Subject: Re: A-4 Repair
Posted by chicagobill on Sun, 11 Feb 2018 20:41:53 GMT
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First off, there are no Germanium transistors in these amps. Only the very early Lot-O-Tone heads had them and they failed so often that they were dumped for Silicon transistors. NOS transistors are great if you are working in a museum and want to keep things absolutely original. I use modern replacements that are cheaper, quieter and often higher rated that the originals. Your amp sounds like it has already been worked over a few times, so I wouldn't worry about originality.

If I fully understand what you describe as the fuzzy distortion, it sounds like a perfect description of crossover distortion in the power amp. At least that is what I would look at as a starting point.

Crossover distortion occurs when the power amp circuit is under biased and the two halves of the audio signal don't transition smoothly from positive to negative polarities. Instead of transitioning perfectly in the middle, the first half shuts off before the second half turns on, creating a flat spot between the two signal halves.

Check the voltages at each end of the string of three bias diodes. There should be somewhere between 1.5 volts to 2 volts difference between the two ends of the diode string. This is a very delicate part of the power amp circuit because of the temperature sensing diode that is thermally connected to the heat sink. Be careful if you move this diode as the leads have been known to snap off at the case and the ends can also come unsoldered from the pc board. If the diode string is broken and the amp is on or turned on, the two halves of the power amp both turn on at the same time, causing the driver and power transistors to go up with a puff of smoke.

You can add heat shrink tubing to the metal tips of your meter leads leaving only a small tip exposed to avoid the tip from shorting things as you probe. I have a set of spring loaded clip adapters that I can use when things are really tight. With these you really have to attach the lead with the circuit power off and then turn it on and get your reading.