

WIZARD WORKSHOP ARTICLES

2213A/2215A/2235/2236 AUDIBLE NOISE FROM POWER SUPPLY

REF: Mod #61544

S/N: Not available

There have been three "speakers" identified in the 2200 Series which emit high-frequency audible sound from the power supply. Due to the urgency of this change to the field, only two of these components have been changed on this mod. These components and new Tektronix part numbers are as follows:

- T906: Tektronix P/N 120-1439-01
- C907: Tektronix P/N 285-1177-01

In a very few instruments T948 was found to be the third culprit. Changing this part number will require UL testing and recertification, so some testing and evaluation need to be conducted before the part can be modified.

If an instrument comes into the Service Center with this problem, try changing C907 first. If this does not eliminate the sound, change T906.

FOR TEKTRONIX INTERNAL USE ONLY:

The "Precision Sonic Wave Analyzer" described in the 2220/2230 Audible Noise from Power Supply WIZARD article, Issue 16-15, could be a tool for tracking down the source of sound.

Thanks to Marty Jost of the Dallas Service Center for his SAR and valuable information on this problem.

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Issue 16-16

PRECISION SONIC WAVE ANALYZER FOR AUDIBLE NOISE FROM POWER SUPPLY

Ref: Mod #61544

Serial Number:	2213A	220000
	2220	220000
	2230	220000
	2236	220000

The horizontal group IC (2000) used two channels for A and B sweeps. The gain of 2000 for channel A has a slight variance from one batch of ICs to another, causing a difference in gain between A and B sweeps, especially noticeable in the horizontal. Because there is no adjustment for B sweep speed, this may be seen as a B linearity problem.

To correct this we are now using only one channel to drive for both A and B sweeps. Check the solder from collector of both 2000A and 2000B. Lift the collector of 2000 and solder it to the pad for the collector of 2000.

If you change 2000A and B sweep linearity is not meeting specifications, or if an instrument comes in with a B linearity complaint, perform this mod.

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WIZARD WORKSHOP ARTICLES

2213A/2220/2221/2230/2235/2236/
2245A/2246A: Audible Noise

REF: 120-1349-00
120-1594-00
120-1601-01
120-1685-01
Lot Dates 8821-8838

The core of the transformer used in the 2200 series was cracking due to stresses during the manufacturing process because of a change in the type of ferrite material used in the transformer's core. This cracking occurred in transformers with lot dates of 8821 through 8838 inclusive.

Starting in week 29, instruments were reworked in manufacturing by adding a plastic clip (black in color) to the top of the transformer. On the 2245A and 2246A the part number tag was applied to the top of the transformer clip. The part number will not be visible on the other 2200's which were reworked for a cracked transformer. This method of repair was only used on reworked instruments.

Transformers built and shipped from weeks 29-88 through 38-88 had a possibility of producing audible noise, however the core cracking problem was corrected. After week 38, an improved core assembly method was used which reduced the tendency to produce audible noise.

Instruments received for service with a complaint of audible noise and that have a transformer with a lot date between 8821 and 8838 should have the transformer changed.

The redesigned transformers that were manufactured and shipped after Week 38 do not have a tendency to produce audible noise.

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2213A/2220/2221/2230/2235/2236/
2245A/2246A: Audible Noise
100 N.W.
Power Supply Technology Center

The upper limit for the regulation of the +1.5V Vcc power supply has been changed from -2% to +4%. This change is retroactive for all serial numbered instruments.

A manual change has been submitted.

Thanks to George Malachuk of the Chicago Service Center for inquiring about this change.

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