

# MACE<sup>®</sup>

## OWNER'S MANUAL



Printed in U.S.A.  
80347000

### POWER AMP:

OUTPUT POWER @ 1 KHZ @ 120 VAC Line  
Rated Power: 160W RMS at rated load: 4 OHMS/2 Ohms  
Power vs. Load: 120 W RMS @ 5% THD into 8 Ohms  
160 W RMS @ 5% THD into 4 Ohms  
160 W RMS @ 5% THD into 2 Ohms  
PEAK OUTPUT @ RATED LOAD: 9 Amps & 36V, 320 Watts  
MUSIC POWER OUTPUT @ RATED LOAD: 200 W RMS @ 5% THD

### PRE-AMP:

INPUT CHARACTERISTICS (Tone controls full cw, Volume @ 12:00, master full cw)  
Sensitivity: 20 mV @ 1 KHZ/Input Impedance: 330 K Ohms  
Noise: 50 DB Open Ckt., 55 DB 50 K Ohms, 60 DB Short Ckt.\*  
DISTORTION @ 1 KHZ: Less than 0.5% THD @ Rated Output\*\*  
FREQUENCY RESPONSE: 3 DB Down @ 40 HZ & 25 KHZ  
TONE CONTROLS:  $\pm 10$  DB @ 50 HZ  $\pm 20$  DB @ 5 KHZ  
MIDDLE CONTROL:  $\pm 10$  DB @ 300 HZ  
REVERB CONTROL: Continuously variable with footswitch cut off  
POST GAIN: Used in conjunction with pre gain to produce overload.  
TREMOLLO CONTROLS: Variable depth & rate w/footswitch cut off  
\*Signal-to-noise ratio in DB below rated output  
\*\*Measured with reverb & tremolo cut-off (Full CCW)



Your new Mace amplifier is based around an all new tube type power amplifier delivering a very conservatively rated 160 watts RMS @ 5% THD. Six, 6L6GC tubes have been chosen to power the Mace because of their proven field reliability and rugged construction.

Special power and output transformers were custom designed to precisely match the tubes and to provide that extra margin of reliability and durability required of a workingman's amp.

Your new Mace features two channels, "Effects" and "Normal" with four inputs that function along with the Automix footswitch to allow you to play through either channel, both channels in parallel, or both channels in series. Please read the explanation of each input and become familiar with the effects possible with the Automix footswitch.

**1** The **Effects input** places the signal from your instrument into the effects channel only.

**2** The **Normal input** places the signal from your instrument into the normal channel only.

**3** The **Parallel input** places the signal from your instrument into **both** channels. Plugging into this parallel jack is the same as using a patch cord to bridge into the normal and effects channels, except that the internal circuitry automatically performs the patching function. When plugged into this jack, both normal and effects channel gain controls are active and the desired blend of each can be found by varying the level of each, relative to the other.

**4** The **Series input** places the signal from your instrument into both channels **in series**. By placing the channels in series incredible sustain and overload harmonics can be generated. Experimentation with various combinations of gain control settings will yield an infinite variety of harmonic characteristics and sustain durations. These functions can be used in conjunction with the post gain controls to avoid driving the power amplifier to full output while seeking the desired effects enabling the operator to obtain sustain and overload effects at very low volume levels, such as those required in some recording studio applications.

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## FOOTSWITCH

### Selector Button

As the name implies, the **selector button** allows you to select between the normal and effects channels. This button is functional with your instrument plugged into either the **series** or **parallel** input.

### Combiner Button

The **combiner button** deactivates the selector button and allows both channels to be in the circuit at one time. The selector button becomes **inoperative** as soon as the combiner button is depressed.

### Reverb

The **reverb** button activates reverb on both channels.

### Tremolo Button

The **tremolo** button activates tremolo on the effects channel.

**5** The **Pre Gain** controls are each channel's regular volume controls. This control sets the gain of the preamp thereby controlling the **sensitivity** of the preamp, **not the power** of the amp.

**6** The **Treble** control varies the high end response of the particular channel.

**7** The **Bass** control varies the amount of low end response of the particular channel.

**8** The **Middle** control, located in the effects channel only, can be used to tailor the vital mid-range response. Experimentation with the unique middle circuit will show that it is much more effective than conventional circuits.

**9** The **Post Gain** controls are each channel's master volume controls. Many interesting effects can be achieved by using the post gain control in conjunction with the pre gain control. The most common of these effects is the creation of harmonic distortion and sustain by overdriving the channel's preamp with low settings on the post gain control while running the pre gain control at high or maximum settings. The post gain controls also make it possible to pre-set each channel for volume, overdrive, and tonality. The guitarist can then select and combine the channels with the Automix footswitch. Because the channels are completely independent of each other, tone and volume variations can be produced in the amp without the performer having to remove his hands from his instrument.

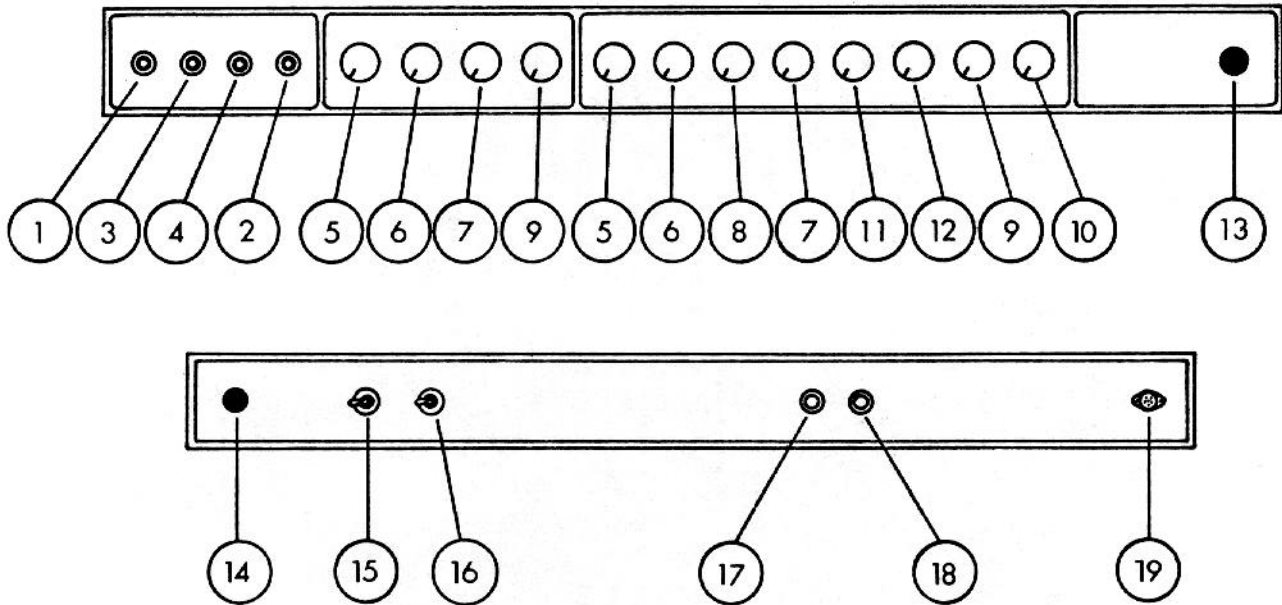
**10** The **reverb control** determines the amount of delayed signal (reverb) blended into the output. This circuit is able to produce tremendous sustain and clarity by properly damping the driver coils of the reverb unit. The reverb is effective in **both** channels.

**11** The **depth control** is used to vary the amount of amplitude modulation (tremolo) of the output signal. The operation of this control is conventional and should present no problem in adjusting for the desired effect.

**12** The **rate control** determines the speed with which the signal is modulated. This control varies the speed of the tremolo master oscillator and should provide any speed desired for modern music.

**13** The **pilot light** indicates when the electrical supply (mains) is supplying power to the amplifier.

**14** The **fuse** is located within the cap of the fuse holder and should be replaced with one of the proper value if it should fail. It is necessary that the proper value fuse be used to avoid damage to the equipment and to avoid voiding the warranty. If your amplifier repeatedly blows fuses, the unit should be taken to a qualified service center for repair.



**15** The **line power switch** is of the three position type with the center position being off. The three position switch has two ON positions, one of which is used to ground the amplifier properly. One of the ON positions will yield the least hum or popping when the instrument is touched and this is the position that should be used.

For your safety, we have incorporated a 3 wire line (mains) cable with a grounding lug. It is not advisable to remove the ground pin under any circumstances. If it is necessary to use the amp with the old two prong sockets, a suitable adaptor should be used. Much less noise and greatly reduced shock hazard exists when the amp is operated with the proper grounded receptacle.

**16** The **Standby Switch** removes the B+ supply from the output tubes while leaving the filament voltage on. This function keeps the tubes at operating temperature and allows for instant operation when the standby switch is thrown.

**17** The **main speaker output jack** is where the main speaker must be plugged in. The output impedance of this jack is 4 ohms.

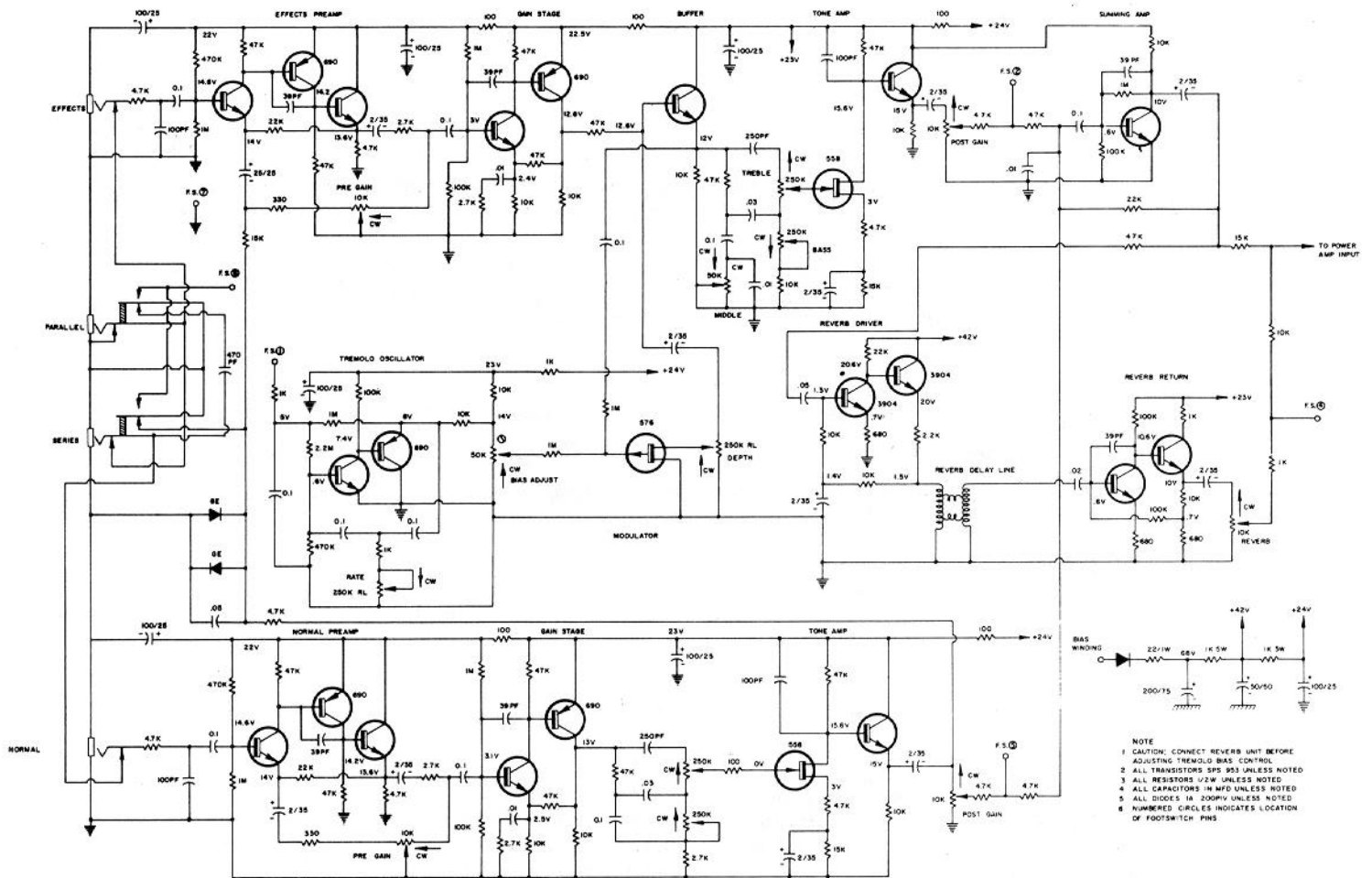
**18** The **external speaker jack** is designed to allow use of an additional speaker system with the Mace. This jack does not become operational until the main jack has been connected to a speaker. Due to a special switching jack which connects a separate 2 ohm tap on the output transformer, a 4 ohm load may also be connected into this jack—thus allowing the amp to put out full power into a total impedance of 2 ohms when an extension speaker is desired. The output impedance of the Mace is 4 ohms when the main speaker jack is used and 2 ohms when both are used. NOTE: No less than a **4 ohm** speaker system should ever be connected to either speaker jack.

These and all other high power tube type amplifiers must be used in the proper manner to avoid damage to tubes and other internal components. Below are several instructions that **must** be followed when operating high powered tube type equipment.

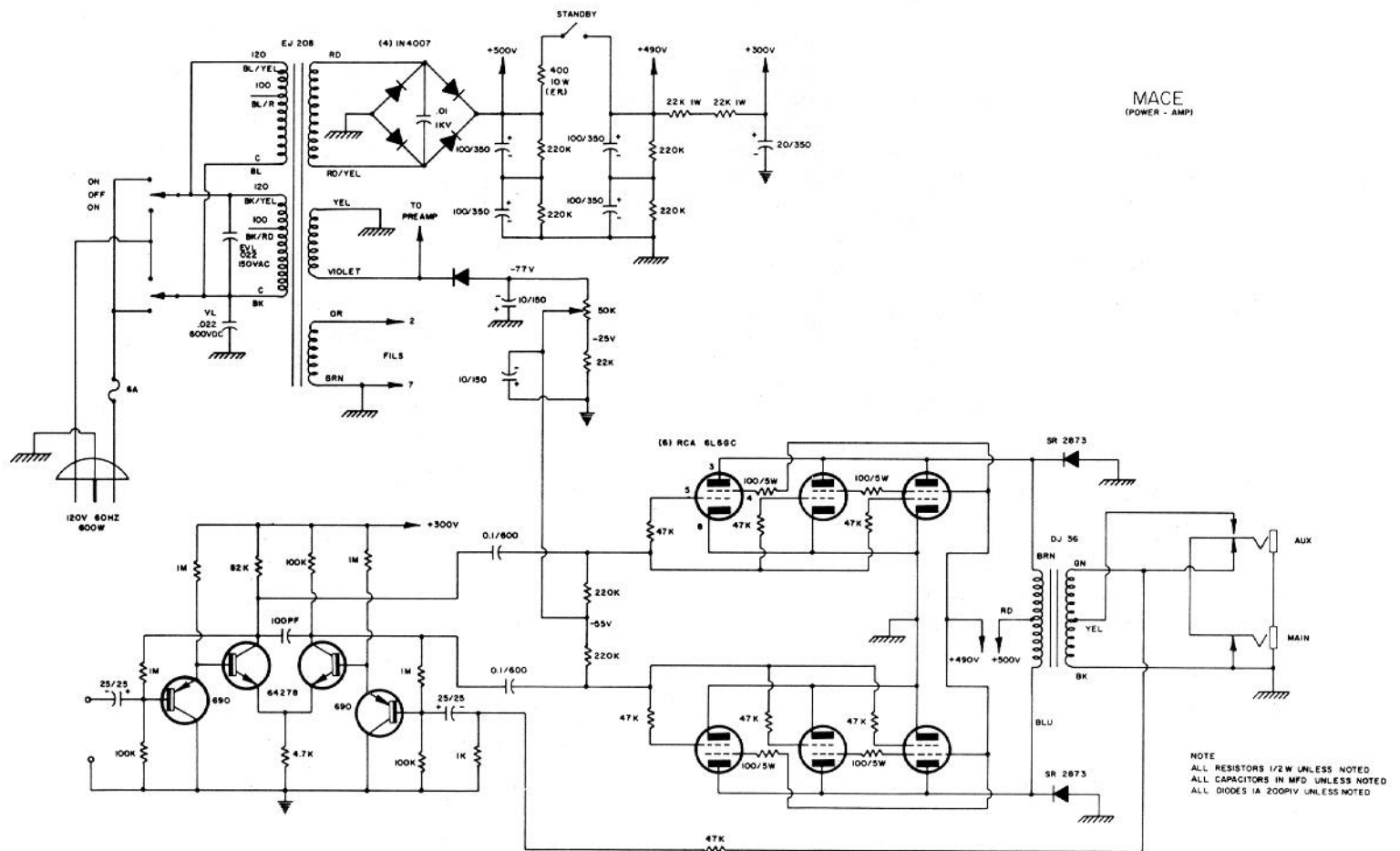
A. NEVER OPERATE THE AMPLIFIER WITHOUT A SPEAKER LOAD!! This amp is equipped with a shorting system on the main output jack to help protect against accidentally turning on the amp without a load. If the speaker patch cord is plugged into the amp, but not connected to the speakers, the amp is NOT loaded and could cause problems if the amp is turned on and operated in this manner. The natural inductance of the output transformer can store energy that normally is transferred to the speaker and is capable of developing tremendous voltages. These voltages can cause serious internal arcing between the elements of the output tubes and their related circuitry. This is the MOST important consideration in the safe operation of your tube amp.

B. The 6L6GC output tubes are the most rugged audio power tubes on the market and should provide long service in the output circuit. Each tube has a keying pin moulded into the base to index the pins into their proper positions. When installing or removing the tubes, it is possible to break off these index pins by bending the tube too much in its socket. Use extreme caution when handling the tubes. UNDER NO CIRCUMSTANCES SHOULD TUBES WITH BROKEN OR MISSING INDEX PINS BE INSERTED IN THE SOCKETS. If a tube is inserted in the improper manner (wrong indexing), the output stage will instantly be damaged when the unit is turned on. Use of tubes with broken or missing index pins voids the warranty.

**19** A "Din" Socket is located on the back panel for the Automix footswitch. Care should be taken to properly mate the connectors of the footswitch plug with the respective socket holes.



MACE  
(REAMP)



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