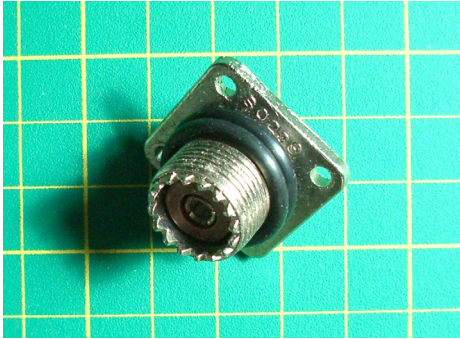


## “O”- Ring Seal for PL-259/SO-239 Connectors



The popular and low-cost PL-259 UHF plug and its mating SO-239 UHF connector, were of course never designed to be water-proof.

In spite of this, many of us find ourselves having to use these connectors out-of-doors for an antenna or cable connection, and then have the experience of trying to apply some form of “weather-proofing.” If this is not done, and done well, then intermittent connections soon result, especially with wet freezing and thawing conditions resulting in

moisture and corrosion getting into the connectors and even into the coax itself. However, one well known solution is to use a bondable rubber tape over-wrap, that often seems to work, using one of the soft, moldable, stretchable tapes that are available for the purpose.

However, I have found that the hardest area to seal effectively is the area from the rim of the male PL-259 shell, to the mating SO-239 socket face.

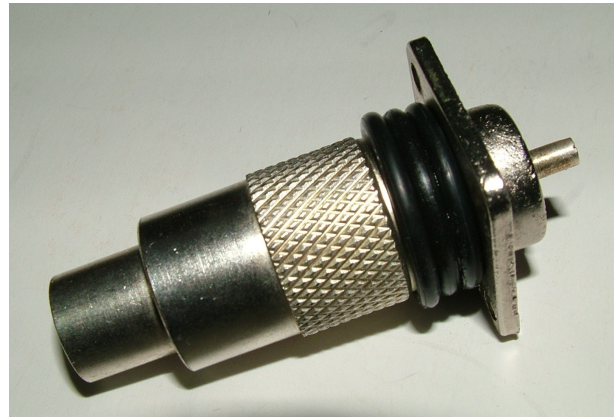
This is especially true where the SO-239 socket may be located on a commercial antenna such as the Solarcon / Antron vertical or other similar types, where it is partially inside the cowl of the antenna mount, and its impossible to get sealing tape up into the restricted location.

The photos above and to the right shows a simple solution I came up with. Simply slip one or more tight fitting “O” – rings over the SO-239 barrel. In one instance I found that 3 rings were required to fill the space. Lubricate the “O” – rings with a generous amount of silicon grease, often sold in the automotive part stores as “dielectric tune-up grease”.

Important: check that when the mating PL-259 plug is installed and tightened down, that the outer rim of the PL-259 shell butts up against and slightly compresses the “O” - ring(s).

The “O” – rings I used were something I had on hand, about 9/16” ID x 0.10” thick. I am sure anything that’s a snug fit will work.

Of course, you will still need to tape-wrap the lower half of the PL-259 shell, and where the coax exits the connector to seal that part.



Don Dorward  
VA3DDN

Feb 16, 2009

## Re: Reader comment on “O”- Ring Seal for PL-259/SO-239 Connectors, QST Feb. 2009

I have received comments dated February 7, 2009, from reader William Couloufacos, KC2RIN, about the reliability and effectiveness of the “O” rings I had described in the article. I do appreciate these comments as it tells me that my explanation was not as clear as it should have been.

Note that I did not suggest that the “O” rings be used by themselves. Their purpose is only to provide a moisture seal at the “plug-end” of the PL-259.



The remainder of the PL-259 should still be wrapped with tape or covered by a vinyl boot, as now suggested by KC2RIN. (note that these boots do not extend beyond the shell of the PL-259, see 2<sup>nd</sup> photo appended below.)

As I mentioned in the article, the mating SO-239 socket may be located where it is impossible using one’s fingers to get either a tape wrapping or a cover boot to seal up tight against the face of the SO-239. Such is the case on the Solarcon / Antron vertical antennas, where the SO-239 is inside the lower part of the antenna structure.

If you don’t seal this area, moisture can be blown up there where it will wick via the threads into the connector and cable

As to their longevity in the application, I point out that most “O” rings are made of Buna-N, which has good resistance to oil and water, compression set, abrasion resistance and tensile strength. In short they are tough. They should not be exposed to sunlight, but that will not be the case in the application I describe.

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**Included for information only.**

(Note that the vinyl boot has to be put on the cable before the connector is soldered on)



**5VB Vinyl Boot Kit**

Slide on to coax before installing the connector.

Apply silicone grease, slide the boot up to seal, waterproof and protect connector from the elements. Waterproof connector boots come in a package of five along with individual tubes of silicone grease included ..... 5 pack **\$15.99**

