

## Service Notes

**Service should only be made by a qualified technician.**

### Tubes

Tubes are consumables, as they have a given usable lifespan. They are part of the heart of the tone, so keeping correctly operating tubes is essential. Tubes can fail catastrophically or gradually, and it's good to know what to look for if they start to go bad. Periodically inspect them and look to see if anything inside the tube is glowing cherry red other than the normal orange glow of the filament. This would indicate a situation where the tube is conducting more current than it is capable of handling and most likely about to fail. Two other conditions to observe are: 1) filaments not glowing or 2) a miniature fireworks display inside the tube. Any of the above conditions indicate serious problems with the tube and should be taken care of immediately. Tubes quite often are the cause of spurious noise in the amp. Microphonic tubes will squeal or rattle with the vibrations induced by the speaker cabinet. If suspected, tap each tube lightly with a pencil with the amp powered up—the suspect tube will many times let you know. Note that there is a normal metallic clinking when doing this, but a microphonic tube will be obviously louder.

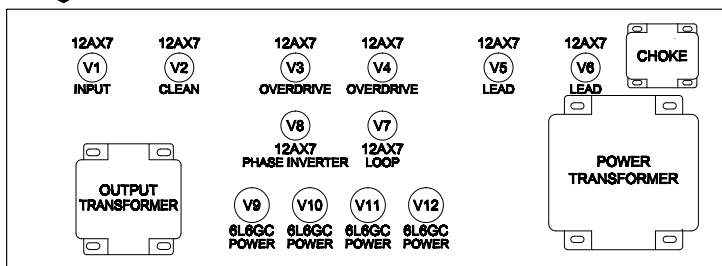
Replacing preamp tubes will not require any adjustment, but the power tubes will need rebiasing to assure proper operation. After power tube replacement, initially inspect the tubes often to assure there are no “cherry red” components within the tube. Tubes today can have a wide variety of tolerances and a re-bias is highly recommended with new ones.

Power tube bias should be adjusted from a preferred setting of 25 to 30 mV, +/- 5 mV. If power tubes are mismatched by less than 5 mV, average the four around 30 mV. If possible, try to match the two inside pairs and the two outside pairs of power tubes if needed. Mismatched pairs of tubes beyond 5 mV can induce noise and may cause a degradation of tone. It is always recommended to purchase and install “matched” power tube sets.

**NOTE! Never power up the amplifier without power tubes installed, as voltages can rise to levels that may damage internal components.**

**NOTE! Capacitors may retain an electric charge and can be dangerous even when the unit is off, unplugged, and has not been played for an extended period of time. USE CAUTION!!!!**

INPUT JACK



**MT 100 TUBE LAYOUT**

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Product Number: LIT-MAN-MT 100 Rev. C

Paul Reed Smith®

## MARK TREMONTI MT 100 USER'S MANUAL



## Using your PRS Amplifier

**IMPORTANT: Before using your amplifier, refer to the IMPORTANT SAFETY INSTRUCTIONS insert supplied with the product.**

### Powering Up:

1. Make sure your speaker cabinet is connected to the correct amplifier's speaker output impedance jack with a high quality speaker cable. Do not use guitar cords.
2. Make sure the power cord is connected to the correct earthed (grounded) outlet.
3. Make sure there is at least 150mm (6 inches) of clearance around the amplifier to allow for proper cooling. Never place the amplifier directly against a wall or other equipment, and keep it clear of other heat sources, such as other amplifiers or stoves. Make sure there are no flammable items, such as curtains, behind the amp. Do not drape items over the amps that can prevent proper cooling. Do not set drinks or other liquids on top of the amp that can spill into the amp.
4. The amplifier is designed to be able to power up without the use of a Standby, however one is provided for convenience. The Power-Standby Switch is a three position toggle, with the Standby position in the middle. Switch to Standby for several seconds, then On to power up fully.
5. Until you become fully familiar with the amp, turn the volume and master controls down to mute the amp prior to plugging in the guitar cable or output of effects then bring the volumes up slowly to the desired loudness. This amplifier can produce **very** loud volumes so take care with this procedure to avoid volume surprises.



**This equipment is capable of very high sound volume levels. Prolonged exposure may cause hearing damage.**

**This equipment contains no user-serviceable parts. Refer all repairs to qualified service personnel.**

**Ensure that the mains plug (power cable plug) is easily accessible to allow the unit to be powered off by unplugging the power cable.**

**Only connect this unit to an earthed (grounded) supply socket/convenience outlet.**

**THIS UNIT IS CLASS 1 CONSTRUCTION AND MUST BE EARTHED (GROUNDED)!**

## MT 100 Amplifier Front Panel Controls

**Input:** ¼" Standard Mono Guitar Cable.

**Channels:** The MT 100 has three uniquely voiced channels with similar controls for each channel. The individual channels can be activated via a momentary push-button panel switch or footswitch. They are designated as Clean, Overdrive, and Lead with the Clean being the default upon powering up.

- **Clean:** As its name suggests, the clean channel is designed for pure, undistorted tones. This can be maximized by setting the Master volume control high, and the Volume control lower.
- **Overdrive:** The gain structure of this channel can produce from slightly overdriven/crunchy to moderately overdriven sustaining tones with an emphasis on mids/upper mids. Setting the Gain control in concert with Master volume will allow you to easily achieve your mid-gain preferences.
- **Lead:** This high gain channel is voiced for smooth, searing distortion with massive, tight low end. For percussive palm mutes to infinitely sustaining single notes that will break into beautiful harmonics, this channel will meet your modern metal needs. More than a one-trick pony, back off the Gain control for more classic distortion tones.

### Channel Controls:

- **Volume (Clean), Gain (Overdrive and Lead):** This controls the amount of signal at the beginning of the channel gain stages. It works with the Master volume to balance the character of the distortion and overall volume levels of the channel's circuitry. Generally, it controls the loudness in the clean channel and the preamp distortion of the other channels.
- **Treble Controls:** Tone stack control of the higher frequencies.
- **Middle Control:** Tone stack control of midrange frequencies. Clean channel mids center at 525Hz, Overdrive channel centers at 700Hz, and Lead channel centers at 650Hz with all controls set halfway. Turn off for scooped mid tones.

- **Bass Controls:** Tone stack control of the low frequencies.
- **Master Controls:** Controls the overall loudness of the selected channel. Located at the end of each channel circuitry, it will increase the level of the distorted or clean tones created by the volume/gain controls and tailored with the tone stack controls.
- **Presence Controls:** Manipulates power amp negative feedback to increase high frequency gain actively. Think of this as a high treble boost.

**Power On - Standby - Off Switch:** Switch from OFF to STANDBY in the middle position to power relays, LEDs and tube filaments. Switch to ON to provide working high voltage to tubes for full function of amp.

## Rear Panel Features

**Power Inlet Socket:** Always use the power cord specified for your country or region. Your sales outlet can provide a suitable power cord if necessary. Always disconnect the equipment from the mains/power outlet and ancillary units before moving.

**Fuses:** This amplifier is equipped with multiple accessible and inaccessible fuses. Replacement fuses must be of the same type and rating as indicated. Failure to comply may result in permanent damage to the product, and/or create a safety hazard. **Always disconnect the equipment from the mains supply/power outlet before replacing a fuse.**

- **Mains/Power Inlet Fuses:** These are located in a tray integral with the power input socket. There is one active and one spare in the socket tray. Fuse types and specifications required for your country/region are silkscreened and marked below the power inlet socket.
- **B+ Fuse:** The B+/H.T. fuse holder is accessible from the rear panel next to the power inlet socket. B+/H.T. fuses should only be evaluated and replaced by a qualified technician.
- **Filament Fuses:** These are located internally on the circuit board and should only be evaluated and replaced by a qualified technician.

**Bias Jacks and Pot:** These jacks measure the power tube current draw in milliVolts. There will be one jack associated with one power tube. When metering, 1 measured mV = 1 mA of current flowing through the associated power tube. The center jack in the bias array is grounded, and receives the Common probe on your meter. Review the information on the back of this manual for guidance on replacing tubes. Biasing and tube replacement should be performed only by a qualified technician. Bias adjustments can be made with a jewelers (small, 00 size recommended) Phillips head screwdriver. The bias adjustment affects all of the tubes at the same time. The bias jacks can allow you to determine if any tubes are dead and not functioning (zero bias), or if they have drifted up or down out of specification from the other tubes. In these instances, individual tubes may be replaced with the same test rating numbers as the original tubes and conveniently verified using the bias jacks and a meter when installed.

**Effects Loop Jacks, buffered:** SEND to effects, RETURN from effects. Use quality instrument cables and arrange cables and effects away from the amp power transformer to minimize noise.

**Footswitch Jack:** 7-pin DIN female jack. Only use provided PRS FS3B7D-MT 100 footswitch.

**Speaker Jacks:** These are the main outputs for your speaker cabinet(s). There are 3 total jacks to use and include two 8 ohm jacks wired in parallel, and a single 16 ohm jack. Determine beforehand what your total speaker loading will be and use the appropriate jacks. Never "mix" impedance jacks such as using the 16 ohm jack with the 8 Ohm jack at the same time. It is also not suggested to use two speaker cabinets with different impedances as these combine to create odd impedance values and performance. For two 16 ohm cabinets in parallel (creating an 8 ohm load), plug each cabinet into one of the two parallel 8 ohm jacks. Failure to correctly match the speaker load to the appropriate output jacks can cause tube socket arcs, blown power tubes, or failure of the amp.

**Safety Symbols:** The following symbols mean:



Warning: read instructions to understand possible hazard



Danger: electrical shock hazard



Warning: This equipment is capable of very high sound pressure levels. Prolonged exposure may cause hearing damage.