Faders

There are no electrical contacts to clean!

The faders in the TTM 56 are designed with materials highly resistant to corrosion and most chemicals. While the faders will handle millions of operations, they may become dirty over time. Bad things may be spilled or sprayed into the faders. In either case, the faders are not damaged and the sound quality is unaffected. *Cleaning is only required to maintain the feel of the faders.*

The faders are self-lubricating and with normal use, should not require additional lubrication. If you wish, you can use a light silicone lubricant rated for use with electrical parts. This will help maintain the feel. We recommend Caig DeoxIT FaderLube F100 spray lubricant.

Order DeoxIT® F100 from CAIG Laboratories, Inc.

12200 Thatcher Ct.

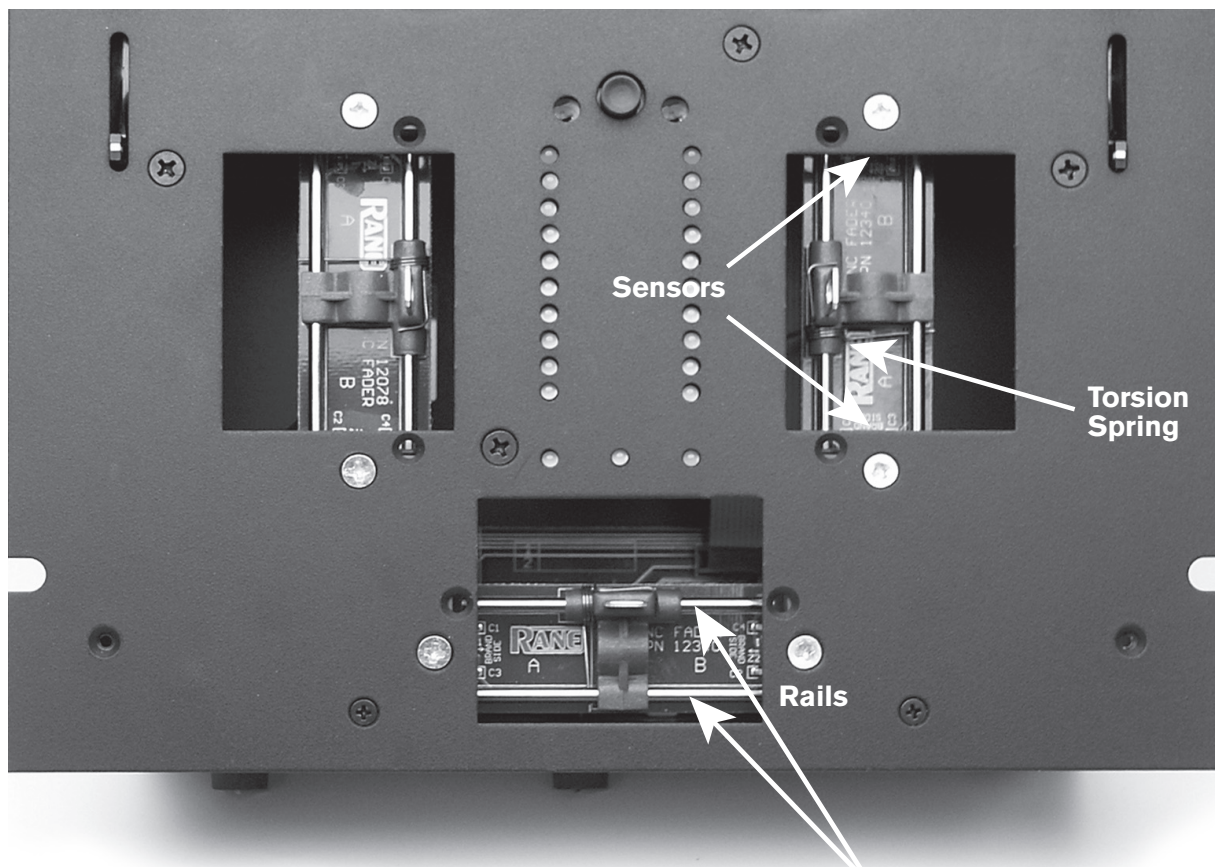
Poway, CA 92064

Phone 858-486-8388

Fax 858-486-8398

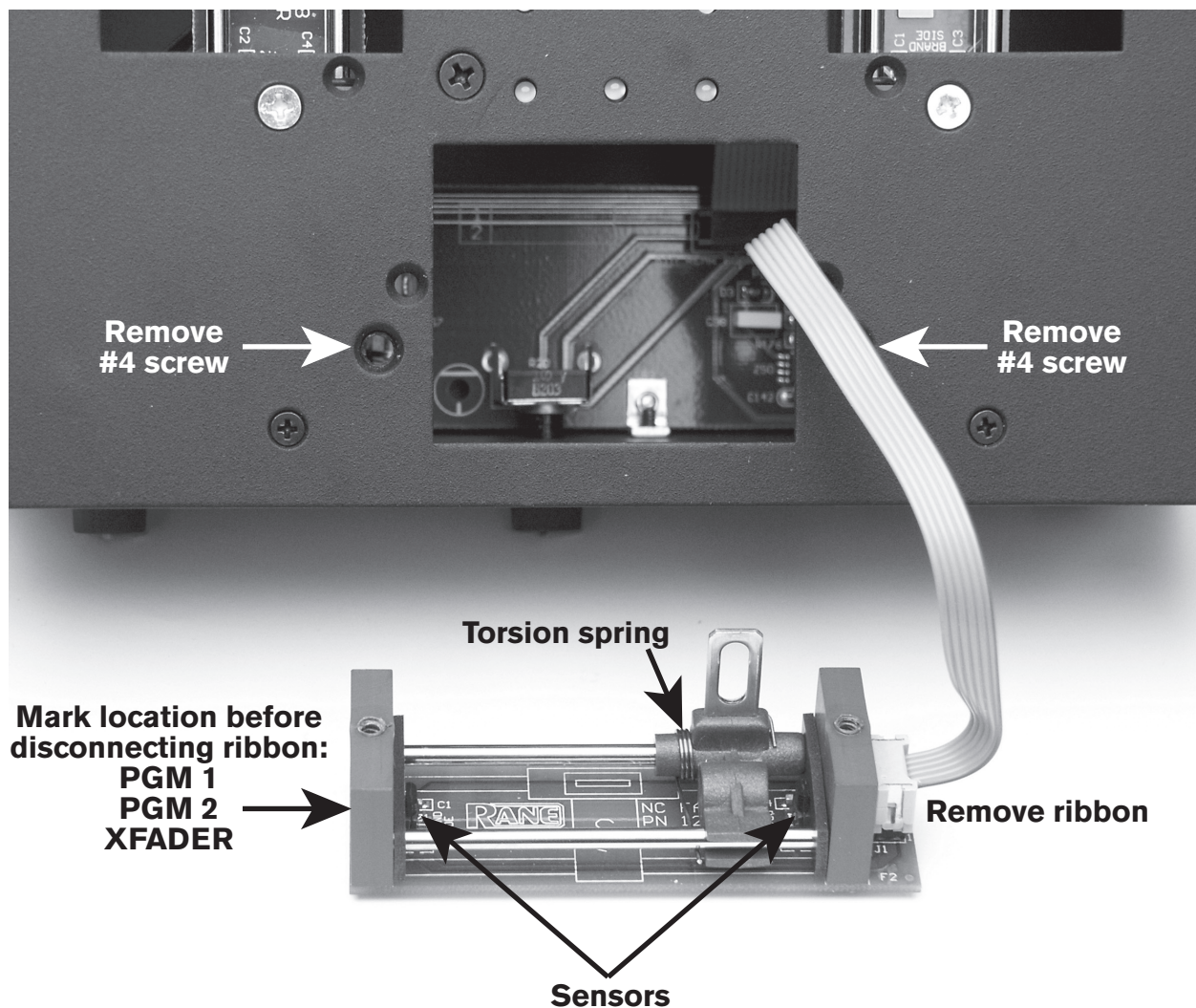
Web www.caig.com

Never use a heavy lubricant or grease. Doing so will not damage the faders, but can undo the feel. If grease was used, it may be removed by following the cleaning instructions. Light lubrication is possible with the Lexan plate on. A couple of drops or a short spray are all that is required. Make sure the products you use are suitable for use with electrical parts that contain plastic.



Magnetic Slider Rail Cleaning

- Move the carrier all the way to one side.
- Use a soft lint-free cloth to wipe off rails.
- Add a drop of silicone lubricant (or quick spray from aerosol) to the center of each rail.
- Move the carrier back and forth to distribute lubricant.
- Do not bend torsion spring or touch sensors.

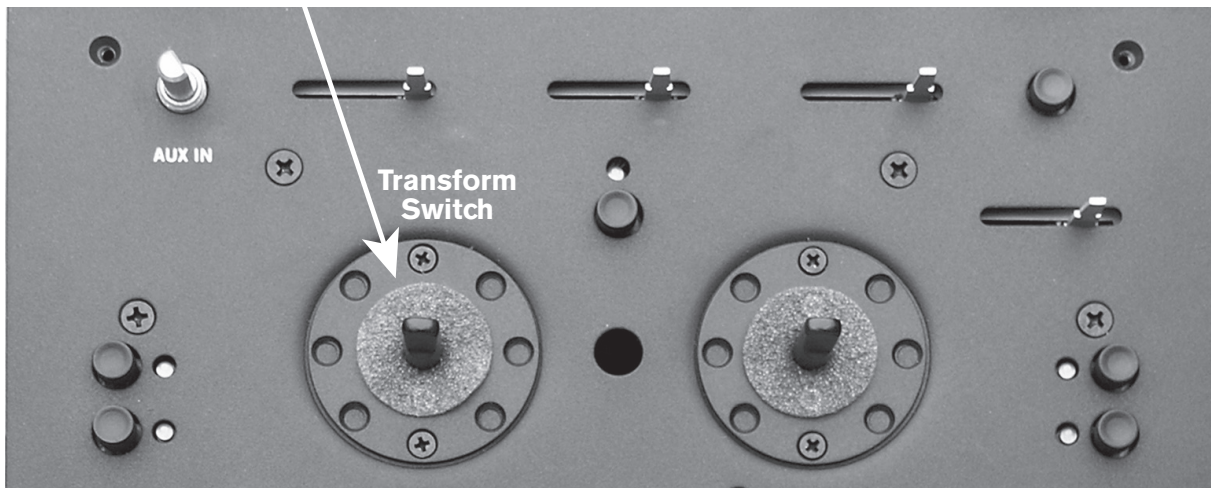


For more effective cleaning and lubrication, follow the directions outlined below:

1. Required Tool: #1 Philips screwdriver
2. Disconnect the power.
3. Remove knobs from controls covered by the Lexan faceplate.
4. Remove the four, 4-40 screws attaching the Lexan faceplate.
5. Remove the Lexan faceplate. See the picture and instructions below. The rails of the fader are now accessible for normal cleaning and lubrication.
6. Remove fader from mixer if more thorough cleaning is required.
7. **NOTE:** Do not disturb the position of the small sensors at each end of the Fader. If you do, make sure the parts are standing straight before reinstalling.
8. **NOTE:** In order to achieve the highest possible accuracy, *each magnetic fader is factory calibrated* for the location in which it was shipped. If you remove the faders for cleaning, *make sure you mark them*. This helps you to put them back in the correct location.
9. Remove the fader by removing the two #4 screws securing it. Then disconnect the ribbon cable.
10. Sugary liquids spilled into a fader may be removed by thoroughly rinsing the part in hot water. Make sure the part is clean and dry before lubricating or reinstalling.
11. Removal of grease or other stubborn debris may require alcohol or contact cleaner. Make sure the part is clean and dry before lubricating or reinstalling.
12. To reassemble, reverse the disassembly procedure.
13. Problems? Contact Rane Corporation customer service at 425-355-6000.

Rotating or Replacing Transform (Phono/Line) Switches (model ST 2)

1. Required tool: #1 Philips screwdriver
2. Disconnect the power.
3. Remove knobs from controls covered by the Lexan faceplate.
4. Remove the four 4-40 screws attaching the Lexan faceplate.
5. Remove the two 4-40 switch mounting plate screws.
6. If rotating controls only, go to **step 10**.
7. Remove the two 2.5 mm screws holding the switch to the plate.
8. Remove the ribbon cable from the switch.
9. Attach the ribbon cable to the new ST 2 switch.
10. Reattach the switch to the mounting plate.
11. Rotate the switch to the desired location.
12. Reinstall 4-40 screws holding the switch mounting plate.
13. Reinstall the decor faceplate and re-attach control knobs.



Important Note

CHASSIS GROUNDING

If your system exhibits excessive hum or buzzing, there is an incompatibility in the grounding configuration between units somewhere. Here are some things to try:

1. Check that the turntable grounding wires are connected to the PHONO GND posts.
2. Try combinations of lifting grounds on units that are supplied with ground lift switches or links.
3. If your equipment is in a rack, verify that all chassis are tied to a good earth ground, either through the line cord grounding pin or the rack screws to another grounded chassis, or tied to the ground screw located next to the POWER switch.
4. This unit's outboard power supply does *not* ground the chassis through the line cord. Make sure that this unit is grounded either to another chassis which is earth grounded, or directly to the grounding screw on an AC outlet cover by means of a wire connected to a screw on the chassis with a star washer to guarantee proper contact.

Please refer to the RaneNote, "*Sound System Interconnection*" (supplied with this manual and available on our website) for further information on system grounding.