

**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.

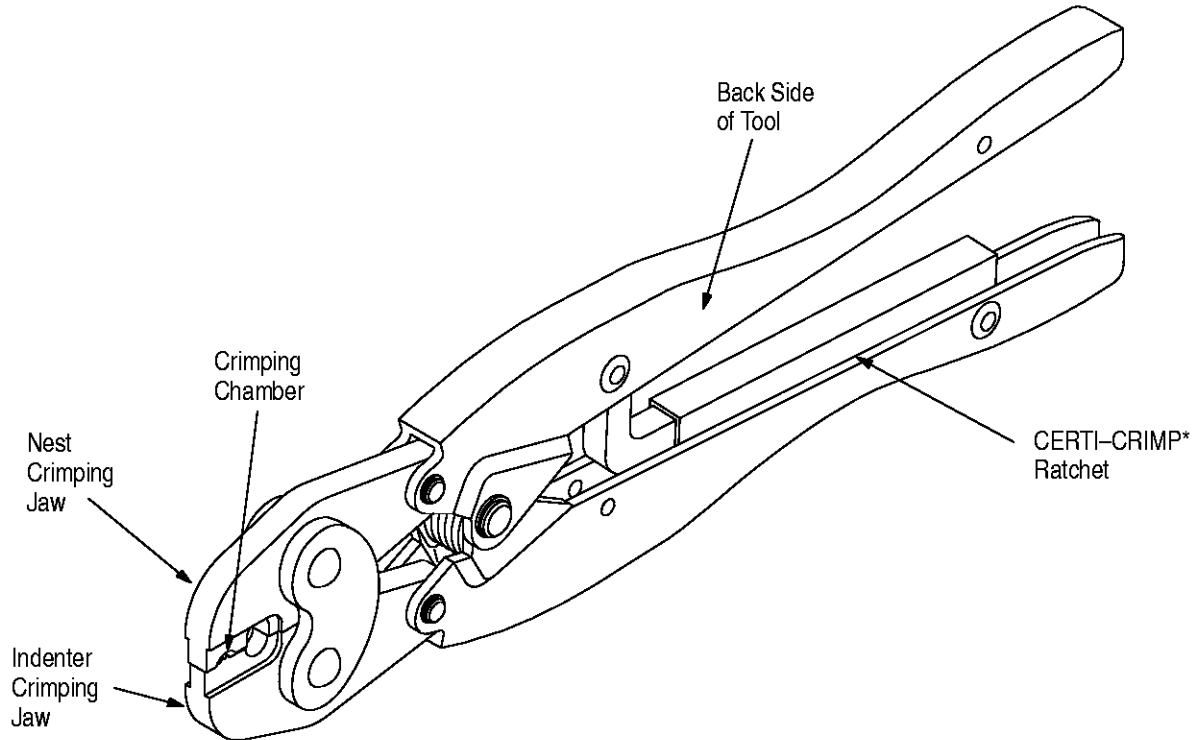


Figure 1

**1. INTRODUCTION**

AMP\* Hand Crimping Tools 45499 and 68074-1 are designed to crimp AMP SOLISTRAND\* Flag Relay Tab Terminals onto stranded copper wire. AMP Catalog 82074 provides a guide for wire-to-terminal selection. Read these instructions thoroughly before using the hand tools.

**NOTE**

All dimensions on this sheet are in millimeters [with inch equivalents in brackets]. Figures are not drawn to scale.

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

**2. DESCRIPTION**

The hand tool features two crimping jaws: the indenter and the nest. When closed, the jaws form the crimping chamber, which is marked on the BACK side of the tool indicating the wire size range. The CERTI-CRIMP ratchet ensures a full crimp by not releasing until the handles have been FULLY closed. See Figure 1.

**CAUTION**

The crimping jaws close before the CERTI-CRIMP ratchet releases. This is a design feature that assures full tensile strength of the crimp. Do not re-adjust the ratchet.

**3. CRIMPING PROCEDURE**

Refer to Figure 2 and select the appropriate relay tab and wire size for the hand tool. The wire size and insulation diameter must be within the specified range for the relay tab. Strip the wire to the length shown in Figure 2. Do NOT nick or cut the wire strands. Then, proceed as follows:

1. Open the crimping jaws by closing the tool handles until the CERTI-CRIMP ratchet releases.
2. Position the protruding wire barrel of relay tab in the crimping chamber on the nest crimping jaw. Make sure that the end of the wire barrel is flush with the side of the jaw. Refer to Figure 3A.
3. Holding relay tab in place, close tool handles together just enough to hold relay tab in the crimping jaws. Do NOT deform the wire barrel.

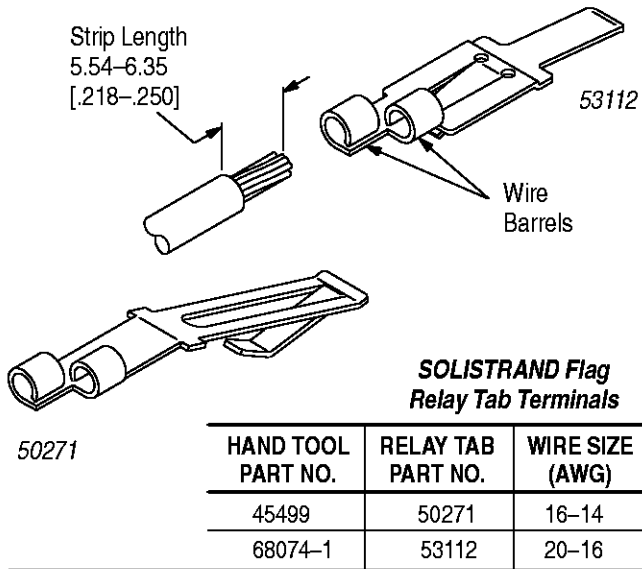


Figure 2

4. Insert stripped wire into wire barrel until end of wire is flush with or extended slightly beyond the end of the wire barrel.

5. Holding wire in place, close tool handles until CERTI-CRIMP ratchet releases.

6. Allow tool handles to open FULLY. Remove crimped relay tab from the crimping chamber.

7. To crimp the other wire barrel of relay tab, position uncrimped wire barrel in crimping jaws as shown in Figure 3B. Then, repeat crimping procedure. Remove crimped relay tab from the crimping chamber and inspect crimp. For a properly crimped relay tab, see Figure 4.

**4. 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 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.

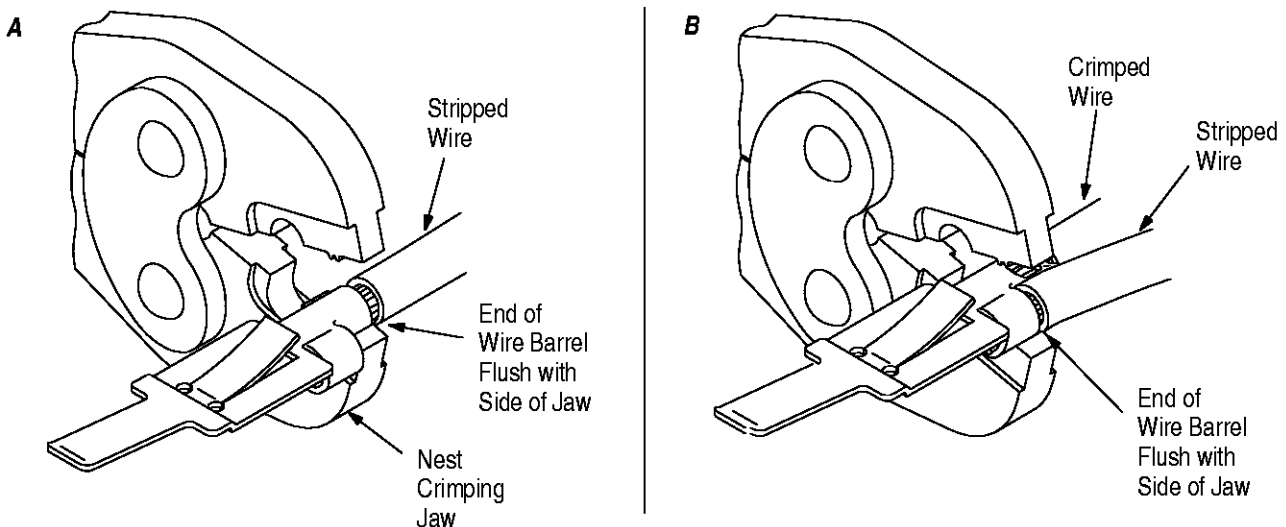
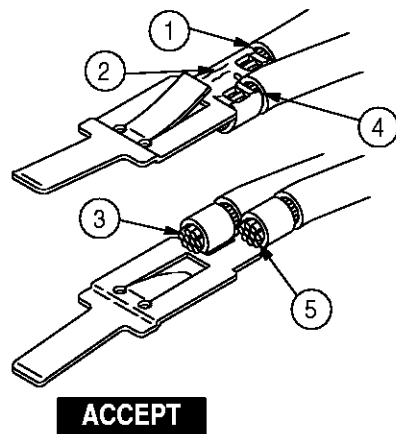
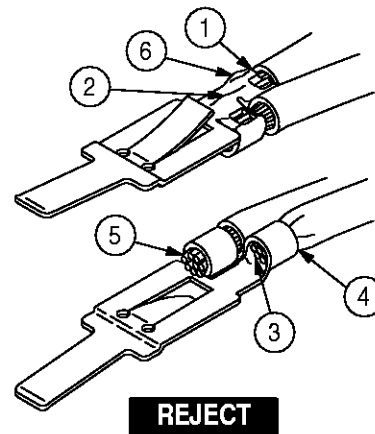


Figure 3



- ① Crimp centered. Crimp may be off center BUT NOT OFF END OF WIRE BARREL.
- ② Wire size being used matches wire size stamped on tool and relay tab terminal.
- ③ End of wire is flush with or extends slightly beyond end of wire barrel.
- ④ Insulation does not enter wire barrel.
- ⑤ No nicked or missing strands.



- ① Crimped off end of tab wire barrel.
- ② Wire size being used does not match wire size stamped on tool and relay tab terminal.
- ③ Wire not inserted far enough in wire barrel. End of wire must be flush with or extend slightly beyond end of wire barrel.
- ④ Insulation entered wire barrel.
- ⑤ Nicked or missing strands.
- ⑥ Excessive flash. Check for damaged jaws.

Figure 4

## 4.2. Periodic Inspection

### A. Lubrication

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

- Tools used in daily production – lubricate daily
- Tools used daily (occasional) – lubricate weekly
- Tools 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 surfaces. If damage is evident, return the tool to AMP for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

### C. 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 a relay tab and **maximum** size wire for the tool.
2. Position the relay tab 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 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 5, REPLACEMENT AND REPAIR.

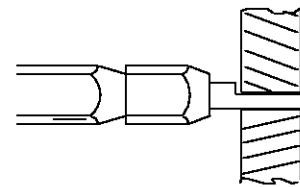
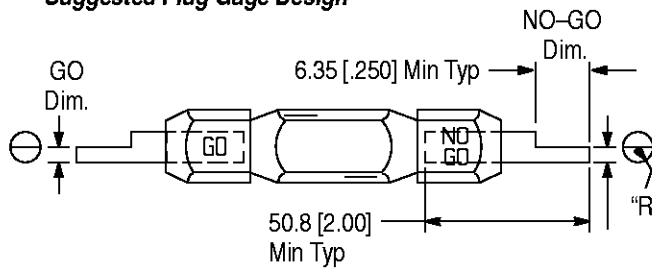
### D. Gaging the Crimping Chamber

This inspection requires the use of a plug gage conforming to the dimensions provided in Figure 5. AMP does not manufacture or market these gages. To gage the crimping chamber, proceed as follows:

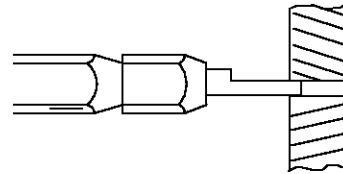
1. Remove traces of oil or dirt from the crimping chamber and plug gage.

**Suggested Plug Gage Design**

Die Closure Configuration



GO gage must pass completely through the die closure.



NO-GO gage may enter partially, but must not pass completely through the die closure.

HAND TOOL PART NO.	GAGE ELEMENT DIMENSIONS		RADIUS (MAX) "R"
	GO	NO-GO	
68074-1	1.016-1.023 [.0400-.0403]	1.166-1.168 [.0459-.0460]	1.52 [.060]
45499	1.981-1.989 [.0780-.0783]	2.131-2.134 [.0839-.0840]	1.57 [.062]

Figure 5

2. Close the tool handles until the jaws have bottomed; then hold in this position. DO NOT force the jaws beyond initial contact.

3. Carefully insert GO element into the corresponding crimping chamber; do not force it. The GO element must pass completely through the crimping chamber.

4. In the same manner, try to insert the NO-GO element into the same crimping chamber. The NO-GO element may start entry, but must not pass completely through the crimping chamber. See Figure 5.

If the crimping chamber conforms to the gage inspection, the crimping chamber is considered dimensionally correct, and should be lubricated with a THIN coat of any good SAE 20 motor oil. If not, return the tool to AMP for further evaluation and repair. Refer to Section 5, REPLACEMENT AND REPAIR.

For additional information concerning the use of a plug gage, refer to instruction sheet 408-7424.

**5. 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

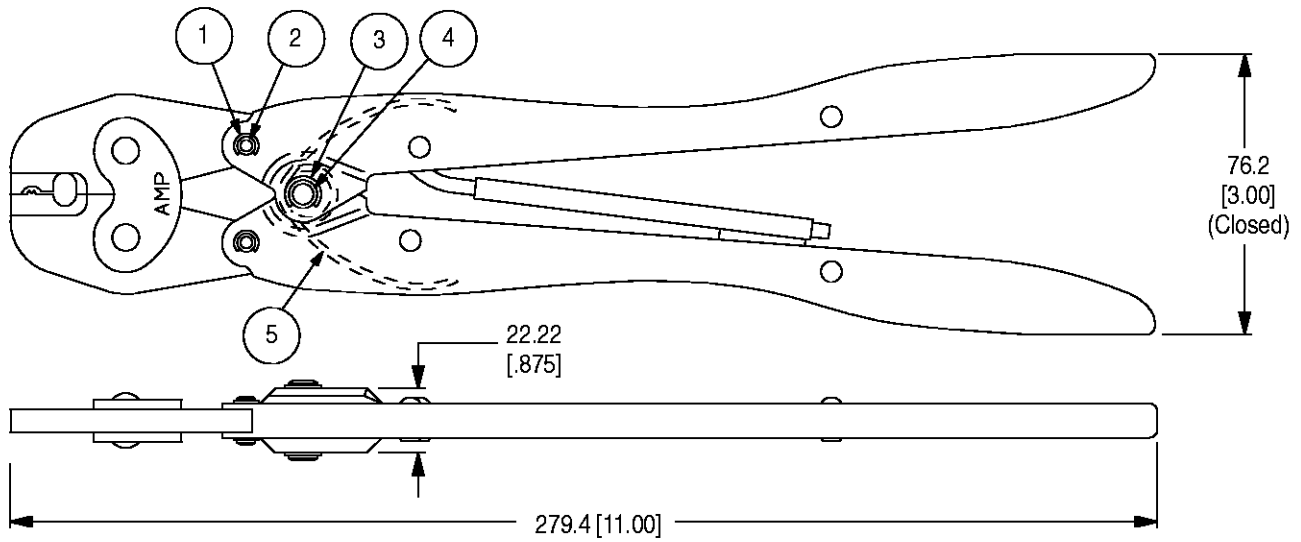
For tool repair service, please contact an AMP representative at 1-800-526-5136.

**6. REVISION SUMMARY**

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

Per EC 0990-0722-99

- Updated document to corporate requirements
- Changed tool repair service information in Section 5, REPLACEMENT AND REPAIR



ITEM	PART NUMBER	DESCRIPTION	QTY PER ASSY
1	21045-3	RING, Retaining	4
2	1-23619-6	PIN, Retaining	2
3	21045-6	RING, Retaining	2
4	2-23620-9	PIN, Retaining	1
5	39364	SPRING, Hold Down	1

Figure 6