

TEN-TEC MODELS 251 & 252G POWER SUPPLIESGENERAL

The TEN-TEC Model 251 Power Supply will deliver up to 9 amperes at approximately 13 volts dc, regulated, from a 117 volt ac, 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. Output voltage is available through a four pin AMP connector and a phono type jack for low current applications. Two of the four AMP pins are used for remote power on-off switching, if desired.

Model 252G is similar to Model 251 except that it will deliver up to 18 amperes at approximately 13 volts dc. The circuit breaker for this model is factory set to trip at 20 amperes. 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, and adjustment is made with a trimpot connected across this shunt. (R8)

INSTALLATION

Output Cables and Connectors: The high current output should be drawn from the four pin AMP connector. Pin 1 is GND negative, and identified by the rib on the plastic portion of the plug. Pins 2 and 3 are connected in series with the POWER switch and are used with a remote on-off switch, if desired. Pin 4 is +13 volts.

If the supply is to be turned on and off only by the front panel switch, pins 2 and 3 should be jumpered together in the cable plug. The unit will be inoperative without this jumper, or if the plug is removed from the socket. Keep interconnecting cables carrying 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 size.

Provide a good interchassis connection by running a separate heavy braid or stranded wire between them, using the ground lugs provided on the rear panels. 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 parallel with the output from the AMP socket and may be used to power auxiliary equipment that does not draw more than one ampere. Center terminal is positive, shell is negative.

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 volts and do not have plugs on the line cord. To change from one voltage level to the other, see instructions printed on label on the inside cover of the supply.

Model 207 Ammeter: The upper phono jack marked AMMETER accepts the cable attached to 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 appropriate scale.

OPERATION

- 1.) Connect line cord to proper source of voltage. This is a three wire cable and the green center conductor should be connected to the mains ground system. It is internally connected to the supply chassis.
- 2.) Connect load to AMP connector as described above.
3. Turn unit on by pressing the push POWER switch. The two lamps should indicate that both LINE and OUTPUT voltages are present. If OUTPUT

lamp does not light, check load and cables for short circuit or excessive current situation.

4. If load current is variable, some dimming of the LINE lamp will 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 is present in the cables. To remedy, use shorter cable and larger wire size.
- 5.) To reset the circuit breaker after it shuts down the OUTPUT voltage, as monitored by the 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 action.
6. 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: 1 A.
Model 252G - 115 vac operation: 4 A.
Model 252G/E - 230 vac operation: 2 A.

- 7.) Do not place power supply in a small volume where normal room air cannot reach the heat sink on rear panel. This heat sink should have free access to normal convection air currents. When operating near full rated load for relatively long periods of time, the heat sink will become very hot, and in the case of the Model 252G can approach temperatures of approximately 200° F. If extended operation is anticipated, and/or line voltage is above mean values of 117 or 230, it is recommended that a small fan be used to circulate air around the heat sink. For normal cw or ssb Amateur applications, where duty cycle is no greater than 60%, no extraordinary precautions need be taken in this regard.

SPECIFICATIONS Common to Models 251 & 252G

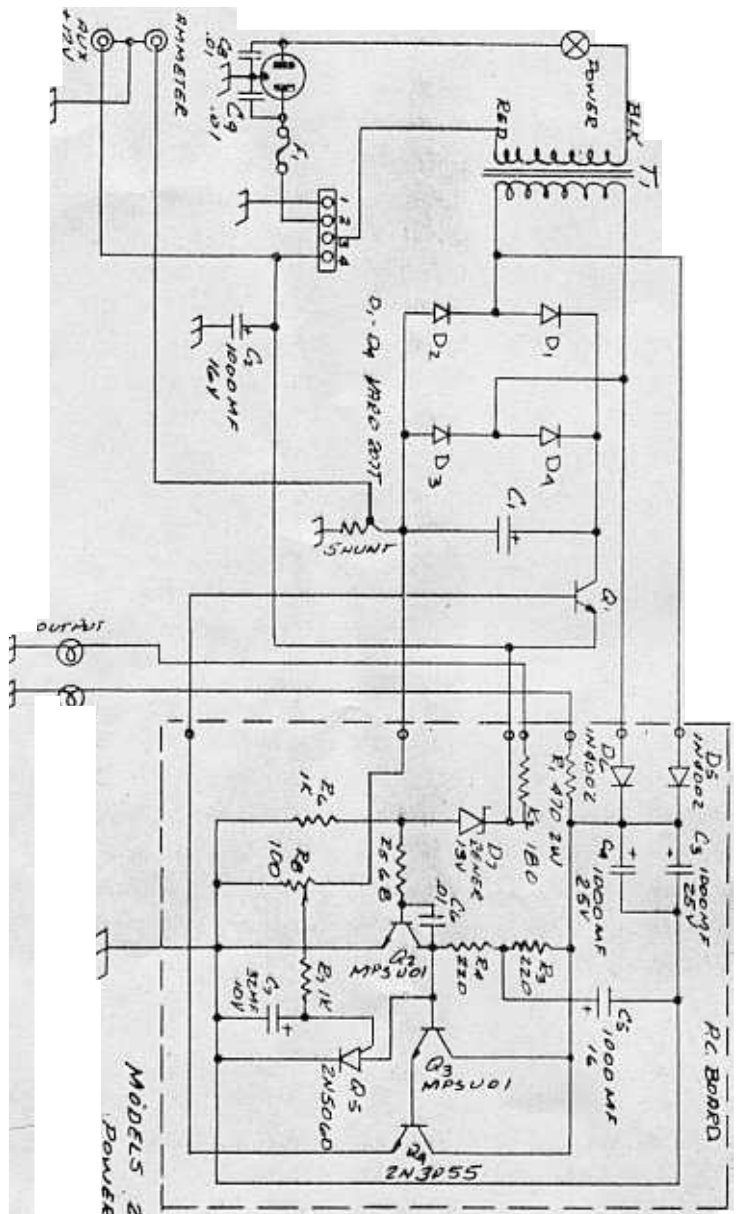
Input Voltage: 117 vac, 50-60 Hz.
Output Voltage: 13 vdc, \pm 0.5 V. Regulated.
Regulation: Better than 1%, no load to full load @ 117 vac.
Construction: Aluminum chassis with molded plastic side panels.
Output Connectors: One four pin AMP MATE-N-LOC.
One phono jack for low current.
One phono jack for Model 207 Ammeter.

SPECIFICATIONS for Model 251

Output Current: 9 amperes, 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 V.
Size: HWD 4-1/2" x 8-1/4" x 8"
Weight: 9-1/2 lbs.

SPECIFICATIONS for Model 252G

Output Current: 18 amperes, 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 V.
Size: HWD 4-1/2" x 8-1/4" x 13"
Weight: 14-1/2 lbs.



MODELS 251 AND 252 & POWER SUPPLIES

SYM	MODEL	MODEL
F1	251	252 G
Q1	2N3055	2N3055
Q2	2N3055	2N3055
Q3	047 BW	05 15V
C1	15000µF	17000µF

NOTE: T1 PRT FOR 14/230
 1. 15V: DOWNST BLK TO BLUE
 ↑ RED TO YELLOW
 2. 230V: DOWNST RED TO BLUE

