

RG-6 Coaxial Cable Preparation Tools Kit

DXE-UT-KITF

DXE-UT-KITF-INS Revision 1



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Introduction

This manual will explain the preparation of RG-6, flooded or RG-6 Dual or Quad Shield, 75 ohm coaxial cable and the installation of compression connectors using the RG-6 Coaxial Cable Prep Tools supplied by DX Engineering. These tools were specifically selected to make the task of preparing RG-6 coaxial cable easy, fast and safer then older methods. The RG-6 Coaxial Cable Prep Tool Kit includes:

- 1 Custom Made Case with custom pre-cut High Density Foam
- 1 CNL-911 Cable Cutter
- 1 DXE-SNS-CT1 Compression F Connector Tool
- 1 DXE-CPT-659 F6 Coax Prep Tool w/Spare Blade
- 1 **DXE-CIT-1** F Connector Tightening Tool
- 1- DXE-EX6XL-25 1 package of 25 Compression Type F Connectors



General Information

The **DXE-UT-KITF DX Engineering RG-6 Coaxial Cable Preparation Tool Kit** provides all the tools you need in one convenient custom made case to prepare RG-6 coaxial cable using compression type F connectors. These tools will also work with most popular compression connectors other than described here.

DX Engineering offers two types of RG-6 coaxial cable:

DXE-F-1000 sold in a 1000 spool or **DXE-F6-CTL** sold by the foot is a high quality 75 ohm 'flooded' coaxial cable ideal for amateur radio receive systems. Flooded-style feedlines have the distinct advantage of automatically sealing small incidental cuts or lacerations on the jacket. Flooding also prevents shield contamination and allows the coaxial cable to be direct-buried. This low-loss cable features dual shields and an 85% velocity factor. The waterproof polyethylene jacket is perfectly suited for direct bury, in conduit or above ground applications.

DXE-RG6UQ-1000 sold in a 1000 foot spool or **DXE-RG6UQ-CTL sold by the foot.** DX Engineering RG-6UQ 75-ohm Quad-Shield Coaxial Cable reduces losses and provides greater protection against electromagnetic interference. RG-6UQ cable is ideal for many applications, such as active or passive HF Amateur Radio and SWL receive antenna arrays and systems, LW and MW magnetic loop antennas, Beverage antennas, over-the-air TV, AM and FM broadcast reception, CATV systems, video distribution and satellite radio installations like Sirius/XM. RG-6UQ - RG-6 quad shield cable has gas-injected polyethylene foam dielectric for the lowest loss and maximum moisture resistance. With an 18 AWG copper-clad steel center conductor it is extremely strong and durable. Two foil shields plus two high-density aluminum braids provide ultimate four-layer RF shielding and the UV protected black jacket is made with a tough, but very flexible, PVC. The nominal impedance of RG-6UQ cable is 75 ohms, and it has a nominal Velocity Factor of 82%.

DXE-EX6XL-25 (25 per package) Compression Coaxial Connectors are environmentally sealed CATV F-Type coax connectors built and designed for harsh environments. They have a unique 360 degree radial compression system that offers the signal leakage protection required for high performance receive systems. Dielectric Grease is recommended to be used on F6 Connectors exposed to the outside environment.



DX Engineering offers two types of dielectric grease:

TES-22058 - Permatex Dielectric Grease and LCT-37534 - Loctite Dielectric Grease

Dielectric grease may be used in RF connectors to prevent moisture ingress. Feedlines and connectors will last longer, providing peak performance for many more years with the use of dielectric grease on the threads of RF connectors.

Preventing the effects of moisture is critical in RF feedline connections. Untreated connector threads will oxidize, corrode and seize more quickly if water vapor can enter and collect inside RF connectors. Ultimately, moisture will enter the coaxial cable, promoting contamination and corrosion, resulting in elevated noise levels and increased signal loss.

Dielectric Grease, placed into the air space of RF connectors and their threads, will stop the adverse effects of water vapor and water ingress. Avoiding direct application on mating surfaces of connector center pins, dielectric grease is safe to use in the air spaces and threads of RF connectors.

Preparing RG-6 Coax & Installing Compression F Connectors

Tools required:





CNL-911 Cable Cutter DXE-SNS-CT1 F Connector Compression Tool DXE-CPT-659 RG-6 Coax Stripping Tool DXE-EX6XL Compression type F Connectors

- A. Use the **CNL-911** to cut the coaxial cable. The **CNL-911** cutters make a clean cut unlike regular diagonal cutters.
- B. Using the **DXE-CPT-659** Cable Stripper, press the tool to open, place the end of the RG-6 coaxial cable in the tool. The end of the coaxial cable will rest against the built-in cable stop on the tool.

Release the tool so it grips the coaxial cable.



C. Rotate the tool around the cable until the cutting action is complete. You will feel the stripper cutting the jacket and center insulation. When the cutting is complete, you will feel the tool spin a bit easier.



- D. Squeeze the tool to remove the coaxial cable. There will be 2 cuts made giving you two 1/4" cuts as shown below. Pull the cut parts off of the coaxial cable.
- E. Fold the braid back onto the outer jacket.
- NOTE: For Quad Shield: Fold back the outer braid then score and remove the outer foil in that same area. Then fold back the inner braid on top of the outer braid. Smooth the two folded braids together.



F. Insert the prepared Coaxial Cable fully into the F Connector as shown. **Ensure the center dielectric is** flush to the inside lip and the center conductor is slightly sticking out the end is as shown.



G. Place the compression connector with coaxial cable into the **DXE-SNS-CT1** Compression tool as shown.



H. Fully squeeze the **DXE-SNS-CT1** Compression Tool handles together to completely compress the compression connector as shown.





I. Remove completed coaxial cable assembly from DXE-SNS-CT1 Compression Tool.

Using the DXE-CIT-1 F Connector Tightening Tool

The **DXE-CIT-1** F Connector Tightening Tool makes putting on or taking off F Connector real easy. Especially if the connectors are located close to each other. Not only can these be used for Amateur Radio, but they work just fine on Cable TV lines, TV's, DVR's and anything that uses F Connectors.



Insert the coaxial cable with the F Connector in the slotted side of the **DXE-CIT-1** Tightening tool. Seat the connector in the tool. Place the connector on the unit and screw in the F-Connector clock-wise using the tool until the connector is tight. Remove the tool from the coaxial cable connector.



Reverse the process to remove an F Connector from your unit.

Weatherproofing

Over the years many different methods have been used to weatherproof coaxial cable connections. Some worked, some did not. Once water or condensation enters your coaxial cable, it will ruin the coaxial cable or worse yet, cause shorting or high SWR conditions which could lead to permanent damage to your transmitter.

One type of coaxial connector sealing material is a gummy tar like substance that you wrap around the coaxial connector. This gummy substance works pretty good, except when you try to remove it for maintenance or coaxial cable replacement, it can cause further problems. The gummy substance just doesn't come off cleanly and small bits of it may remain in the threads of F Connectors, PL-259's or SO-239's. These small bits of material are mini-insulators, and could cause intermittent operation.

The method described here uses a combination of two types of tape which not only protect your coaxial connection, but also allow easy removal for future maintenance.

Additionally, the coaxial cable and connectors should be clean and free of any moisture, dirt or other residues.

The only tool you will need for this procedure is a pair of scissors. The following example shows an F Connector being weatherproofed on a unit that will be used outdoors.

Note: The use of tape weatherproofing F Connectors that are outdoors and exposed to the elements is up to the user. If Dielectric Grease is used, some people say this is enough protection. Look at your cable TV installation - chances are there is no weatherproofing tape. Others may want to go the extra steps for their own piece of mind.

A. Cut a piece of 3M Temflex[™] 2155 Rubber Splicing Tape long enough to complete the job you are doing. If the length you cut is too short, that's okay. You can add more where needed and it will not compromise the weatherproofing.



In this example a 4" length of the 3M Temflex[™] 2155 Rubber Splicing Tape was used to weatherproof the F Connector that is installed on a unit

- B. The 3M Temflex[™] 2155 Rubber Splicing Tape has a protective backing material so the tape will not stick to itself when on the roll. As shown below, peel this protective backing off of the length that you cut from the roll.
- C. Starting at the end nearest the unit, hold the end of the cut length of 3M TemflexTM 2155 Rubber Splicing Tape in place and stretch it out until the width of the tape is about 50%.
- D. While keeping the 3M Temflex[™] 2155 Rubber Splicing Tape stretched, wrap the tape around the assembly and overlap the previous wrap by about 50%. Keep going until the complete assembly is covered, and go an extra 1/2 to 1 inch beyond. Stretch while overlapping wraps.

If the length you cut is too short for the entire assembly, that's okay. You can add more starting where the one piece ended (overlap it) and then continue on in the same manner described above. Some situations may require a second optional warp in the opposite direction.

This completes the first layer wrap. 3M TemflexTM 2155 Rubber Splicing Tape requires an added wrap of Scotch[®] Super 33+ tape for UV protection.







E. Starting about one inch before the previously installed 3M TemflexTM



2155 Rubber Splicing Tape start a wrap of the Scotch[®] Super 33+ tape. While wrapping, over lap the previous wrap by about 50%. Use firm pressure while wrapping to ensure the tape is on flat and there are no wrinkles or open spots.



Keep wrapping the Scotch[®] Super 33+ tape until you are about an inch past the end of the previously installed 3M TemflexTM 2155 Rubber Splicing Tape. Use the scissors to cut the tape rather than stretching and breaking the tape.

Using these quality products and this method, the completed weatherproofing will be complete and reliable.



DX Engineering has a number of instructional videos that you can view on-line that show products used in this guide as well as other informative videos.

You can view the videos at the DX Engineering website in the "Tech Info & News" section on the web site.

Manual Updates

Every effort is made to supply the latest manual revision. Occasionally a manual will be updated between the time your DX Engineering product is shipped and when you receive it. Please check the DX Engineering web site (<u>http://www.dxengineering.com</u>) for the latest revision manual.

Technical Support

If you have questions about this product, or if you experience difficulties during the installation, contact DX Engineering at (330) 572-3200. You can also e-mail us at:

DXEngineering@DXEngineering.com

For best service, please take a few minutes to review this guide before you call.

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