

GE MASTR PRO 4ET55 6-meter Problem Solved

By Jon Dahm WB5PCV

For many years I've kept a 6-meter split-site repeater running in Austin Texas. After a few years, the GE MASTR PRO 4ET55 transmitter would get unstable. I just slipped in another transmitter strip and kept going. A few years later that strip would develop the same symptoms. Eventually I ran out of spares! The plate tuning would seem to be squirrely and the output power dropped off and was unstable. The plate current would rise out of control and the power supply fuse would blow. Some strips would just seem impossibly unstable and unable to tune. Others would tune up fine and go unstable after 10-15 minutes of burn-in. Replacement of the screen bypass capacitors did not help.

The problem was traced to the two parallel mica capacitors that couple the final plates to the tank circuit. Instead of measuring 560pf each, they were down to 10-20pf each. Others would start out at 560pf and degrade as they heated up. Of course I have seen mica capacitors arc and short, but I did not realize they could degrade and lose capacitance so dramatically. The solution seemed to be replacing them with high voltage and high current ceramic chip capacitors.

All my old transmitter strips are now stable once again and available as spares if needed.

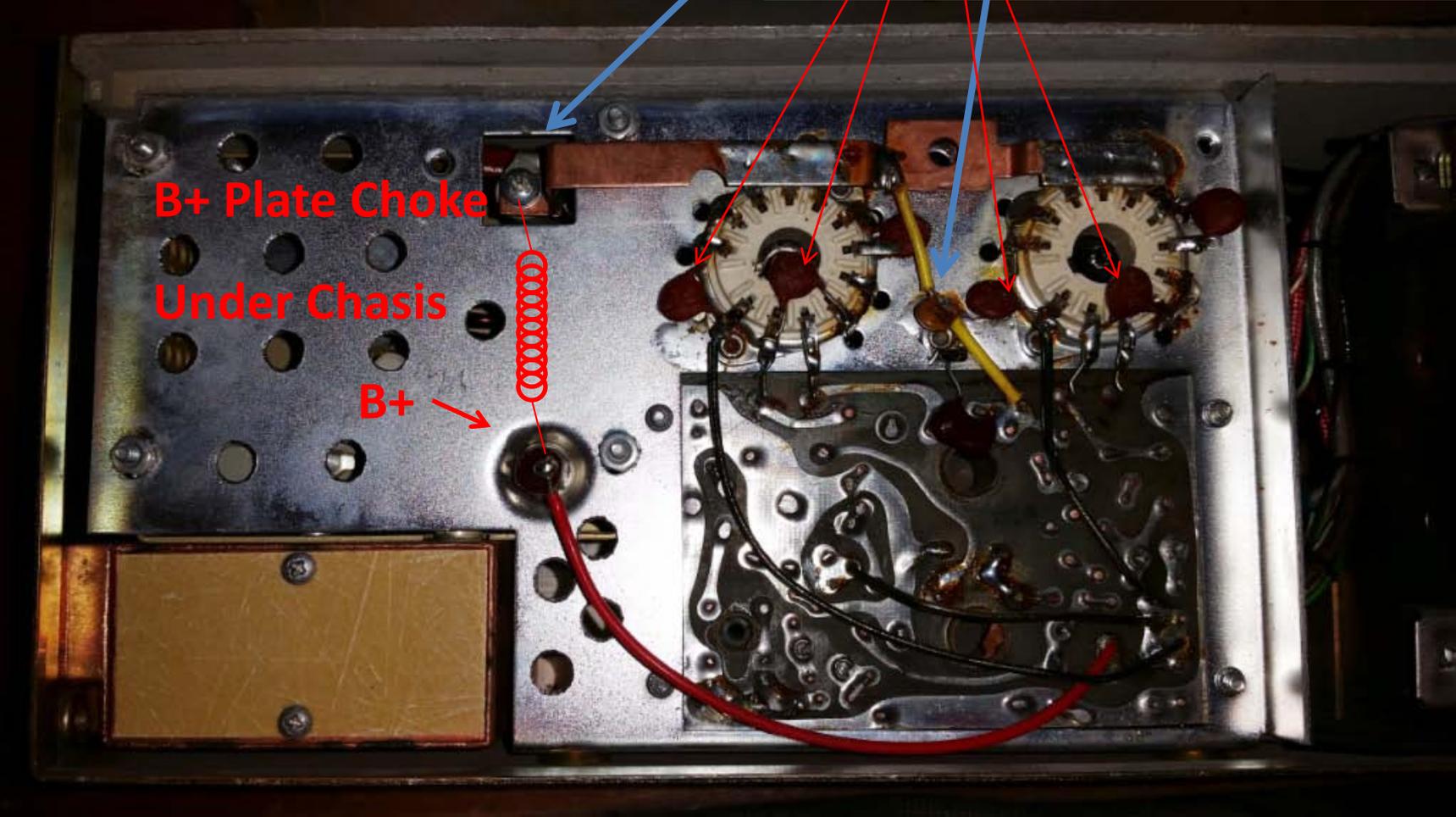
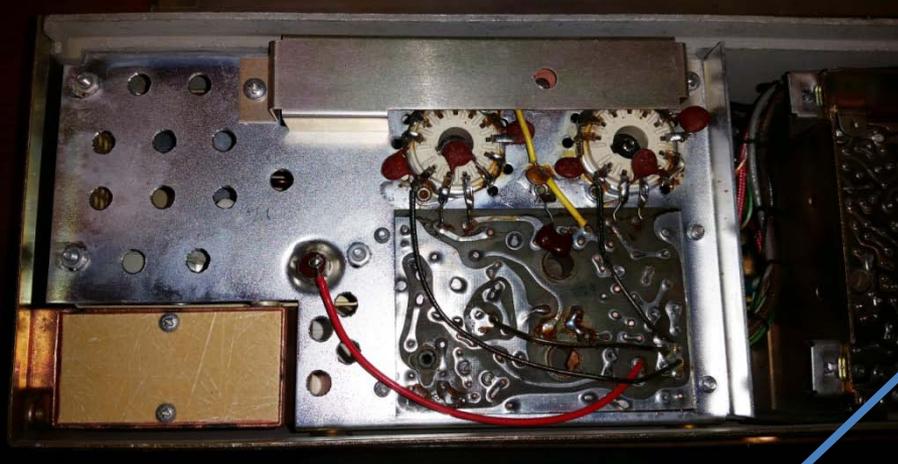
GE MASTR PRO 6M

Plate-to-tank circuit feedthrough
Screen Bypass Capacitors 1,000 pf
Plate-to-grid neutralization 3 pf

4ET55

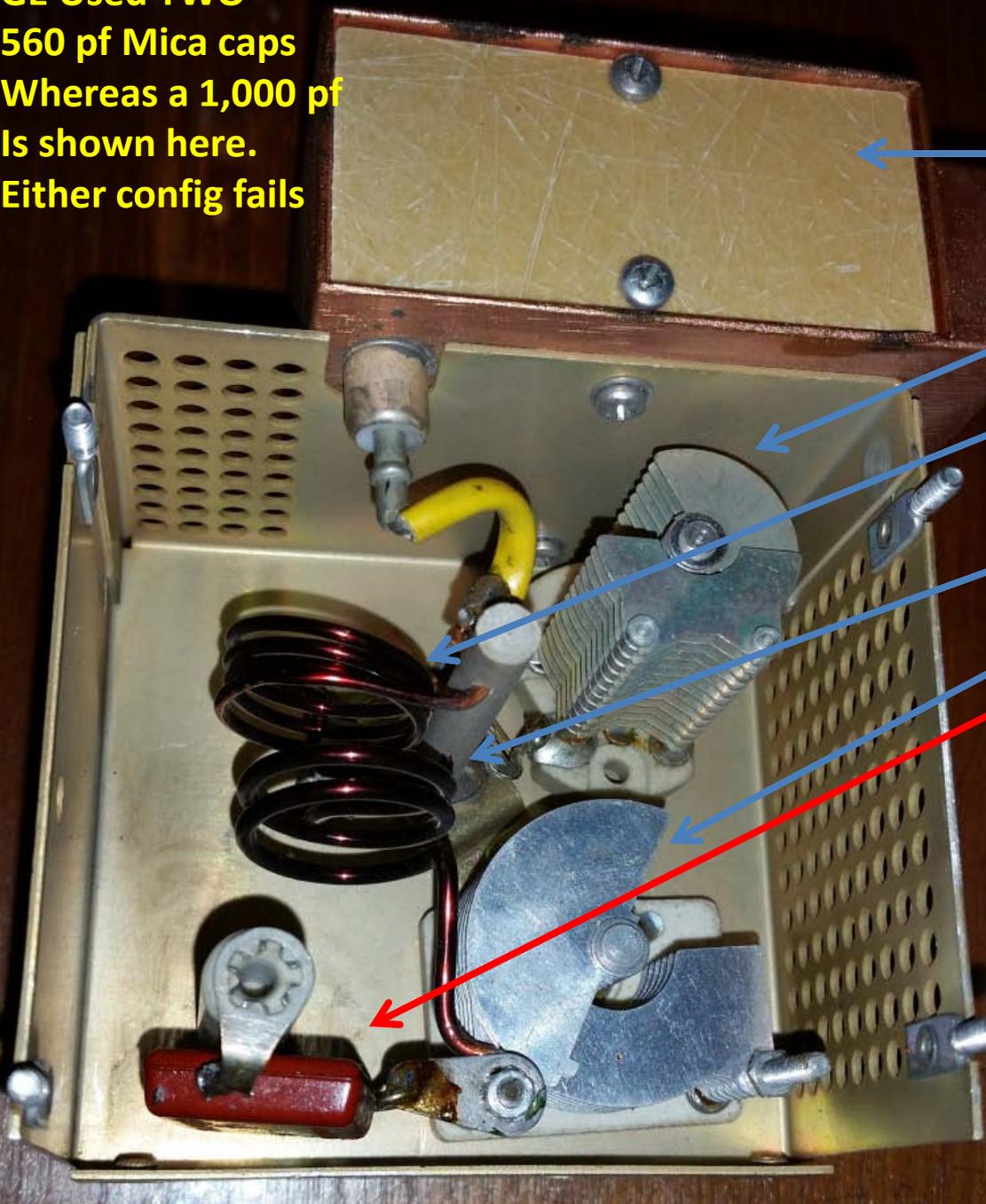
**B+ Plate Choke
Under Chasis**

B+



**GE Used TWO
560 pf Mica caps
Whereas a 1,000 pf
Is shown here.
Either config fails**

GE MASTR PRO 6M



Output Filter

Antenna Tuning Cap

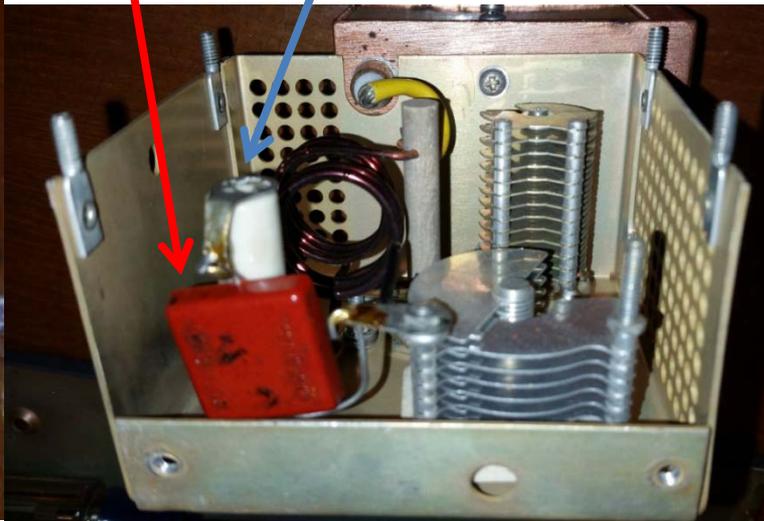
Antenna Coupling Coil

Plate Tank Coil

Plate Tank Tuning Cap

Plate-to-Tank Coupling Cap

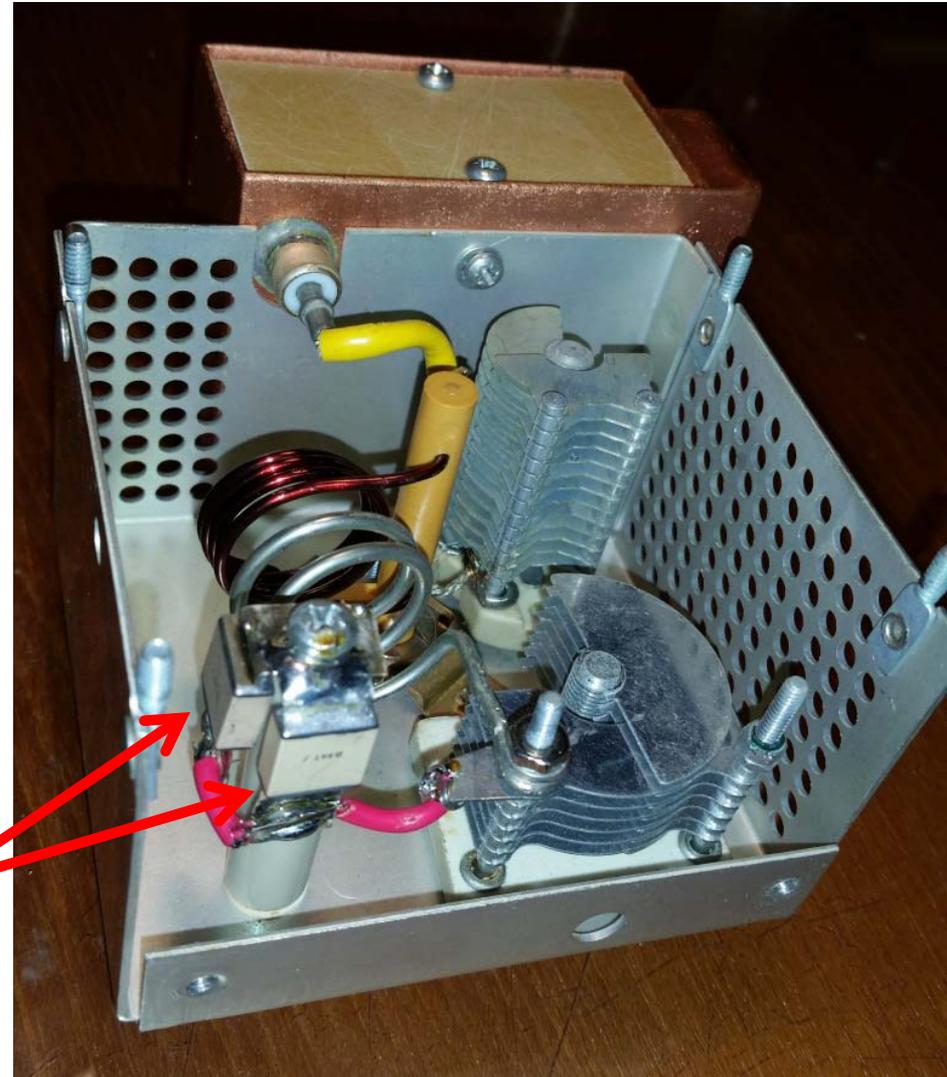
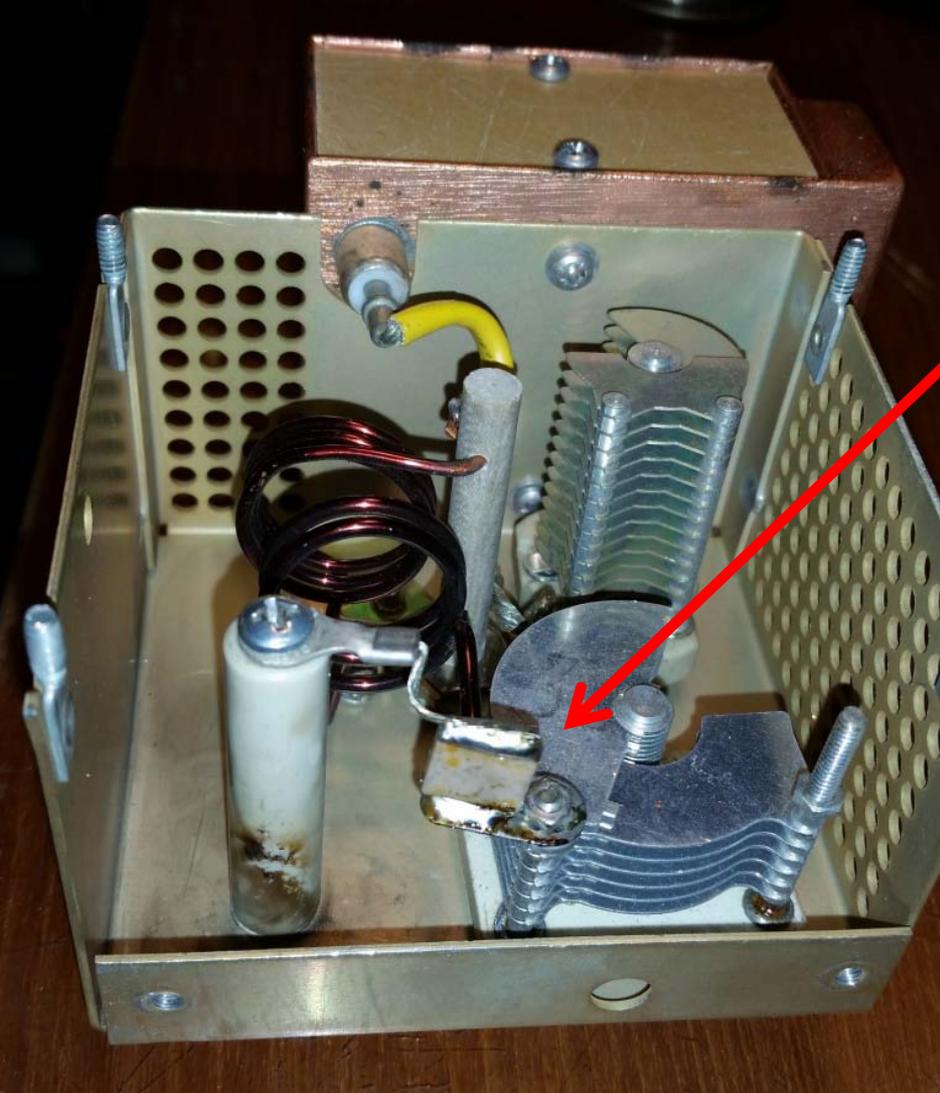
Plate Feedthrough



GE MASTR PRO 6M

2,200 pf Plate-to-tank Coupling Cap

This works but can overheat and melt solder



2 x 560 pf Plate-to-tank Coupling Cap
Better Configuration

4ET55