

Troubleshooting your VHF antenna system

Tracking down VHF radio receive and transmit problems is a fairly logical procedure. The first task is to determine if the problem lies with the antenna system or the radio. This is most easily and positively achieved by taking the radio to another antenna system or taking another antenna system to the suspect radio. (I say antenna *system* to include the cable and connectors because, as we'll see, these components are often the culprits).

If the radio fails to perform with a different, known to be good, antenna system attached the fault must lie with the radio. You'll probably want to check the power supply and earth cable are intact and connected properly and, if there's still no joy, have a radio repair shop take a look.

If the radio works when connected to a different antenna system then the fault clearly lies with your antenna system.

If you have a good quality antenna such as the Metz you can, for now, assume the antenna itself is OK and go on to check the cable, connectors and any deck plugs in the system. To do this you must first disconnect the cable at the antenna (usually a PL259 connector) and at the radio (always a PL259 connector).

(If you have a cheap antenna with the cable factory-crimped to the antenna it's a bit more problematical – you should probably check any connections visually and if there is no obvious user-serviceable defect, replace the antenna and cable).

With the cable disconnected at the antenna and at the radio check with a multimeter that there is no circuit between the shell of the PL259 and the centre pin. If you see anything other than an open circuit you have a shorted connection or cable. Now you just have to find which connector is the culprit. Note again that this test only works if the cable is disconnected at both the antenna end and the radio end. A connected antenna will almost certainly look like a dead short to a multimeter.

If it's possible, and it usually only is with deck level systems, use your multimeter to check that you do have continuity between the two centre pins (radio and antenna) and the two outer shells. This will tell you if you have a break in the braid or the centre core of the coaxial cable – if the cable is short enough to conduct this test you should just replace the whole cable. It's with masthead installations that the practicalities are more burdensome!

If you clearly have a short in the cable you now need to check each connector to find it. If the connections were made some time ago and the radio had previously been functioning correctly the problem is almost certainly corrosion. You'll need to replace any corrosion affected connectors. You'll also need to cut back the coaxial cable to find a clean, un-blackened, section to which you can attach a new connector.

If you have just added a shiny new antenna system it's more likely that you have inadvertently introduced a shorted connector. You'll need to remake the connection.

The most common defect when attaching a PL259 is shown in the photograph; a single strand of the centre conductor has been snagged as it was being pushed into the centre pin and bent back, causing a short circuit.



If your radio is fully functional and your cable and connectors are perfect the problem must lie with the antenna. If you have a Metz just return it under the lifetime warranty. Just to highlight how rare an occurrence this is - it's happened just once in the 6 years we have been the European agent for Metz.

Defective cable and connections is the overwhelming favorite to be the culprit!

By John Schofield, July 2011

See also the articles on installing VHF antenna systems and How to fit a PL259.