# Connecting BNC Plugs

**Tony Skaife G4XIV takes a look at something we often take for granted – wiring up the BNC plug correctly. Get it wrong and you can cause yourself many problems!**

There will be quite a number of people who have equipment that uses BNC plugs, this will includes surplus PMR (private mobile radio), hand-held radios and test equipment. However, there will be many who don't know how to put a BNC plug on and may be using adaptors of dubious quality adding losses and unreliability to their system.

My aim here is to show that it's not difficult to put the proper plug where it should be. One important thing to do, though, is to always buy good quality branded plugs – and these will always come in sealed plastic envelopes. Then lay out the plug's components in their order of assembly, this will ensure that there's nothing missing (**Fig. 1**).

**Fig. 1: The items laid out awaiting assembly.**

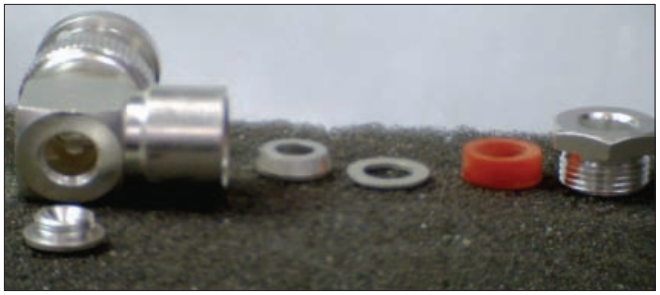

**Fig. 2: Right angled BNC plug component parts.**

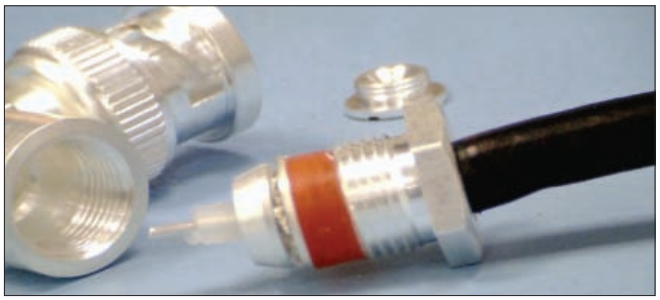

**Fig 3: A right angle plug and the coaxial cable with prepared end.**

## Main Types Of BNC Plugs

The photos show the main types which are straight, Fig.1, and right angle BNC plug, **Fig. 2**, which is my favourite type. Take a look at the straight plug's photo (Fig. 1) and notice the contact pin has ridges around the body. When the two white plastic pieces are slid over the pin they hold the pin firm in its plug.

Beware of any BNC plugs where the contact pin is smooth over its length. This is because after the plug has been assembled the pin could be pushed back with use resulting in a poor or even open circuit contact.

The two plugs mentioned here are for the very thin or thin coaxial cable. The most common is RG223 or RG58 – but the same principles apply whatever type of plug or coaxial cable is used.

For both types of plug, slide on the end screwed nut over the coax then the rubber/metal washer combination. Cut and trim the ends of the coaxial cable, **Fig. 3**. For the straight plug, slide the 'T' shaped piece over the inner's insulation and under the braid thus making a good contact. Slide the smaller of the white insulators over the inner of the coaxial cable and solder the pin to the inner. Slide the larger of the white insulators into position over the pin.

**Fig. 4: Right angled BNC plug showing inner soldered.**

## Matching Indents

The insulators have indents to match up so check they are the right way round. You will now have the pin enclosed in the white insulation material. Excess braid from where the 'T' was fitted may be cut away. Slide everything into the outer shell of the plug and using appropriate spanners the plug can be fully assembled by tightening the end threaded nut.

The right angle plug components should look like **Fig. 4**. Push the assembled cable into the plug and tighten the end nut. As the nut is tightened the inner of the coaxial cable will reach the plug's centre pin, which is slotted. The inner of the coaxial cable when seated in the slot may then be soldered. Finally screw on the top cap, which, as well as making a neat end to the task, it will help to keep out moisture. ●