

### 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.

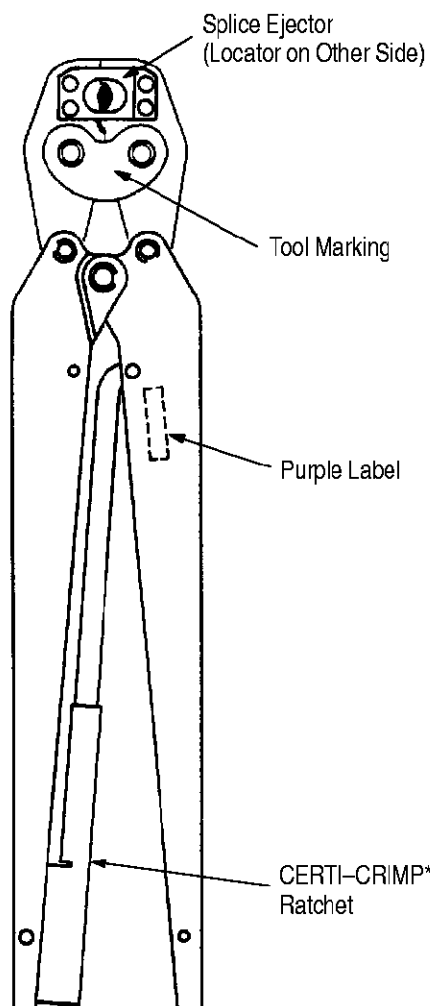


Figure 1

### 1. INTRODUCTION

This instruction sheet covers the use of AMP Hand Crimping Tools 45216 and 45219-2 (Figure 1) which are used to crimp the AMP Closed-End Splices listed by part number in Figure 2. The tools are designed to crimp the splices on wire sizes ranging from 22 through 10 AWG. Read these instructions thoroughly before using the tool.

#### NOTE

*Dimensions on this sheet are in metric units [followed by U.S. customary units in brackets]. Figures and illustrations are for identification only and are not drawn to scale.*

Reasons for reissue are provided in Section 7, REVISION SUMMARY.

### 2. DESCRIPTION (Figures 1 and 3)

The FRONT of the tool, into which the splice is inserted, has the AMP marking on the link. The tools also have colored labels (purple) which match the insulator color of splices. Note that similar splices with different insulator colors were marketed. Customers using the splices with insulator colors other than purple cannot use the tool-product color code to establish compatibility. See Figure 2.

The tools feature crimping jaws and a CERTI-CRIMP ratchet. The crimping jaws hold and crimp the splice to the wire. The CERTI-CRIMP ratchet ensures full crimping of the splices. Once engaged, the ratchet will not release until the tool handles have been FULLY closed.

#### CAUTION

*The crimp jaws bottom before the CERTI-CRIMP ratchet releases. This design feature ensures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.*

| TOOL PART NUMBER AND COLOR CODE | TOOL MARKING  | WIRE SIZE (AWG) | PART NUMBER/ SPLICE TYPE | COLOR CODE | SPLICE TYPE | WIRE COMBINATION CHART | STRIP LENGTH |             |
|---------------------------------|---------------|-----------------|--------------------------|------------|-------------|------------------------|--------------|-------------|
|                                 |               |                 |                          |            |             |                        | MIN          | MAX         |
| 45216 (PURPLE)                  | 18-16 ECV-ECN | 22-14           | 34304 VINYL              | RED        | VS          | 408-1394               | 8.38 [.33]   | 9.14 [.36]  |
|                                 |               |                 | 35115 NYLON              | TRANS      | ECN         | 408-1271               |              |             |
|                                 |               |                 | 36964 VINYL              | PURPLE     | VS          | 408-1394               |              |             |
|                                 |               |                 | 2-328375-3 VINYL         | PURPLE     | VS          | 408-1394               |              |             |
| 45219-2 (PURPLE)                | 18-10 ECV-ECN | 22-10           | 35653 NYLON              | TRANS      | ECN         | 408-1021               | 10.67 [.42]  | 11.43 [.45] |
|                                 |               |                 | 36965 VINYL              | PURPLE     | VS          | 408-1029               |              |             |
|                                 |               |                 | 321519 VINYL             | PURPLE     | ECV         | 408-1002A              | 14.22 [.56]  | 16.00 [.63] |

In cases where twisting conductors for minimum loading is required, ensure that strip length is maintained after twisting.

Figure 2

### 3. WIRE STRIPPING (Figure 2)

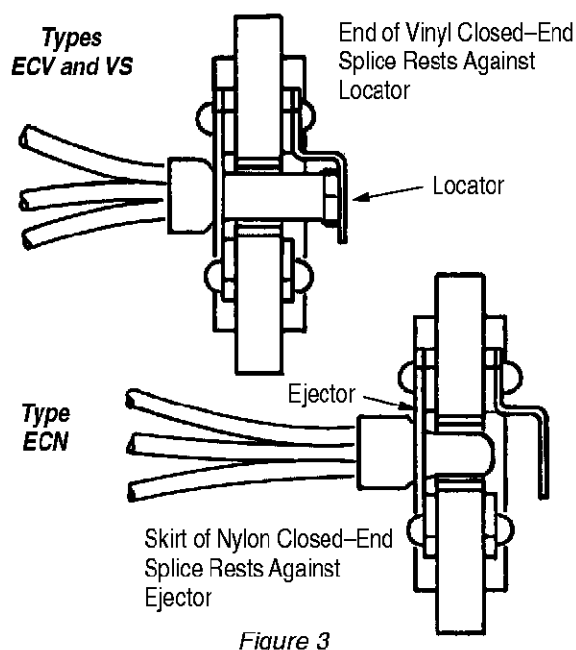
Proceed as follows:

1. Select the proper tool and splice combination from the chart in Figure 2.
2. Strip the wire to the dimensions listed in Figure 2. After the wire has been stripped, the splice can be crimped to the stripped wire.

### 4. CRIMPING PROCEDURE

Proceed as follows:

1. Open the crimping jaws by squeezing the tool handles together until the ratchet releases. Note that once the ratchet engages, the tool handles cannot be opened until they are fully squeezed together, thereby releasing the ratchet.
2. Insert stripped wires into the splice barrel. If using a splice with any color other than purple, match the product-tool compatibility by part numbers.
3. Locate the splice—with the wires inserted—into the crimping dies, as shown in Figure 3. The skirt of ECN (Nylon) splice should rest against the splice ejector. The ends of the ECV or VS (Vinyl) splices should rest against the locator. Refer to Figure 3.
4. Holding the splice in position, complete the crimp by squeezing the handles together until the ratchet releases. When the ratchet releases, the handles will spring open and the crimped splice can be removed.



### 5. MAINTENANCE AND INSPECTION PROCEDURE

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 to ensure that the tool has not been damaged during shipment.

#### 5.1. 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.

#### 5.2. 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 6, 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 6, REPLACEMENT AND REPAIR.

### C. Gaging the Crimping Chambers

This inspection requires the use of a plug gage conforming to the dimensions provided in Figure 4. AMP does not manufacture or market these gages. To gage the crimping chamber, proceed as follows:

1. Remove traces of oil or dirt from the crimping chambers and plug gage.
2. Close tool handles until jaws are bottomed, and hold in this position. Do not force beyond initial contact.
3. Carefully insert GO element into the crimping chamber; do not force it. The GO element must pass completely through the crimping chamber. See Figure 5.
4. In the same manner, try to insert NO-GO element into the same crimping chamber. The NO-GO element may begin entry, but may not pass through the crimping chamber. See Figure 5.

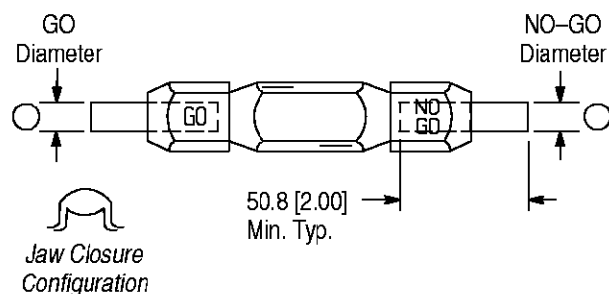
If crimping chambers conform to gage inspection, the tool is considered dimensionally correct, and should be lubricated with a THIN coat of any good SAE 20 motor oil. If not, refer to Section 6, REPLACEMENT AND REPAIR for customer repair service.

### D. CERTI-CRIMP Ratchet Inspection

The CERTI-CRIMP ratchet feature on AMP hand tools 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 the **maximum** number of wires permitted from the wire combination chart for the splice being used.
2. Position the splice and wire between the crimping jaws, as described in Section 4, CRIMPING PROCEDURE.
3. Hold the wire in place and squeeze the handles until the CERTI-CRIMP 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 6, REPLACEMENT AND REPAIR.

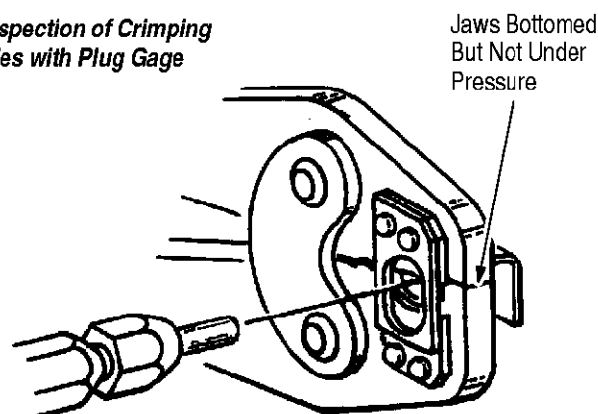
### Suggested Plug Gage Design



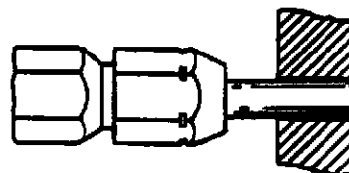
| TOOL NUMBER | GAGE ELEMENT DIAMETER            |                                  |
|-------------|----------------------------------|----------------------------------|
|             | GO                               | NO-GO                            |
| 45216       | 2.311 – 2.319<br>[.0910 – .0913] | 2.461 – 2.464<br>[.0969 – .0970] |
| 45219-2     | 3.124 – 3.132<br>[.1230 – .1233] | 3.274 – 3.277<br>[.1289 – .1290] |

Figure 4

### Inspection of Crimping Dies with Plug Gage



GO member must pass completely through the crimping surface.



NO-GO member may enter partially, but must not pass completely through the length of the crimping surface.

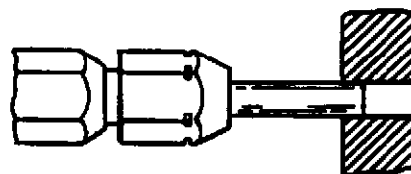
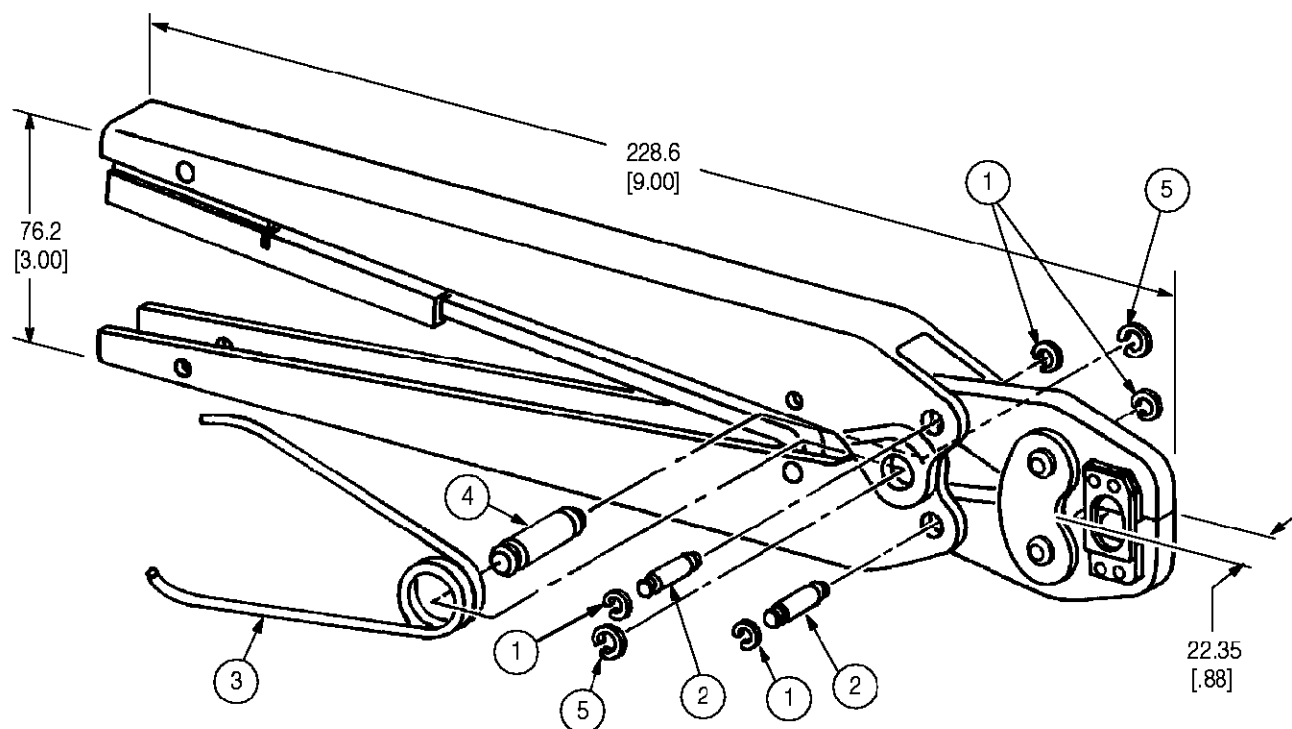


Figure 5



Weight: 594 g [1 lb 5 oz]

#### REPLACEMENT PARTS

| ITEM | PART NUMBER | DESCRIPTION     | QTY PER ASSY |
|------|-------------|-----------------|--------------|
| 1    | 21045-3     | RING, Retaining | 4            |
| 2    | 8-59558-2   | PIN, Retaining  | 2            |
| 3    | 39364       | SPRING          | 1            |
| 4    | 300449      | PIN, Retaining  | 1            |
| 5    | 21045-6     | RING, Retaining | 2            |

Figure 6

## 6. REPLACEMENT AND REPAIR

Replacement parts are listed in Figure 6. Parts other than those listed in Figure 6 should be replaced by AMP to ensure quality and reliability of the tool. Order replacement parts through your AMP representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605, or write to:

CUSTOMER SERVICE (38-35)  
AMP INCORPORATED  
P.O. BOX 3608  
HARRISBURG, PA 17105-3608

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

## 7. REVISION SUMMARY

Since the previous release of this sheet, the following changes were made:

Per EC 0990-0927-99

- Updated document to corporate requirements
- Changed tool repair service information in Section 6, REPLACEMENT AND REPAIR