

Anritsu

W Connector Assembly Instructions for UT-47 to K Connector/V Connector and UT-47 to Waveguide- to-Coax Launches

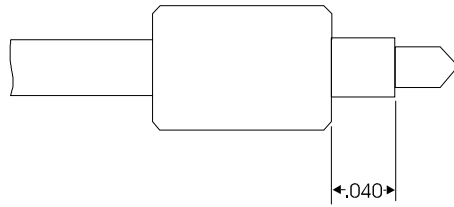


Figure 1. Cutting and Trimming

1. Tools and Materials

The following tools and materials are recommended to install. Equivalent tools may be used if recommended tools are not available.

Name	Vendor and Model/Part Number
Resistance Soldering Unit, with Tweezers	American Beauty Model 10501
Solder, 62% tin, 24 gauge, 0.015-inch diameter rosin core	SN62 Kester Co.
Cleaning Fluid	Isopropyl Alcohol
Assembly Tool	01-418
Trimming Tool	01-419
Precision knife	X-Acto™
Wire cutters, flush cutting	Klein 0295-4C
File, flat, extra fine	Common tool

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“X-ACTO” is a trademark of X-ACTO.

2. General

The same detail is used for both Waveguide-to-coax launch and for K/V Connector launch except for the final trimming and tuning of the center conductor

3. Common Fabrication Instructions

- Cut coax cable to length desired.

NOTE

Cable must be at least 0.75 inch (2 cm) long to ensure proper support for center conductor.

- Slide lock nut onto the cable.
- Slide sleeve onto the cable. Place sleeve with approximately 3/16 inch (4 mm) cable protruding from the sleeve.
- Set the resistance soldering iron to its lowest setting.
- Heat the sleeve with the resistance soldering iron and apply solder to the back end of the sleeve and the coax.

NOTE

Do not allow solder on the outside of the sleeve. Apply minimum heat for solder to flow; This is especially important when using Teflon coax.

- Slide the sleeve back and forth over the cable slightly to spread the solder around the coax. Allow a minimum of solder on the front face of the sleeve.
- Allow assembly to cool, then remove the flux.

CAUTION

Do not get solvent into the inside of the coax, it will cause excessive loss. If solvent does get into the coax, heat the assembly to 125C for at least 10 minutes to drive out the solvents.

- If using type 1 (solid Teflon dielectric) cable, allow units to sit for a minimum of 20 minutes so that the Teflon can stabilize.
- Cut off the extruded Teflon, then push the Teflon into the outer conductor using the 01-418 assembly tool. This re-seats the Teflon and minimizes Teflon shifting after assembly.
- Score the coax flush with the face of the sleeve using the razor blade.
- Break the outer conductor by bending slightly back and forth. *The 01-418 As-*

sembly Tool (Figure 5) may be used for this. Remove the outer conductor.

CAUTION

It is critical that the coax outer conductor is flush with the sleeve face and the dielectric and center conductor are not distorted.

- l. Cut the Teflon 0.040 inch from the face of the sleeve using a sharp razor blade. The 01-419 tool may be used as a guide for this operation. Be sure not to score the center conductor.
- m. Carefully remove the Teflon without bending the center conductor.
- n. Using the 01-419 tool and a very sharp pair of flush cutting wire cutters, cut the center conductor to 0.030 +0.005 inch.

4. K/V Connector Launch

- a. Using the file, file a point on the center conductor. The point should use about 1/3 of the center conductor length. Be sure not to score the face of the sleeve. The 01-418 assembly tool may be used as a guide for this step.

Note

Custom tools are available for installing K and V Connectors. Contact ANRITSU for details.

- b. Install the desired K or V Connector into the B28290 sleeve. Torque to 15-18 inch-pounds.
- c. Carefully insert the cable/sleeve assembly into the B28290 sleeve, being sure not to

damage the center conductor or K/V Connector as they mate.

- d. Screw the locknut into the sleeve. Tighten to 3-4 inch pounds

5. Waveguide-to-coax adapter launch

NOTE

For waveguide-to-coax adapter launch, the distance from the face of the sleeve to the end of the center conductor is critical to performance. Typically this value is 0.064". However, depending on the tolerance of the housing, this value may vary for optimal performance. The only way to adjust this value is by measuring the return loss on a network analyzer, such as a ANRITSU 360 Vector Network Analyzer. The following is an assembly/test procedure.

- a. Insert the sleeve assembly into the housing. Be sure that the dielectric and center conductor do not get distorted. Screw in the coupling nut and tighten until just snug. Note the return loss performance.
- b. While monitoring the performance, slowly rotate the cable until best performance is achieved.
- c. Remove the sleeve assembly from the housing. Using a very fine file, file approximately 0.001 inch from the center conductor.
- d. Reinsert the sleeve assembly. Repeat steps a. to c. until performance is adequate. A well-assembled unit typically will

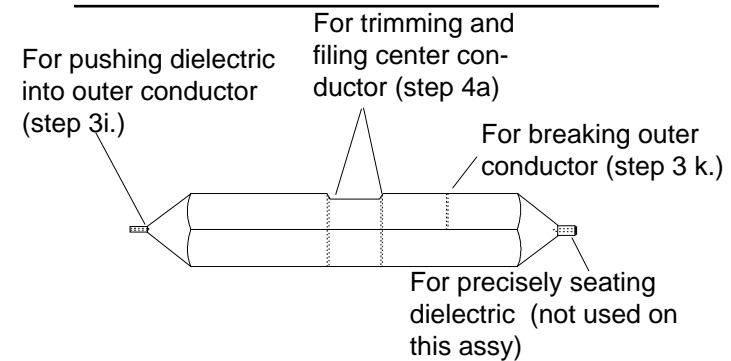


Figure 2. 01-418 Assembly Tool

be better than 20 dB return loss over most of the 75 to 110 GHz band.

- e. When performance is optimized, tighten the coupling nut to 3-4 inch pounds.

6. Hints:

- a. A long length of UT 47 cable (about 5 feet) serves as an adequate termination when making waveguide measurements.
- b. Using the network analyzer's time domain to isolate the launch will eliminate the need for a good termination and will help when optimizing performance.