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TUBE CROWN & TUBE HALO
OWNER'S MANUAL

PERFORMANCE AND DESIGN

Installing Tube Crowns/Haloes on any tube amplifier, preamp, phono stage, or CD output tube stage will yield major increases in musical warmth, transparency and detail, accompanied by much deeper, less boomy bass and more extended less edgy treble. The Crowns also slightly improve tube cooling, thereby increasing tube life.

The Tube Crowns and Haloes replace our very successful earlier tube vibration control product, the Tube Anchor. The new Crowns are far easier to install *and* yield even better sound than the much-praised old Anchors. The two major design advances incorporated in the Tube Crown are: a) three point contact to more cleanly drain vibration out of the tube; and b) much better mass optimization to match each tube family.

Tube Crowns are the end product of twelve years of listening experiments to improve the sound of tubes through vibration control. These experiments have led to the following clear conclusions—and it is these findings that underlie the final design of the Tube Crowns:

1 Tubes significantly distort music signals due to both external (room and floor) vibrations and internal vibrations generated by electrical currents flowing through the tube itself and through nearby on-chassis components (capacitors, transformers, etc.)—even tubes that are not audibly micro phonic.

2 The internally-generated vibrations of tubes cause *much* more sonic degradation than any room and floor vibrations. Tubes are more subject to vibration-caused degradation than any other circuit component.

3 Coupling the tube to a material that acts as a good mass sink for vibrational energy can make major improvements in sound (but the wrong material, like any soft damping material, actually degrades sound).

4 Rigid *point* contact between the sink and the tube yields more efficient and much more reflection-free transfer of vibrational energy than *area* contact. In other words, point contact yields far better sound quality. Worst of all is coupling the sink to the tube via springs or soft coupling materials like rubber O-rings.

5 Brass is a significantly better sounding sink material for tube vibrations than lead, aluminum, plastic or any other high internal damping material.

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6 The brass sink must have substantial mass to achieve major sonic improvements but more mass is not automatically better. There is an optimum mass for each major family of tubes, which can only be determined by varying the mass and listening. We have, in fact, tuned the mass of each size range of our Crowns to that optimum.

7 The good effect of our Tube Crowns and Haloes is nearly doubled if they are grounded. The quality of the grounding wire used is *very* audible.

8 Tube cooling is enhanced by the Tube Crown, due to a) the increased airflow created by the chimney effect of the Crowns; b) the nearly perfect infrared heat absorption of the internal carbon black coating; and c) the high thermal conductivity of the brass (relative to glass) which leads to better heat transfer to the air rising inside and outside the Crowns.

INSTALLATION AND SET-UP FOR BEST PERFORMANCE

First, **carefully** remove the tape holding the rolled up copper grounding ribbon around the Crown or Halo and gently unroll and flatten the ribbon. (It can be easily torn if twisted hard.)

Crowns and Haloes have three setscrews threaded through the top of the brass body. The long one with the nut and washer is for attaching the grounding ribbon. To adjust the setscrews, we provide a 5/64” Allen wrench.

Adjust the setscrews so that they rest on the very outermost edge of the shoulder of the tube. he set screws do not need to be set to protrude precisely the same amount inwards from the Crown.

To get the last 10% of performance, adjust the screws outward by 1/8 of a turn at a time. After each outward adjustment, slightly rock the Crown to feel how much frictional resistance there is when you rock. The resistance will increase each time you adjust the screws outward. Eventually, the resistance will be so high that the Crown feels locked to the tube (if you adjust the screws outward another step beyond this point, the Crown will no longer rest on the tube shoulder and instead will slide down the tube). When you reach the point where the Crown locks to the tube, sound quality will be degraded--so correct that by adjusting one of the setscrews one tiny step inwards to where you feel substantial resistance to rocking, a resistance that falls just short of locking completely. That maximum resistance point yields a clearly audible optimum in sound quality.

If the installed Tube Crown or Halo touches an adjacent one, a nearby transformer, or a capacitor’s bare metal can, slip a piece of paper in between as a mechanical and electrical insulator. If any touch a nearby metal object, there is a slight sonic

degradation. If two adjacent tubes are spaced so closely that Crowns can't be fitted, filing or grinding a flat on each Crown where it touches its neighbor will almost always solve the problem.

Slip the grounding ribbon's square-cut end under the loosened ground screw nut on the side of the Tube Crown, and then tighten the nut to squeeze down on the end of the ribbon. Find the nearest chassis screw on your tube equipment, loosen it and similarly slip the pointed end of the grounding ribbon under the head of that screw. Then tighten.

For ultimate performance, try to lead all (or most) of your grounding ribbons to a single screw. A worthwhile listening experiment is to try reversing the direction of each grounding ribbon, one at a time. The ribbon is highly directional and, although most tubes will prefer the marked direction, certain tube positions in the circuit will prefer the reversed direction. For example, on our modified Scott Integrated Tube Amps, best sound is achieved with all ribbon pointed ends attached to the chassis except for the #2 and #4 output tubes as well as the #3 and #4 (line stage) 12AX7s, which sound better with reversed ribbons.