

Hand Crimping Tool 90035-3
PROPER USE GUIDELINES

Cumulative Trauma Disorders can result from the prolonged use of manually powered hand tools. Hand tools are intended for occasional use and low volume applications. A wide selection of powered application equipment for extended-use, production operations is available.

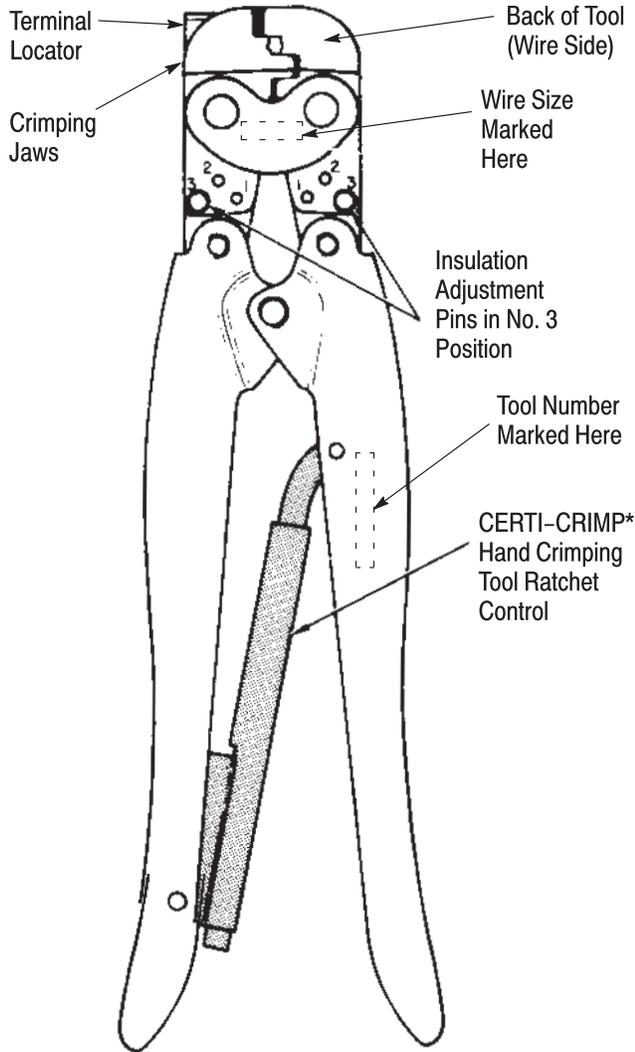


Figure 1

1. INTRODUCTION

Hand Crimping Tool 90035-3 has been designed for crimping the PIDG* FASTON* loose piece (LP) receptacle terminals listed in Figure 2. Read these instructions thoroughly before crimping any terminals.

NOTE


All dimensions in this document are in millimeters [with inches in brackets]. Figures and Illustrations are for reference only and are not drawn to scale.

Reasons for reissue are provided in Section 6, REVISION SUMMARY.

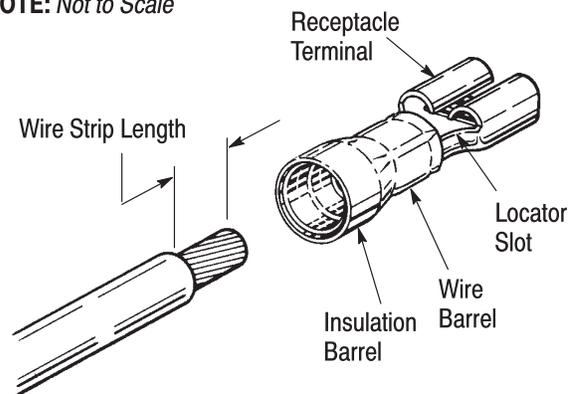
2. DESCRIPTION (Figure 1)

The FRONT OF TOOL has the “AMP” marking on the link. The BACK OF TOOL (Wire Side), into which the wire is inserted, has the wire size marked on the link. This tool features a terminal locator, two insulation adjustment pins, and a CERTI-CRIMP hand crimping tool ratchet control. The locator is spring-loaded to position and hold the terminal in the tool.

The insulation adjustment pins are used to regulate the crimp height of the terminal insulation barrel. See Paragraph 3.2. The CERTI-CRIMP hand crimping tool ratchet control ensures full crimping of the terminal. Once engaged, the ratchet will not release until the tool handles have been FULLY closed.

CAUTION


The crimping jaws bottom before the CERTI-CRIMP hand crimping tool ratchet control releases. This is a design feature that ensures maximum electrical and tension performance of the crimp. Do NOT re-adjust the ratchet.

NOTE: Not to Scale


| WIRE SIZE (AWG) | INSUL. DIA. (Max) | TERMINAL NO. | WIRE STRIP LENGTH |
|-----------------|-------------------|---|-------------------|
| 22-18 | 3.43 [.135] | 42599-[] 140879-[] 140896-2 140948-1 735278-[] | 5.56 [.219] |

Figure 2

3. CRIMPING PROCEDURE

Refer to the table in Figure 2 and check the selected wire, terminal, and crimping tool for compatibility. Wire size and insulation diameter must be within the specified range for the terminal. The hand crimping tool must be the one designed for crimping the wire and terminal.

Use stranded wire only, and strip it to the length indicated. Refer to Figure 3 and proceed as follows:

CAUTION

Do NOT cut or nick the wire strands.

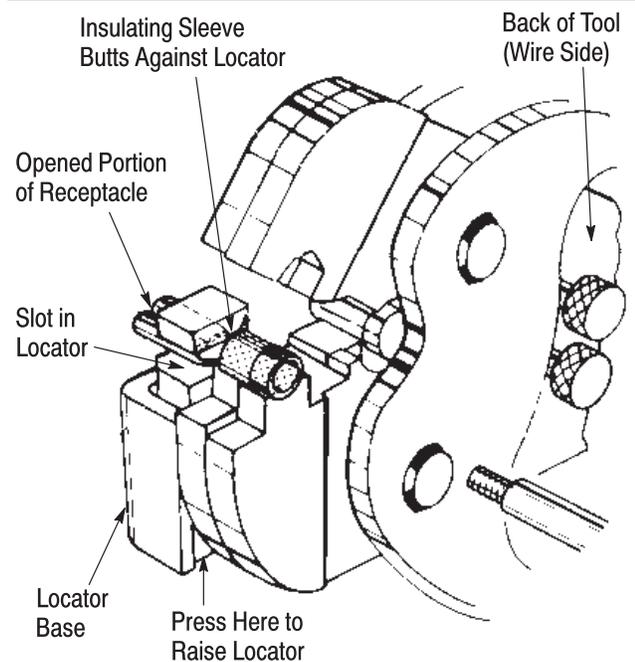


Figure 3

3.1. Termination Procedure

1. Hold tool so the BACK (Wire Side) is facing you.
2. Make sure the ratchet is released. Squeeze tool handles together and allow them to open FULLY.
3. Raise the locator and insert the terminal into the slot, making sure the opened portion of the receptacle is turned away from the locator base
4. Position the terminal so the insulation sleeve butts against the locator and is centered on the crimping jaws.
5. Insert a properly stripped wire into the terminal until the wire insulation begins to wedge against the terminal insulation barrel, or until the wire insulation butts against the terminal wire barrel. Wire end should be approximately flush with the wire barrel end.

6. Holding the wire in place, squeeze the tool handles together until the ratchet releases.

7. Allow the tool handles to open FULLY. Raise the locator and remove the crimped terminal from tool.

3.2. Insulation Crimp Adjustment

The insulation barrel crimp height is regulated by placing the insulation adjustment pins in one of three positions (1–Small, 2–Medium, 3–Large). Determine the proper insulation crimp setting as follows:

1. Place adjustment pins in No. 3 position. Insert terminal into the tool according to Paragraph 3.1, Steps 1 through 4.
2. Insert an unstripped wire into the terminal insulation barrel. Crimp the terminal and remove it from the tool.
3. Check the insulation crimp by bending the wire back and forth one time. If the wire pulls out, place the adjustment pins in the next smaller position, and repeat these procedures. The crimp should hold the wire insulation firmly without cutting into it.

4. MAINTENANCE AND INSPECTION

Hand crimping tools are inspected before shipment. The tool received should be inspected immediately upon arrival to ensure that the tool has not been damaged during shipment, and that it performs according to the criteria described in this sheet. If a tool is damaged upon arrival, retain the shipping container, file a claim with the carrier, and notify Tyco Electronics immediately.

4.1. Daily Maintenance

1. Remove dust, moisture, and other contaminants from the tool with a clean brush or a soft, lint-free cloth. DO NOT use objects that could damage the tool.
2. Make sure that the proper retaining pins are in place and are secured with the proper retaining rings.
3. Make certain that all pins, pivot points, and bearing surfaces are protected with a THIN coat of any good SAE 20 motor oil. DO NOT oil excessively.
4. When the tool is not in use, keep the handles closed to prevent objects from becoming lodged in the crimping areas and store the tool in a clean, dry area.

4.2. Periodic Inspection

Regular inspections should be performed by quality control personnel. A record of scheduled inspections should remain with the tool or be supplied to supervisory personnel responsible for the tool.

Though recommendations call for at least one inspection per month, the inspection frequency should be based on the amount of use, working conditions, operator training and skill, and established company standards. These inspections should be performed in the following sequence:

A. Visual Inspection

1. Remove all lubrication and accumulated film by immersing the tool (handles partially closed) in a suitable commercial degreaser that will not affect paint or plastic material.
2. Make certain that all retaining pins are in place and are secured with retaining rings. If replacements are necessary, refer to the parts list in Figure 6.
3. Inspect crimping areas for pitted or chipped surfaces.
4. Close the tool handles until the ratchet releases, then allow handles to open freely. If they do not open quickly and fully, the spring is defective and must be replaced. Refer to Section 5, REPLACEMENT AND REPAIR.

B. Gaging Crimping Chamber

This inspection requires the use of plug gages conforming to the dimensions listed in Figure 4. To gage the crimping chamber, proceed as follows:

1. Close the jaws by squeezing the tool handles together until the jaws have bottomed, and then HOLD the handles in this position. DO NOT force the jaws beyond initial contact.
2. Align the GO element of the gage with the wire barrel crimp section of the crimping chamber. Refer to Figure 5. Push the element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber.
3. Align the NO-GO element of the gage with the same crimp section, and try to insert the element. The NO-GO element may start entry, but it must not pass completely through the crimping chamber. Refer to Figure 5.
4. Repeat the gage inspection for the insulation crimp section of the crimping chamber, making sure to use the correct plug gage.

If the crimping chamber conforms to the gage inspection, the tool is considered dimensionally correct. If the crimping chamber does not conform to

the inspection, the tool must be repaired. Refer to Section 5, REPLACEMENT AND REPAIR.

For additional information concerning the use of the plug gage, refer to Instruction Sheet 408-7424.

C. Ratchet Inspection

Obtain a .025-mm [.001-in.] shim that is suitable for checking the clearance between the bottoming surfaces of the jaws. To inspect the ratchet control, proceed as follows:

1. Refer to Figure 2, and select a product and maximum size wire.
2. Position the product in the crimping chamber.
3. While holding the wire in place, squeeze the tool handles together until the ratchet releases. Holding the tool in this position, maintain just enough pressure to keep the jaws closed.
4. Check the clearance between the bottoming surfaces of the jaws. If the clearance is .025 mm [.001 in.] or less, the ratchet is satisfactory. If clearance exceeds .025 mm [.001 in.], the ratchet is out of adjustment and must be repaired. Refer to Section 5, REPLACEMENT AND REPAIR. If the tool conforms to this inspection procedure, lubricate it with a THIN coat of any good SAE 20 motor oil, and return it to service.

5. REPLACEMENT AND REPAIR

Customer-replaceable parts are listed in Figure 6. A complete inventory should be stocked and controlled to prevent lost time when replacement of parts is necessary. Parts other than those listed should be replaced by Tyco Electronics to ensure quality and reliability. Order replacement parts through your representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

CUSTOMER SERVICE (038-035)
TYCO ELECTRONICS CORPORATION
PO BOX 3608
HARRISBURG PA 17105-3608

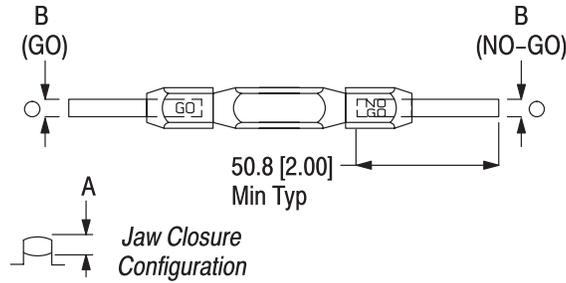
For customer repair service, call 1-800-526-5136.

6. REVISION SUMMARY

- Updated document to corporate requirements
- Added new Sections 4 through 6
- Added new Figures 4, 5, and 6

4A

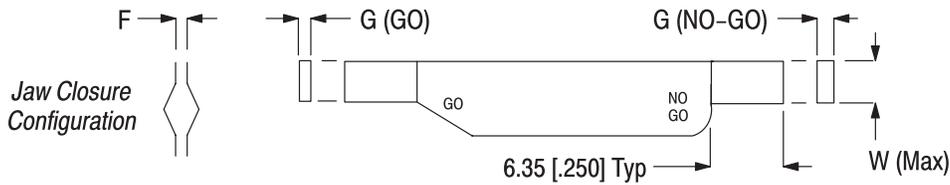
Suggested Plug Gage Design — Wire Barrel Crimp Section



| TOOL | JAW CLOSURE† DIAMETER A | | GAGE ELEMENT†† DIAMETER B | |
|---------|-------------------------|---------------|---------------------------|---------------------------|
| | GO | NO-GO | GO | NO-GO |
| 90035-3 | 2.350 [.0925] | 2.477 [.0975] | 2.350-2.357 [.0925-.0928] | 2.474-2.477 [.0974-.0975] |

4B

Suggested Plug Gage Design — Insulation Barrel Crimp Section



| TOOL | JAW CLOSURE† DIMENSION F (Adjustment Pins in Position 1) | | GAGE ELEMENT†† DIMENSION G | | DIMENSION W (Width) |
|---------|--|--------------|----------------------------|--------------------------|---------------------|
| | GO | NO-GO | GO | NO-GO | |
| 90035-3 | 0.762 [.0300] | 1.27 [.0500] | 0.762-0.77 [.0300-.0303] | 1.267-1.27 [.0499-.0500] | 3.05 [.120] |

† Jaw closure dimensions apply when wire or insulation barrel jaws are bottomed, but not under pressure.

†† Material: Tool Steel

Figure 4

Inspection of Wire Barrel Crimp Section

Inspection of Insulation Barrel Crimp Section

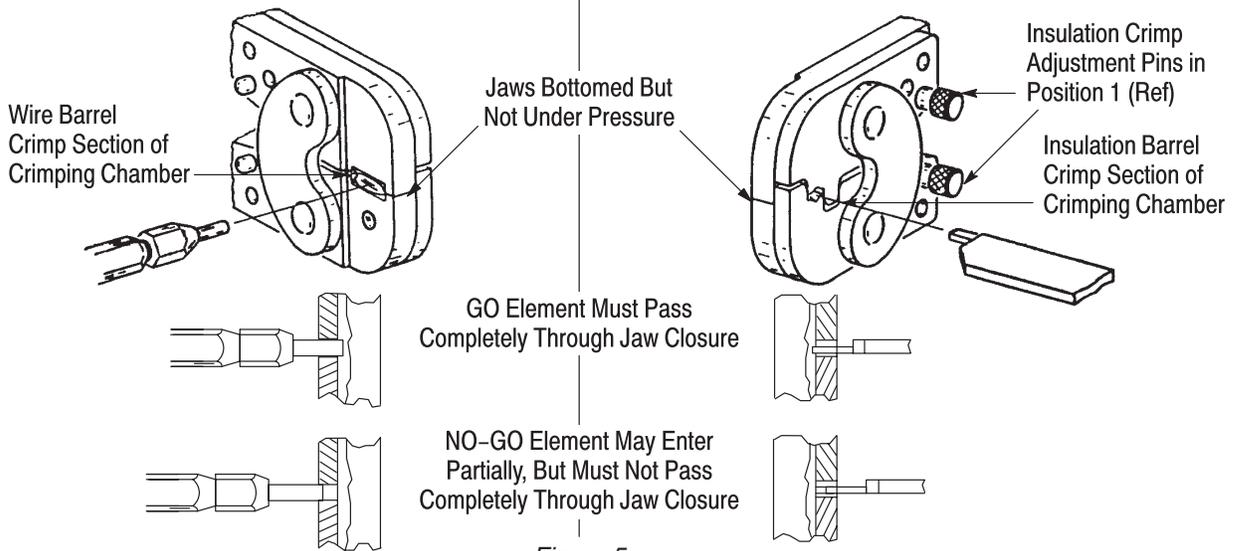
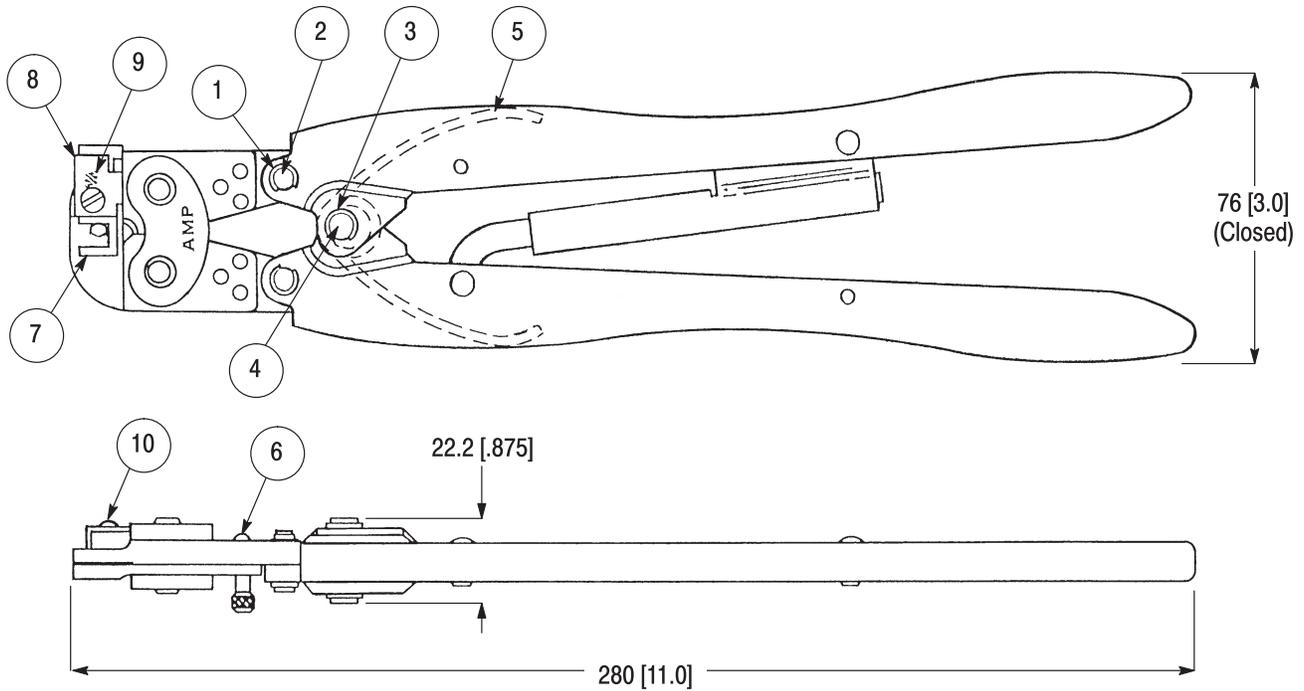


Figure 5



Weight: 550g [1.2 lb]

| ITEM NUMBER | PART NUMBER | DESCRIPTION | QTY PER TOOL |
|-------------|-------------|--------------------------------|--------------|
| 1 | 21045-3 | RING, Retaining | 4 |
| 2 | 1-23619-6 | PIN, Retaining (.187D x .521L) | 2 |
| 3 | 21045-6 | RING, Retaining | 2 |
| 4 | 2-23620-9 | PIN, Retaining [250D x .838L] | 1 |
| 5 | 39364 | SPRING, Handle | 1 |
| 6 | 39207 | INSULATION ADJUSTMENT PIN | 2 |
| 7 | 125644-4 | LOCATOR | 1 |
| 8 | 302994 | HOUSING, Locator | 1 |
| 9 | 301201 | SPRING | 1 |
| 10 | 9-305927-1 | SCREW | 1 |

Figure 6