TEN-TEC MODELS 251 & 252G POWER SUPPLIES

GENERAL

The TEN-TEC Model 251 Power Supply will deliver up to 9 amperes at approximately 13 VDC, regulated, from a 117 VAC 50-60 Hz source. An electronic latching circuit breaker shuts down the output voltage when a current in excess of 10 amperes is drawn from the supply. Reset is accomplished by cycling the POWER switch. Two indicator lamps monitor the LINE and OUTPUT voltages. The primary circuit is fused with a slo-blo fuse. The output voltage is available through a six pin Jones connector and a phono type jack for low current applications. Two of the six Jones pins are used for remote power on-off switching, if desired.

The Model 252G is similar to the Model 251 except that it will deliver up to 18 amperes at approximately 13 VDC. The circuit breaker in this model is factory set to trip at 20 amperes, and the line fuse rating is twice that of the Model 251. Either model will accept Model 207 Ammeter.

The circuit consists of a bridge rectifier, followed by a high capacitance filter. This, in turn, is followed by a series type transistor regulator whose base voltage is derived from a three transistor regulator. The "crow-bar" type circuit breaker consists of a SCR which removes the base voltage from one of the regulator transistors when fired. The SCR signal is developed across a low value sampling resistance in series with the load.

INSTALLATION

1.) Output Cables and Connectors - The high current output should be drawn from the six pin Jones connector. Pins 3 and 4, the two vertical center pins are negative GND, and are marked on the chassis with a - sign. Pins 5 and 6, the two vertical pins nearest the end panel and marked +, are the positive terminals. Pins 1 and 2 are connected in series with the POWER switch and are used with a remote on-off switch, if desired. If the supply is to be turned on and off only by the front panel switch, pins 1 and 2 should be jumpered together in the plug. The unit will be inoperative without this jumper, or if the plug is removed from the socket. Keep interconnecting cables carrying the high current as short as possible, and of a wire gauge greater than, or equal to #14. Sizable cable voltage drop will be experienced with long cables and/or small wire sizes. Always jumper the two pins available for the minus together and the two for the plus, to reduce pin resistance to a minimum.

Provide a good interchassis connection by running a separate heavy braid or stranded wire between them, using the ground lug terminal provided near the output connectors. In rf communication systems, a connection from chassis to a good earth ground is also recommended.

The phono jack marked AUX. 12V is connected in paralled with the output from the Jones socket and may be used to power auxiliary equipment that does not draw more than 1 ampere. Center terminal is positive, shell is negative.

2.) Models 251/E and 252G/E - These models have a dual primary winding on the power transformer, permitting operation from either 115 or 230 VAC. They are factory wired for 230 volt operation and do not have plugs on the line cords. To change from 230 to 115 volt primary, see instructions printed on the inside cover of the supply.

3.) Model 207 Ammeter - The upper phono jack marked AMMETER accepts the cable attached to the Model 207 Ammeter. This meter utilizes the internal shunt resistance of the supply and because of this, requires no alteration when used with either the 9 or 18 ampere supply. Just read the appropiate scale.

OPERATION

1.) Connect line cord to proper source of voltage, and load to output connectors as described above.

2.) Turn unit on by pressing the push POWER switch. The two lamps should indi-

cate that both LINE and OUTPUT voltages are present. If OUTPUT lamp does not light, check load and cables for short or excessive current situation.

3.) If the load current is variable, some dimming of the LINE lamp may be observed. The OUTPUT lamp, however, monitors the regulated voltage and should not dim with current drains up to rated values. If pilot lamps in the driven equipment dim with increased load current, but OUTPUT lamp does not, it is an indication that a loss of voltage to the load is present in the cables. To remedy, use shorter cables and larger wire size.

4.) To reset the circuit breaker after it shuts down the OUTPUT voltage, as monitored by its pilot lamp, turn unit off and wait approximately three seconds. Then switch unit on again. If the short or overload remains, the breaker will again shut the unit down. Remove cause of overload and reset as before. It is necessary to wait several seconds to allow the circuit capacitors to discharge sufficiently for proper resetting.

5.) Fuses - In the event that the line fuse blows, replace with an identical type Slo-Blo.

Model 251 - 115 VAC operation: 2A.
Model 251/E - 230 VAC operation: 1A.
Model 252G - 115 VAC operation: 4A.
Model 252G/E - 230 VAC operation: 2A.

6.) Do not place power supply in a small volume where normal room air cannot reach the heat sink mounted on the rear panel. This heat sink should have free access to normal convection air currents. When operating the supplies near rated full load for relatively long periods of time, the heat sink will become very warm, and in the case of the Model 252G can approach temperatures of approximately 200° F. If extended operation is anticipated and/or the line voltage is above the mean values or 115 or 230, it is recommended that a small fan be used to circulate air around the heat sink fins. For normal CW or SSB Amateur communications applications, where the duty cycle is no greater than 60%, no extraordinary precautions need be taken in this regard.

Specifications Common to Models 251 & 252G

Input Voltage: 117 VAC, 50-60 Hz.
Output Voltage: 13 VDC, ± 0.5V. Regulated.
Regulation: Better than 1%, no load to full load @ 117 VAC.
Construction: Aluminum with molded plastic side panels.
Output Connectors: One 6 pin Jones type.
One Phono jack for low current.
One Phono jack for Model 207 Ammeter.

Specifications for Model 251

Output Current: 9 amperes continuous, full load.
10 amperes, maximum.
Circuit Breaker: Electronic latching. Factory set to trip at 10 A.
Ripple: Less than 25 mV, peak-to-peak @ 9 A and 117 VAC.
Size: HWD 4½" x 8¼" x 8".
Weight: 9½ lbs.

Specifications for Model 252G

Output Current: 18 amperes continuous, full load.
20 amperes, maximum.
Circuit Breaker: Electronic latching. Factory set to trip at 20 A.
Ripple: Less than 60 mV, peak-to-peak @ 18 A and 117 VAC.
Size: HWD 4½" x 8¼" x 13".
Weight: 14½ lbs.