

**Perma-Seal™  
Hand Crimp  
Tool**

**Application Tooling  
Specification Sheet**

**Order No. 64001-4500  
Engineering. No. RHT-5771**

**FEATURES**

- A full cycle ratcheting hand tool ensures complete crimps
- An economical tool for portable crimping and field repair
- Multi-nested tool eliminates the need for additional tools

**SCOPE**

Products: Perma-Seal™ FIQD Couplers Male and Female for 14-22 AWG.

**Testing**

**Mechanical**

The tensile test, or pull test, is a means of evaluating the mechanical properties of the crimped connections. The following charts show the UL specifications for various wire sizes. The tensile strength is shown in pounds, and it indicates the minimum acceptable force to break or separate the terminal from the conductor.

Wire Size (AWG)	UL - 486 A*	UL - 486 C**	UL*310***
	Minimum Pull		
22	8	8	8
20	13	10	13
18	20	10	20
16	30	15	30
14	50	25	50

\*UL - 486 A - Terminals (copper conductors only).

\*\*UL - 486 C - Butt Splices

\*\*\*UL - 310 - Couplers

The following is a partial list of the product part numbers and their specifications that this tool is designed to run. We will be adding to this list and an up to date copy is available on [www.molex.com](http://www.molex.com).

Wire Size: 18 - 22 AWG 0.80 - 0.35mm <sup>2</sup>					
Terminal No.	Terminal Engineering No. (REF)	Wire Strip Length		Insulation Diameter Maximum	
		In	mm	In	mm
19164-0015	SAA-9260	.313	7.94	.145	3.68
19164-0017	SAA-9261	.313	7.94	.165	4.19

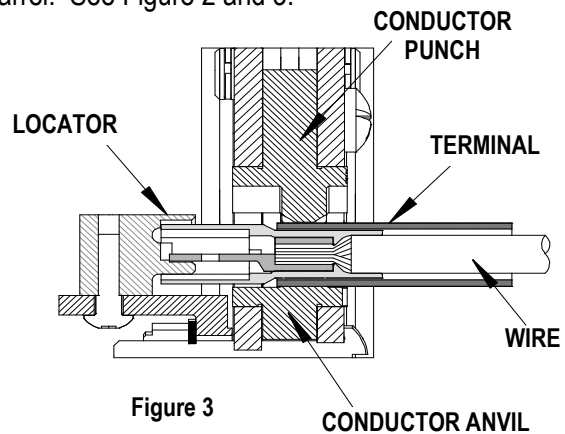
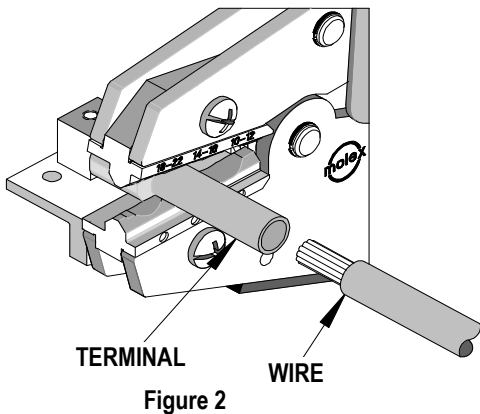
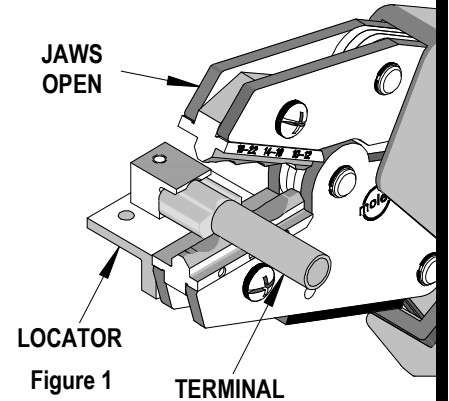
Wire Size: 14 - 16 AWG 2.00 - 1.30mm <sup>2</sup>					
Terminal No.	Terminal Engineering No. (REF)	Wire Strip Length		Insulation Diameter Maximum	
		In	mm	In	mm
19164-0048	SBB-9262	.313	7.94	.170	4.32
19164-0050	SBB-9263	.313	7.94	.170	4.32

**OPERATION**

**Crimping Terminals**

Open the tool by first closing the jaws sufficiently for the ratchet mechanism to release.

1. Adjust the locator up or down until the terminal being crimped, sits flat and straight in the tool.
2. Position the locator for the proper color-coded nest by removing the #4-40 by 3/8" long BHCS under the bracket of the locator. Place it in the desired position that corresponds with the color-coded nest being used. Tighten the BHCS.
3. Place the terminal into the locator and push until the terminal is flush against the locator face shown in Figure 1.
4. Partially close the hand tool jaws until the connector is held snug in place, See Figure 2.
5. Insert the properly stripped wire into the terminal barrel. See Figure 2 and 3.



6. Complete the crimp by closing the hand tool handles until they release.

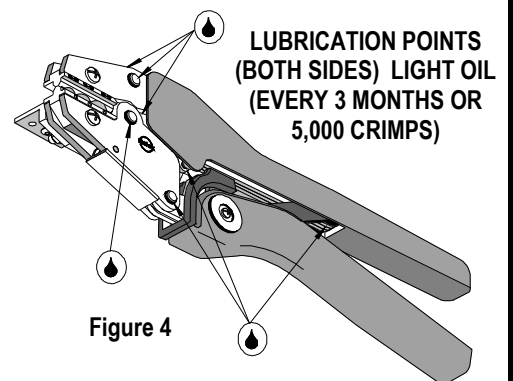
**Note:** The tamper proof ratchet action will not release the tool until it has been fully closed.

7. Remove the crimp and inspect for proper crimp. Molex offers a Crimp Inspection Handbook for closed barrel industrial product. See our website or contact your sales engineer.

**Maintenance**

It is recommended that each operator of the tool be made aware of, and responsible for, the following maintenance steps:

1. Remove dust, moisture and other contaminants with a clean brush, or soft, lint-free cloth.
2. Do not use any abrasive materials that could damage the tool.
3. Make certain all pins; pivot points and bearing surfaces are protected with a thin coat of high quality machine oil. Do not oil excessively. This tool was engineered for durability, but like any fine piece of equipment, it needs cleaning and lubrication for a maximum service life of trouble-free crimping. A light oil, such as 30 weight automotive oil used at the oil points shown in Figure 4, every 5,000 crimps or 3 months will significantly enhance the tool life and ensure a stable calibration.
4. When tool is not in use, keep the handles closed to prevent objects from becoming lodged in the crimping dies, and store the tool in a clean, dry area.



### Miscrimps or Jams

Should this tool ever become stuck or jammed in a partially closed position, **Do Not force the handles open or closed.** The tool will open easily by pressing the ratchet release lever. See Figure 5.

### How to Adjust Tool Preload (See Figure 5)

Over the life of the tool, it may be necessary to adjust tool handle preload force. Listed below are the steps required to adjust the crimping force of the hand tool to obtain proper crimp conditions:

1. Remove the screw and plastic cover washer. Note the setting wheel position.
2. Lift the setting wheel off the axle. Turn the eccentric axle with a screwdriver.
3. Turning the eccentric axle counter-clockwise will increase handle force.
4. Replace the setting wheel to the axle, aligning the nearest notch in the setting wheel to the dowel pin.
5. Replace the plastic cover washer and screw.
6. Check the crimp specifications after tool crimp force is adjusted.

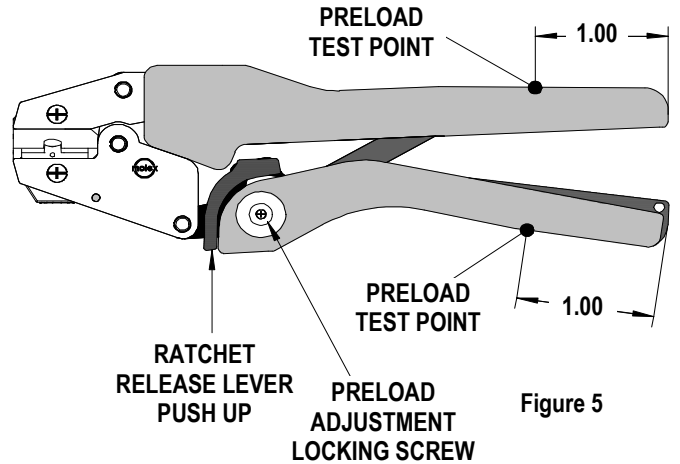
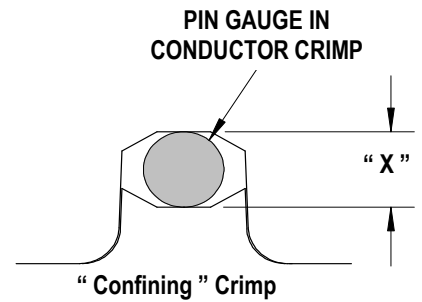


Figure 5

### Tool Calibration

A Certificate of Calibration (see last page) was supplied with the tool. To recalibrate this tool, pin gauge measurements should be taken in each conductor nest and compared to this chart. The tool should be lubricated before recalibration to ensure consistent measurements. Handle preload is factory set to 25-45 LBS. See How to Adjust Tool Preload (See Figure 5) to recalibrate.



Nest Color Code	Wire Range		"X" Dimension Conductor Crimp			Crimp Inspection Marking
	AWG	mm <sup>2</sup>	Mean	Go	No Go	
Red	18 - 22	0.35 - 0.80	.094	.090	.098	---
Blue	14 - 16	1.30 - 2.00	.115	.110	.119	---
Yellow (not used)	N/A	N/A	N/A	N/A	N/A	---

### Warranty

This tool is for electrical terminal crimping purposes only. This tool is made of the best quality materials. All vital components are long life tested. All tools are warranted to be free of manufacturing defects for a period of 30 days. Should such a defect occur, we will repair or exchange the tool free of charge. This repair or exchange will not be applicable to altered, misused or damaged tools. This tool is designed for hand use only. Any clamping, fixturing, or use of handle extensions voids this warranty.

**Caution: Repetitive use of this tool should be avoided.**

Hand held crimping tools are intended for low volume, prototyping, or repair requirements only.

**CAUTION: Molex crimp specifications are valid only when used with Molex terminals, applicators and tooling.**

**PARTS LIST**

Item	Order No	Description	Quantity
	<b>64001-4500</b>	<b>Hand Crimp Tool</b>	<b>Figure 6</b>
1	64000-0076	Repair Kit (Springs, Pins and E-Rings)	1
2	63810-0000	Handle	1
3	64001-4575	Locator Assembly	1
4	64001-4570	Tooling Kit	1
<b>Tooling Kit Only</b>			
5	64001-4502	Conductor Punch	1
6	64001-4501	Conductor Anvil	1

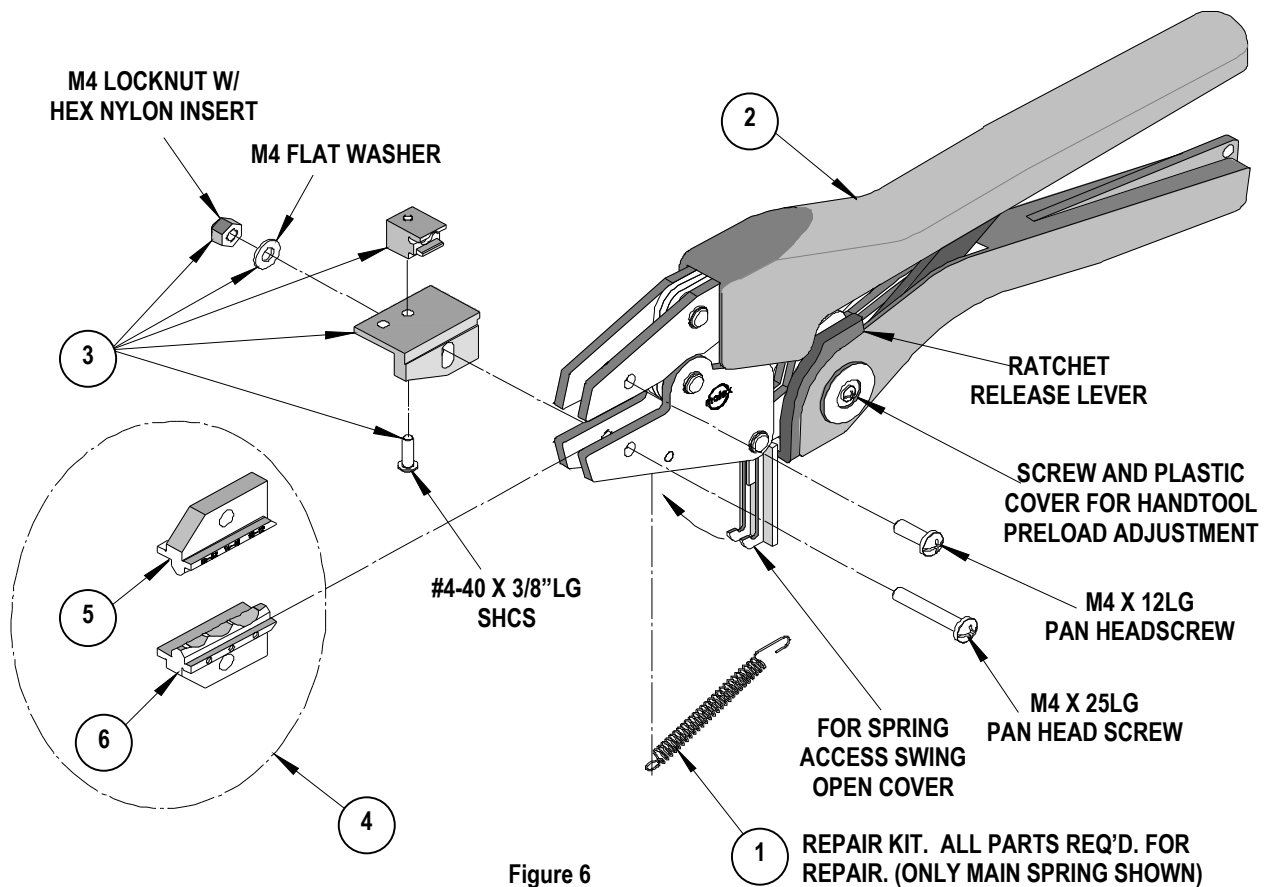
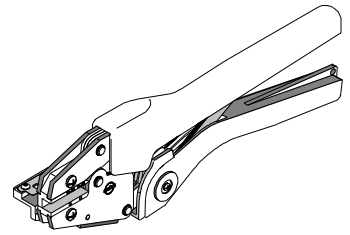


Figure 6



**Perma-Seal™  
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**Order No. 64001-4500  
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**Certificate of Calibration**

Tool Order Number \_\_\_\_\_

Tool Eng. Number \_\_\_\_\_

Tool Revision \_\_\_\_\_

Serial Number \_\_\_\_\_

Date of Manufacture \_\_\_\_\_

Handle Load Range at 1 inch from the Tips = \_\_\_\_\_

Actual = \_\_\_\_\_

Pin Gage of Conductor Nest/Nests or Slug height if the nest is the "F" Crimp style.

Range Conductor Nest # 1 = \_\_\_\_\_ Actual = \_\_\_\_\_

Range Conductor Nest # 2 = \_\_\_\_\_ Actual = \_\_\_\_\_

Range Conductor Nest # 3 = \_\_\_\_\_ Actual = \_\_\_\_\_

Technician \_\_\_\_\_

Date of Calibration \_\_\_\_\_

Calibration should be done every 5,000 cycles or 3 months.  
Tools should be lubricated during this operation.

Visit our Web site at <http://www.molex.com>