

## **Kenwood TKR-820 Repeater**

### **Modification to Allow Line-Out De-emphasized Audio**

**By: WD7F**

<http://www.wd7f.com/>

In my limited experience with the TKR-820 repeater, I have come to the conclusion that the audio from this Kenwood is not up to my expectations. Typically, discriminator audio from Pin-4 of the accessory jack on the rear of the repeater is applied to a controller. After it is split off for DTMF decoding, the typical thing to do is to de-emphasize the audio for the normal  $-6$  dB per octave, 300-3000 Hz, or something similar.

I recently attempted to de-emphasize the audio from a TKR-820 using a CAT-300 controller with the recommended 0.0047 uFD capacitor in the feedback of the RX audio amplifier. I tried all ranges of capacitance and I personally did not like the sound of the audio.

I noticed that on Pin-10 of the accessory jack there is Line-Out audio with the standard  $-10$  dBm,  $-6$  dB per octave audio out. The problem is that it's switched by COS and if you use this audio, you will get the prettiest little chirp with the squelch in most rigs using the repeater.

So, if you can find Q6/R45 in the surface mounted Display Panel, it's possible to ground what I believe is the emitter of Q-6 and the audio will pass through continuously. I installed a jumper from the leg of Q6 closest to the edge of the PC board to ground. The PDF copy of the component side of the circuit board leaves something to be desired. You have to be tenacious to find Q-6 and R45, but it can be done.

From this point on, I calibrated the audio level for the controller and set the deviation. The audio was still pretty sharp, so I installed a 0.002 uFD capacitor across the feedback resistor in the TX audio amplifier and it tamed pretty well. I used the capacitor in the TX audio amplifier feedback in order to roll off the Voice ID audio as well as the receiver audio.

Works for me.