

ADJUSTMENT PROCEDURE

The CLASSIC 30 utilizes very high quality, commercial and computer grade components which, together with conservative operation of all components and tubes, will provide long service life, if installed and operated within the parameters outlined in this Manual.

The output tubes, for example, are operated with electronically regulated "bias" voltage, that includes compensation for varying plate voltage as the line voltage changes. The resulting output tube current is essentially immune to line voltage variation within the normal range of 105-125VAC, or equivalent export line voltages.

After vacuum tube failure and replacement, it is desirable to make a single internal "bias" adjustment for optimum performance and tube life.

CAUTION: The following internal procedure should not be attempted by the owner unless he is technically qualified. There are high voltages within this unit which can be lethal under certain conditions. The internal "bias" adjustment should be accomplished by a qualified individual. It is necessary to remove the top and bottom covers from the CLASSIC 30 for this adjustment. The unit should be off before removal of the covers.

Normally, only the output tube idle current (bias voltage) requires adjustment in the CLASSIC 30. Use the plastic alignment tool provided for this adjustment.

The triode output stages of the CLASSIC 30 are partially cathode-coupled "push-pull Class AB₁," utilizing our tightly coupled output transformers which provide low distortion and sonic accuracy.

As shipped from the factory, the output "bias" adjustments are set for a nominal 65mA per tube. Under these idle conditions the tubes are each dissipating approximately 32 watts of their 48 watt rating (42 watt plate, 6 watt screen). This point of operation provides "enriched" Class AB₁, and will satisfy most critical listeners.

For best results, operate and adjust the CLASSIC 30 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 0.1mVDC resolution is preferred for accurate adjustment (must have 3 1/2 digit display). Use the plastic alignment tool provided to make the adjustment. The "bias" adjustment trimpot is accessible from the top of the circuit board, along the rear edge.

The four test points are accessible from the bottom of the circuit board, near the front edge. Test points TP1, TP2 on the schematic diagram are for tube V5, and TP3, TP4 are for tube V6. (Automatic servo balance circuits take care of tubes V3, V4.)

WARNING. This adjustment involves measurements of circuits that are 420 Volts DC above chassis potential, with large energy storage. Use extreme care to avoid shock hazard and to avoid damage to the CLASSIC 30 or to your meter due to careless use of test leads. All meter test leads connections must be isolated from chassis or earth ground. Start with the meter on its highest range before making connections, and then select the 200mV DC range. Do not attempt current measurements.

Adjust the "bias" for an average reading of 32.5mVDC (.0325 Volt DC) between TP1-TP2 and between TP3-TP4. The two readings may differ by up to 10% because of minor variations in tubes.

SERVO BALANCE CALIBRATION

The servo adjustments are factory set and should not require readjustment except in the event of a circuit malfunction or component replacement. They are not user adjustments and are not usually required when changing tubes.

Allow 20-30 minutes undisturbed warmup with top and bottom covers in place, to fully stabilize tube currents and servo circuit temperatures. The unit should be in a normal horizontal position, with its rubber feet resting on a hard surface for normal ventilation.

Tip the unit vertically on its handles, and remove the bottom cover. Connect a 3 1/2 digit DVM between TP2 and TP5. WARNING - high voltage.

Adjust the 15-turn trimmer through the guide on the left side of the chassis. Use a small screwdriver with a 1/8" wide blade (not the plastic alignment tool supplied with the unit). Adjust for a null of less than 0.2mVDC indication. Response is very slow and it may take 20-30 seconds for the reading to stabilize after adjustment. Some fluctuation is normal, so use the average reading. For best results, the line voltage should be stable at about 120VAC, although the actual line voltage is not critical.

Repeat for the right channel, using TP4 and TP6, and the right side trimmer.

SERVICING

Because of its careful design and exacting standards of manufacture, your CLASSIC 30 amplifier should normally require only minimal service to maintain its high level of performance.

CAUTION: The CLASSIC 30 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.

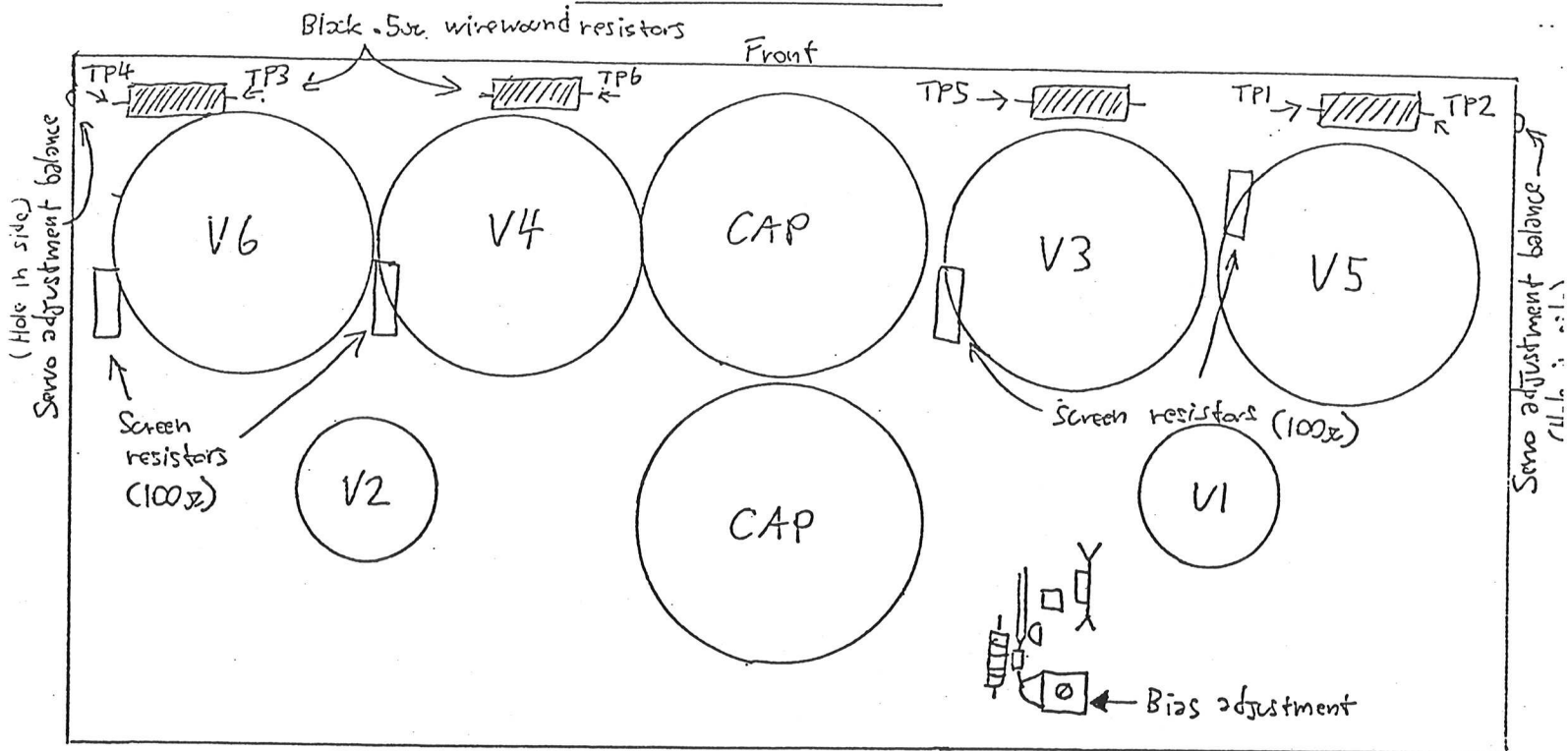
The six (6) vacuum tubes inside the CLASSIC 30 are high-quality 6550 and 6FQ7 tubes. Replacement tubes need not be matched, although slightly better sonic performance will result if matched sets are used. (Your CLASSIC 30 comes from the factory with a matched set installed.) Reliable, matched, low gas 6550 tubes -- such as those available from Audio Research -- are strongly recommended for maximum performance and longevity. Check bias adjustment after replacing tubes.

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CL-30 BIAS INSTRUCTIONS



- 1) Referring to diagram above, check all screen resistors for damage due to previous tube arc if you are retubing unit. They are 100 ohm with a brown/black/brown/gold color code. You may skip this step if just checking bias.
- 2) Locate TP1, TP2 and TP3, TP4 per diagram. Attach a 3½ digit DVM across either pair of test points. It doesn't matter which channel is checked first. Set meter to 100mV DC range if applicable.
- 3) Turn on amp. Does not need to be connected to load or speaker. Observe bias come up. Ignore + or - DVM, you just want number. Set bias to 32.5mV for 6550 or KT-88 tubes. Initially set bias about 5mV low; it will rise as tubes heat up. Set final bias adjustment after 1 hour warmup.
- 4) Servo Adjustment Only
With amp fully warmed up and bias set, attach negative probe to TP-4, positive to TP-6. Reading should be +/- .2mV or less. Normally this is a factory-set adjustment and does not need resetting. Resist the urge to "fiddle" with the adjustment unless you are sure it is out of range. Normally after amp heats up, it will settle in.

- 5) If servo out of range, insert plastic probe into hole on side of chassis near V6 tube. With probes still connected as in Step 5, turn trimpot clockwise to make reading more positive, CCW to make negative. Turn pot 1/4 turn increments to avoid over-adjusting. Allow 5 minutes to settle before observing final reading. It is normal for reading to "float" as servo works.
- 6) Move positive probe to TP5, negative to TP2. Insert probe in hole near V5. Repeat step 5 adjustments to this channel.