

*K & M*

*LTD*

Owner's Manual

*Thank you for your purchase of a  
K&M LTD amplifier from K&M Analog Designs, LLC.*

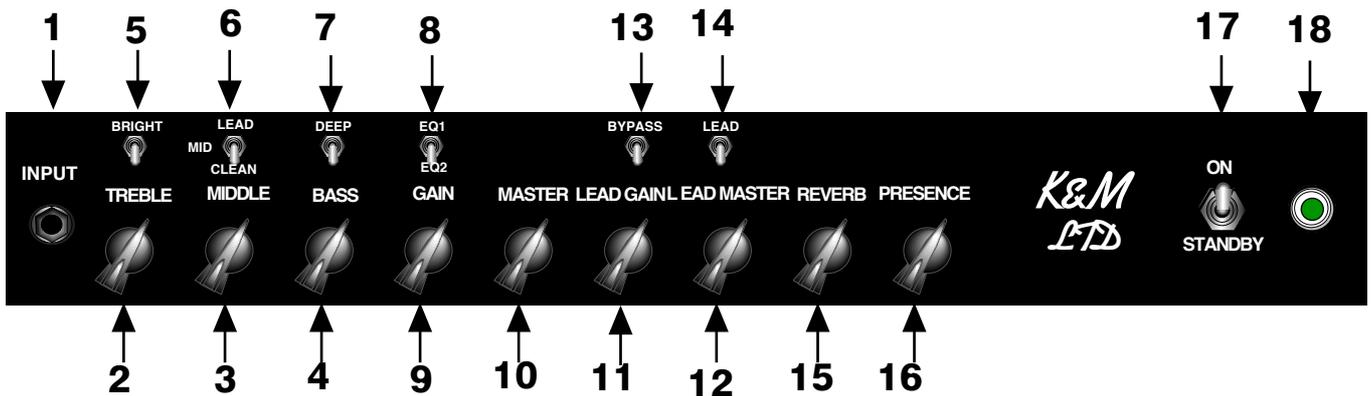
*As a discerning guitarist, you know the road to great  
tone begins with great components.*

*Our classic design, carefully selected parts and hand-built  
approach combine to make an extremely versatile instrument.*

*Please take the time to read this manual. We hope it will  
answer any questions you may have.*

*We extend a warm welcome to you as a member of a select  
group of musicians who have chosen a **Two-Rock** amplifier.*

## FRONT PANEL FUNCTIONS



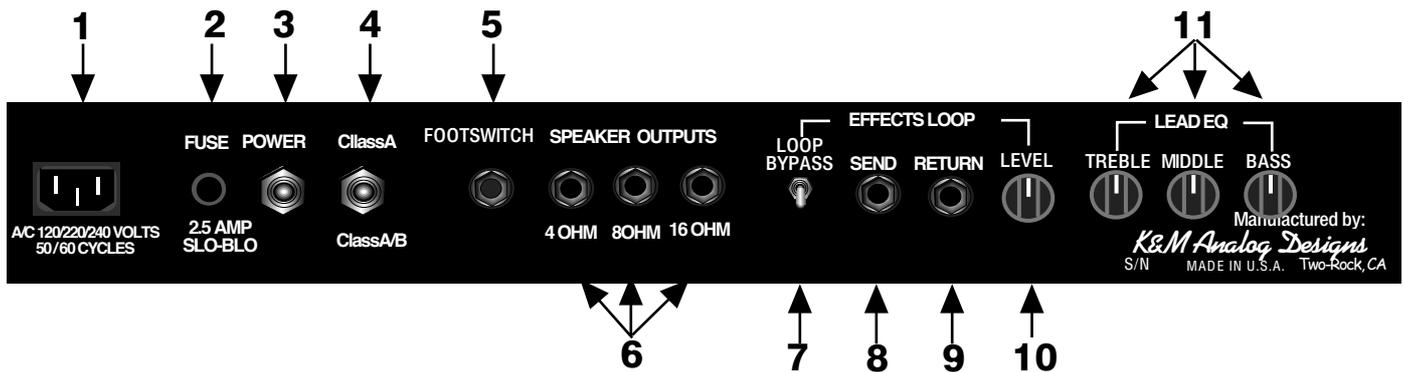
1. **INPUT JACK**- High impedance input to the amplifier. Plug in your instrument here.
2. **TREBLE CONTROL**- Adjusts the high-frequency response. In the full counter-clockwise position, high frequencies are bypassed to ground. In the full clockwise position, high frequencies are allowed to pass to the next gain stage.
3. **MIDDLE CONTROL**- Adjusts the mid-range response. In the full counter-clockwise position, the tone will be somewhat “scooped” of mid-range response, emphasizing the highs and lows. In the full clockwise position, mid-range frequencies are allowed to pass to the next gain stage.
4. **BASS CONTROL**- Adjusts the bass response. In the full counterclockwise position, low frequencies are cut. In addition, the response of the treble and mid-range controls is greatly reduced. In the full clockwise position, low frequencies are allowed to pass to the next gain stage.
5. **BRIGHT SWITCH**- Boosts the high frequency response. This is most effective when the input gain is set at 12 o’clock or lower. The effect is less dramatic as the input gain control is adjusted past the 12 o’clock position.
6. **MID SWITCH**- The mid boost function is assignable to either the clean or lead channel, or off. The center position is off. In the "DOWN" position, the mid boost is engaged whenever the clean channel is selected. In the "UP" position, the the mid boost function is engaged whenever the lead channel is selected.
7. **DEEP SWITCH**- Boosts the low and low-mid frequencies. This is a low frequency contour switch, changing the low and low-mid response.

8. **EQ1/EQ2**- This switch allows you to choose between 2 completely different equalization settings. **EQ1** is a lower gain setting, with extended midrange and bass available when used in conjunction with the middle and bass controls as well as the deep switch. This setting is suitable for any style requiring a pure clean tone with a nice round bottom and plenty of headroom.  
**EQ2** is a higher gain setting, allowing a greater signal level to pass to the lead channel. This setting is suitable for any style requiring a clean to slightly distorted tone in clean mode, and more gain in the lead mode.
9. **INPUT GAIN**- Adjusts the overall gain of the amplifier. Start with this control in the 12 o'clock position. Keep in mind that the amount of gain set here determines the signal level feeding the lead channel. Low gain settings of this control will require higher lead gain settings for the same amount of overdrive.
10. **CLEAN CHANNEL MASTER VOLUME**- Adjusts the output level of the clean channel.
11. **LEAD GAIN**- Adjusts the input level (gain) of the lead channel. At lower settings, a slightly overdriven tone can be achieved. As the control is adjusted clockwise, the overdrive effect increases.
12. **LEAD MASTER**- Adjusts the output level of the lead channel.
13. **BYPASS SWITCH**- This switch bypasses the tone controls, increasing both level and mid-range response. To enable foot switch control of this function, switch must be in the down position.
14. **LEAD CHANNEL SWITCH**- Sends the instrument signal through the lead circuit, adding extra stages of gain to the signal and enabling the lead gain and lead master controls. To enable foot switch control of this function, switch must be in the down position.
15. **REVERB**- Mixes the dry signal with a high quality spring-type reverberation effect. This effect is defeated with the control in the full counterclockwise position.
16. **PRESENCE CONTROL**- Adjusts the contour of high-frequency response. The high frequency response will increase as you advance the control clockwise.
17. **STAND-BY SWITCH**- The LTD is equipped with a three position STANDBY switch. In the center position, the amp is in STANDBY mode. In the "DOWN" position, the amp is operating with a low plate voltage setting. This is considered the LOW POWER mode. In the "UP" position, a higher plate voltage is supplied, and this is considered HIGH POWER mode. The difference in power between the 2 modes is approximately 25%, depending on tubes and class of operation.

18. **INDICATOR LAMP**- This lamp will illuminate when the power switch is in the “up” position, indicating the unit is receiving A/C power.

NOTE: All switches are ON in the “up” position.

## REAR PANEL FUNCTIONS

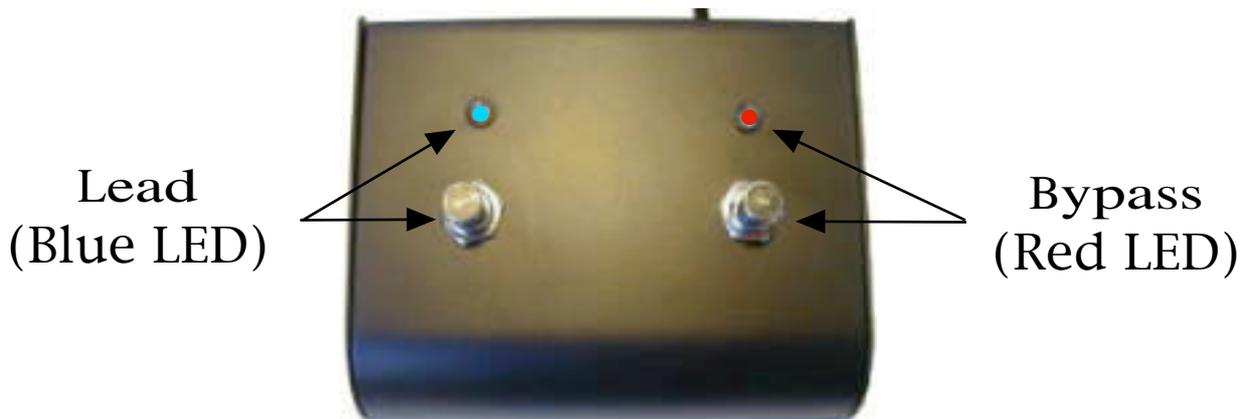


- A/C INPUT**- Connects the amplifier to A/C power via the power cord supplied. Unless otherwise specified, your amplifier is designed to operate on 120 volts A/C, 60 cycles.
- FUSE**- 3 AG Type, slow blow fuse. Refer to the legend below the fuse holder for the proper fuse rating for your amplifier. (50 watt-2.5 amp /100 watt-3.5 amp)
- POWER SWITCH**- Turns the power on.
- CLASS A-A/B SWITCH**- This function switch changes the POWER SECTION from CLASS A to CLASS A/B mode.  
**CAUTION!** You must reset the bias current when you change output tubes for Class A/B operation! In cathode bias mode(class A), you may insert any matched pair of 6L6, EL34, 6V6, or 5881 without rebiasing in the amp. You may also operate the amp in high or low power mode. In class A/B, be sure the tubes used are matched, and the correct bias current is used.  
**FAILURE TO DO SO MAY DAMAGE THE TUBES, THE AMPLIFIER, OR BOTH!**
- FOOTSWITCH JACK**- Connect the foot switch assembly here to enable remote switching of the lead/rhythm and bypass functions
- SPEAKER OUTPUT JACKS**- There are 3 speaker output jacks- 4,8 and 16 ohm. **NEVER OPERATE YOUR AMPLIFIER WITHOUT A PROPER SPEAKER LOAD CONNECTED.** Be sure to match the impedance of your cabinet with the impedance (output) of the amplifier.

7. **LOOP BYPASS SWITCH**- The EFFECTS LOOP can be bypassed by placing the LOOP BYPASS SWITCH in the "UP" position. The overall gain of the amp will be significantly reduced, and the effects level control becomes a reverb drive control.
8. **EFFECTS SEND**- Use this jack to send the amplifiers signal to outboard effects.
9. **EFFECTS RETURN**- Use this jack to connect the output of your effects to the amplifier.
10. **EFFECTS LEVEL**- Adjusts the return signal level. It also acts as a master volume control. Do not set fully counterclockwise, as this will shut off signal to the output section, resulting in no output level. Normally this control should be set at the 12 o'clock position.
11. **LEAD EQ** - The TREBLE, MIDDLE, and BASS controls on the rear panel affect only the LEAD CHANNEL.

NOTE: Both the "Lead" and "Bypass" front panel switches must be in the "down" position to enable footswitch function.

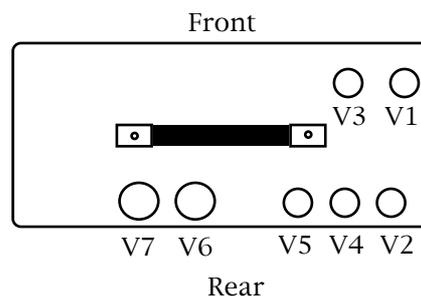
## FOOT SWITCH



## TUBE COMPLEMENT

- V1- 12AX7, Lead channel
- V2- 12AX7, Clean channel
- V3- 5751/12AT7, Reverb driver
- V4- 12AX7, Reverb / effects
- V5- 12AX7, Phase inverter
- V6, V7- Output

### The Tube Location



Each fine production tube is tested and matched to our exacting specifications. External bias adjustment and test points are located on the chassis near the output tube sockets.

A digital voltmeter and small screwdriver are required for bias adjustment. BIAS ADJUSTMENT-Power up unit. Connect proper speaker load. Set master volumes and effects return controls to zero.

Do not apply any signal to the input during the biasing procedure!

Take unit off STANDBY. Allow a few seconds for the circuit to stabilize.

Set meter to millivolt scale. ( Or lowest volt scale. 60 millivolts = .060 volts.) With meter grounded to chassis and + probe at test point, measure voltage. A reading of .055 to .060 volts is normal. If not in this range, adjust by turning bias screw

SLOWLY a small amount. Do not set above .070!

For other tube types(5881, 6550, EL34) check with manufacturer or contact us for recommendations.

Settings higher than .065 with 6L6 tubes may cause premature tube wear and possibly damage the amplifier. Keep in mind that tubes vary in quality, and some tubes can handle upwards of 40 ma each ( a reading at the test point of .080 !) However, to be on the safe side, use the above as a guide.

**WARNING!** No user serviceable parts inside! Refer service to qualified service person only.

**LINE CORD-** For your safety, connect to grounded A/C receptacle only.

*K&M Analog Designs* amplifiers are brought to you by Bill Krinard and Joe Mloganoski. We know your new *K&M LTD* amplifier will provide many hours of enjoyment and inspiration in the years to come.

*This manual is a resource for some of your questions. Please contact us with any other questions or comments you may have. We look forward to hearing from you!*

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**PRECAUTIONS:**

Do not expose to rain or any other moisture

Do not use cleaning solvents. Wipe exterior with a clean, dry cloth only.

Refer servicing to a qualified service technician.

*This is a product of*

*K & M Analog Designs, LLC*

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Serial Number: \_\_\_\_\_