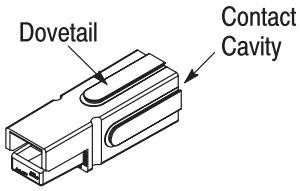
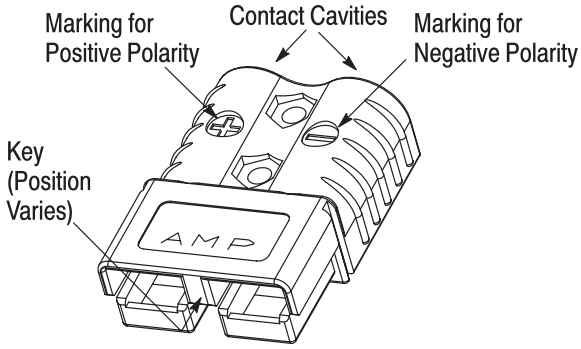
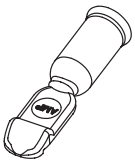
Single–Pole Connector Housing



Double–Pole Connector Housing



Closed–Barrel Contact



Reducing Bushing
(Available Separately for Closed–Barrel Contact Size 2)

CONNECTOR ASSEMBLY KIT (Reference Part Number)	CONTACT SIZE (For Reference Part Number)	REDUCING BUSHING	
		Part Number	Reduces to Wire Size (AWG)
1604002–1 (Single–Pole)	2	1607072–1	8
1445998–1 (Double–Pole)		1604072–2	6
		1604072–3	4

Figure 1

1. INTRODUCTION

These instructions cover assembly and disassembly of Power Series 120 (single–pole reference part number 1604002–1 and double–pole reference part number 1445998–1) connector assembly kits listed in Figure 1 for free–hanging or panel–mounted applications.

NOTE

For detailed application requirements, refer to Application Specification 114–13107.

NOTE

Dimensions in this instruction sheet are in millimeters [with inches in brackets]. Figures are not drawn to scale.

2. DESCRIPTION (See Figure 1)

Each kit consists of a hermaphroditic housing and closed–barrel contact. The contacts are available in sizes 2, 4, 6, and 8, and accept stranded (minimum of 19 strands recommended) copper wire with a maximum insulation diameter of 15.24 [.60]. Wire size (AWG) corresponds to the contact size. Reducing bushings are available for contact size 2 to accommodate small wire sizes to a minimum of size 8 AWG.

The single–pole connector housing features one contact cavity. This housing is capable of being stacked side–by–side and top–to–bottom using the dovetails. For free–hanging applications, retainer pins are available to hold stacked housings together.

The double–pole connector housing features two contact cavities each marked on top of the housing with a plus (+) to indicate positive polarity and a minus (–) to indicate negative polarity.

Each housing is color coded to provide visual reference for proper mating and a molded–in mechanical key at the mating face prevents inadvertent mating of different colored housings (housings with same position keys will only engage housings of the same color).

NOTE

Refer to the specific customer drawing for available colors.

A panel mounting clamp (consisting of two brackets) is available for mounting housings to a panel.

3. ASSEMBLY PROCEDURE

These Kits Must Be Assembled by A Qualified Electrician in Accordance with National and Local Electrical Codes and the Following Instructions.

DANGER

To avoid risk of electric shock in applications where the connectors are used external to a device or as the primary means of disconnecting power supplies or charging equipment, care must be taken to avoid touching exposed contacts.

1. Cut the wire to length.

2. Using Cable Stripper/Slitter Tool 606700–1, strip the wire to the dimension given in Figure 2. Be careful not to nick or scrape any part of the wire.

Recommended Wire Strip Length

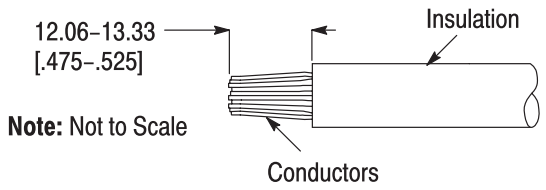


Figure 2

3. Thoroughly clean tarnished copper wire using a stiff wire brush, or other suitable method, that penetrates the entire bundle and cleans every conductor. Restore the wire to a bright copper finish.

NOTE

The contact wire barrel is lined with silver plating to assure consistently high conductivity which will be reduced if tarnished wire is used.

4. If using a reducing bushing, slide the reducing bushing onto the wire conductors to the dimension given in Figure 3. Make sure that the wire insulation DOES NOT enter the reducing bushing and the ends of the conductors are visible.

Contacts Using Reducing Bushing

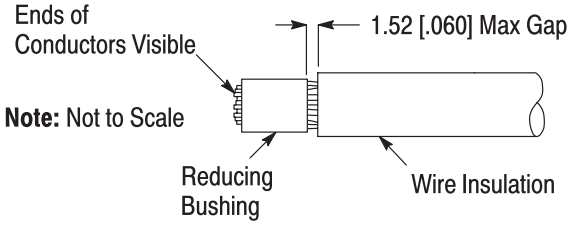


Figure 3

5. Insert the wire conductors into the contact wire barrel until it stops. DO NOT allow the insulation to enter the wire barrel. If used, the reducing bushing must be flush with the contact wire barrel or can protrude from the wire barrel no more than the dimension given in Figure 4.

6. Crimp the contact according to the instructions packaged with the tooling. Refer to Figure 5 for available tooling.

7. Inspect the crimp according to Figure 6. For detailed inspection requirements, refer to 114–13107.

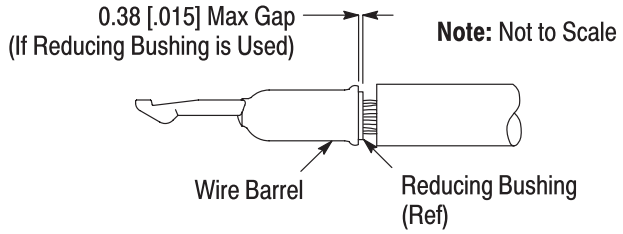


Figure 4

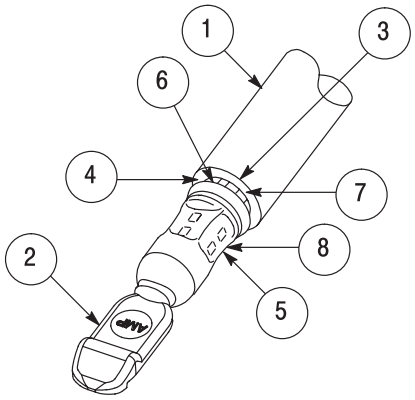
PICO Corporation Pneumatic Power Crimping Tool
Available from http://www.picotools.com
(Produces Dual–Indent Crimp)

MODEL SERIES	DIE	DIE CLOSURE DIMENSION●	LOCATOR
400 BHD	414DA–4580	5.08 [.200]	4580–1
500 DEC	7035–1 SPG		7035–1

● Die closure dimension is not crimp height dimension. If the die is dimensionally correct, the crimp height will be correct.

Figure 5

Crimp Inspection



1 Wire Insulation is Not Cut or Broken

2 Tab is Straight and Not Deformed in Any Way

3 Wire Insulation Does Not Enter Wire Barrel

4 There are No Loose Conductors or Conductors Folded Over Wire Insulation

5 Crimped Area is Symmetrical on Both Sides of Wire Barrel

6 If Used, Reducing Bushing is Flush With or Protrudes Slightly from Wire Barrel

7 Conductors are Visible Between Wire Barrel and Wire Insulation (or Between Reducing Bushing and Wire Insulation)

8 There is No Flash

Figure 6

8. Refer to Figure 7, and install each contact into the housing as follows:

DANGER

STOP

To avoid risk of electric shock, DISCONNECT the electrical supply and DE–ENERGIZE the connectors (this might include disconnecting the wire from the battery) before installing the contacts into the housing.

a. From the wire end of the housing, align the contact with the appropriate contact cavity making sure that the underside of the contact faces the retention spring of the housing (for single–pole housing, the word “AMP” or TE logo marked on the contact must align with the hood of the housing; for double–pole housing, the word “AMP” or TE logo marked on the contact and on the housing must be facing the same direction).

b. Insert the contact *straight* into the contact cavity until an audible “click” is heard. DO NOT force the contact into the housing. Slightly pull back on the wire to make sure that the contact is fully latched onto the retention spring of the housing.

4. STACKING HOUSINGS (Single–Pole Connectors)

1. Align the mating face of a housing with the mating face of another housing. Slide the housings together until the dovetails are engaged, the ends of the housings are flush, and the half rounds form a hole or, for vertical stacked housings, the half rounds align. See Figure 8, Detail A.

Installing Contact into Housing

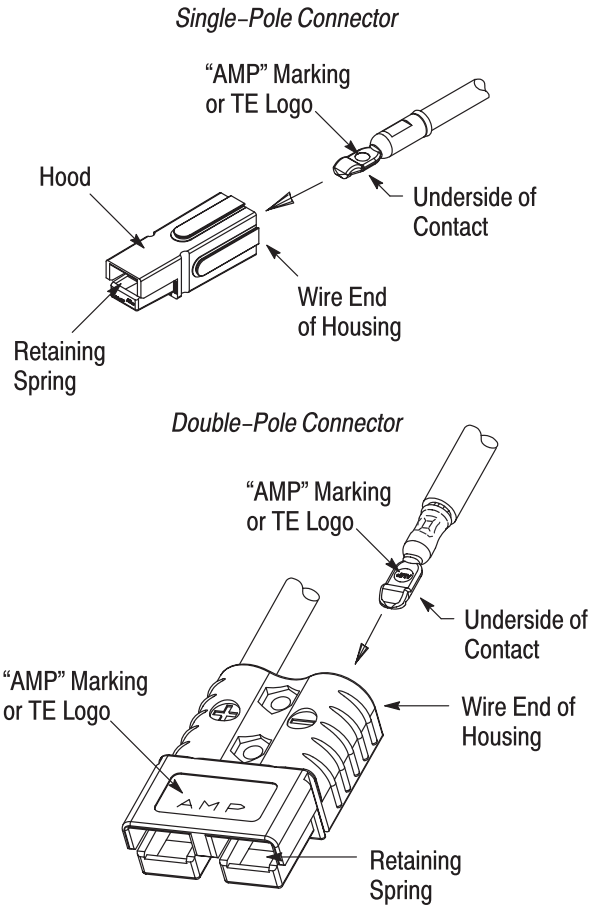


Figure 7

Stacking Housings (Single–Pole Connectors)

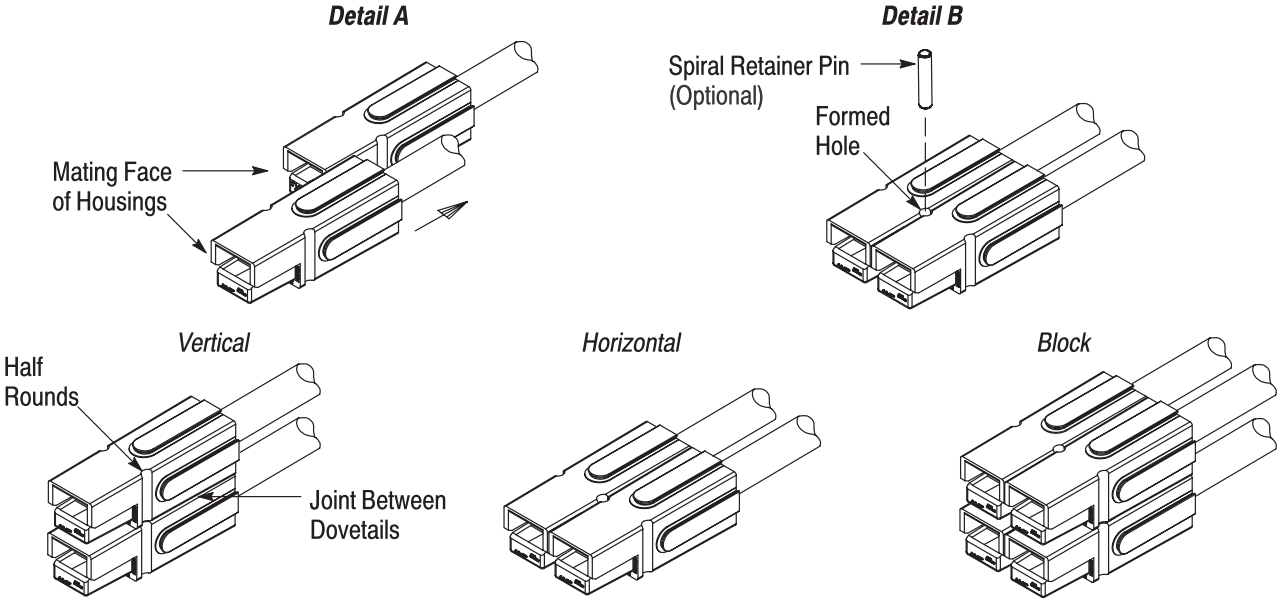


Figure 8

2. For free–hanging housings, if desired, insert a retainer pin into each formed hole or, for vertical stacked housings, aligned half rounds. Make sure each retainer pin is flush with the top and bottom of the stacked housings. See Figure 8, Detail B.

NOTE

Use short retainer pins for a horizontal configuration and long retainer pins for vertical and block configurations.

CAUTION

DO NOT use commercially–available roll pins. Roll pins could fall out of the housings and cause damage to the system.

3. If required, permanently bond the housings by applying a small drop of cyanoacrylate glue to the joint between the dovetails.

4. As recommended by the Radio Amateur Civil Emergency Service (RACES), stack standard direct current (DC) connectors as shown in Figure 9. Red (as positive) and black (as negative) are the recommended housing colors.

Stacking Housings for RACES Standard DC Connectors

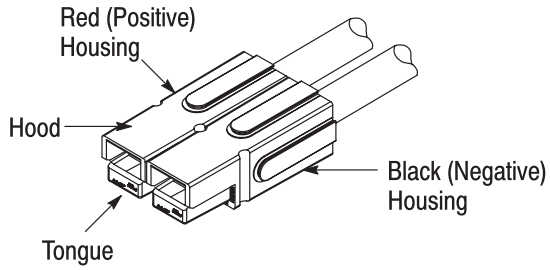


Figure 9

5. PANEL MOUNTING (See Figure 10)

1. Cut a panel with a thickness range between 0.76 and 3.40 [.030 and .134] using the dimensions provided in Figure 10.

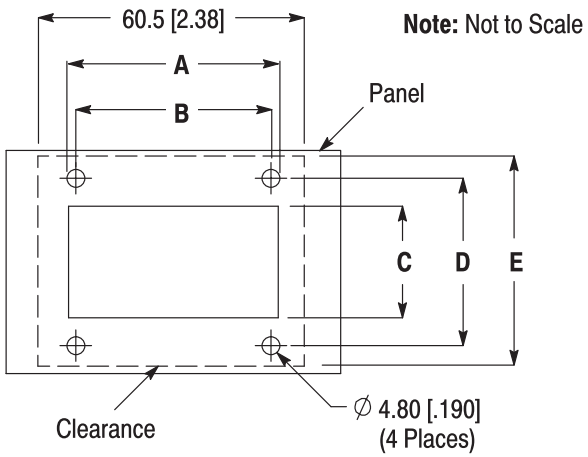
2. Insert the stacked housings through the panel cutout so that the half rounds are at the front or the back of the cutout.

3. Install the brackets of the mounting clamp onto the housing so that the outside arms of the bracket fit along the half rounds and the center arm fits into the formed hole.

NOTE

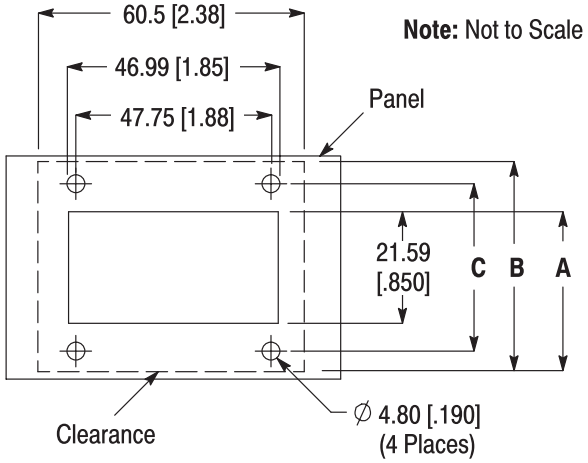
The mounting clamp is designed to be used with horizontal or block stacked housings that do not containing retainer pins.

Panel Cutout for Single–Pole Connector Assembly



NUMBER OF HOUSINGS	DIMENSION				
	A	B	C	D	E
2	47.8 [1.88]	44.50 [1.75]	25.4 [1.00]	60.5 [2.38]	47.80 [1.88]
3	70.0 [2.75]	66.50 [2.62]	25.4 [1.00]	38.1 [1.50]	47.80 [1.88]
4	47.8 [1.88]	44.50 [1.75]	47.8 [1.88]	38.1 [1.50]	70.10 [2.76]

Panel Cutout for Double–Pole Connector Assembly



DIMENSION		
1 Bracket	2 Brackets	
A	B	C
30.86 [1.31]	45.89 [1.81]	33.02 [1.30]

Figure 10

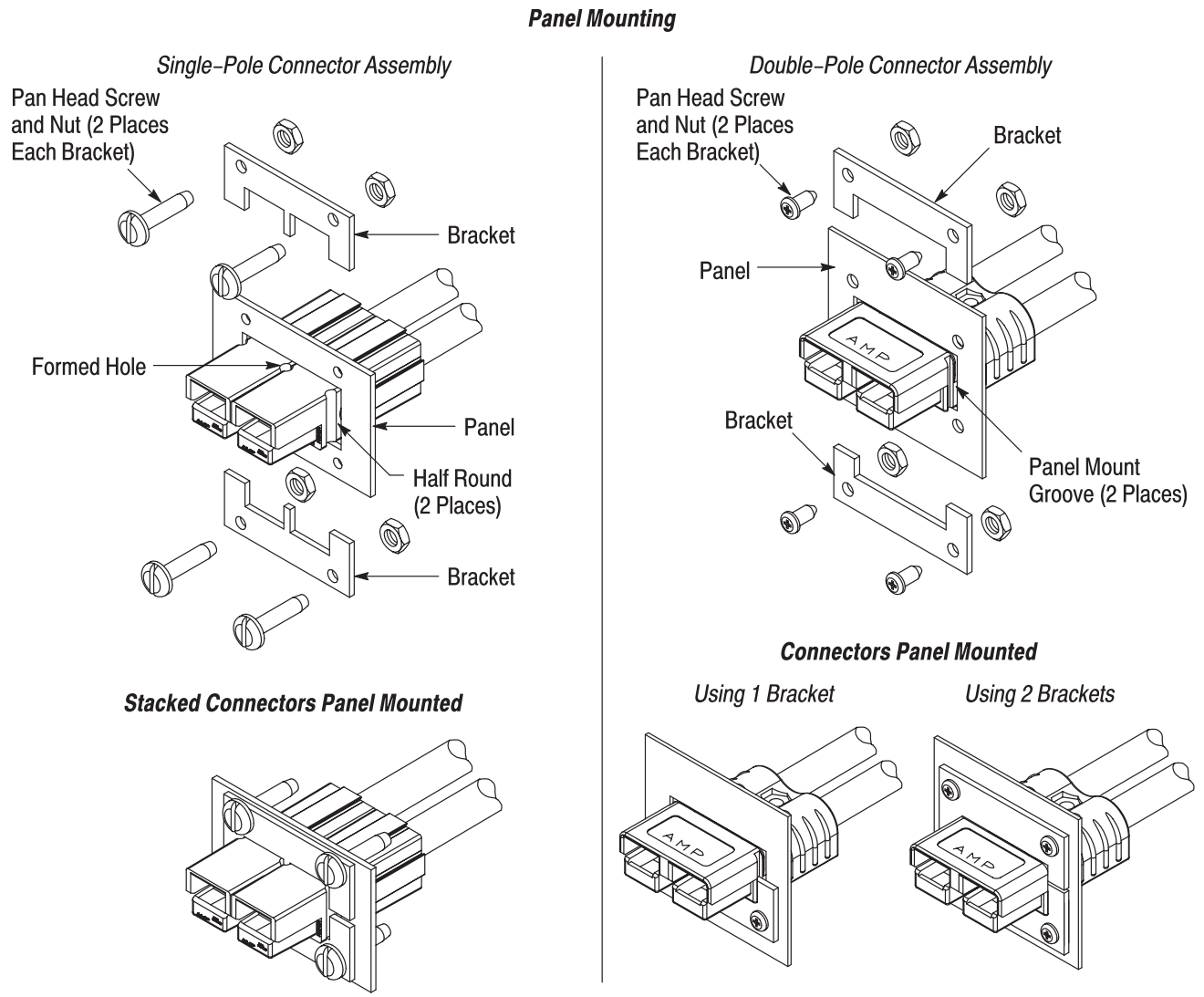


Figure 11

4. Secure each bracket to the panel using commercially–available hardware (two No. 6 pan head screws and nuts). Make sure that each bracket is flat against the panel and flat against the housings.

6. MATING (See Figure 12)

DANGER

To avoid risk of electric shock, DISCONNECT the electrical supply and DE–ENERGIZE the connectors (this might include disconnecting the wire from the battery) before mating or unmating the connectors.

For single–pole connector assemblies, align the mating faces of the housings, and push the housings together. DO NOT force the housings to mate. When fully mated, there must be no gap between the hood and the tongue of the housings.

For double–pole connector assemblies, align the mating faces of the housings, and push the housings together. DO NOT force the housings to mate. When fully mated, the housings must appear flush at the point of engagement.

7. STRAIN RELIEF

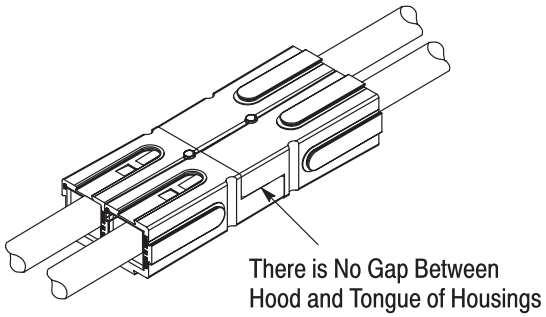
When bending or forming wire, hold the bundle at least 6.35 [.250] beyond the back of the housing before bending in any direction. For mated connectors, if the installation is to be subject to bending forces, provide strain relief on the wire bundle approximately 25.4 [1.0] from the back of the housing.

CAUTION

DO NOT bend unsupported wire; otherwise, strain on the contacts inside the housing may result.

Mating Connectors

Single–Pole Connector Assemblies



Double–Pole Connector Assemblies

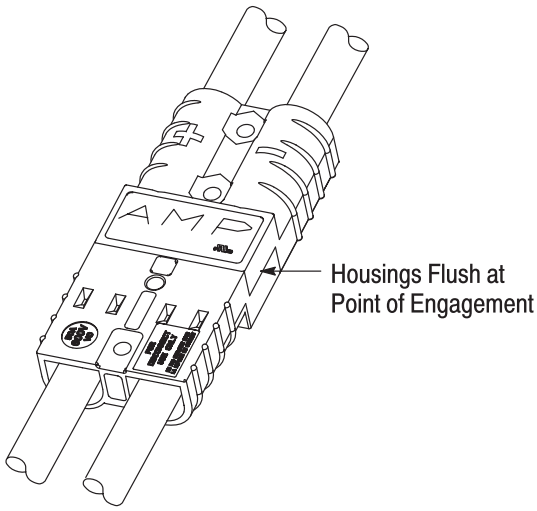


Figure 12

8. DISASSEMBLY

To avoid risk of electric shock, DISCONNECT the electrical supply and DE–ENERGIZE the connectors (this might include disconnecting the wire from the battery) before removing the contacts into the housing.

1. Pull the housings straight apart (DO NOT force them to unmate).

2. Using Extraction Tool 68265–1 (or a standard insulated screwdriver with $^{1}/_{4}$–in. flat blade), remove each contact from the housing as follows:

   a. At the mating face of the housing, insert the tip of the tool between either side of the contact and the contact cavity.

   b. Push the handle of the tool toward the bottom (flat side) of the housing so that the housing retention spring is depressed away from the underside of the contact. While holding the tool in position, push the wire in the same direction, and *gently* pull back until the contact is free from the housing.

9. REPLACEMENT AND REPAIR

The contact and housing are not repairable. DO NOT use damaged or defective products. DO NOT re–use terminated contacts or reducing bushings by removing the wire.

10. REVISION SUMMARY

- Initial release of instruction sheet