

## OWNER'S MANUAL

### **DUEL 60<sup>TM</sup> AND DUEL 38<sup>TM</sup>**

#### WARRANTY:

Damage caused by failure to follow any of the guidelines in this manual will not be covered by warranty (see warranty card for more details). Warranty card must be filled out and returned to Naylor Engineering for warranty to be in effect. Please keep the original bill of sale and the original box with all packing materials (including plastic bags), should warranty work be required.

#### SPECIAL FEATURES:

**MASTER** - Controls overall volume of the amp in both clean and dirty channels.

**GAIN** - Controls pre-amp drive for the dirty channel. Low settings produce cleaner sounds, medium settings produce overdrive, and high settings produce heavy distortion.

**VOLUME** - Controls volume of the clean channel. After adjusting desired amount of gain in dirty channel and setting Master Volume, adjust the clean Volume to match Dirty setting. Typical settings are about ¼ to ½ of maximum.

**BITE** - Allows for brighter sound with more 'bite' in the clean channel only. Center position has no effect, down position produces more 'bite', and up position produces the most 'bite'.

**INP.** - Guitar input jack. Only use a shielded guitar cable.

**FT. SW.** - Foot switch input jack. Use only a shielded guitar cable to connect the supplied footswitch. The Naylor footswitch L.E.D. will be ON to indicate clean channel and OFF for dirty channel. Simply step on the switch while playing to switch channels. If footswitch is not used the amplifier will remain in the Dirty Channel.

**EFFECTS LOOP** - Tube driven, line level 1 volt R.M.S. For use with compatible rack mount effects. Effects loop hook-up is as follows: connect amplifier send to effect input, connect amplifier return to effect output. Use ONLY shielded guitar cables for the above hook-ups.

**3 POSITION GROUND SWITCH** - In a properly grounded facility the 3 position ground switch should be in the center position. An improperly grounded facility will cause unwanted noise in the center position, and should be switched to the position offering the quietest operation.

#### OPERATION & SAFETY:

- DO NOT have amplifier on without a speaker plugged in. Use a proper **SPEAKER CABLE**, no smaller than 18 gauge wire. DO NOT use shielded guitar cable for speaker hookup. Failure to do so could seriously damage amplifier.
- Speaker cabinet(s) total impedance (ohms) must match amplifier impedance (ohms), or serious damage could result. Adjust impedance selector (4, 8 or 16 ohms) on back of amplifier to match speaker cabinet(s) total impedance.

### **OPERATION & SAFETY (continued):**

- Speaker output jacks are wired in parallel. When using two cabinets, divide the impedance of one cabinet by two to arrive at the correct amplifier impedance. Always use two cabinets with the same impedance rating when using two cabinets with the amplifier. (Example: for two 16 ohm cabinets set the amplifier at 8 ohms.)
- Use of power attenuators or variable voltage devices will void any and all warranties.
- ONLY replace fuses with values specified, or serious amplifier damage could result. If the amplifier is functioning properly, the specified fuse size will NOT blow. If the amplifier is continually blowing the specified fuse, the amplifier should be unplugged and taken to an authorized repair technician for evaluation.
- Always operate amplifier with a grounded power cord plugged into a grounded outlet. This could prevent electrical shock and allow quieter operation.
- To prevent electrical shock, never operate amplifier in wet or rainy conditions.
- To prevent ear damage, do not position yourself (or any one else) directly in front of (or behind rear vented) speaker cabinets during high volume operation.
- The international power transformer can be set internally for the following voltages: 100, 120, 220, 230, and 240 (50/60 Hz line frequency). This requires adjustment inside the chassis, and should only be performed by an authorized technician, as the possibility for electrical shock exists. **THE AMPLIFIER MUST BE DISCONNECTED FROM THE MAINS (I.E.: POWER CORD MUST BE DISCONNECTED FROM THE OUTLET TO PERFORM THIS ADJUSTMENT). OPERATION AT THE INCORRECT VOLTAGE CAN RESULT IN SEVERE PERSONAL INJURY AND SERIOUSLY DAMAGE AMPLIFIER.** The following changes **MUST** be made to operate at 220, 230 or 240 volts: Duel Sixty™ - change Mains Fuse to 1.5 amp (or 1.6 amp) 250 volt slo-blo. Duel 38™ - change Mains Fuse to 1.0 amp 250 volt slo-blo.

### **MAINTENANCE:**

**TUBES** - To prevent damage to amplifier, ONLY replace tubes with those specified. Output tubes: 5881, Preamp tubes: 12AX7. Matched output tubes (5881's) should be used for optimum performance. The amplifier must be biased whenever replacing output tubes (5881's) for optimum performance and extended tube life. This requires adjustment inside the chassis, and should only be performed by an authorized technician, as the possibility for electrical shock or amplifier damage exists. To further extend tube life do not expose the amplifier to outside cold temperatures until the tubes have cooled down, and do not immediately turn on the amplifier when bringing it inside from a cold environment. Also, vibration and jarring of amplifier should be kept to a minimum, especially when tubes are operational or still hot.

**VINYL COVERING** - The amplifier and cabinets are covered with vinyl. This can be cleaned with a soft cloth dampened with water and a small amount of mild soap. To prevent shock, allow amplifier to dry thoroughly before operating.

**CONTROL PANELS** - Front and rear control panels are brushed stainless steel. They can be cleaned with glass cleaner sprayed onto a soft cloth. Replacement panels are available from Naylor Engineering.

**REPAIRS** - Repairs should only be performed by service centers authorized for Naylor Engineering products. Unauthorized repairs may void warranty. If you cannot locate an authorized dealer contact Naylor Engineering.

If you have any questions or need assistance, please contact Naylor Engineering at (214) 946-2556 Monday - Friday 9:00 AM - 5:00 PM, CST.