

## 99 TUBE BIAS LEVEL ADJUSTMENTS

**Equipment required:** Digital Multimeter, 14 pin IC clip, clip-lead to short IC clip pins.

Remove amplifier cover and defeat both safety interlocks (microswitch at rear and HV crowbar at center of amp). Connect the transceiver T/R relay control to the 99 RELAY jack. Make no connection to the 99 RF input at this time (connect radio RF output to dummy-load or antenna, but NOT to amplifier input).

The following steps will allow adjustment of the bias switching circuitry:

1. Place soft towel under front edge of amplifier. Remove knobs and front panel screws to provide access to Control Board adjustments (bandswitch knob has 2 setscrews). Insure that cables between front panel and Control Board are properly seated.
2. Set DMM to measure DC voltage. Connect DMM positive lead to chassis. Connect negative lead to HV- on POWER SUPPLY PCB (clip onto metal connector of jumper between the two boards). This is measuring 0 to less than 5vdc across R1, but if a failure occurs there could be high voltage at that point (if R1 opened). Be careful !
3. Connect the 14 pin IC clip to U4 on Control Board (Pin 1 is the bottom left-hand pin).
4. Turn on amplifier.
5. Short IC clip pins 4 and 5 (this step actually keys the amp simulating RF applied). Verify 3.8 vdc on DMM, adjust pot R89 as necessary, CW decreases. Remove short on IC pins.

6. Place 99 in OPERATE and key the transceiver (no RF applied to amp), verify 0.5-0.7 vdc on DMM; adjust pot R91 as necessary. Unkey transceiver.
7. Check the adjustments in steps 5 and 6 several times, there is some interaction between them.
8. With amplifier unkeyed, verify that voltage on U4 pin 6 is 0.55 vdc; adjust pot R83 as necessary. Remove IC clip.
9. Turn off amplifier and unplug from AC. Replace front panel.
10. When reassembling the amplifier, set TUNE and LOAD capacitor plates fully meshed and install knobs so that TUNE = 100, LOAD = 0.