

### PROPER USE GUIDELINES

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

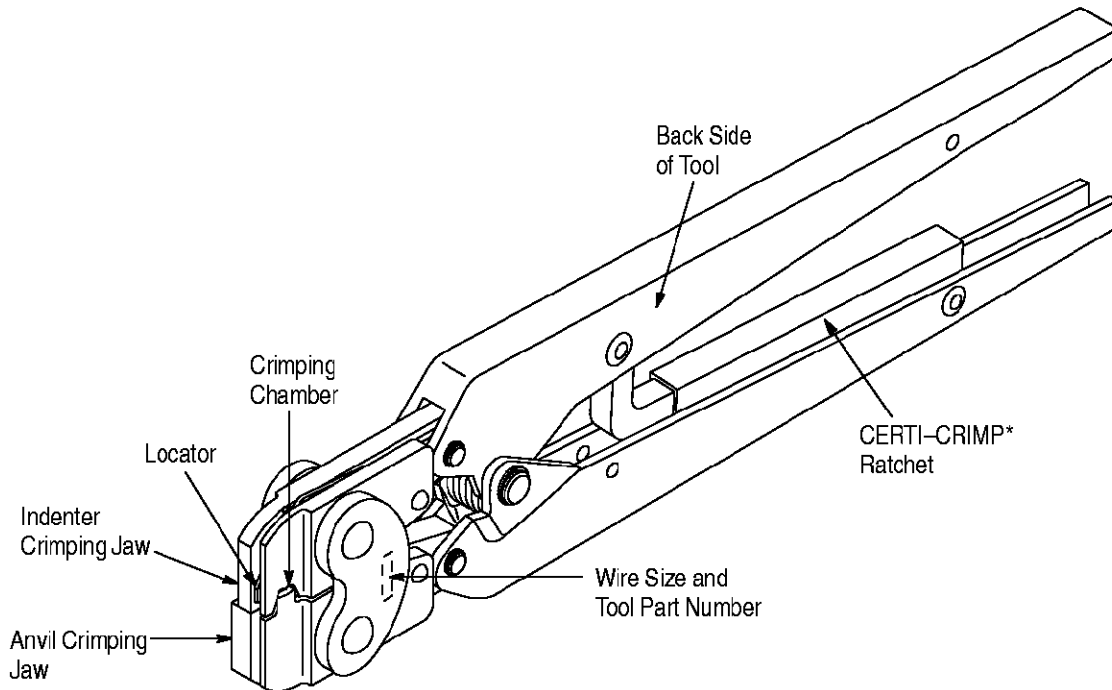


Figure 1

### 1. INTRODUCTION

AMP\* Hand Crimping Tools 90045 and 90162-1 crimp FASTON\* 250 Series flag receptacles onto wire sizes 24 through 20 AWG (Tool 90162-1) and wire sizes 18 through 14 AWG (Tool 90045). Catalog 82004 provides a guide for wire-to-receptacle selection. For wire sizes and receptacles not referenced in the catalog, contact AMP Product Engineering for recommendations. Read these instructions thoroughly before using the hand tool.

#### NOTE

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

Reasons for reissue of this instruction sheet are provided in Section 6, REVISION SUMMARY.

### 2. DESCRIPTION

Each hand tool features two crimping jaws (anvil and indenter), locator, and CERTI-CRIMP ratchet. When closed, the jaws form one crimping chamber. The wire size range and tool part number are marked on the BACK side of the tool. See Figure 1.

The locator positions the receptacle in the crimping chamber and then aids in locating the wire in the receptacle. The CERTI-CRIMP ratchet assures full crimping of the receptacle. Once engaged, the ratchet will not release until the tool handles have been FULLY closed.

#### CAUTION

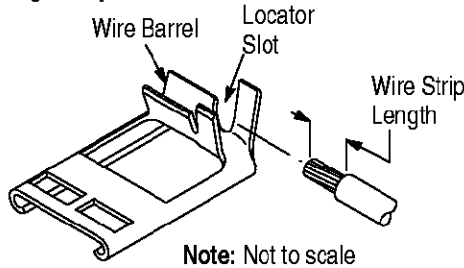
*The crimping jaws bottom before the ratchet releases. This feature assures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.*

### 3. CRIMPING PROCEDURE

Select the appropriate wire size and receptacle for the hand tool. The wire size and insulation diameter must be within the specified range for the receptacle. Strip the wire according to the dimension shown in Figure 2. Do NOT nick or cut the wire strands. Then proceed as follows:

1. Hold tool so that the BACK side is facing you.
2. Open the crimping jaws by squeezing the tool handles together until the CERTI-CRIMP ratchet releases.

**Typical Flag Receptacle**



| HAND TOOL | WIRE STRIP LENGTH |
|-----------|-------------------|
| 90045     | 4.74 [.187]       |
| 90162-1   | 3.96 [.156]       |

Figure 2

3. Position the receptacle in the crimping chamber on the anvil crimping jaw so that the tool locator enters the receptacle locator slot. Refer to Figure 3.

4. Holding receptacle in place, squeeze tool handles together just enough to hold receptacle in crimping chamber.

**CAUTION** *Squeezing the handles together too much will deform the wire barrel. Do NOT deform wire barrel.*

5. Insert stripped wire into the wire barrel of receptacle and through wire slot of tool locator until wire insulation butts against locator. See Figure 3.

6. Holding wire in place, squeeze tool handles together until ratchet releases. See Figure 3.

7. Allow tool handles to open FULLY and remove crimped receptacle from tool.

**Crimping Receptacle**

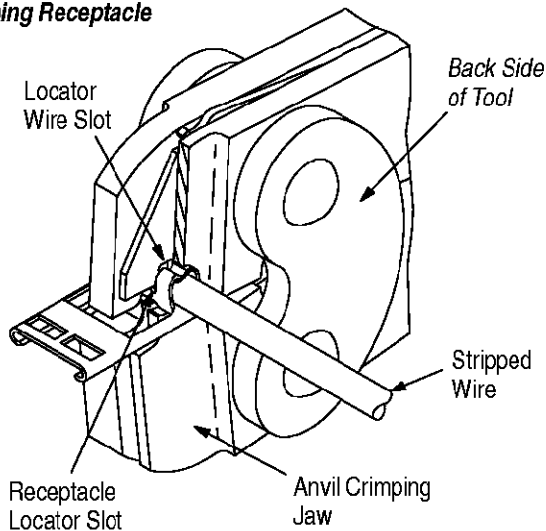


Figure 3

**4. MAINTENANCE AND INSPECTION**

AMP recommends that a maintenance and inspection program be performed periodically to ensure dependable and uniform terminations. Though recommendations call for at least one inspection a month, frequency of inspection depends on:

1. The care, amount of use, and handling of the hand tool.
2. The presence of abnormal amounts of dust and dirt.
3. The degree of operator skill.
4. Your own established standards.

The hand tool is inspected before being shipped; however, AMP recommends that the tool be inspected immediately upon arrival at your facility to ensure that the tool has not been damaged during shipment.

**4.1. Daily Maintenance**

1. Hand tool should be immersed (handles partially closed) in a reliable commercial degreasing compound to remove accumulated dirt, grease, and foreign matter. When degreasing compound is not available, tool may be wiped clean with a soft, lint-free cloth. Do NOT use hard or abrasive objects that could damage the tool.

2. Make certain that the retaining pins are in place and that they are secured with retaining rings.

3. All pins, pivot points, and bearing surfaces should be 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 handles closed to prevent objects from becoming lodged in the crimping jaws. Store the tool in a clean, dry area.

**4.2. Periodic Inspection**

**A. Lubrication**

Lubricate all pins, pivot points, and bearing surfaces with SAE 20 motor oil as follows:

- Tool used in daily production—lubricate daily
- Tool used daily (occasional)—lubricate weekly
- Tool used weekly—lubricate monthly

Wipe excess oil from tool, particularly from crimping area. Oil transferred from the crimping area onto certain terminations may affect the electrical characteristics of an application.

**B. Visual Inspection**

1. Close tool handles until ratchet releases and then allow them to open freely. If they do not open quickly and fully, the spring is defective and must be replaced. See Section 5, REPLACEMENT AND REPAIR.

2. Inspect head assembly for worn, cracked, or broken jaws. If damage is evident, return the tool to AMP for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

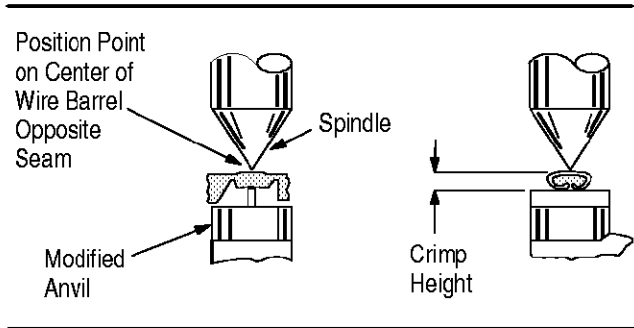
**C. Crimp Height Inspection**

This inspection requires the use of a modified micrometer with a modified anvil and spindle, as shown in Figure 4. AMP recommends the Crimp Height Comparator RS-1019-5LP which can be purchased from:

Shearer Industrial Supply Co.                      VALCO  
 20 North Penn Street                              or                      1410 Stonewood Drive  
 York, PA 17401-1014                              Bethlehem, PA 18017-3527

Proceed as follows:

1. Select a receptacle and *maximum* size wire for the tool.
2. Refer to Section 3, CRIMPING PROCEDURE, and crimp the receptacle accordingly.
3. Using a crimp height comparator, measure the wire barrel crimp height as shown in Figure 4. If the crimp height conforms to that height, the tool is considered dimensionally correct. If not, refer to Section 5 for information on obtaining further evaluation and repair.



| HAND TOOL | WIRE SIZE (AWG) (Max) | CRIMP HEIGHT DIMENSION    |
|-----------|-----------------------|---------------------------|
| 90045     | 14                    | 1.50±0.076<br>[.059±.003] |
| 90162-1   | 20                    | 1.17±0.051<br>[.046±.002] |

Figure 4

For additional information concerning the use of the crimp height comparator, refer to AMP instruction sheet 408-7424.

**D. CERTI-CRIMP Ratchet Inspection**

The CERTI-CRIMP ratchet on the hand tool should be checked to ensure that the ratchet does not release prematurely, allowing the jaws to open before they have fully bottomed. Obtain a 0.025 [.001] shim

that is suitable for checking the clearance between the bottoming surfaces of the crimping jaws. Proceed as follows:

1. Select a receptacle and *maximum* size wire for the tool.
2. Position the receptacle and wire between the crimping jaws, as described in Section 3, CRIMPING PROCEDURE.
3. Hold the wire in place and squeeze the handles until the ratchet releases. Hold the handles in this position, maintaining just enough tension to keep the jaws closed.
4. Check the clearance between the bottoming surfaces of the crimping jaws. If the clearance is 0.025 [.001] or less, the ratchet is satisfactory. If clearance exceeds 0.025 [.001], the ratchet is out of adjustment and must be repaired. See Section 5, REPLACEMENT AND REPAIR.

**5. REPLACEMENT AND REPAIR**

Customer-replaceable parts are listed in Figure 5. 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 AMP to ensure quality and reliability. Order replacement parts through your AMP representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

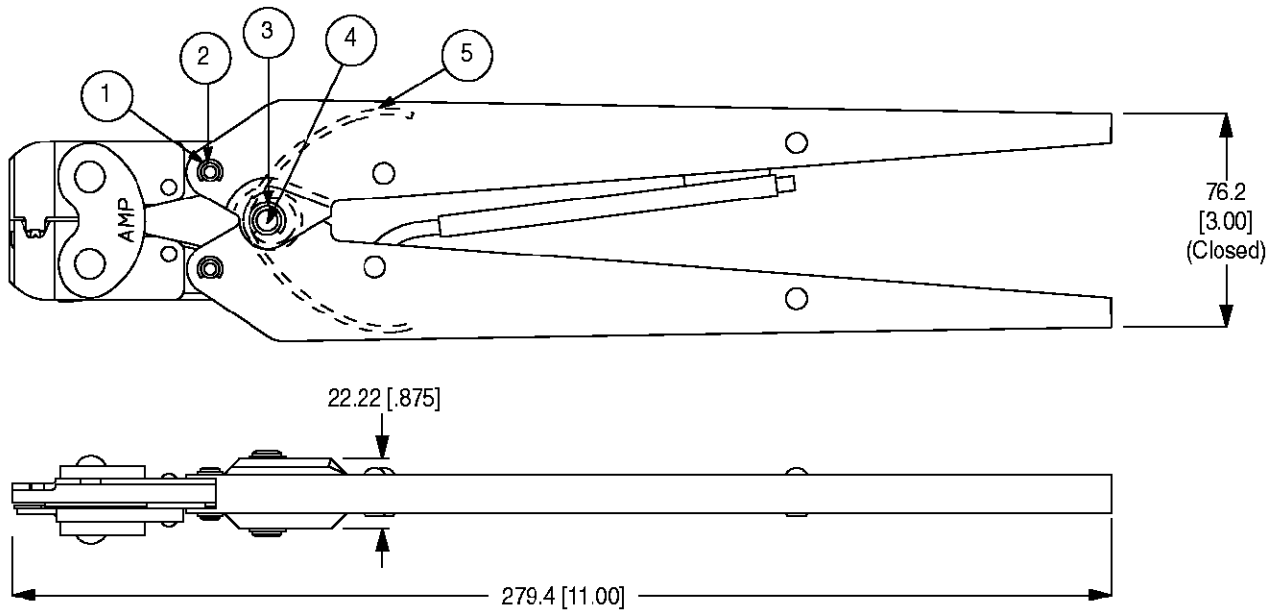
CUSTOMER SERVICE (038-035)  
 AMP INCORPORATED  
 PO BOX 3608  
 HARRISBURG PA 17105-3608

For customer repair service, please contact an AMP representative at 1-800-526-5136.

**6. REVISION SUMMARY**

Revisions to this instruction sheet per EC 0990-1254-99 include:

- Updated document to corporate requirements
- Changed title of document
- Modified Figure 3
- Changed York Machinery to Shearer Industrial in Paragraph 4.2, C
- Replaced customer repair address with phone number



**Weight:** 539 g [1 lb 3 oz]

**REPLACEMENT PARTS**

| ITEM | PART NUMBER | DESCRIPTION                                     | QTY PER TOOL |
|------|-------------|---|--------------|
| 1    | 21045-3     | RING, External Crescent Retaining, .188 D Shaft | 4            |
| 2    | 8-59558-2   | PIN, Retaining, .187 D x .521 L                 | 2            |
| 3    | 21045-6     | RING, External Crescent Retaining, .250 D Shaft | 4            |
| 4    | 2-23620-9   | PIN, Retaining, .250 D x .838 L                 | 5            |
| 5    | 39364       | SPRING, Handle                                  | 1            |

Figure 5