Output Tube Bias Adjustment

As shipped from the factory, the output 'bias' adjustments are set for a nominal 65mA per KT120 tube. Under these idle conditions the tubes are each dissipating approximately 27 watts of their 60 watt rating. This point of operation provides 'enriched' Class AB1, and will satisfy the most critical listener.

For best results, operate and adjust the Reference150 at 120VAC. Adjustment must be made under zero-signal conditions after at least 15-20 minutes of uninterrupted stabilization time.

A digital voltmeter capable of accurate measurements with 0.lmVDC resolution is preferred for accurate adjustment (must have 3 1/2 digit display). Use the plastic alignment tool provided to make the adjustment. The measurement points are yellow and black banana test jacks next to each output tube. Adjust the 'bias' for a voltage reading of 65mVDC (.065 Volt DC) at the blue bias pot for one of each output tube pair as follows, noting the voltage setting of the larger V number tube in each pair is slaved to the adjustment setting of its lower V number companion tube: Adjust V5 for 65mVDC and measure its companion tube V7 to verify a reading of 57 to 73mVDC. Repeat procedure by adjusting and measuring V9 to read 65mVDC and verify V11 reads 57-73mVDC; adjust and measure V6 to read 65mVDC and verify V8 reads 57-73mVDC, and finally adjust and measure V10 to read 65mVDC and verify that V12 reads 57-73 mVDC.

Cooling Fan Speed Adjustment

The two D.C. cooling fans located at the rear of the Reference 150 are adjustable in speed. Locate the red colored dipswitch under the top cover at the top near the center of the back panel. For highest fan speed move both white tabs on the red dip switch to the upward position; for medium fan speed move either one of the tabs to the downward position, and for low fan speed move both tabs to the downward position. For maximum cooling and extended tube life, use the highest fan speed possible.

Be sure to first turn off and unplug the Reference 150 from its power receptacle before unscrewing the top cover to access the switch. Refasten the top cover before resuming operation. Do not operate the Reference 150 with fans disconnected or if one or both fans should stop running.

Hour Meter

An LCD hour meter of elapsed tube operating time can be viewed through the top cover near the front, mounted on the right main circuit board. This displays accumulated hours of vacuum tube service life. If the amplifier is unplugged from A.C. supply, total accumulated hours are retained. May be reset by qualified technician. Contact Audio Research Customer Service for more information about reset procedure.

Servicing

Because of its careful design and exacting standards of manufacture, your Reference 150 amplifier should normally require only minimal service to maintain its high level of performance.

Caution: The Reference 150 amplifier contains sufficient levels of voltage and current to be lethal. Do not tamper with a component or part inside the unit. Even with the power turned off, a charge remains in the energy storage capacitors for some time. Refer any needed service to your authorized Audio Research dealer or other qualified technician. Additional questions regarding the operation, maintenance or servicing of your amplifier may be referred to the Customer Service Department of Audio Research Corporation at 763.577.9700 (CST). When ordering a service manual from Audio Research or an authorized dealer, be sure to identify the serial number on your amplifier.