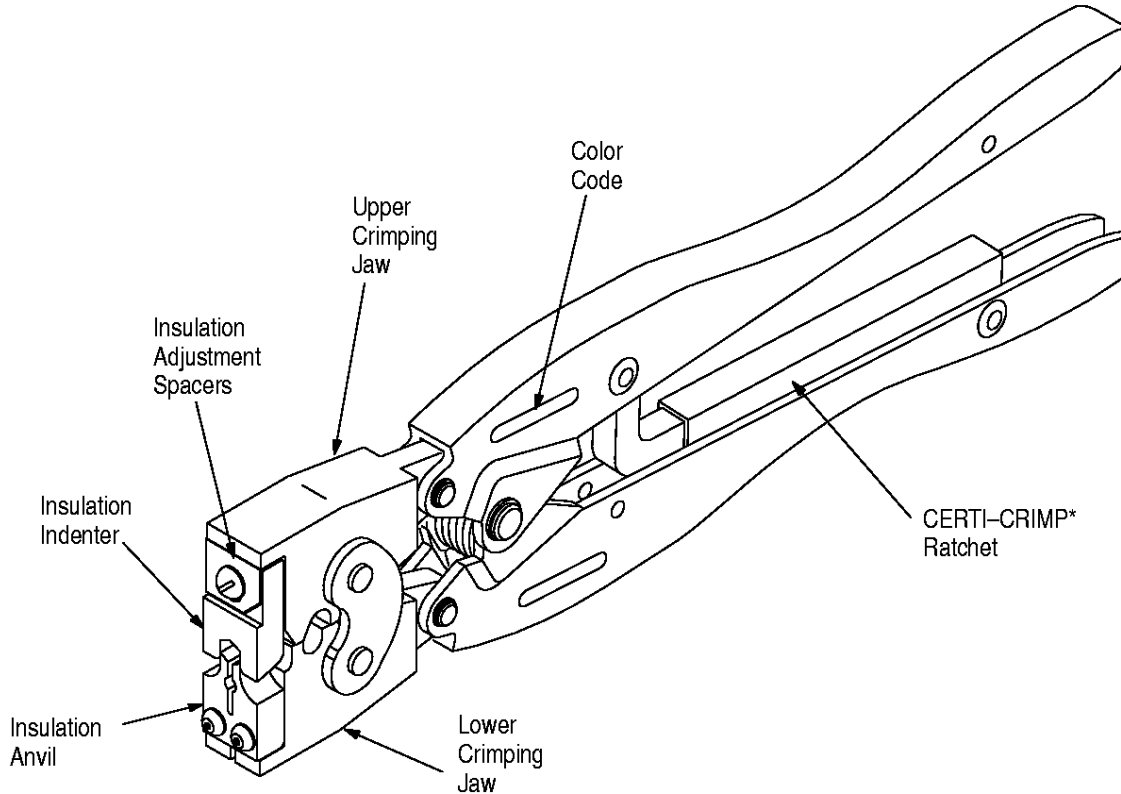


### PROPER USE GUIDELINES

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.



TOOL NUMBER	WIRE SIZE (AWG)	TERMINAL INSULATION COLOR CODE	TOOL COLOR CODE	DOT CODE	WIRE STRIP LENGTH	
					MIN.	MAX.
48045	22-16	TRANS. W/RED STRIPE	RED	ONE DOT	6.35 mm [.250 in.]	7.14 mm [.281 in.]
48040	20-16 HD	TRANS. W/GREEN STRIPE	GREEN AND BLUE	TWO DOTS		
	16-14	TRANS. W/BLUE STRIPE				
48049	16-14 HD	TRANS. W/BLACK STRIPE	YELLOW	ONE DOT		
	12-10	TRANS. W/YELLOW STRIPE				
68142-1●	16-14 HD	TRANS. W/BLACK STRIPE				
	12-10	TRANS. W/YELLOW STRIPE				

●Crimps large expansion (7.11 through 8.13 mm [.280 through .320 in.] max. insulation diameter).

Figure 1

### 1. INTRODUCTION

This instruction sheet covers the use of AMP Hand Crimping Tools 48040, 48045, 48049, and 68142-1, which are used to crimp PLASTI-GRIP flag terminals on wire sizes 22 through 10 AWG.

**NOTE**

*Dimensions on this sheet are in metric units [with U.S. customary units in brackets].*

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

### 2. DESCRIPTION (Figure 1)

Each hand tool features an insulation indenter, an insulation anvil, two insulation adjustment spacers, an upper and lower crimping jaw, and a CERTI-CRIMP ratchet. The insulation adjustment spacers are used to adjust the insulation crimp height. The CERTI-CRIMP ratchet assures full crimping of the terminal. Once engaged, the ratchet will not release until the tool handles have been FULLY closed.

**CAUTION**

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

**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 dies, before using the tool.

Refer to Figure 1, making sure you match the tool and the terminal to be crimped with the correct wire size. Note that terminal insulation and tool handles are color coded for a given wire size.

1. Strip the wire using the appropriate strip length dimensions provided in Figure 1. Do NOT nick or cut the wire strands.
2. Open the crimping dies by squeezing the tool handles together until the CERTI-CRIMP ratchet releases.
3. Align dimple on terminal tongue with hole in slot of die as shown in Figure 2A.
4. Slide terminal tongue through slot until end of terminal rests against stop as shown in Figure 2B.
5. Close handles until terminal is held firmly in place. Do NOT deform terminal wire barrel.
6. Insert stripped wire into terminal wire barrel until bottomed.
7. To complete the crimp, close handles until CERTI-CRIMP ratchet releases. Handles will open automatically and crimped terminal may be removed.
8. Figure 1 indicates the number of dots that appear embossed on a crimped terminal for each tool listed. Observe the dot code on finished crimp to insure that correct terminal and tool combination was used.
9. Observe the crimped insulation barrel portion of terminal for proper wire insulation support. The insulation barrel should be in contact with the wire insulation. If the insulation crimp is too tight or too loose, refer to Section 4, INSULATION CRIMP ADJUSTMENT.

**4. INSULATION CRIMP ADJUSTMENT**

The insulation crimping section of the hand tool has three adjustments: 3-Loose, 2-Medium, and 1-Tight.

**NOTE**

No insulation crimp adjustment on tool 68142-1. See footnote in Figure 1.

Position No. 3 is for wire having a large insulation diameter, and is adjusted as follows:

1. Remove screw from adjustable insulation die.
2. Turn both insulation adjustment spacers so they fit into notch in side of die. See Figure 3.
3. Hold die against die stop, replace and tighten screw. See Figure 3.

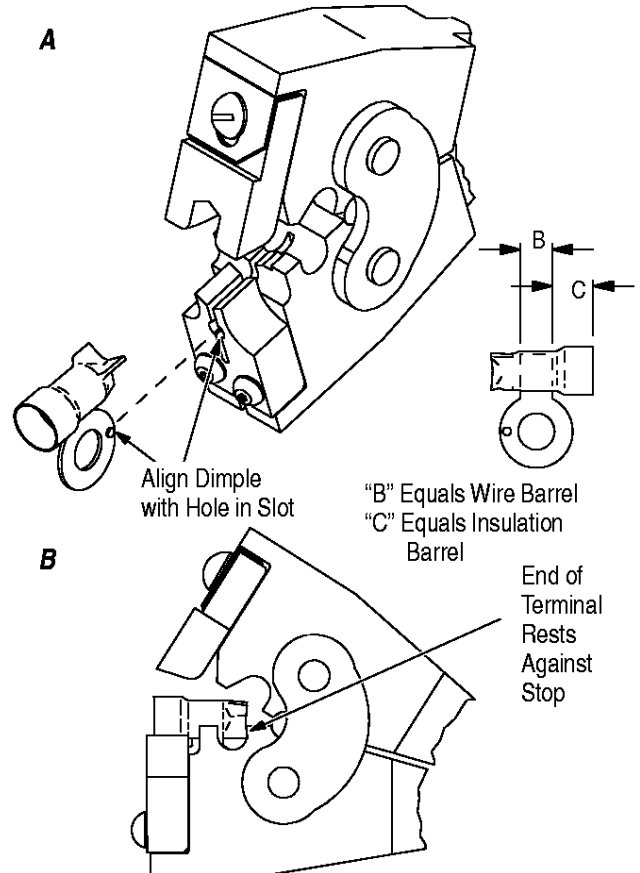


Figure 2

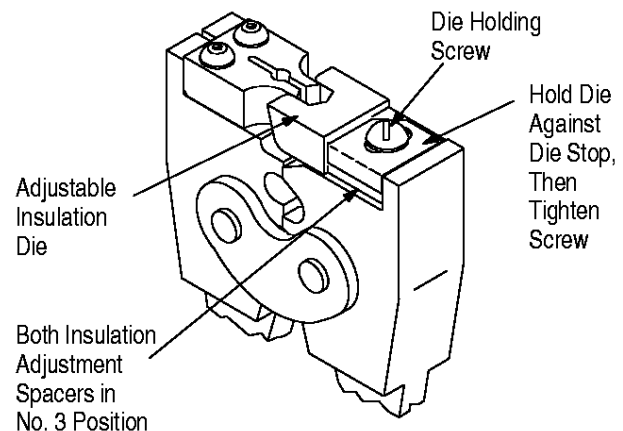


Figure 3

Position No. 2 is for wire having a medium insulation diameter, and is adjusted as follows:

1. Remove screw from adjustable insulation die.
2. Turn the lower insulation adjustment spacer 90° so it fits between die and die stop. The number "2" will appear on corner of spacer.
3. Hold die and spacer against die stop, replace and tighten screw.

Position No. 1 is for wire having a small insulation diameter, and is adjusted as follows:

1. Remove screw from adjustable insulation die.
2. Turn both insulation adjustment spacers so they fit between die and die stop. The number "1" will appear on corner of top spacer.
3. Hold die and spacers against die stop, replace, and tighten screw.

Once the terminals are crimped, check the features described in Figure 4. Use only the terminals meeting conditions shown in the "ACCEPT" column. "REJECT" terminals can be avoided through careful use of instructions in Section 3, CRIMPING PROCEDURE, and by performing regular tool maintenance as described in Section 5, MAINTENANCE/INSPECTION.

### 5. MAINTENANCE/INSPECTION

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. The type and size of the products crimped.
3. The presence of abnormal amounts of dust and dirt.
4. The degree of operator skill.
5. Your own established standards.

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

### 5.1. Daily Maintenance

1. Remove dust, moisture, and other contaminants with a clean brush, or a soft, lint-free cloth. Do NOT use 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 dies. Store the tool in a clean, dry area.

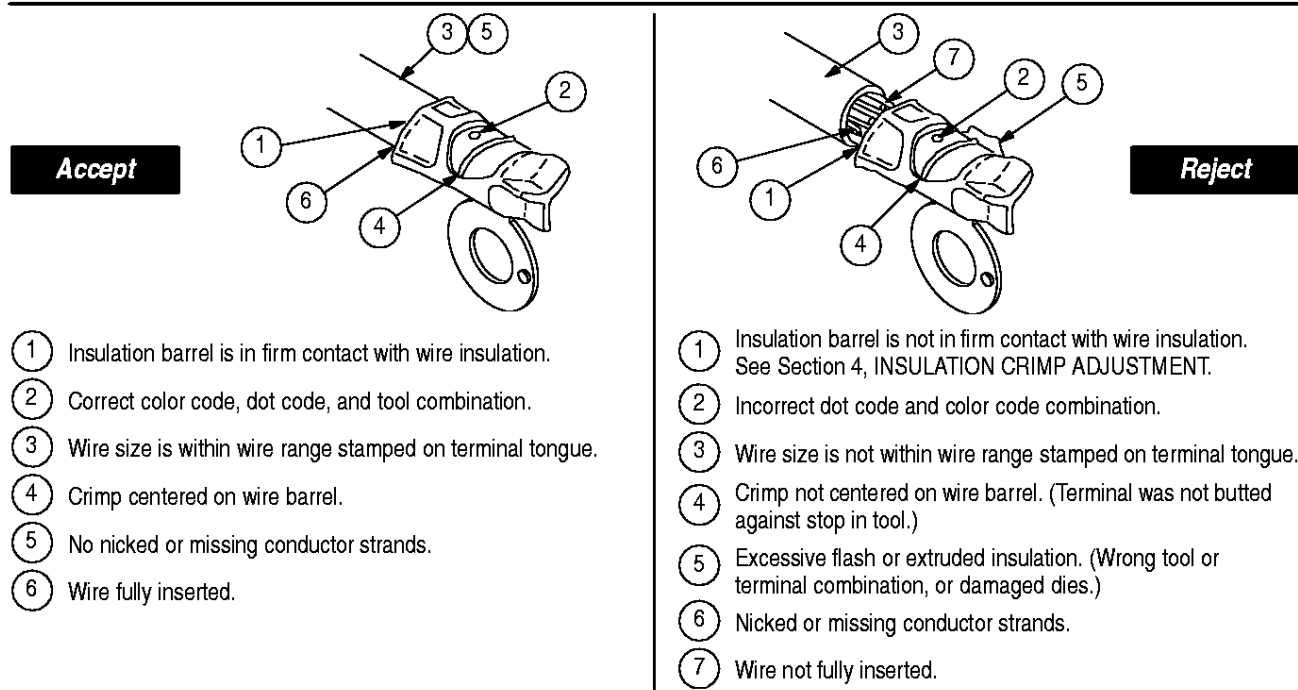


Figure 4

**5.2. 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.

**5.3. Periodic Inspection**

1. Hand tool should be immersed (handles partially closed) in a reliable commercial degreasing compound to remove accumulated dirt, grease, and foreign matter.
2. 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.

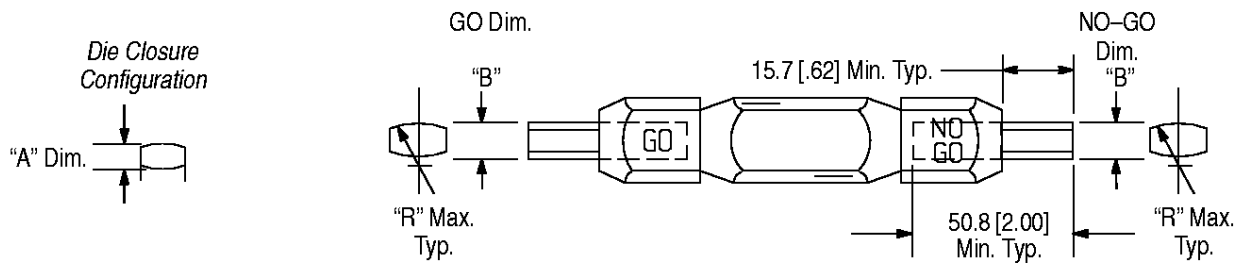
3. Inspect head assembly for worn, cracked, or broken dies. If damage is evident, return the tool to AMP for evaluation and repair. See Section 6, REPLACEMENT AND REPAIR.

**5.4. Gaging the Crimping Chamber**

This inspection requires the use of a plug gage conforming to the dimensions provided in Figures 5 and 6. AMP does not manufacture or market these gages. To gage the crimping chambers, proceed as follows:

1. Remove traces of oil or dirt from the crimping chambers and plug gage.
2. Remove screws, insulation crimp adjustment spacers and both insulation crimp dies to provide access to wire barrel crimp dies for plug gaging. See Figure 7, Detail A.

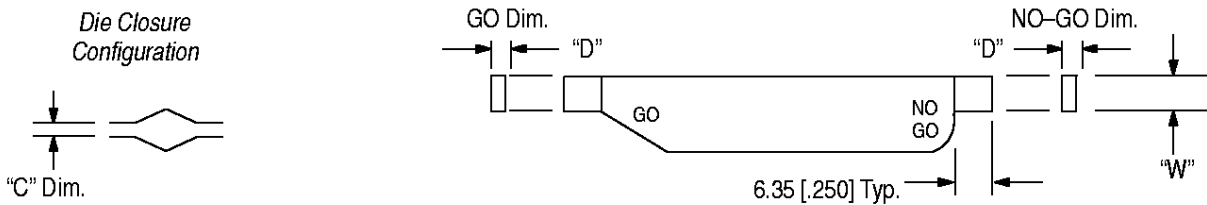
**Suggested Plug Gage Design — Wire Barrel Crimp**



TOOL NUMBER	DIE CLOSURE DIM'S. "A"		GAGE ELEMENT †† DIM'S. "B"		RADIUS "R" (MAX.)
	GO	NO-GO	GO	NO-GO	
48040	2.604 [.1025]	2.756 [.1085]	2.604-2.611 [.1025-.1028]	2.753-2.756 [.1084-.1085]	3.56 [.140]
48045	2.235 [.0880]	2.388 [.0940]	2.235-2.243 [.0880-.0883]	2.385-2.388 [.0939-.0940]	2.87 [.113]
48049	3.531 [.1390]	3.683 [.1450]	3.531-3.538 [.1390-.1393]	3.680-3.683 [.1449-.1450]	6.20 [.244]
68142-1	3.531 [.1390]	3.683 [.1450]	3.531-3.538 [.1390-.3193]	3.680-3.683 [.1449-.1450]	6.20 [.244]

Figure 5

**Suggested Plug Gage Design — Insulation Crimp**



TOOL NUMBER	DIE CLOSURE DIM'S. "C" (Set Insulation Adjustment Spacers at No. 1 Position)		GAGE ELEMENT †† DIM'S. "D"		WIDTH "W" (MAX.)
	GO	NO-GO	GO	NO-GO	
48040	0.965 [.0380]	1.575 [.0620]	0.965-0.973 [.0380-.0383]	1.572-1.575 [.0619-.0620]	4.52 [.178]
48045	0.508 [.0200]	1.118 [.0440]	0.508-0.516 [.0200-.0203]	1.115-1.118 [.0439-.0440]	2.29 [.090]
48049	1.473 [.0580]	2.083 [.0820]	1.473-1.481 [.0580-.0583]	2.080-2.083 [.0819-.0820]	6.99 [.275]
68142-1	3.912 [.1540]	4.420 [.1740]	3.912-3.919 [.1540-.1543]	4.417-4.420 [.1739-.1740]	8.64 [.340]

†† Material — Tool steel

Figure 6

3. Close the tool handles until it is evident that the dies have bottomed; then hold in this position. Do NOT force the dies beyond initial contact.
4. Align the GO element with the wire barrel crimping chamber. Push element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber, as shown in Figure 7, Detail A.
5. Align the NO-GO element and try to insert it straight into the same crimping chamber. The NO-GO element may start entry, but must not pass completely through the crimping chamber. See Figure 7, Detail A.
6. Position both insulation crimp adjustment spacers so they fit between die and die stop. Insert both insulation crimp dies and tighten screws. Dies are now set in the No. 1 position. See Figure 7, Detail B.
7. Measure the insulation crimp die closure of the dies with the proper plug gage in the same manner as steps 3 through 5. See Figure 7, Detail B.

If the crimping chambers conform to the gage inspection, the crimping chambers are considered dimensionally correct, and should be lubricated with a THIN coat of any good SAE 20 motor oil. If not, the tool must be returned to AMP for further evaluation and repair. Refer to Section 6, REPLACEMENT AND REPAIR.

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

**5.5. 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 dies to open before they have fully bottomed. Obtain a 0.025-mm [.001-in.] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping dies. Proceed as follows:

1. Refer to Figure 1 and select a terminal and **maximum** size wire for the tool.

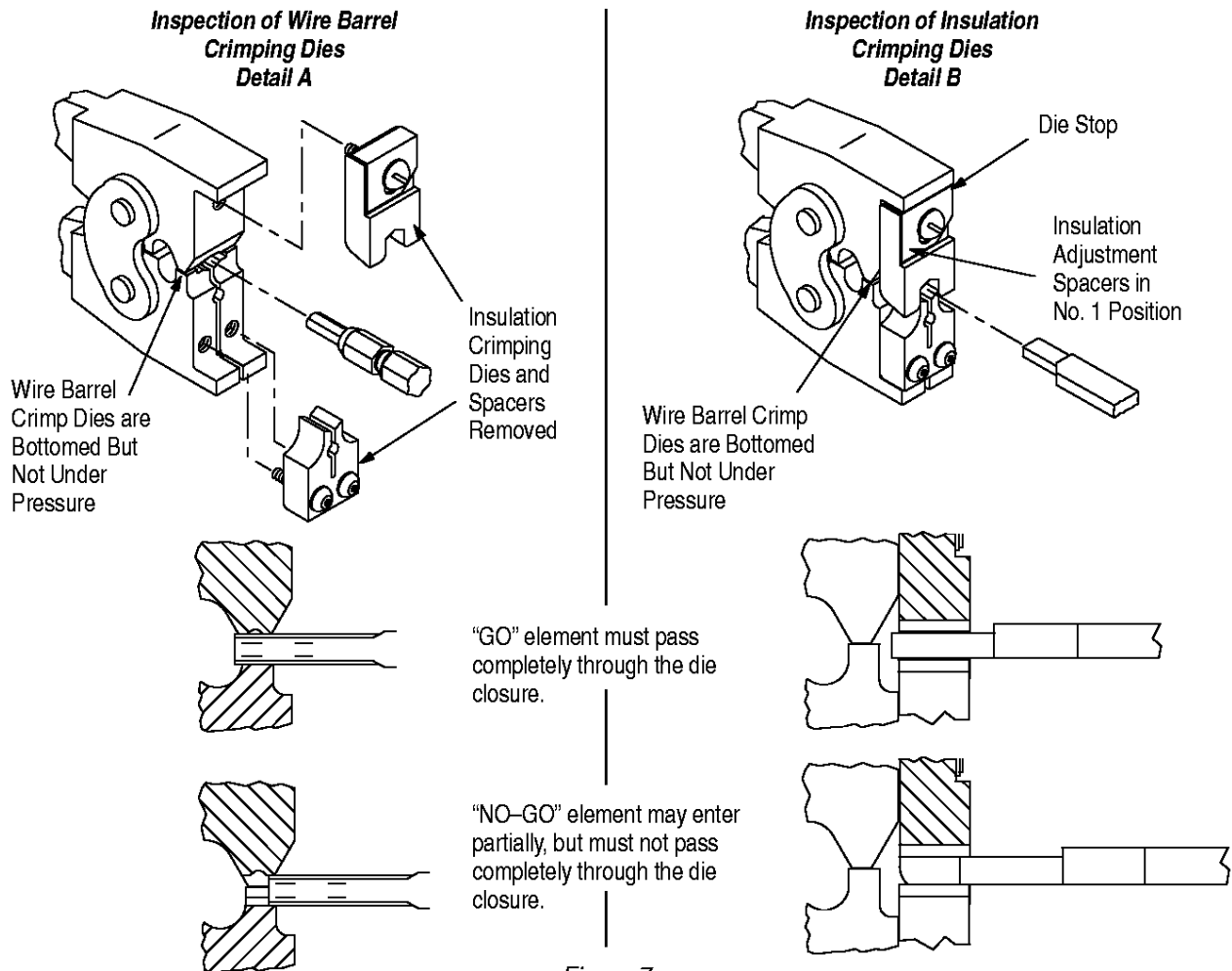


Figure 7

2. Position the terminal and wire between the crimping dies, 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 dies closed.
4. Check the clearance between the bottoming surfaces of the crimping dies. If the clearance is 0.025 mm [.001 in.] or less, the ratchet is satisfactory. If clearance exceeds 0.025 mm [.001 in.], the ratchet is out of adjustment and must be repaired. See Section 6, REPLACEMENT AND REPAIR.

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. REPLACEMENT AND REPAIR**

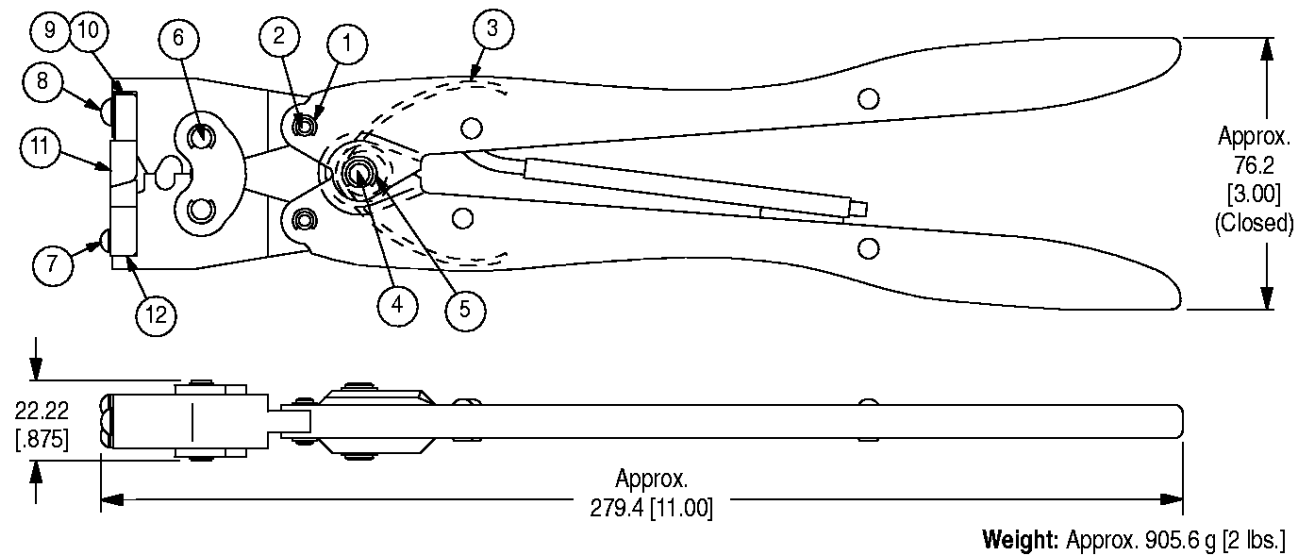
Replacement parts are listed in Figure 8. Parts other than those listed in Figure 8 should be replaced by AMP to ensure quality and reliability of the tool. Order

**7. REVISION SUMMARY**

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

Per EC 0990-0795-99

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



ITEM	PART NUMBER				DESCRIPTION	QTY PER ASSY
	TOOL 48040	TOOL 48045	TOOL 48049	TOOL 68142-1		
1	21045-3	21045-3	21045-3	21045-3	RING, Retaining	4
2	1-23619-6	1-23619-6	1-23619-6	1-23619-6	PIN, Retaining	2
3	39364	39364	39364	39364	SPRING	1
4	2-23620-9	2-23620-9	2-23620-9	2-23620-9	PIN, Retaining	1
5	21045-6	21045-6	21045-6	21045-6	RING, Retaining	6
6	300245	300245	300245	300245	PIN, Retaining	2
7	1-21002-8	1-21002-8	1-21002-8	1-21002-8	SCREW (6-32 UNC-3A x .500)	2
8	4-21016-0	4-21016-0	4-21016-0	4-21016-0	SCREW (8-32 UNC-2A x .625)	1
9	306027-6	306027-6	306027-9	—	SPACER, Insulation Adjustment	1
10	306027-7	306027-7	1-306027-0	—	SPACER, Insulation Adjustment	1
11	59773-2	59773-3	59773-1	307882-1	INDENTER, Insulation	1
12	59774-2	59774-3	59774-1	307881-1	ANVIL, Insulation	1

Figure 8