

# CONNECTOR ASSEMBLY INSTRUCTIONAL OVERVIEW



The goal of this instructional overview is to provide easy to follow direction for users to correctly wire and assemble a variety of commercial and MIL-Spec connectors to ensure a successful and reliable connection. Following these instructions will help the less skilled operator avoid making mistakes that could affect the assembly's reliability. If additional support is required, please contact one of our Application Engineers at <http://www.peigenesis.com/en/technical-support>

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## TERMS TO KNOW

### **Crimp Contact:**

A contact which is terminated to a wire by means of crimping with an appropriate die and tool. After termination, an insertion tool is normally used to insert the crimped contact into the connector. Removable crimp contacts can be front release or rear release. A removal tool is usually required to remove the contact.

### **Crimp:**

A method of attaching a contact to a wire through the application of pressure.

### **Solder Contact:**

A contact which is terminated to the wire with solder. Solder contacts are normally bonded into the insulator and cannot be removed by the user.

### **Solder:**

A melting alloy based of lead, tin, brass, or silver for joining metals together.

### **Wire Stripping:**

Strip insulation from end of wire to be crimped. (See Manufacturer's guidelines for stripping your wire to the correct length.) Do not cut or damage wire strands.



## TOOLS YOU NEED

- **Hand Crimp Tool** (smaller contact and wires less than 12AWG)
- **Air or Hydraulic Powered Crimp Tool** (large contact and wires sizes greater than 10AWG)
- **Insertion / Extraction Tool** (based on connector series and contact size)
- **Isopropyl Alcohol Lubricant** (not used on all connector series)
- **Soldering Tool or Iron** (for solder type contacts)
- **Soft Jaw Pliers or Strap Wrench** (to tighten backshell)

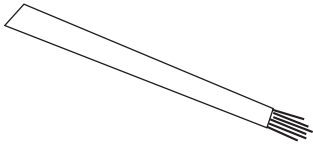


## STRIP WIRE FOR CRIMPING

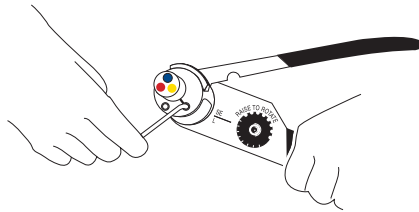
Wire strip length varies based on manufacture of contact and contact size. See Manufacturer's guidelines for stripping your wire to the correct length.

# CRIMPING TO CONTACT AND CRIMP TOOL OPERATION

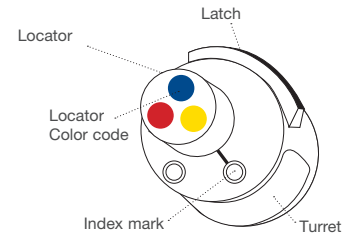
Hand crimp tools can be used for smaller contact and wires less than 12AWG. Larger contact and wires sizes greater than 10AWG require the use of air or hydraulic powered crimp tools. Contact us for assistance in selecting the proper tools and operation of these tools.



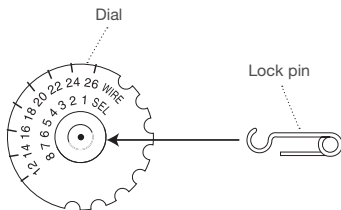
**Step 1:** Strip the wires to the appropriate length.



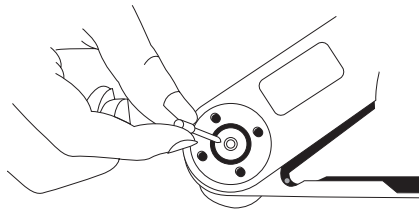
**Step 2:** Open the crimp tool by squeezing the handles. Push the latch on the turret to pop up the locator. Attach the turret to the crimp tool using the two captive hex bolts in the turret.



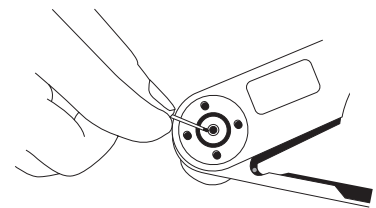
**Step 3:** Select the proper locator position for your contact by rotating the locator until the proper color is aligned with the index mark. Push the locator back down until it snaps into position.



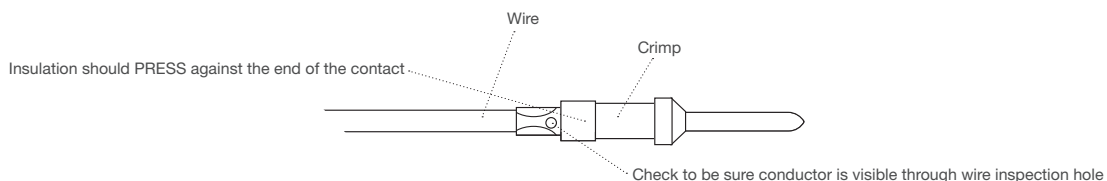
**Step 4:** Adjust dial for proper wire gauge. To change the dial setting, remove the lock pin and lift the center of dial. Turn to the desired wire gauge. Replace lock pin on dial.



**Step 5:** Cycle the tool before inserting the contact to be sure the tool is in the open position. Drop the contact, mating end first, into the crimp cavity of the tool. Squeeze the tool handle just enough to grip the contact without actually crimping it.



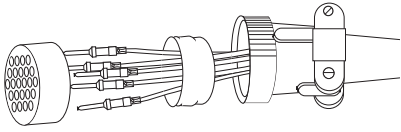
**Step 6:** Insert the stripped wire into the contact with a slight twisting motion. Be sure all wire strands are inside the contact. Squeeze the handle to cycle the tool. The handle will not release until the contact is completely crimped.



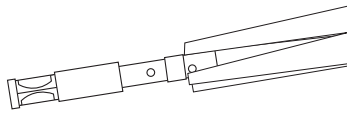
**Step 7:** Remove the crimped contact. Pull on the wire slightly to be sure it is properly crimped. Be sure the contact is not bent or damaged in any way. Visually inspect the crimp through the inspection hole if applicable. Note: Micro Sections – Enlargement of micro section allows for final judgment of crimp quality. This test is recommended whenever new tools or new types of wire or contacts are used.

**Note:** Illustrations are approximations and for demonstration purposes only. Actual size and dimensions will vary by series and type of connector.

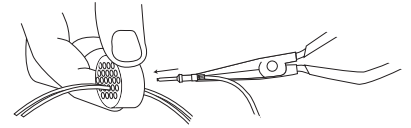
# INSERTION OF CONTACTS



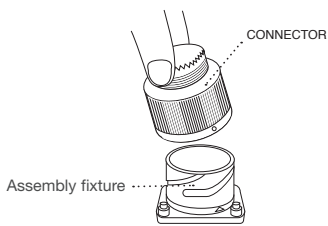
**Step 1:** Slide the rear accessories over the wire bundle in the proper sequence for reassembly: cable clamp and/or endbell first, then ferrule and (if used) coupling nut.



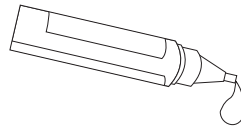
**Step 2:** Use the proper insertion tool. Place the contact in the tool. The tool should press against the shoulder of the contact.



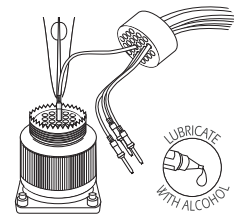
**Step 3:** Lubricate the grommet with isopropyl alcohol (do not use any lubricant other than isopropyl alcohol). Insert the contact through the appropriate cavity in the grommet. Insertion of socket contacts may require using guide pins.



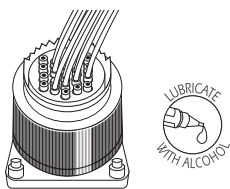
**Step 4:** Place the connector into an assembly fixture (fixtures are available for production use, contact us). If you are not using a fixture, allow clearance on the mating face of the connector for the guide pins to come through during insertion.



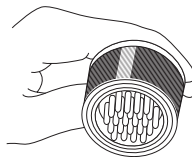
**Step 5:** Lubricate the contact cavities of the connector insulator with isopropyl alcohol (do not use any lubricant other than isopropyl alcohol).



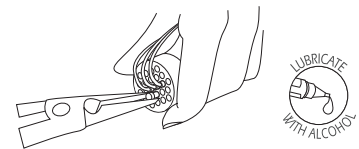
**Step 6:** Using guide pins where necessary, push straight down with firm even pressure until the contact snaps into position in the proper cavity. Start at the center of the pattern and work toward the outer edges.



**Step 7:** Fill all unused cavities with contacts.



**Step 8:** Check the mating face of the connector to ensure that all the same size contacts are on the same plane (fully inserted). If not, the contact is not fully inserted. Remove the contact using the proper extraction tool and procedure and re-insert. *Do not attempt to reinsert the insertion tool to correct the problem.*

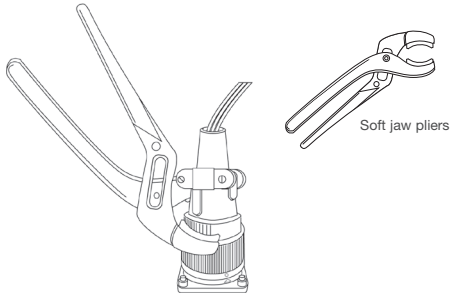


**Step 9:** Fill all unused cavities with a wire hole filler to maintain the sealing integrity of the connector (head in first and trim the excess).

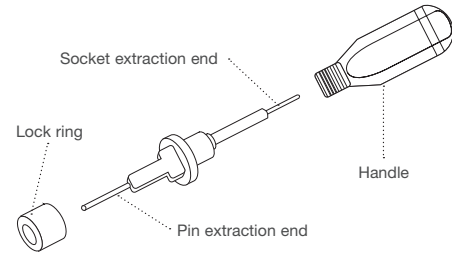
**Step 10:** Place the connector back in the fixture for reassembly. Slide the connector accessories back down the cable over the rear of the connector and tighten.

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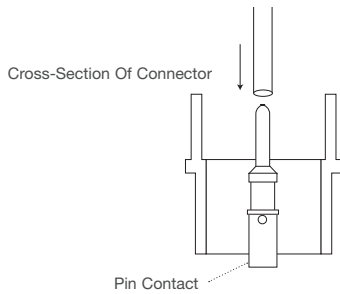
# EXTRACTION OF CONTACTS



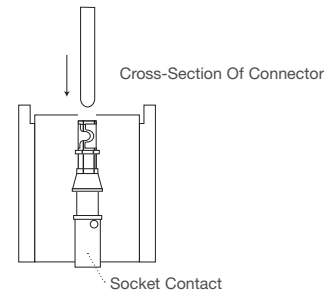
**Step 1:** Remove the endbell accessories and slide them back over the wires.



**Step 2:** Use the proper extraction tool (based on connector series and contact size). The extraction tool can be used for both pin and socket contacts by removing the shaft from the handle and reversing it for pin or socket extraction (not applicable to all types).



**Step 3:** This step varies on the connector series. On the mating face of the connector, insert the tool over the pin contact or into the socket contact until the tool bottoms. Apply slow, continuous pressure to push the contact out of the rear of the connector. When the shoulder of the tool “thunks” against the insulator, the contact is extracted.



**Step 4:** Carefully remove the extraction tool from the connector to avoid damage to the insulator.

# SOLDERING TO CONTACT

**Step 1:** Slide the rear accessories over the wire bundle in the proper sequence for reassembly: cable clamp and/or endbell first, then ferrule and (if used) coupling nut.

**Step 2:** Insert individual wires through the proper holes in the grommet. Use isopropyl alcohol as a lubricant.

**Step 3:** Solder wires to appropriate contacts on the rear of the connector.

**Step 4:** Fixture the connector for reassembly using endbell assembly tools.

**Step 5:** Slide the grommet down the wires (lubricating the grommet with isopropyl alcohol will help). Note that with series such as 38999, the grommet will already be fixed inside the connector shell.

**Step 6:** Fill all grommet cavities with a wire hole filler to maintain the sealing integrity of the connector (head in first and trim the excess).

**Step 7:** Slide coupling nut, ferrule and endbell accessories over rear of the connector and tighten.

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