

Why Bother to Silver Solder? By Richard R. Vensel

It is a good idea to know the difference between solder with silver in it and Silver Solder. Solder can have a composition of 60/40 or 40/60, which is the tin/lead composition. It melts at about 360 degrees Fahrenheit. Silver Solder has 15% silver and the balance is copper with some phosphorus. It will melt at about 1300 degrees Fahrenheit.

Checking a soldered connection by pulling on the leads means nothing.

Remember that some of these connections live in an environment that reaches 350 degrees Fahrenheit on a daily basis. What looks like a good connection and pull tests OK can become a fusible link very quickly. We have all seen or had a unit returned with one or more brush leads just hanging there.

Should I Silver Solder Field Studs to the Field Coil?

This is usually not necessary due to the large area that is covered by the solder. Keep in mind that a good solder connection has all contact surface's completely covered by the solder and on the adjoining surfaces you should have a fillet or no voids.

I always have a problem with round brushes. I don't have a spot welder. Can Silver Solder help here?

Most of the time a ground brush can be replaced by simply cutting the brush lead about 1/2" up from where it is connected to the end plate and then silver solder on a new brush to the short piece of the old brush lead that remains. A good rule of thumb is to have an overlap between the old brush lead and the new brush lead so your silver solder joint is equal to the surface area of your brush lead. Stop making fusible links and start making good silver solder connections.

How do I connect a copper rotor coil lead to a steel slip ring lead?

We recommend these leads only be silver soldered. Apply L304-9702-0 Solder Paste to both slip ring leads and the rotor bobbin leads where the weld joint will be located. Sandwich the slip ring leads, silver solder and the rotor bobbin lead and heat these in place.

The practice of Silver soldering all field coils brushes will create a consistent quality process and you will be paid back many times for your investment outlay or upgrade.