

Collins 30L-1 Parasitic Suppressor

w8ji Mar16,2024 rev0

The input circuit band selector shaft causes a fit problem with suppressors like the TPS-4AC.

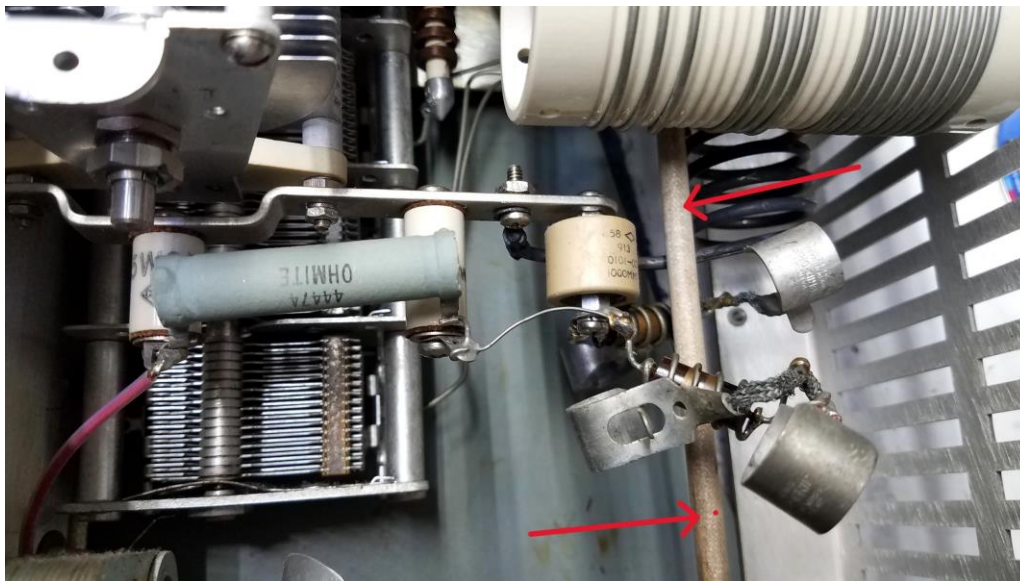


Figure 1 Stock suppressor and shaft

The stock suppressor uses 100-ohm 2-watt carbon composition resistors. I have these OEM-type resistors in stock if the original suppressors are to be retained. I bought a few thousand from Stackpole's last run of carbon composition.

Almost all carbon resistors manufactured since around 1980 are carbon film, even if they look like old resistors. This is because resistor manufacturing methods changed through the 1970s.

An alternative is a metal composition style, like an Ohmite OY series. Be sure you use a composition type and not an oxide or film-type resistor substrate. Carbon compositions and carbon film usually look the same externally as seen in Figure 2 Composition vs. Film type resistors.

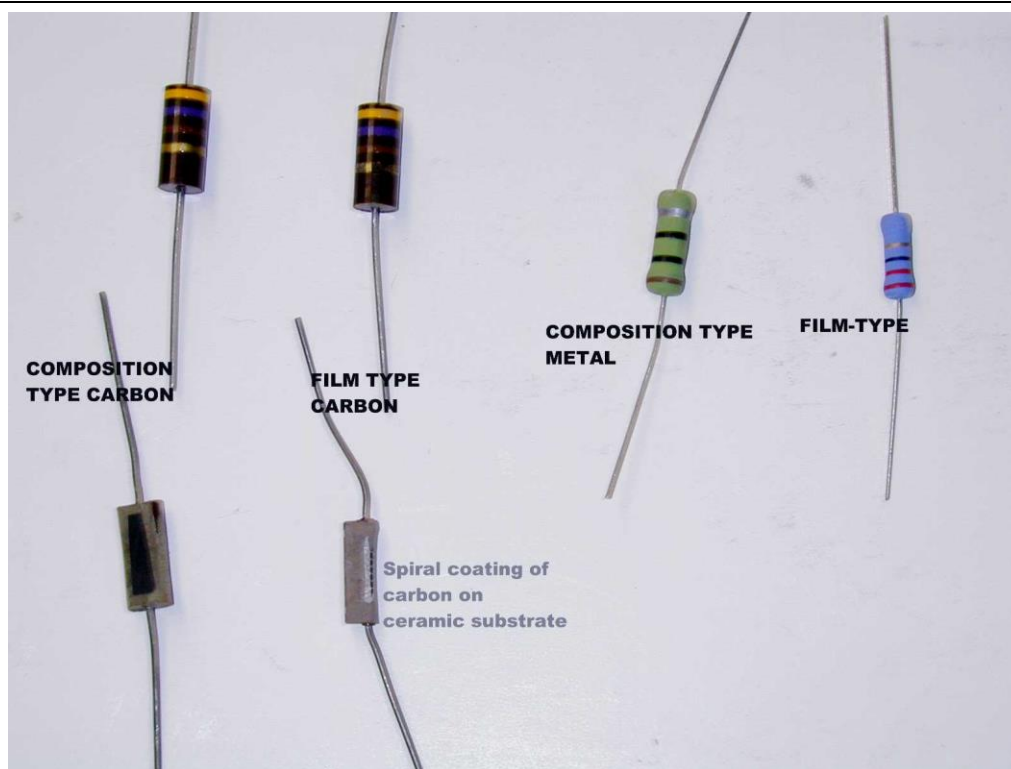


Figure 2 Composition vs. Film type resistors

In my 30L-1 rebuild, I opted to use a new system with one suppressor for each tube Figure 3 copper suppressor tabs.



Figure 3 copper suppressor tabs

Split tabs provide two tie points, one point on each side of the fiber band selector shaft, for four regular inductor-over-resistor suppressors.

I wound tight coils on my lathe Figure 4 New parts

I carefully unsoldered and removed all four stock anode connectors from the stock frayed braiding.



Figure 4 New parts

I fabricated new suppressors, opting for the more traditional approach of one suppressor per tube. Four resistors, one for each tube, reduces current in the suppressors. The result will be much cooler resistors if maintaining similar suppression.

My old legacy website has a page on VHF stability: https://w8ji.com/vhf_stability.htm

Note: The 30L-1 historically has fought upper HF stability issues. The upper HF stability issues are largely unrelated to VHF suppressors. A long lossy input coaxial cable or input attenuator pad, grid RF ground impedance, or better yet neutralization dominate upper HF stability.

I assemble the 4-turn 200-ohm suppressors like Figure 5 coil-over-resistor suppressor as shown.



Figure 5 coil-over-resistor suppressor

The suppressor is attached to the recovered Collins anode clips with small hollow braiding. First the braiding is flared enough to slip over the shortened suppressor assembly end wire. The end to be attached to the copper strips is left long. Figure 6 Flare braid end slightly



Figure 6 Flare braid end slightly

The flared braid end is slipped over the suppressor stub Figure 7 slip braid over stub :



Figure 7 slip braid over stub

The braid is squeezed with fingers tight against the stub and then soldered by heating the suppressor stub wire. Apply just enough solder to flood the braid to the resistor stub but not wick way out on the braid. The braid will break if bent in an area wicked with solder. Figure 8 heat resistor stub and control flow with solder :

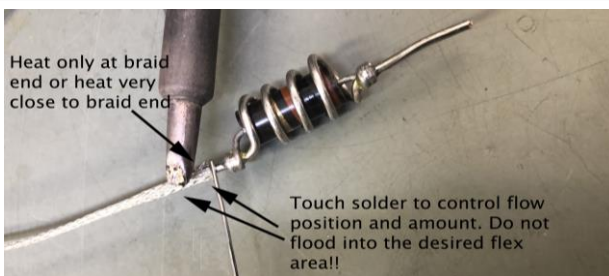
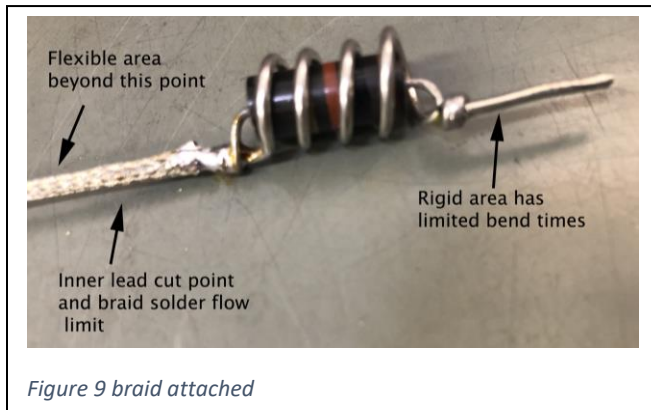
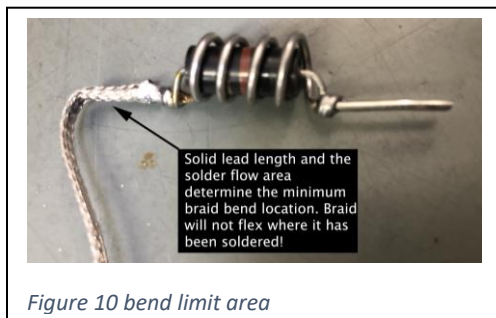


Figure 8 heat resistor stub and control flow with solder

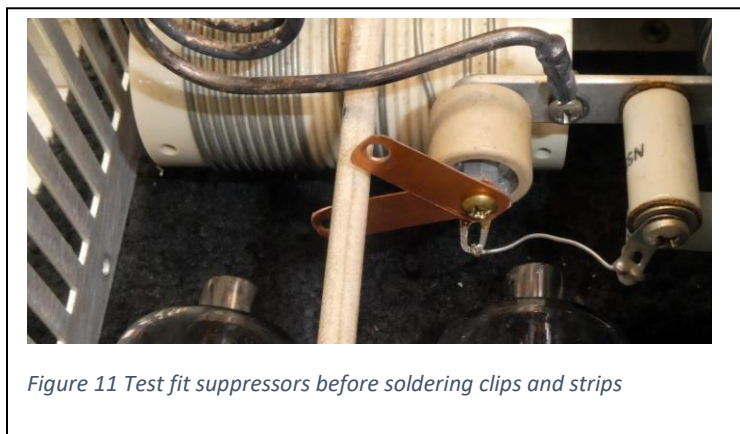
The finished suppressor and braid should look like Figure 9 braid attached :



The braid should be perfectly flexible just beyond the stub Figure 10 bend limit area :



This assembly is then fitted to the tubes and strips before final attachment to clips and copper strips. Figure 11 Test fit suppressors before soldering clips and strips



The final assembly should reach the tube tops with a reasonable amount of slack. This will facilitate removal of the tubes. Figure 12 Leave some slack in braid :



Figure 12 Leave some slack in braid

Be sure to check clearances and fastener tightness before operating amplifier. A ground plate on the empty foot of the plate tune capacitor will help ten-meter tuning and stability.