

### 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.

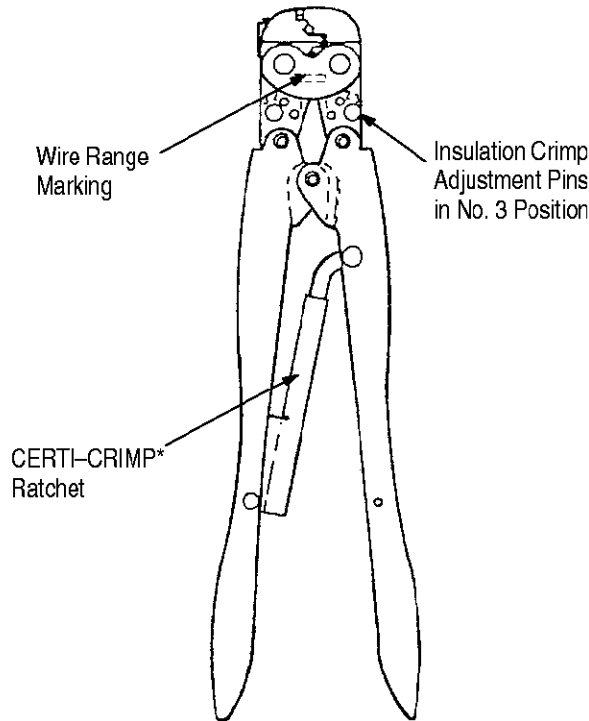


Figure 1

### 1. INTRODUCTION

AMP\* Hand Crimping Tools (typical tool shown in Figure 1) are designed to crimp DIAMOND GRIP\* Terminals and Splices onto wire sizes 26 through 14 AWG. The tools are identified by part number and wire size range, as shown in Figure 2. Read these instructions thoroughly before using the tools.

#### NOTE

Dimensions on this sheet are in millimeters [with inches in brackets].

Reasons for reissue are provided in Section 8, REVISION SUMMARY.

### 2. DESCRIPTION

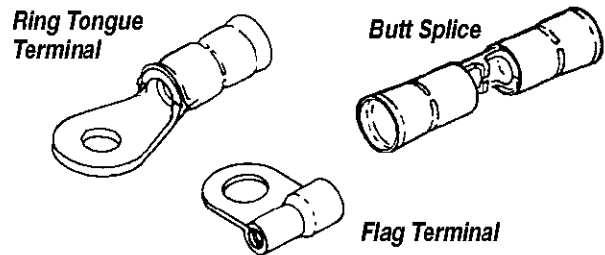
The tools feature two crimping jaws (anvil and crimper), two insulation crimp adjustment pins, a locator, and a CERTI-CRIMP ratchet.

The insulation crimp adjustment pins are used to regulate the crimp height of the terminal or splice insulation barrel. The locator aids in positioning the terminal or splice in the crimping jaws. The CERTI-CRIMP ratchet assures full crimping of the

terminal. Once engaged, the ratchet will not release until the handles have FULLY closed.

#### CAUTION

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



TOOL	WIRE SIZE	WIRE STRIP LENGTH			
		TERMINALS●		SPLICES●	
		MIN	MAX.	MIN	MAX.
48070 (Normal Insulation Support) 48070-1 (Tight Insulation Support)	26 - 22	3.18 [.125]	3.96 [.156]	3.58 [.141]	4.37 [.172]
49512 (Normal Insulation Support) 47110 (Tight Insulation Support) (Terminals Only) 49885-1 (Flag Terminals Only)	22 - 16	4.37 [.172]	5.16 [.203]	5.16 [.203]	5.94 [.234]
49513 (Normal Insulation Support)	16 - 14	4.37 [.172]	5.16 [.203]	5.16 [.203]	5.94 [.234]

● For specific part numbers, refer to AMP Catalog 82042 or contact the AMP Tooling Assistance Center

Figure 2

### 3. CRIMPING PROCEDURE

#### NOTE

Each hand tool is coated with a preservative to prevent rust or corrosion. Wipe this preservative from the tool, particularly from the crimping jaws, before using the tool.

Refer to the chart in Figure 2 and select wire of desired size (within the range of the tool being used). Strip the wire to the length indicated. Do NOT cut or nick the wire strands.

Select the appropriate terminal or splice. Refer to Figure 3, Figure 4, or Figure 5 and proceed as follows:

1. Open the crimping jaws by squeezing the tool handles together until the ratchet releases and then allow the handles to open FULLY.
2. Place terminal or splice in crimping jaws.
3. Close handles until the terminal or splice is held firmly in place. Do not deform wire barrel.
4. Insert stripped wire into wire barrel.
5. To complete crimp, close handles until ratchet releases. Allow tool handles to open FULLY and remove crimped terminal or splice from tool.

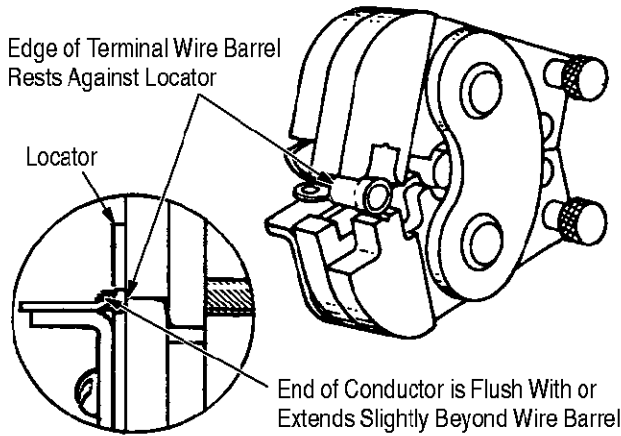
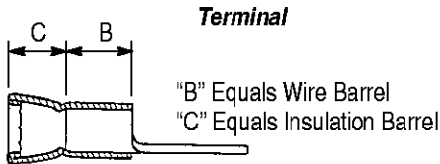


Figure 3

**Flag Terminal (Tool 49885-1 Only)**

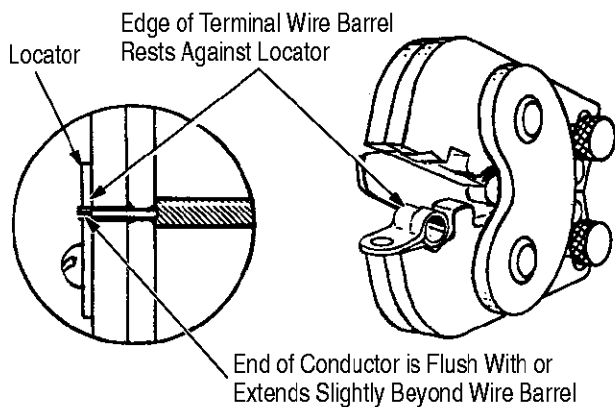
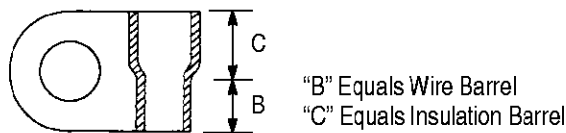


Figure 4

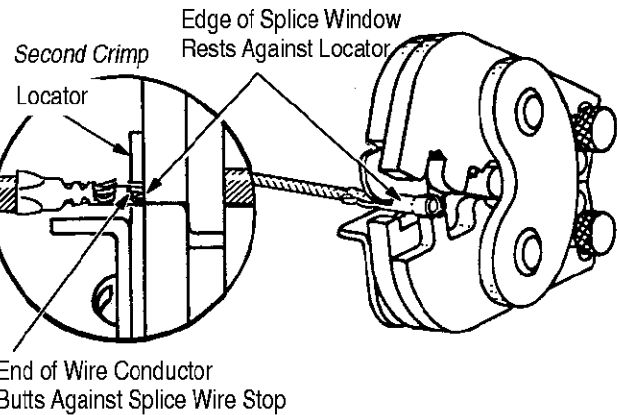
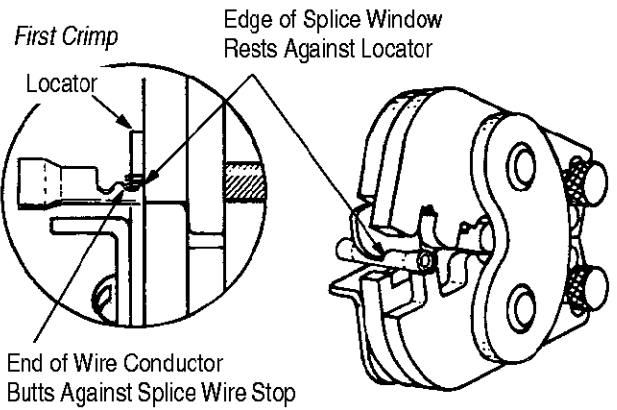
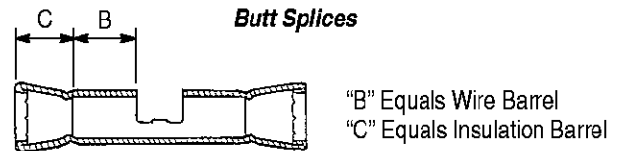


Figure 5

**4. CRIMP INSPECTION**

Inspect crimped terminals and splices by checking the features described in Figure 6. Use only terminals and splices that meet the conditions shown in the "ACCEPT" column. "REJECT" terminations can be avoided by carefully following the above procedures and by performing regular tool maintenance, as provided in Section 6.

**5. INSULATION CRIMP ADJUSTMENT**

The insulation barrel crimp height is controlled by the positioning of the insulation crimping adjustment pins shown in Figure 1. To determine the proper setting, test crimp a terminal using the setting which approximates the insulation size (1—small, 2—medium, 3—large). For the test crimp, use UNSTRIPPED wire placed ONLY into the insulation barrel portion of the terminal or splice. If the crimped insulation barrel is too tight or too loose, change the setting accordingly. The crimp should hold the insulation firmly without cutting into it.

**NOTE**

For all settings, the pins must be in the same numbered position, i.e., for setting 3, both pins must be in position 3.

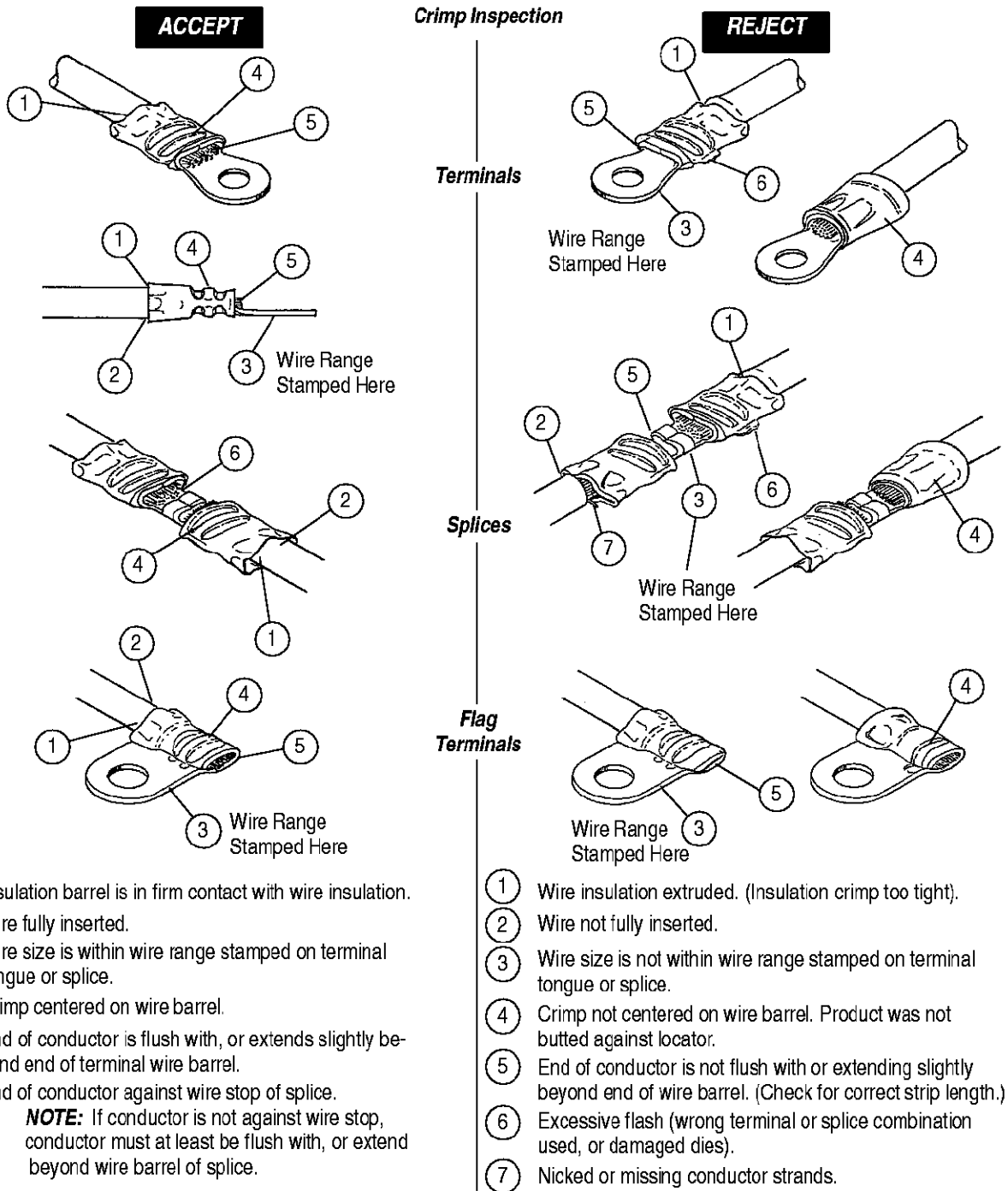


Figure 6

**6. MAINTENANCE AND INSPECTION PROCEDURE**

AMP recommends that a maintenance and inspection program be performed periodically to ensure dependable and uniform terminations. Frequency of inspection depends on:

1. The care, amount of use, and handling of the hand tool.
2. 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. Due to the precision design, it is important that no parts of these tools be interchanged except those replacement parts listed in Figure 9.

**6.1. 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.

**6.2. 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 7, 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 7, REPLACEMENT AND REPAIR.

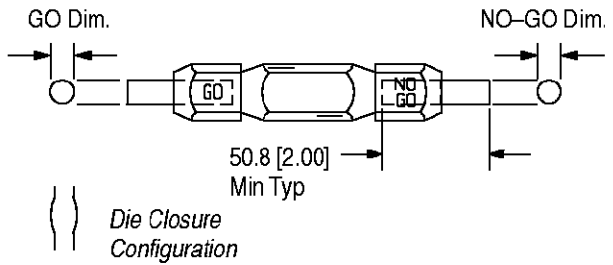
**C. Gaging the Crimping Chamber**

This inspection requires the use of two plug gages conforming to the dimensions shown in Figure 7. AMP does not manufacture or market these gages.

To gage die closure, refer to Figure 8 and proceed as follows:

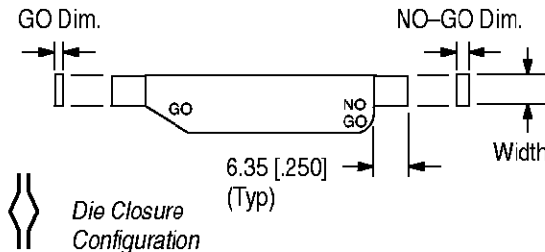
1. Remove traces of oil or dirt from the crimping chamber and plug gage.
2. Remove locator assembly.

**Suggested Plug Gage Design – Wire Barrel Crimp**



TOOL NUMBER	GAGE ELEMENT DIMENSIONS	
	GO	NO-GO
47110	1.753 – 1.760 [.0690 – .0693]	1.902 – 1.905 [.0749 – .0750]
48070 48070-1	1.245 – 1.252 [.0490 – .0493]	1.394 – 1.397 [.0549 – .0550]
49512	1.753 – 1.760 [.0690 – .0693]	1.902 – 1.905 [.0749 – .0750]
49513	2.032 – 2.040 [.0800 – .0803]	2.182 – 2.184 [.0859 – .0860]
49885-1	1.753 – 1.760 [.0690 – .0693]	1.902 – 1.905 [.0749 – .0750]

**Suggested Plug Gage Design – Insulation Crimp**



TOOL NUMBER	GAGE ELEMENT DIMENSIONS (SET INSULATION ADJUSTMENT PINS IN NO. 1 POSITION)		WIDTH (MAX.)
	GO	NO-GO	
47110	0.762 – 0.770 [.0300 – .0303]	1.267 – 1.270 [.0499 – .0500]	3.18 [.125]
48070 48070-1	0.381 – 0.389 [.0150 – .0153]	0.886 – 0.889 [.0349 – .0350]	2.36 [.093]
49512 49513	0.762 – 0.770 [.0300 – .0303]	1.267 – 1.270 [.0499 – .0500]	3.18 [.125]
49885-1	0.864 – 0.871 [.0340 – .0343]	1.369 – 1.372 [.0539 – .0540]	

Figure 7

3. Close the tool handles until it is evident that the jaws have bottomed; then hold in this position. Do NOT force the jaws beyond initial contact.
4. Align the wire barrel crimp gage GO element with the crimping chamber. Push element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber.

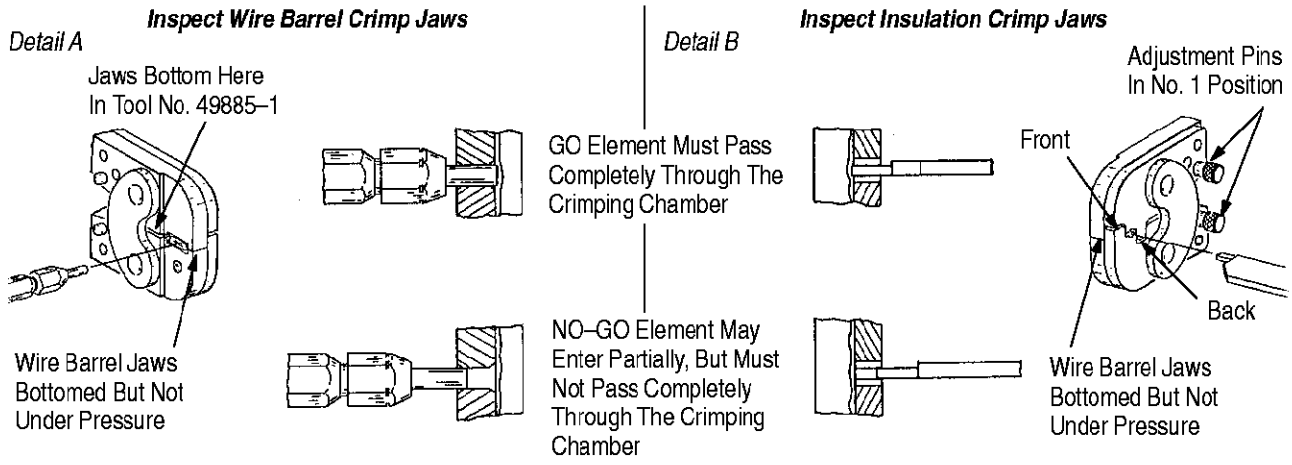


Figure 8

5. Check the wire barrel crimping chamber with the NO-GO gage in the same manner as step 4. The NO-GO element may start entry, but must not pass completely through the crimping chamber.
6. Re-install locator assembly on tool.
7. Insert tool insulation adjustment pins in the No. 1 position.
8. Check the insulation crimping chamber for GO and NO-GO conditions using the proper plug gage in the same manner as steps 3 thru 5.

**NOTE** Due to the scissors action of the crimping jaws, the opening of the insulation crimp closure is slightly smaller at the back than it is in front. Therefore, if the NO-GO gage does not enter at the back of the closure but does partially enter at the front of the closure, the closure is considered dimensionally correct.

If die closure conforms to the gage inspection, the crimping chambers are considered dimensionally correct. If correct, the tool should be lubricated with a thin coat of any good SAE 20 motor oil and returned to service. If not correct, the tool must be returned to AMP for further evaluation and repair. Refer to Section 7, REPLACEMENT AND REPAIR. For additional information regarding the use of a plug gage, refer to AMP instruction sheet 408-7424.

**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 and proceed as follows:

1. Select a maximum size wire and an appropriate terminal for the tool being used.

2. Position the terminal and wire between the crimping jaws, as described in Section 3, CRIMPING PROCEDURE.
3. Hold the terminal and 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 dies. 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 7, REPLACEMENT AND REPAIR.

**7. REPLACEMENT AND REPAIR**

Customer-replaceable parts are listed in Figure 9. Parts other than those listed in Figure 9 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

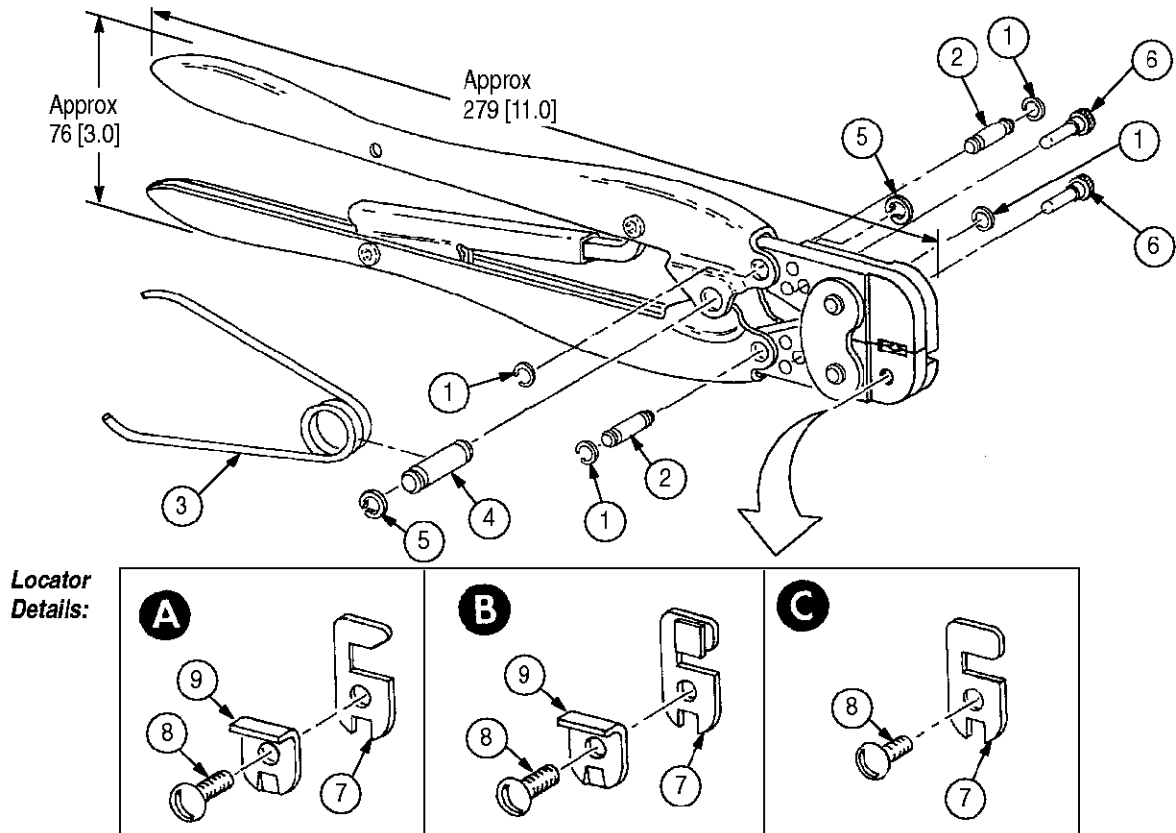
Tools may also be returned to AMP for evaluation and repair. For tool repair service, contact an AMP representative at 1-800-526-5136.

**8. REVISION SUMMARY**

Revisions to this document include:

Per EC 0990-0760-99:

- Changed tool repair service information in Section 7, REPLACEMENT AND REPAIR
- Updated document format



**REPLACEMENT PARTS**

ITEM	DESCRIPTION	TOOL NUMBERS AND LOCATOR DETAIL REFERENCE					QTY PER TOOL
		47110 DETAIL B	48070 AND 48070-1 DETAIL A	49512 DETAIL A	49513 DETAIL A	49885-1 DETAIL C	
1	Ring, Retaining	21045-3	21045-3	21045-3	21045-3	21045-3	4
2	Pin, Retaining, .187 Dia x .521 L	1-23619-6	1-23619-6	1-23619-6	1-23619-6	1-23619-6	2
3	Spring, Handle	39364	39364	39364	39364	39364	1
4	Pin, Retaining, .250 Dia x .838 L	2-23620-9	2-23620-9	2-23620-9	2-23620-9	2-23620-9	1
5	Ring, Retaining	21045-6	21045-6	21045-6	21045-6	21045-6	2
6	Pin, Insulation Adjustment	39207	39207	39207	39207	39207	2
7	Locator	300923	39280	39230	39231	39230	1
8	Screw	3-305927-4	3-21016-4	3-305927-4	3-305927-4	3-21016-4	1
9	Bracket	39193	39193	39193	39193	—	1

Figure 9