

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

For experienced turntablists, *ninety percent* of the operation of the **TTM 54i Performance Mixer** is obvious — however, the **TTM 54i** also has many unique features. These new features will be mastered more quickly if you read the entire manual. *Right!* We know some of you can't resist jumping right in, so please read at least this portion of the manual. It will help you get a good start.

- **GAIN TRIM:** These controls are intended to set the signal level *before* the Crossfader. *Always* set the **GAIN TRIM** controls to indicate an *average* signal level of +4 on the meter with the **Program Faders** set to *maximum*. *Never* use the **GAIN TRIM** controls to set the output level. *Always* 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.*
- **EFFECTS:** The assignable effects loop allows insertion of a stereo effects processor into:
 - Pre-Program Fader **PGM 1**.....Engage **PGM 1 EFFECTS** only.
 - Pre-Program Fader **PGM 2**.....Engage **PGM 2 EFFECTS** only.
 - Post-Crossfader **MASTER**.....Engage *both PGM 1 and PGM 2 EFFECTS* switches.
 - Read sections ④ and ⑳ for more information.
- **PHONES:** The headphone output of the TTM 54i is a *high power* output stage (unlike most you have used before). There are some notable differences...
 - The headphone output of the TTM 54i delivers *very high* volume into your headphones.
 - To avoid pain, *never* put headphones on your head and *then* plug 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. *Note: Low power headphone stages typically use large resistors on their outputs, which allow shorting, but prevent high power. The TTM 54i gives you high power but does not allow shorting.*
- **MIC LEVEL:** For best performance, keep this control at **0** when not in use.
- For instructions on *rotating Phono/Line* switches to the desired location, see page Manual-6.
- *Do not spray cleaner* or lubricant into the front of the **Program Faders** or **Crossfader**. The fluid will just run out the bottom of the unit. *Never use unapproved cleaner* or lubricants such as skateboard wheel lube, as corrosive damage may result, voiding the warranty. See page Manual-6 for cleaning and replacement instructions and cleaner recommendations.
- *Never connect anything except an RS 1 Rane AC power supply to the thing that looks like a telephone jack on the rear.* This is an 18 VAC center-tapped power unit. Consult the Rane factory for replacement or substitution.
- **WEAR PARTS:** This product contains the following wear parts subject to the ninety (90) day warranty period described on page Warranty-1: *FT 45 Crossfader & Channel Fader Assembly(3); ST 2 Phono/Line Switch Assembly (2).*

Front and Rear Panel Descriptions

- ① **PGM 1** and **PGM 2** input **GAIN TRIM** controls adjust the input level. *With the Program Faders (⑧) at maximum, set GAIN TRIM to give a peak reading of +4 on the meter. Set the MASTER LEVEL (⑰) to minimum while adjusting). It is always best to run the input level at +4 to +7. Use the MASTER LEVEL to adjust the volume at the MASTER OUT (⑱).*
- ② **BASS** and **TREBLE** controls provide deep cut, *Accelerated Slope™* EQ for **PGM 1** and **PGM 2**. This unique EQ design makes it possible to eliminate the “sizzle” or “bass beat” without changing the vocal range. The graph in Figure 1 indicates the response of the filters.
- ③ **BALANCE** controls are used for **LEFT/RIGHT** balance of **PGM 1** and **PGM 2** or for **LEFT/RIGHT** Pan effect. Push the control to the left and sound moves to the left channel. Push the control to the right and sound moves to the right channel.
- ④ **EFFECTS** engage switches are provided for **PGM 1** and **PGM 2**. *These two switches determine the location of a single, assignable, stereo EFFECTS LOOP.*
 - **PGM 1 & PGM 2 EFFECTS** both *out*: **EFFECTS** is not engaged.
 - **PGM 1 EFFECTS** switch in *only*: **EFFECTS** inserted pre-**Program Fader PGM 1**.
 - **PGM 2 EFFECTS** switch in *only*: **EFFECTS** inserted pre-**Program Fader PGM 2**.
 - **PGM 1 & PGM 2 EFFECTS** both *in*: **EFFECTS** inserted post-**Crossfader Master**.
- ⑤ **CONTOUR** switches provide three tapers for **PGM 1** and **PGM 2 Program Faders**. The numbers **6**, **20** and **30** indicate the mid-point attenuation. Settings can provide smooth fade or cut and scratch effects. Note in Figure 2, the **6 dB** setting provides a *quick on* contour for cut and scratch (0% travel is with **Program Fader up**). When used with the **HAMSTER** reversal switch, the **Program Fader** operates very similar to the **Crossfader**, allowing the same hand motion for cut and scratch operation. The **20 dB** setting provides a normal audio taper while the **30 dB** setting provides a more rapid fade out.
- ⑥ **HAMSTER** switches reverse the operation of the adjacent **PGM 1** and **PGM 2 Program Faders**. When engaged, signal is *off* with the **Program Fader up**, and *maximum* with the **Program Fader down**.
- ⑦ **PHONO / LINE** source select switches are provided for **PGM 1** and **PGM 2**. These are “clickless” switches suitable for “transform scratch” applications. The switches are replaceable and may be rotated. *See page Manual-6 for rotation and replacement instructions.*
- ⑧ **Program Fader** controls for **PGM 1** and **PGM 2** are ultra low noise, long-life, monorail devices. The control element is completely isolated from the audio using VCA circuits (voltage-controlled amplifier), providing the highest reliability and performance. *See page Manual-6 for cleaning and replacement.*
- ⑨ **PGM 1** and **PGM 2 Meters** provide true L+R Dual Mono indication of **Post-Program Fader** signal levels. Ten segment resolution is provided with a one second peak hold indication. With the Program Fader set to maximum, set the input **GAIN TRIM** to indicate an average level of about +4.
- ⑩ **Crossfader** is implemented using Ranes’ VCA design. As with the **Program Faders**, all audio is isolated from the control element, greatly extending the life and performance of the control. *See page Manual-6 for cleaning and replacement.*

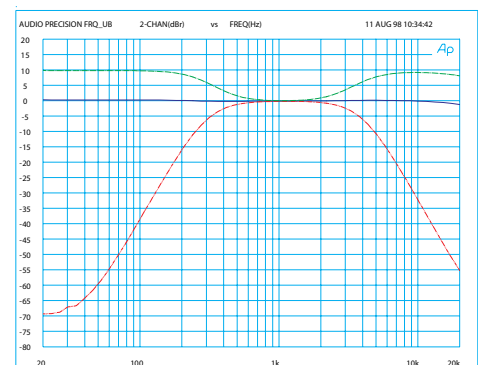
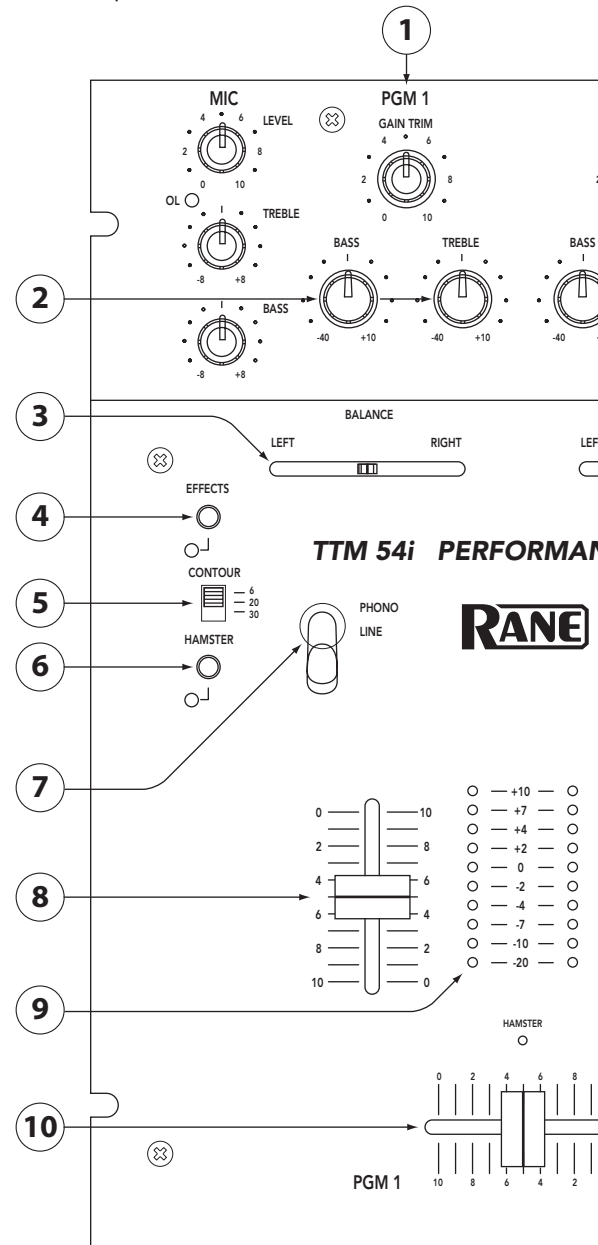


Figure 1. PGM Bass & Treble Controls

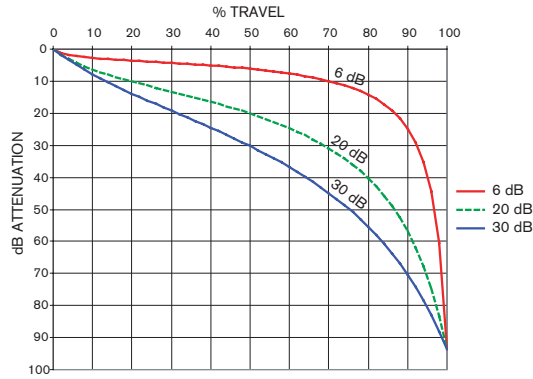
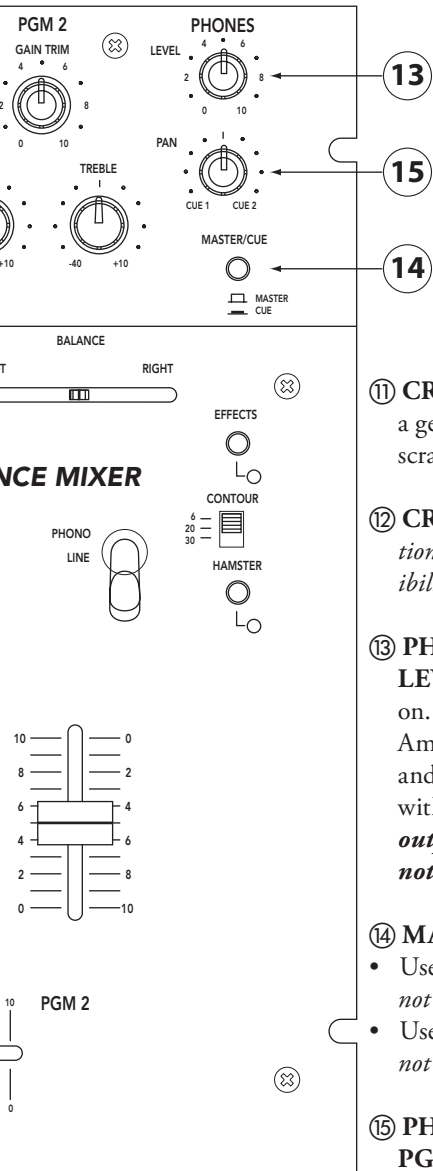


Figure 2. Contour Switch

- ⑪ **CROSSFADER CONTOUR** control allows adjusting the “shape” of the **Crossfader** response from a gentle curve for smooth, long running fades, to the steep pitch required for top performance cut and scratch effects shown in Figure 3.
- ⑫ **CROSSFADER HAMSTER** control allows reversing the operation of the **Crossfader**. *With the combination of ActiveFader™, CONTOUR control, and HAMSTER control, the TTM 54i provides a level of flexibility and performance previously unavailable.*
- ⑬ **PHONES LEVEL** control adjusts the loudness of the Headphone output signal. Always start with the **LEVEL** at minimum (CCW) and increase to a comfortable level with signal present and your headphones on. This prevents tearing them off after you plug them in with the level set too high. This Headphone Amplifier delivers *very high* sound pressure levels (SPL) into most headphones. 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. *Note: Low power headphone stages typically use large resistors on their outputs, which allow shorting, but prevent high power. The TTM 54i gives you high power but does not allow shorting.*
- ⑭ **MASTER / CUE** switch selects the **HEADPHONES** monitor source:
 - Use **MASTER** to rehearse your performance. This signal is the same as that at the **MASTER OUT**, but is *not* affected by the **MASTER LEVEL** control.
 - Use **CUE** to monitor the Program Input signal, so you can “Cue” a signal before fading it in. This signal is *not* affected by the **Program Faders** or **Crossfader**.
- ⑮ **PHONES PAN** control is only active when **CUE** is selected. This control allows you to **PAN** between **PGM 1** or **PGM 2**.
- ⑯ **HEADPHONES** jack provides a high current output, capable of driving headphones between 8 Ω and 600 Ω. Because the amplifier is capable of high current drive, it is important that the outputs are not shorted together or to ground. *Do NOT use single cup phones that short tip and ring.*
- ⑰ **MASTER LEVEL** adjusts the **MASTER OUTPUT** level for both the balanced and unbalanced outputs.

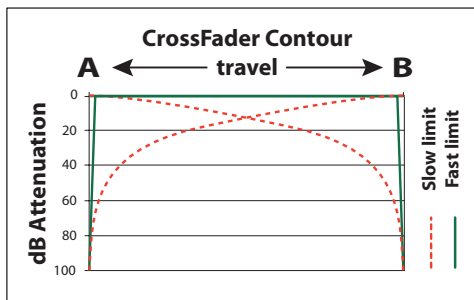
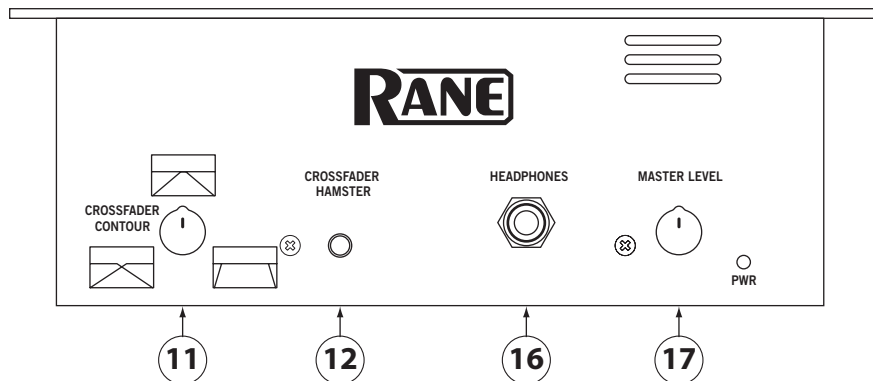
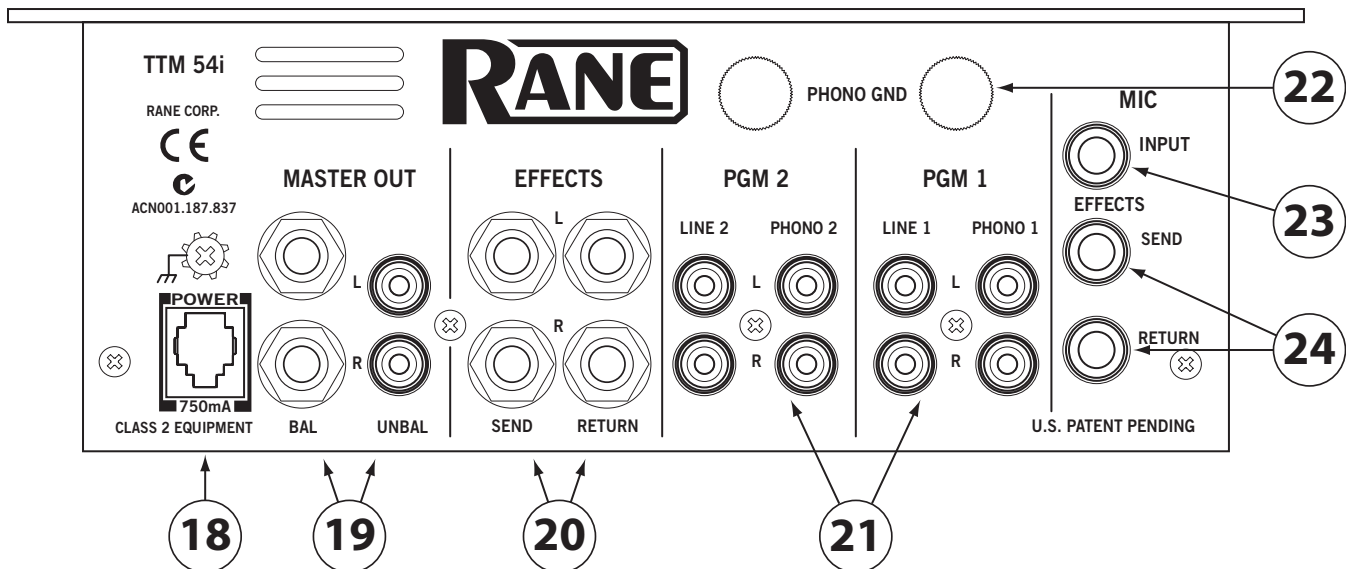


Figure 3. Crossfader Contour control





⑱ **POWER** connector. *This is not a telephone jack!* Connect only the **Rane RS 1** power supply included with your **TTM 54i**.

⑲ **MASTER OUT** includes two sets of stereo outputs:

- The ¼" **TRS** jacks provide high current **BAL**anced output, which should be used whenever driving equipment with a balanced input or running distances greater than about 10 feet (3 meters). Due to the high drive capability and low impedance, *never* use a mono ¼" Tip/Sleeve (no ring) cable in this jack; this grounds one side of the balanced output.
- Use the **UNBAL**anced output for shorter runs, such as connecting to a recorder, looping to another mixer, or to other *local* signal processing or amplifiers.

⑳ **EFFECTS** jacks are unbalanced mono ¼" Tip/Sleeve. This stereo loop is inserted in the signal path as in section ④.

- The **SEND** jacks provide the output *to* your effects processor.
- The **RETURN** jacks provide an input for the signal returning *from* your effects processor.

㉑ **PGM 1** and **PGM 2** inputs include both **PHONO** and **LINE** input.

- **PHONO 1** and **PHONO 2** inputs are RIAA compensated inputs with 18 dB per octave, 20 Hz rumble filters.
- **LINE 1** and **LINE 2** inputs are unbalanced line level inputs with a nominal sensitivity of -10 dBV.
- **PHONO/LINE** selection is made as described in ⑦.
- **PGM 1** inputs are sent to the left side of the Crossfader. (HAMSTER switch *out*)
- **PGM 2** inputs are sent to the right side of the Crossfader. (HAMSTER switch *out*)

㉒ **PHONO GND** terminals provide an independent ground connect point for two turntables. It is very important that each turntable have a very good ground connection to one of these terminals. The thumb screws *are not captivated*, so use care not to spin them off and lose them.

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 (㉒).
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 just above the POWER jack.
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 RaneNote "Sound System Interconnection" (supplied with this manual and available at our web site) for further information on system grounding.

- 23 The **MIC INPUT** is a balanced input specifically designed for a *dynamic microphone*.
- 24 **MIC EFFECTS** jacks are unbalanced mono ¼" Tip/Sleeve. 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.
- The **SEND** jack provides the output *to* your effects processor.
 - The **RETURN** jack provides an input for the signal returning *from* your effects processor.
- 25 **MIC LEVEL** sets the gain of the Mic Input. The range of operation is off to +60 dB. There is no engage switch, so set the **MIC LEVEL** to **0** when not in use. The **OL** indicator lights 6 dB *before* clipping. Adjust the **MIC LEVEL** so the **OL** indicator flashes only when you shout into the microphone.
- 26 **MIC TREBLE** and **BASS** controls provide as much as 8 dB of boost or 8 dB of cut. Response is flat when the controls are set to the center detent.

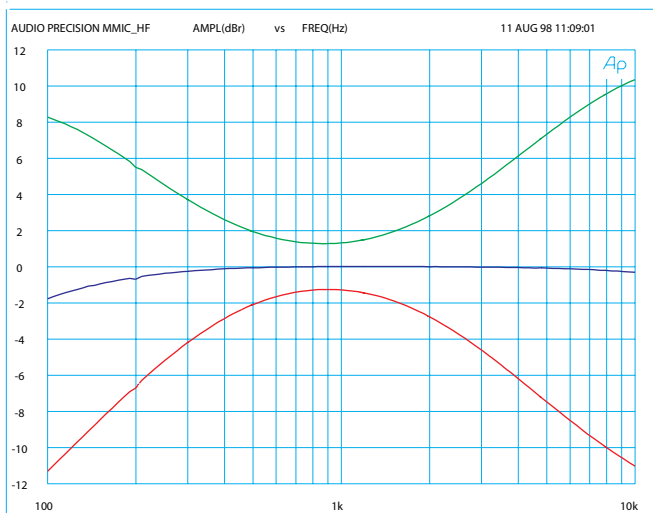
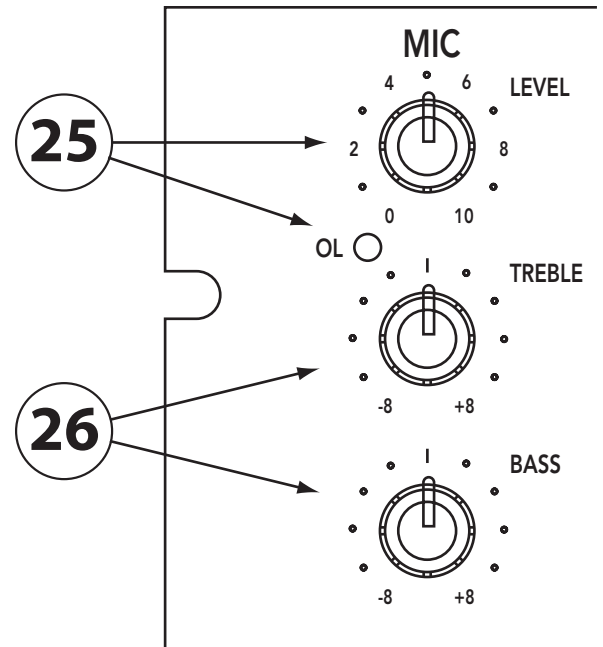


Figure 4. Mic Bass & Treble Controls

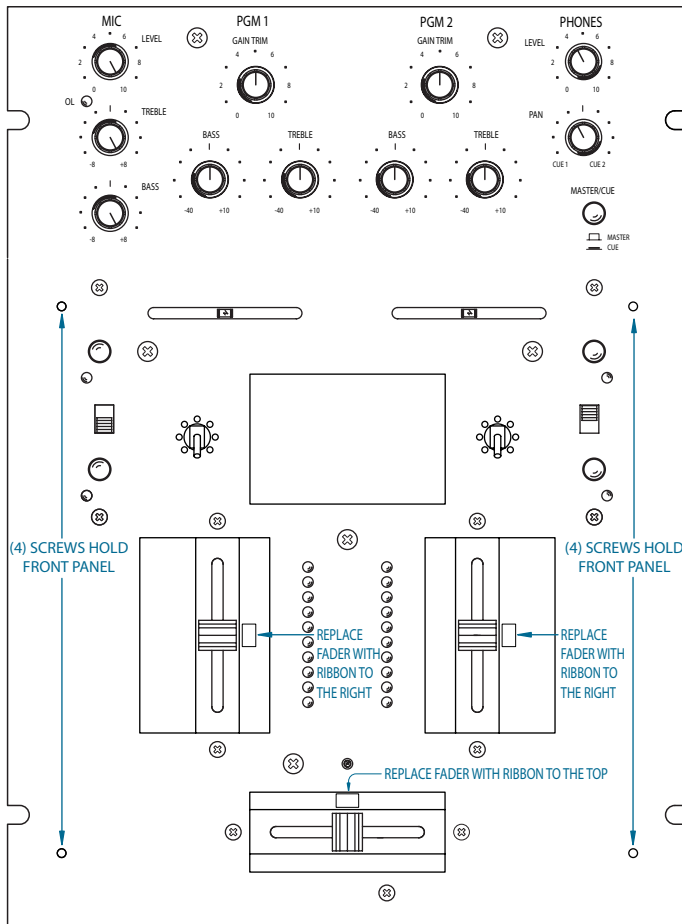


Figure 4. Phono/Line switch rotation or replacement

Rotating or Replacing Phono/Line Switches

1. Remove the metal faceplate with a #2 philips screwdriver.
2. Remove the M2.5 x 6 mm screws with a #1 philips screwdriver.
3. If replacing, remove the jumper cable from the old switch and attach it to the new switch.
4. Rotate or install switch to desired PHONO position.
5. Reinstall the M2.5 x 6 mm screws with a #1 philips screwdriver.
6. Replace the faceplate.

Replacement Parts

Replacement Phono/Line switch assembly: **ST 2**

Replacement Fader Assembly: **FT 45**

Follow steps A, B and D in the Fader Cleaning instructions.

Replacement assemblies are available from your local Rane dealer.

Fader Cleaning

With heavy use in harsh environments, the faders may need lubrication. This treatment extends longevity and can make used faders as good as new. The fader assembly must be removed from the TTM 54i for proper cleaning. We recommend any of the following cleaning solutions:

- Caig Cailube MCL 100% spray lubricant
- Caig Cailube MCL 5% spray cleaner
- CRC 2-26 (www.crcindustries.com)

Order CaiLube MCL[®] from:

CAIG Laboratories, Inc.
12200 Thatcher Ct.
Poway, CA 92064
Phone 858-486-8388
Fax 858-486-8398
(www.caig.com)

CLEANING INSTRUCTIONS

A. Front panel removal

1. Disconnect the power cord.
2. Remove (3) slide fader knobs.
3. Remove (4) #4-40 front panel screws.
Faders and switches are now accessible.

B. Fader assembly removal

To remove any single fader:

1. Remove (2) 3mm screws.
2. Draw fader assembly out through hole.
3. Remove ribbon cable.

C. Fader cleaning

1. Hold the fader assembly away from the mixer.
2. Position the fader at mid-travel.
3. Spray cleaner/lubricant into both ends of the fader.
4. Move the fader over its full travel back and forth a few times.
5. Shake excess fluid from the fader assembly.
6. Wipe off excess fluid.

D. Fader assembly installation

1. Connect the ribbon cable to the fader assembly.
2. Place the fader assembly in position with the ribbon connector to the right side or top, as shown.
3. Line up the fader screw holes with the mixer mounting holes.
4. Install (2 provided) 3mm screws. *Using the wrong screw will ruin the fader!*
5. Replace the front panel and knobs.