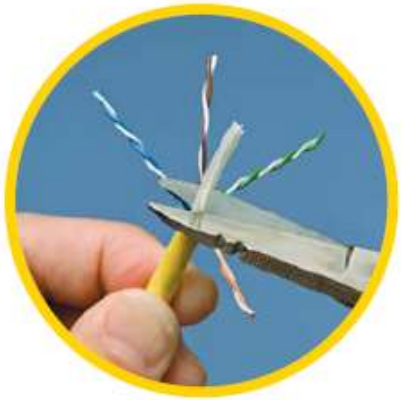
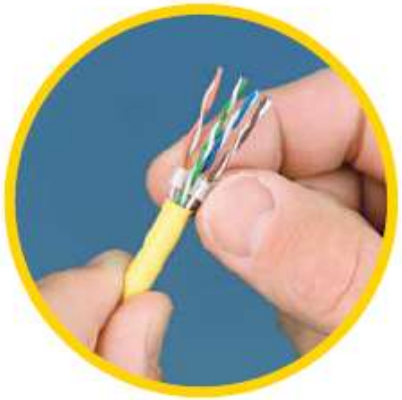
Instructions for Installing 85-366 CAT 6 RJ-45 Modular Plugs

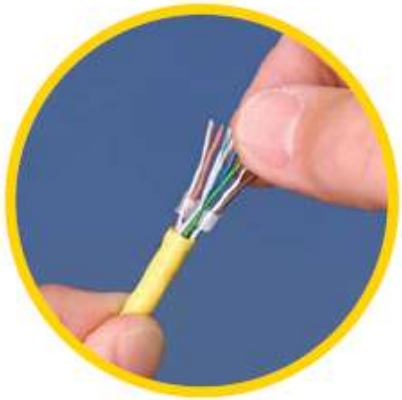
STEP 1
Strip and remove 4″ of jacket.



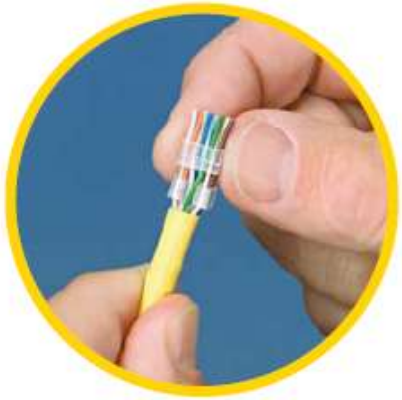
STEP 2
Trim cable cross member.



STEP 3
Slide sled over pairs.



STEP 4
Untwist and order pairs.



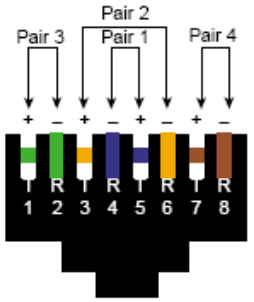
STEP 5
Slide into liner.

STEP 6
Trim.

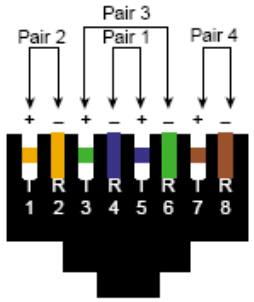
STEP 7
Slide assembly into plug body.

STEP 8
Crimp.

Standard Wiring Diagram for inserting the wires into the modular plug with the tab facing down



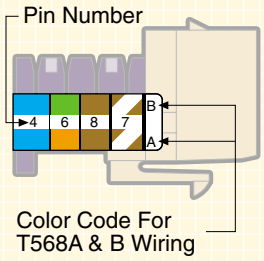
T568-A



T568B (AT&T)

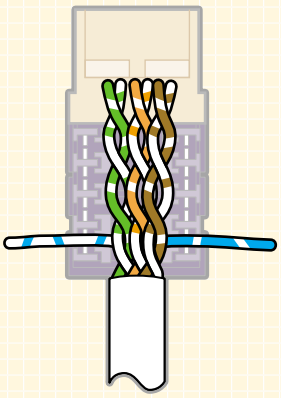
CATEGORY 5 AND GIGAMAX 5E CHANNEL CONNECTOR TERMINATION

1. Remove a few inches of jacket from the cable, to expose the wires.
2. Determine which wiring scheme to use, T568A or T568B. Note the associated color codes and connector pin numbers on the label located on the sides of the connector.

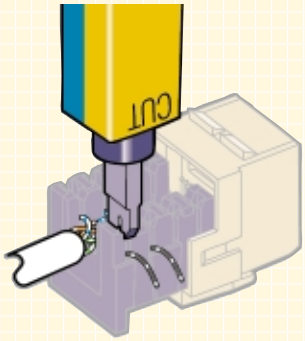


Note: *Maintain cable jacket as close to termination as possible*

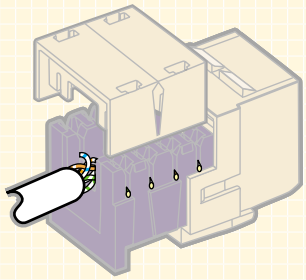
3. Route the wires for termination, according to the chosen color code. **Terminate and trim one pair at a time, starting from the rear of the connector, in the order shown. Terminating each pair after placement will prevent crushing the inside pairs with the punchdown tool.**



4. Using a 110 style impact tool, seat the wires into the slots of the insulation displacement connectors. Place the cutting side of the tool on the outside, to trim the excess wire flush with the connector body as you punch the wires down.



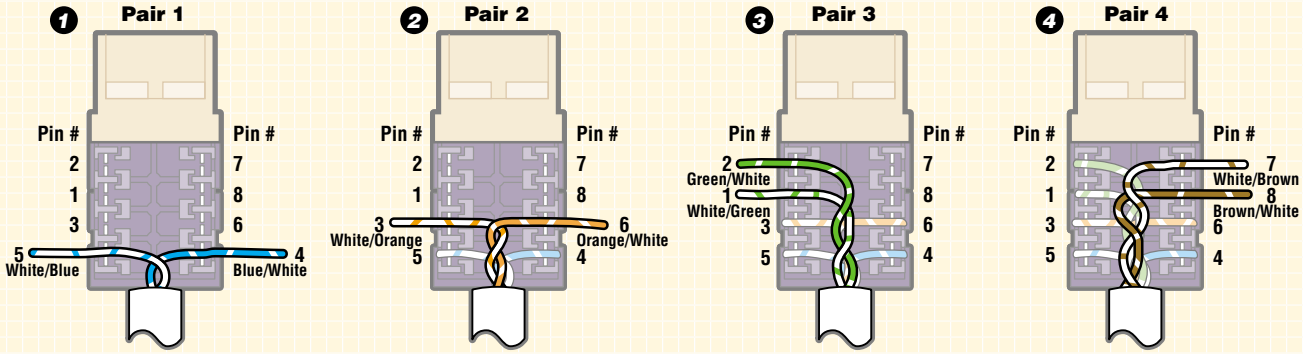
5. Place the dust cap over the terminated wires to ensure a secure connection and added strain relief.



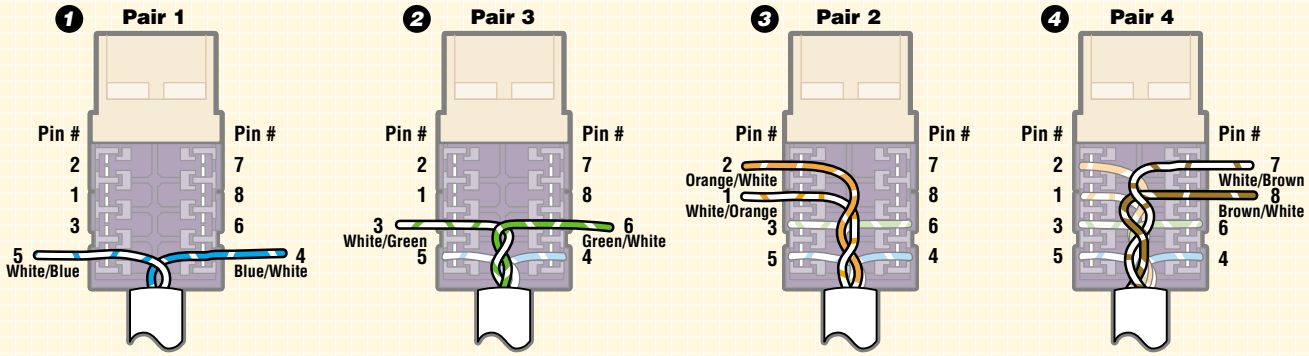
6. Noting the 'UP' orientation of the connector, insert the terminated connector into the desired QuickPort housing.

Inside Wire Colors		
	Wiring Standard	
Pin#	T568A	T568B
1	White/Green	White/Orange
2	Green/White	Orange/White
3	White/Orange	White/Green
4	Blue/White	Blue/White
5	White/Blue	White/Blue
6	Orange/White	Green/White
7	White/Brown	White/Brown
8	Brown/White	Brown/White

T568A Category 5 and GigaMax 5e Channel Level Connector Wiring Scheme

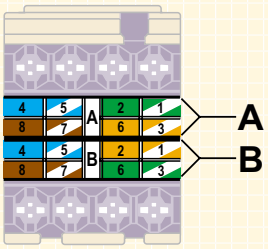


T568B Category 5 and GigaMax 5e Channel Level Connector Wiring Scheme

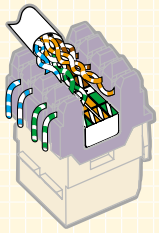


EXTREME 6 CONNECTOR TERMINATION INSTRUCTIONS

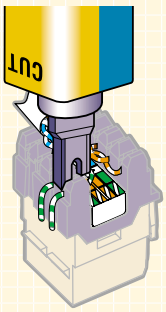
1. Remove about 2" of jacket from cable, to expose the wires.
2. Determine which wiring scheme to use, T568A or T568B. Note the associated color codes and connector pin numbers on the label located between the IDC connector slots.



3. Route the wires for termination, according to the chosen wiring scheme. **Terminate and trim one pair at a time, starting from the side of cable entry. Terminating each pair after placement will prevent crushing the inside pairs with the punchdown tool. Lay cable in so jacket touches edge of connector as shown.**



4. Using a 110 style impact tool, seat the wires into the IDC slots. (Must be 1/4" or closer.) Use the cutting side of the tool to trim the excess wire flush with the connector body as you punch the wires down.



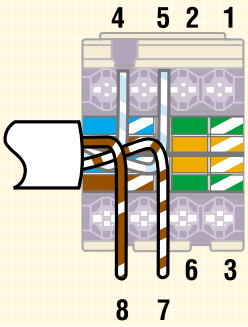
5. Place the dust cap over the terminated wires to ensure a secure connection and added strain relief.

6. Noting the 'UP' orientation of the connector, insert the terminated connector into the desired QuickPort housing.

eXtreme 6 Wiring Scheme

Cable Entry from Left

❶



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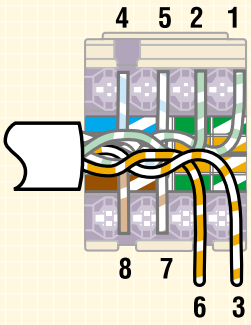
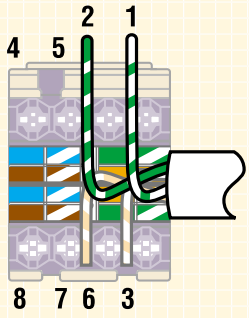
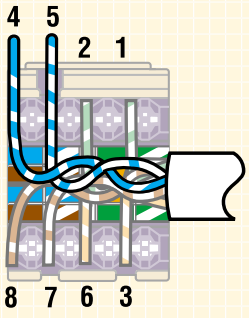


Cable Entry from Right

❶



❷



As noted above: Route and terminate one pair at a time to avoid cable damage.

eXtreme 6 Inside Wire Colors	Wiring Standard		
	Pin#	**T568A**	**T568B**
	5	White/Blue	White/Blue
	4	Blue/White	Blue/White
	3	White/Orange	White/Green
	6	Orange/White	Green/White
	1	White/Green	White/Orange
	2	Green/White	Orange/White
	7	White/Brown	White/Brown
	8	Brown/White	Brown/White

T568A and T568B Wiring

What's the difference between T568A and T568B wiring?

T568A and T568B are the two wiring standards for an 8-position modular connector, permitted under the TIA-568-A wiring standards document. The only difference between T568A and T568B is that the orange and green wire pairs (pairs two and three) are interchanged. For a wiring diagram, see page X8.

How to decide which wiring pattern to use:

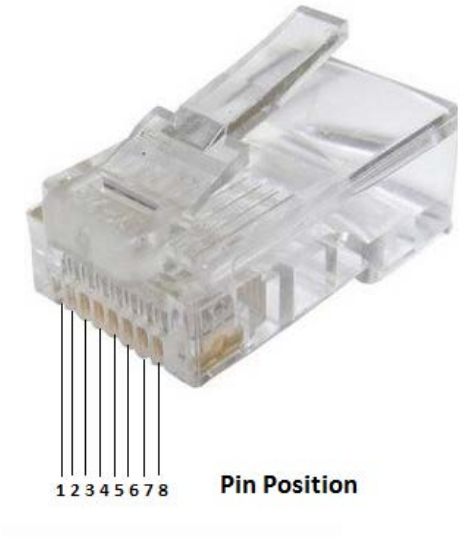
1. Does the job specification call out a wiring pattern?
2. Does the customer/end user have a preference?
3. Have patch panels already been purchased for the job? If so, they will probably be either T568A or T568B. Jacks should be wired to the same pattern as the panels.
4. Are you adding on to existing wiring? If so, your new wiring should match existing wiring.

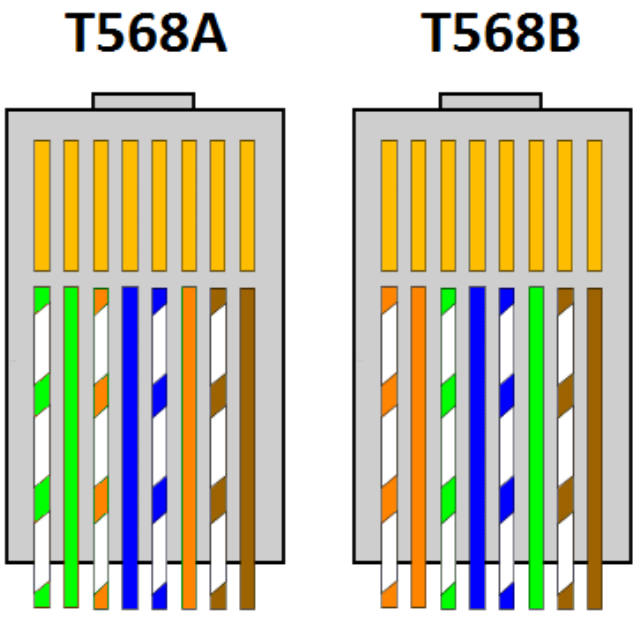
If none of the factors above apply, either T568A or T568B may be used. It is important to ensure that workstation connectors and patch panels are wired to the same pattern. T568B is commonly used in commercial installations, while T568A is prevalent in residential installations.

The RJ45 connector has 8 positions for 8 cables (also known as 8P8C). For 100Mbit (100BaseT) installations, only 2 pairs of cables are used, one pair to transmit and one pair to receive. For installations of higher speeds and with HDMI extenders or HDBaseT extenders all four pairs are used. We recommend always connecting all of the cables to future proof your installations.

Below is a table detailing the order the cables should be arranged within the RJ45 connector. There are also a couple of diagrams showing the pin numbers on the RJ45 connector, and the cables inside the RJ45 connector. For instructions on how to fit them please see below.

Pin	T568A Color	T568B Color
1	white/green stripe	white/orange stripe
2	green solid	orange solid
3	white/orange stripe	white/green stripe
4	blue solid	blue solid
5	white/blue stripe	white/blue stripe
6	orange solid	green solid
7	white/brown stripe	white/brown stripe
8	brown solid	brown solid





The best method to fit the RJ45 connectors onto the end of the cable is a simple process…

1. Strip back approx. 1 – 2″ of the outer jacket. You must be careful here not to damage the twisted pair cables in any way! We would always recommend using a professional cable stripper. They have a very sharp blade that only cuts the outer jacket avoiding the precious twisted pairs inside.
2. Straighten out the twisted pairs of cables all the way to the bottom of the jacket.
3. Arrange the cables so that they are all in the correct order (as shown above!) Now using very sharp snips or cutters, cut the end of the cables so that they are approx. half a cm in length. Make sure this cut is perfectly straight – if you don't you will find that some of the cables reach the end of the RJ45 plug and some don't!
4. Insert the Cat6/Cat5e cable into the RJ45 plug, being careful to make sure that as the cables go into the end of the RJ45 plug they are all straight and still in the correct order. The outer jacket should also be inside the RJ45 plug, this will be crimped down as well to secure the cable so it can't be pulled out. Make sure that all the cables are touching the end of the inside of the RJ45 connector
5. Carefully insert the RJ45 into a crimping tool, see below. Crimp the connector tightly to make sure all the pins crimp into each individual cable.
6. Test you cable with a cable tester to make sure all pins are connected and in order.

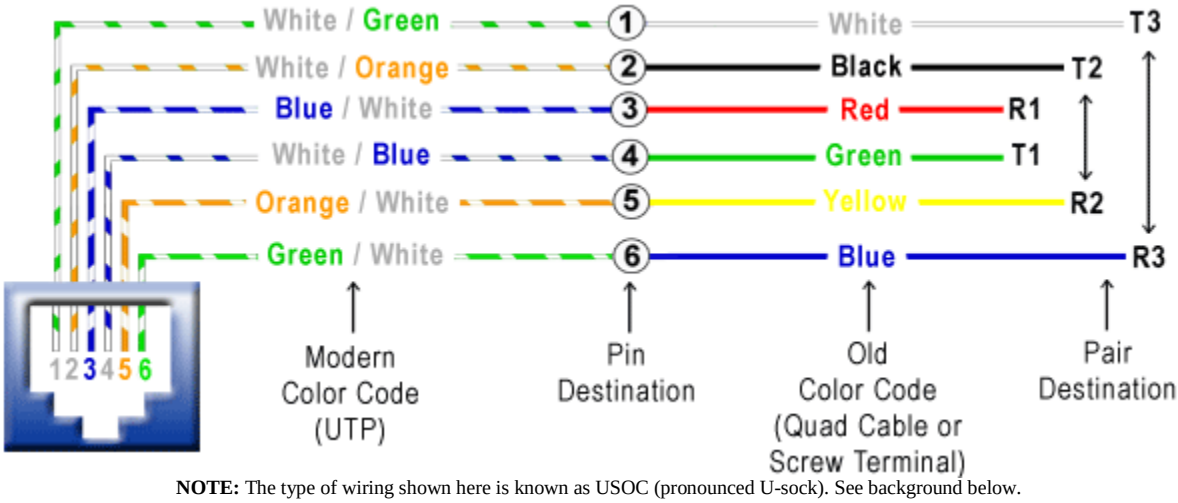
How to Wire a Phone Jack (Voice or Telephone RJ-11 thru RJ-14)

(USOC Wiring Diagram)

Telephone wiring for a phone outlet is typically either 1, 2 or 3 pairs (2, 4, or 6 conductor). Most cable nowadays is UTP (unshielded twisted pair). There may be instances where you may need to connect to or transpose from the old "quad" cable. The diagram below provides the transposition between these standards.

Pair 1 (T1 & R1)

Usually the primary dial tone or talk circuit is wired to the center two pins (pins 3 & 4) and is the white/blue and blue/white pair (AKA: T1 & R1 - tip 1 and ring 1). A standard single line phone draws dial tone from these center pins.



NOTE: The type of wiring shown here is known as USOC (pronounced U-sock). See background below.

Pair 2 (T2 & R2)

The secondary circuit is wired to the two pins (pins 2 & 5) directly to the side of the center pins and is the white/orange and orange/white pair (AKA: T2 & R2 - tip 2 and ring 2). Depending on the application, the secondary circuit can either be the 2nd dial tone line on a two line phone, or the data/control circuit for an electronic key phone.

Pair 3 (T3 & R3)

The third circuit is wired to the two pins (pins 1 & 6) on the outside and is the white/green and green/white pair (AKA: T3 & R3 - tip 3 and ring 3). Depending on the application, the third circuit can either be the 3rd dial tone line on a three line phone or an accessory circuit for an electronic key phone.

BACKGROUND

Tip & Ring

In telephony the terms that represent the conductors that comprise a circuit are known as "tip and ring". These terms stem from the early days of telephony when operators made telephone connections using 1/4" phono plugs similar to those used today for stereo headphones. The old systems also carried a third wire which was a ground. The "Tip" was the tip of the plug and was the positive (+) side of the circuit. The "Ring" was a conductive ring right behind the tip of the plug and was the negative (-) side of the circuit. Right behind the ring was the "Sleeve" which was the ground connection.

The ground (sleeve) is no longer used today for individual pairs.

USOC (Universal Service Ordering Codes)

In the old days of telephony, USOC (pronounced U-sock) standards were used to simplify and standardize the various different wiring schemes for modular jacks.

RJ (RJ-11, RJ-45 Etc.)

The USOC standards consisted of many different Registered Jack Configurations which were abbreviated as "RJ" and had designations like RJ-11, RJ-12, etc. Today we still refer to modular jacks in the RJ designations but rarely use them to refer to a wiring standard that they were originally intended for. Even though it is technically incorrect, popular terminology today for the terms RJ-11, 12 or 14 refer to a 6 pin jack and RJ-45 refers to an 8 pin jack.

Installation Instructions

1. Straighten cable and cut the end squarely.
2. Pinch the end of the cable to round the end.
3. Prepare cable end to 5⁄16″ center conductor, 1⁄4″ dielectric and braid, per instructions of commercially available drop cable preparation tool (Fig. 1).
4. Ensure the center conductor is clean of any dielectric residue and the braid ends are not wrapped around the center conductor. If cable is messengered, remove webbing leaving cable jacket smooth for connectorization.
5. For tri-shield or quad-shield, remove the outer foil. Fold back braid(s) against the cable jacket ensuring all braid ends are uniform around the jacket and not bunched or clumped (Fig. 1).
6. Apply the nut end of the connector to the prepared cable to smooth dielectric (Fig. 2).
7. Insert the prepared cable end into the connector until the post meets the fold in the braid of the cable (Fig. 3).
8. Rotate the connector back and forth while gently pushing it onto the cable. Continue this action until the dielectric of the cable is flush with the bottom of the connector nut (Fig. 4). NOTE: If during the process, any braid wire becomes detached, remove to ensure proper connectorization.
9. With the compression tool in the open position, place the connector and cable into the tool by covering the plunger tip with the inside of the connector nut, while ensuring the center conductor goes into the clearance hole of the plunger tip (Fig. 6).
10. Compress the connector by closing the tool handle completely (Fig. 7).
11. Remove the compressed connector and Cable by opening the tool handle, then pressing the outside split jaws.
12. Hand tighten the connector to the port, then tighten to 30 inch-pounds with a torque wrench.
13. For weatherproof performance in outdoor applications, install a Weather Seal to the port prior to installing the connector (Fig. 8). Refer to the Weather Seal installation instructions.

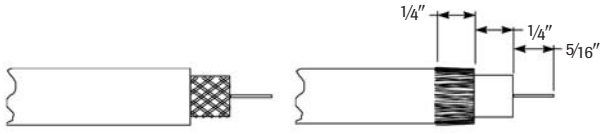


Figure 1

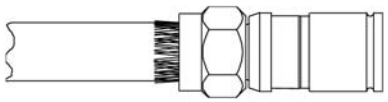


Figure 2

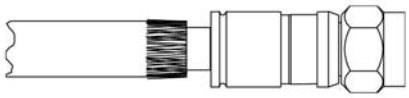


Figure 3

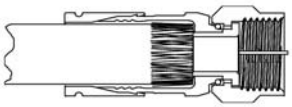


Figure 4

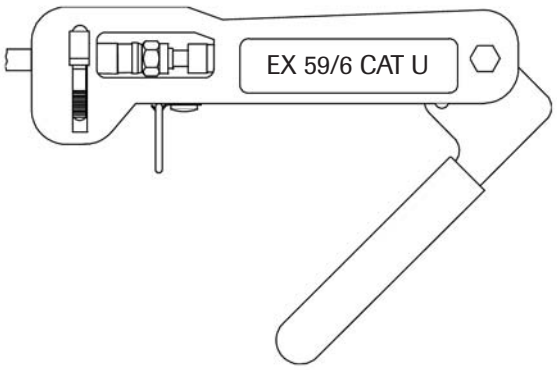


Figure 6

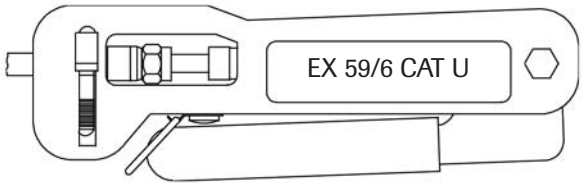


Figure 7

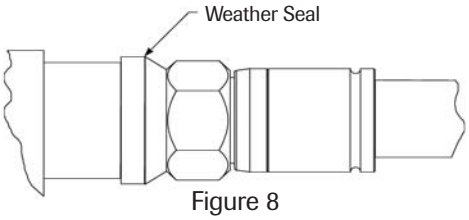


Figure 8