McAlister Audio OTL FAQ's

I am not familiar with sweep tubes. Please elaborate on the differences between sweep tubes and the "regular" audio tubes that form the mainstay of output stages in most amplifiers.

Horizontal sweep tubes were specifically designed to operate picture tubes as no other type of tube was linear enough to accurately produce an image. This tube has lower 2nd & 4th harmonics, large cathodes, up to 6,000 volt power handing and superb reliability. The main technical difference with horizontal sweep tubes is the grid#2 sits very close to the signal grid as opposed to audio tubes which have grid#2 very close to the plate. This grid #2 in the horizontal tube controls the flow of electrons in a much more linear nature.

What rationale informs your circuit design demands that compels you to utilize sweep tubes?

I have a unique circuit design that monitors the signal level into grid #1 and corresponds with a voltage into grid #2. This improves the efficiency and transient response. This circuit is possible only due to the grid#2 position being close to grid number#1 in sweep tubes. My design is fully balanced from input to output and incorporating the circlotron type of circuit. There are some OTL's out there that use simple totem pole designs that in my view are not stable, reliable or balanced, some circlotron amps that have anemic input and driver stages and are not able to properly drive low impedance loads.

- Are sweep tubes in current production?

  My large OTL's use 22JN6 sweep tubes which are not in production but there are over 10,000 available and my amps probably are the only one of the few using these tubes. My reason using 16 of these per channel is a very low output impedance drive capability. I do have another version (OTL-180) that use 8 6KG6/6P45 that have a new variant in production.

- Are the purchase costs for these tubes comparable, lower or higher than "regular" tubes?

  Due to supply and demand the tubes are very inexpensive at around $8.50 each for the 22JN6. The 6KG6/6P45 tubes can run around $35.00, the new variant currently in production is around $60.00

- Are you at liberty to indicate which brands of electrolytic and film capacitors are used in the design?

  I use polypropylene types in my input and good quality electrolytics in power supplies by-passed with film. For the most part this amplifier is direct coupled with no capacitors used as coupling to the output grids.

- Are there any in-circuit protection methods incorporated i.e. overloads of any kind?

My design is extremely reliable with absolutely no electrolytic caps in the signal path anywhere! I do have a monitoring circuit in the output stage that will remove the output if D.C is detected.

- Does the OTL 195 generate greater or less heat than other similarly rated output power OTL's?

  These are 200 watt mono blocks with 32 output tubes (pair). My design due to my special grid#2 circuit runs the output tubes at only 35% of their rated plate dissipation unless more power is needed. The output tubes are not running at maximum plate dissipation- this can be an issue with some OTL designs producing lots of heat and shortened tube life (Typically I expect my output tubes to last 5-7,000 hrs).