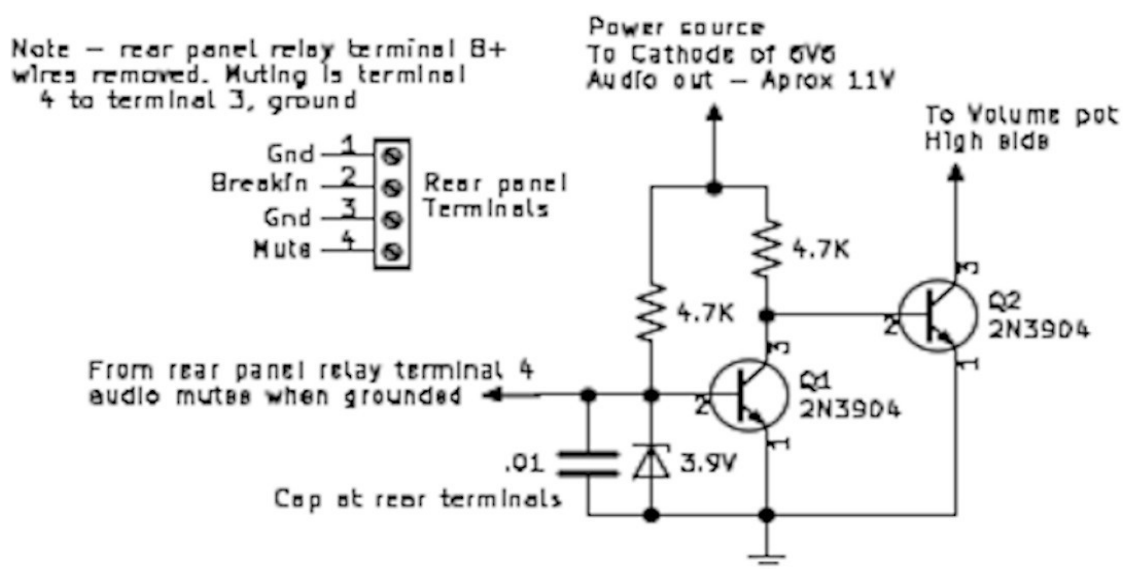


75A1 Receiver Muting Circuit

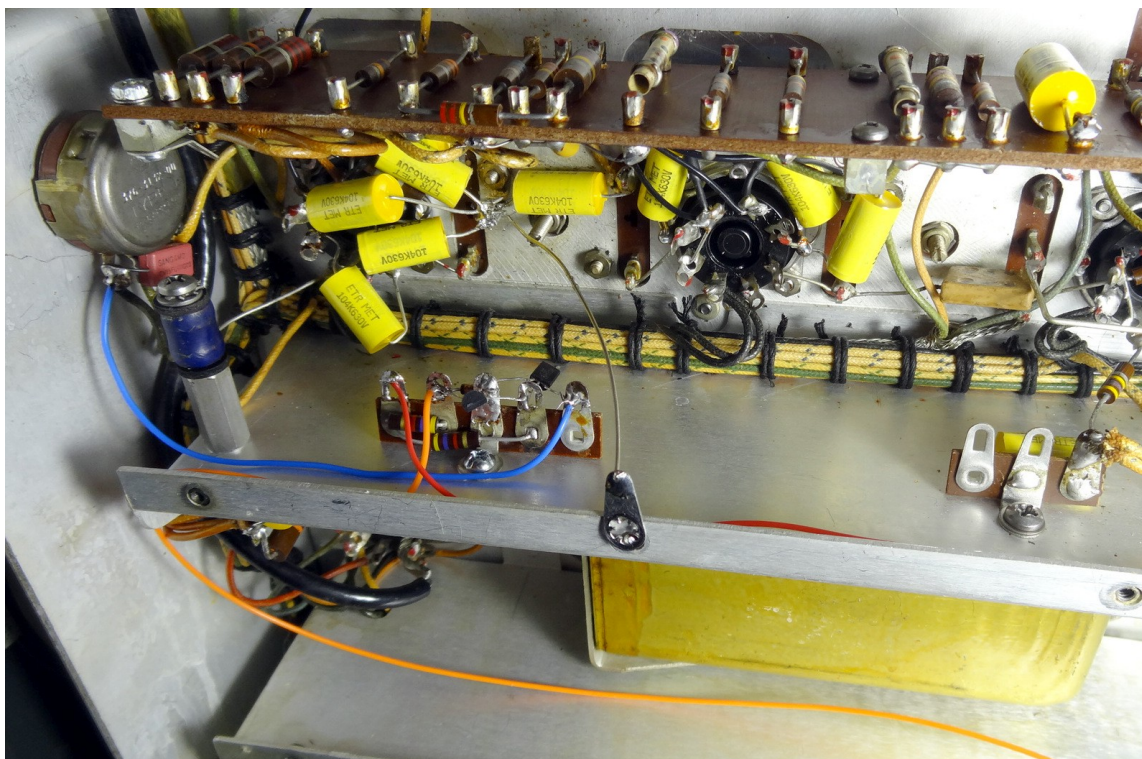
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This muting method came about when I needed to mute my Collins 75A1 receiver using my DX100 transmitter. I had modified the transmitter to provide both normally closed and normally open to ground FET switches for external control. The later 75A1's have a four terminal strip on the rear panel. Two of the terminals are for break-in and the other two switch the B+ from standby to operate in parallel with the front panel standby switch. In today's world it would be unheard of to have +300 volts on a rear panel screw terminal so the first thing I did was disconnect those wires and tie them off internally. I tried the break-in method but it did not really do anything with the specified +20 volts. I possibly could have gone higher in voltage but the transmitter switching arrangement was not compatible with switching this on and off and besides I wanted total muting for AM operation. I pondered different methods of muting the receiver and I came up with a circuit which is very simple and works very well. It could be used on virtually any receiver when applied to low level audio preferably right off the detector.

This is a simple two transistor circuit that effectively shorts out the low level audio. It uses voltage from the cathode of the 6V6 output tube to power the transistors. In my 75A1 this is about 11 volts. The control line is brought out to the rear panel terminal strip (pin 4) that previously had the B+ on it. Shorting this pin to ground (pin 3 formerly B+) mutes the receiver. So the receivers normal open contact state is not muted. The transmitter or external device provides a ground to mute the receiver. No voltages above about 11 volts now appears on the rear panel and the switching current is less than 3 milliamperes. Switching is very clean, no noise, clicks or pops are heard when it mutes or un-mutes. To disable the muting you could put a switch in the mute line Here is the circuit diagram.



The 75A1 rear panel terminal strip. Relabeled previous relay terminals 3 and 4 to ground and mute. Mute to ground mutes the receiver.



The two transistor mute circuit is mounted on a terminal strip in the 75A1. Blue wire is going to volume pot high side, red wire, behind panel lip, to 6V6 cathode, and orange wire, at bottom, to pin 4 of the rear panel terminal strip.



Internal view of 75A1 rear panel terminal strip. High voltage wires have been removed and heat shrunk. Orange wire (pin 4) is the mute input and pin 3 is ground.