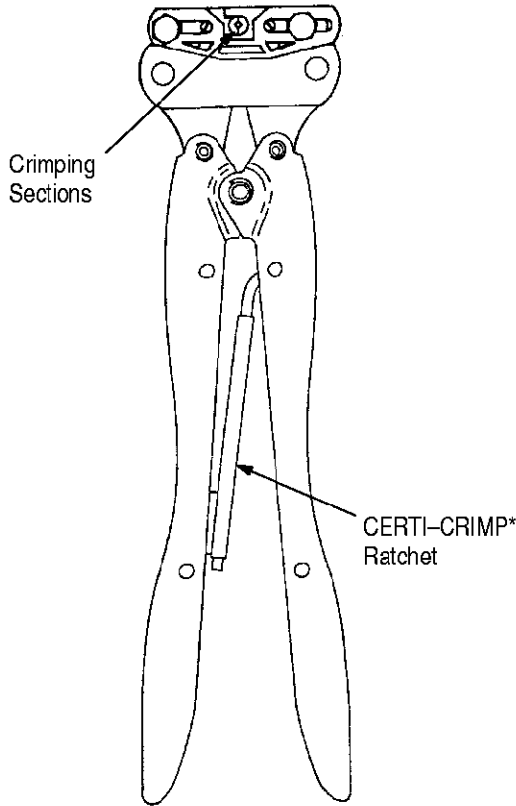


### PROPER USE GUIDELINES

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



**COAXICON MINIATURE CONTACT  
CRIMPING TOOLS**

45634-3	45639-2	69186-2	45638-2	45740-2
69248-4	45638-3	69147-2	69360-2	45639-5

Figure 1

### 1. INTRODUCTION

This instruction sheet covers the use of the AMP\* Hand Crimping Tools listed in Figure 1. The tools crimp pin and socket COAXICON miniature contacts shown in Figure 2.

#### NOTE

All dimensions on this document are in metric units [with U.S. customary units in brackets]. Figures and illustrations are for identification only and are not drawn to scale.

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

### 2. DESCRIPTION (Figure 1)

Each hand tool contains two wire barrel crimping dies, two insulation crimping dies, and two braid crimping

dies. The tool also features a locator and a CERTI-CRIMP ratchet. When closed, the dies form two crimping sections: one section crimps the center contact to the stripped center conductor and the other crimps the ferrule to the braid and insulation. Ferrule and center contact are crimped at the same time.

The locator assists in positioning of the pin or socket in the crimping dies.

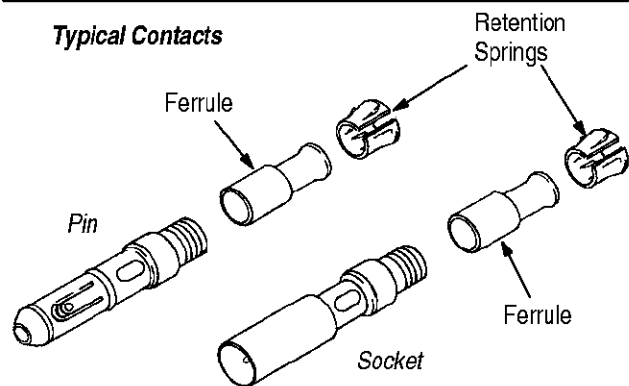
The CERTI-CRIMP ratchet ensures full crimping of the contact. Once engaged, the ratchet will not release until the handles have been fully closed.

### 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.

1. Prepare cable and assemble contact on cable as described in Instruction Sheet 408-1770.
2. Make sure that the ratchet is released. Squeeze the tool handles together and allow them to open fully.



**NOTE:** For applicable contact part numbers and corresponding cable and wire sizes, refer to Catalogs 82003 and 82074.

Figure 2

3. Position the contact/cable assembly in the crimping dies, as shown in Figure 3. The locator aids in positioning the crimping ports of the contact so that the lower wire barrel crimping die enters the bottom crimping port. Once located, push the contact down so that the lower wire barrel crimping die enters the bottom crimping port of the contact.

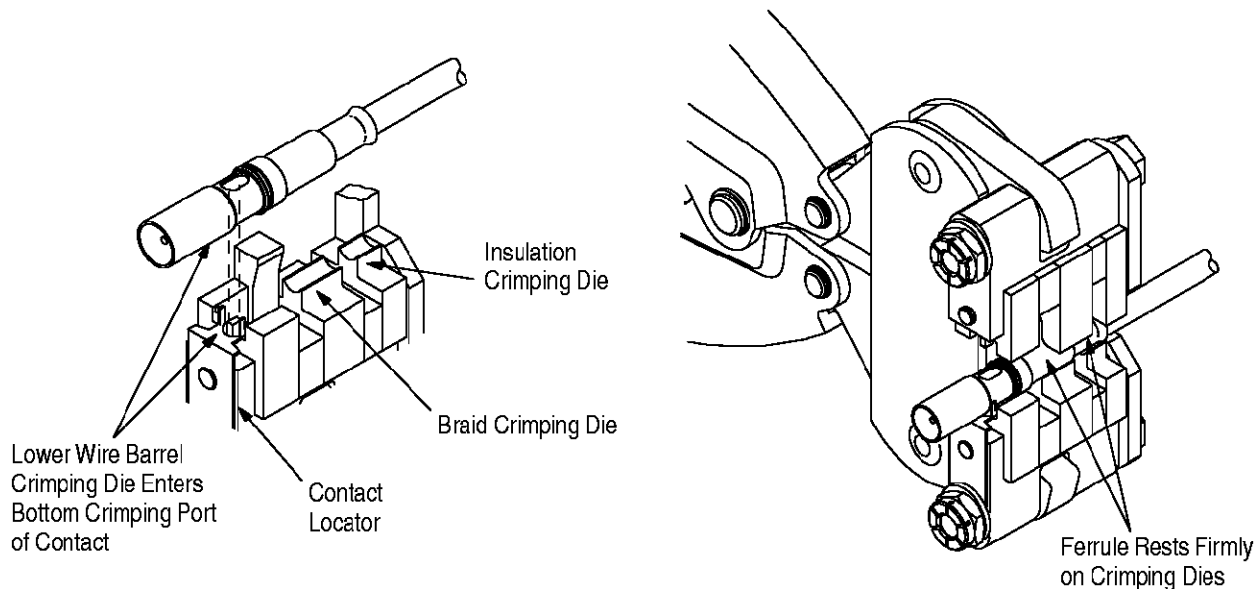


Figure 3

4. Ensure that the ferrule remains bottomed firmly on the crimping dies and that the upper wire barrel crimping die is aligned with the upper center contact crimping port.
5. While holding the contact/cable assembly in place, close handles until ratchet releases. Allow handles to open fully and remove crimped contact.

**NOTE**

Once the assembly is crimped, the retention spring is attached and the assembly is ready for insertion into the connector. Refer to Instruction Sheet 408-1770 for information on attaching the retention spring and for insertion and extraction procedures.

**4. MAINTENANCE/INSPECTION****4.1. Daily Maintenance**

Remove all foreign particles with a clean, soft brush or a clean, soft, lint-free cloth. Make sure the proper retaining pins are in place and are secured with the proper retaining rings. If foreign matter cannot be removed easily, or if the proper replacement parts are not available, return the tool to your supervisor.

Make sure all pivot points and bearing surfaces are protected with a thin coat of any good SAE 20 motor oil. Do NOT oil excessively. When the tool is not in use, keep the handles closed to prevent objects from becoming lodged between the dies, and store the tool in a clean, dry area.

**4.2. Periodic Inspection**

Regular inspections should be performed by quality control personnel. A record of scheduled inspections should remain with the tool and/or be supplied to the

supervisory personnel responsible for the tool. Though recommendations call for at least one inspection a month, the inspection frequency should be based on the amount of use, ambient working conditions, operator training and skill, and established company standards. These inspections should be performed in the following sequence:

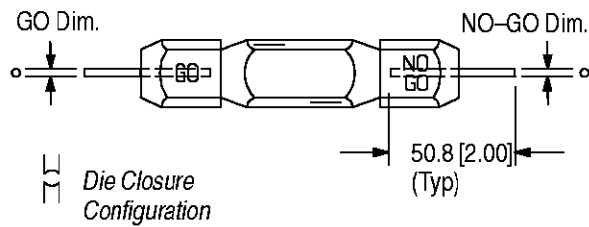
**A. Visual Inspection**

1. Remove all lubrication and accumulated film by immersing the tool (handles partially closed) into a suitable degreaser that will not affect paint or plastic material.
2. Make certain all retaining pins are in place and are secured with the proper retaining rings. If replacements are necessary, refer to Figure 10.
3. Close the tool handles until the ratchet releases, and then allow the handles to open freely. If they do not open quickly and fully, then the spring is defective and must be replaced (see Section 5, REPLACEMENT AND REPAIR).
4. Inspect the head assembly, with special emphasis on checking for worn, cracked, or broken crimping dies. If damage to any part of the head is evident, return the tool for evaluation and repair (see Section 5, REPLACEMENT AND REPAIR).

**4.3. Gaging the Crimping Chambers**

This inspection requires the use of plug gages conforming to the dimensions provided in Figures 4 through 7. If crimping chambers conform to the gage inspection, the tools may be 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 for further evaluation and repair. Refer to Section 5, REPLACEMENT AND REPAIR. To gage the crimping chambers, proceed as follows:

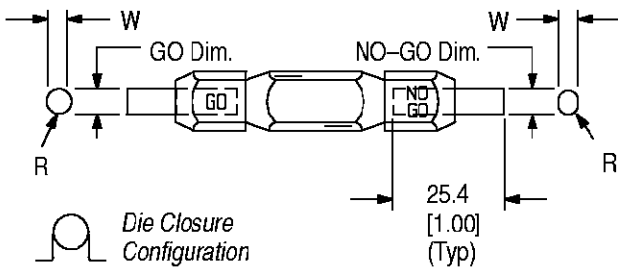
**Suggested Plug Gage Design – Wire Barrel Dies**



TOOL NUMBER	GAGE ELEMENT DIMENSION	
	GO	NO-GO
45634-3	0.940 – 0.947 [.0370 – .0373]	1.013 – 1.016 [.0399 – .0400]
45638-3		
45740-2		
69186-2		
69360-2		

Figure 4

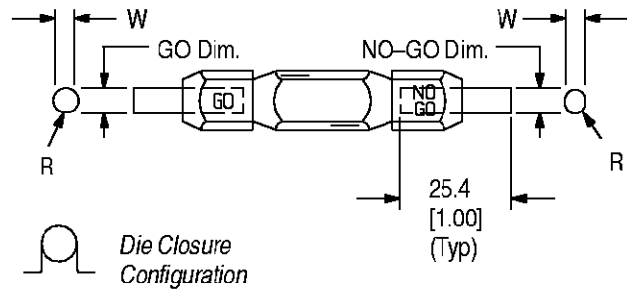
**Suggested Plug Gage Design – Insulation Dies**



TOOL NUMBER	GAGE ELEMENT DIMENSION			
	GO	NO-GO	"W" (Max.)	RADIUS "R" (Max.)
45634-3	6.756 – 6.764 [.2660 – .2663]	6.881 – 6.883 [.2709 – .2710]	6.71 [.264]	3.35 [.132]
45638-2	2.845 – 2.852 [.1120 – .1123]	2.969 – 2.972 [.1169 – .1170]	2.69 [.106]	1.35 [.053]
45638-3	2.819 – 2.827 [.1110 – .1113]	2.944 – 2.946 [.1159 – .1160]	2.79 [.110]	1.40 [.055]
45639-2	3.759 – 3.767 [.1480 – .1483]	3.884 – 3.886 [.1529 – .1530]	3.66 [.144]	1.83 [.072]
45740-2	5.258 – 5.265 [.2070 – .2073]	5.382 – 5.385 [.2119 – .2120]	4.88 [.192]	2.44 [.096]
69147-2	2.311 – 2.319 [.0910 – .0913]	2.436 – 2.438 [.0959 – .0960]	2.08 [.082]	1.04 [.041]
69186-2	2.184 – 2.192 [.0860 – .0863]	2.309 – 2.311 [.0909 – .0910]	1.63 [.064]	0.81 [.032]
69248-4	5.766 – 5.773 [.2270 – .2273]	5.890 – 5.893 [.2319 – .2320]	5.54 [.218]	2.77 [.109]
69360-2	3.480 – 3.487 [.1370 – .1373]	3.604 – 3.607 [.1419 – .1420]	3.25 [.128]	1.63 [.064]
45639-5	4.013 – 4.021 [.1580 – .1583]	4.138 – 4.140 [.1629 – .1630]	3.66 [.144]	1.83 [.072]

Figure 5

**Suggested Plug Gage Design – Braid Dies**



TOOL NUMBER	GAGE ELEMENT DIMENSION			
	GO	NO-GO	"W" Max.	RADIUS "R" (Max.)
45634-3	5.105 – 5.113 [.2010 – .2013]	5.230 – 5.232 [.2059 – .2060]	4.93 [.196]	2.49 [.098]
45740-2	5.004 – 5.011 [.1970 – .1973]	5.128 – 5.131 [.2019 – .2020]	4.78 [.188]	2.39 [.094]
69248-4	5.004 – 5.011 [.1970 – .1973]	5.128 – 5.131 [.2019 – .2020]	4.78 [.188]	2.39 [.094]

Figure 6

**A. Wire Barrel (Center Contact) Dies (Figure 8)**

1. Remove traces of oil or dirt from the crimping chamber and plug gage.
2. Close the tool handles until it is evident that the dies have bottomed; then hold in this position. Do NOT force beyond initial contact.
3. With dies bottomed, check the wire barrel crimping chamber using the proper plug gage. Hold gage in straight alignment with the crimping chamber and carefully insert the GO element, without using force. The GO element must pass completely through the crimping chamber.
4. Try to insert the NO-GO element. The NO-GO element may enter partially, but must not pass completely through the length of the wire barrel crimping chamber.

If wire barrel dies conform to the gage inspection, the dies may be considered dimensionally correct.

**B. Braid and Insulation Dies**

1. Remove traces of oil or dirt from the crimping chamber and plug gage.
2. Close the tool handles until it is evident that the dies have bottomed; then hold in this position. Do NOT force beyond initial contact.
3. With dies bottomed, check the braid and insulation crimping chambers using the proper plug gage. Hold gage in straight alignment with the crimping chamber and carefully insert the GO element, without using force. The GO element must pass completely through the crimping chamber, as shown in Figure 9, Detail A.

4. Try to insert the NO-GO element. The NO-GO element may enter partially, but must not pass completely through the crimping chamber.

5. Tools containing braid crimping dies with a larger outside diameter than the insulation crimping dies require a gage of special design (Figure 7).

6. To use this gage, open the crimping dies and locate end of gage element in the area between wire barrel crimping dies and braid crimping dies. Shank of element will be located in the insulation crimping die closure. See Figure 9, Detail B.

7. Close handles of tool and proceed as described in Steps 2 through 4 by pulling gage into braid crimping die closure. Braid die closure is inspected as shown in Figure 9, Detail B.

If both braid and insulation crimping dies conform to the gage inspection, the dies may be considered dimensionally correct. If dies do NOT conform to the gage inspection, contact your local representative. For additional information regarding the use of a plug gage, refer to Instruction Sheet 408-7424.

**Suggested Plug Gage Design - Braid Dies (Special)**

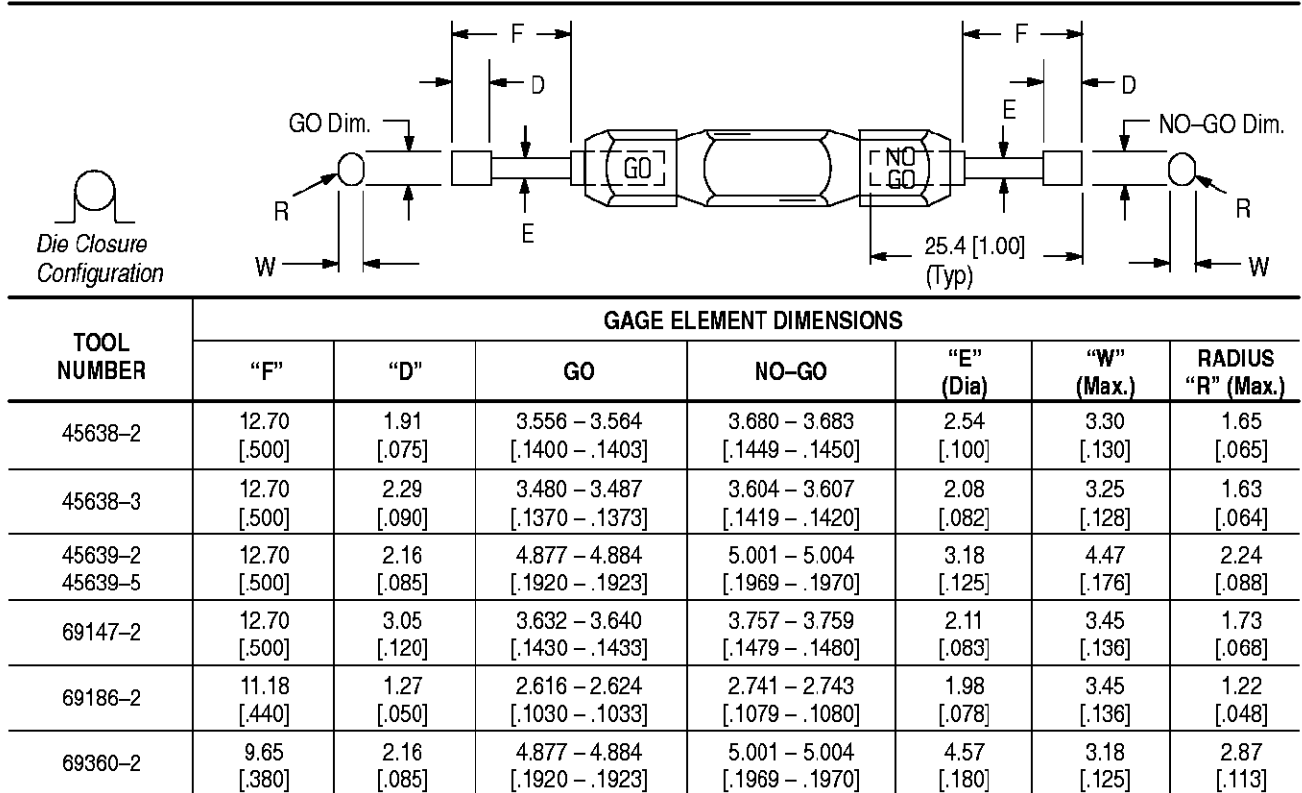


Figure 7

**Inspection Of Wire Barrel (Center Contact) Crimping Dies**

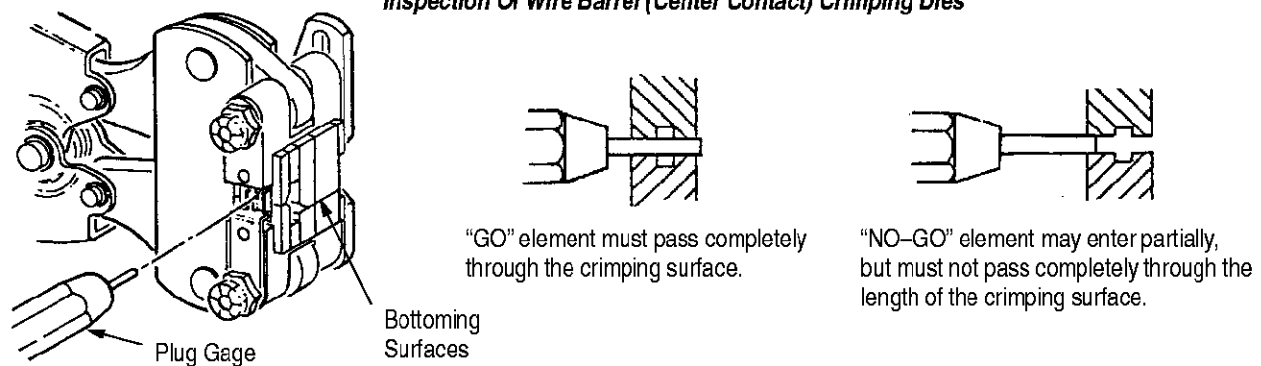
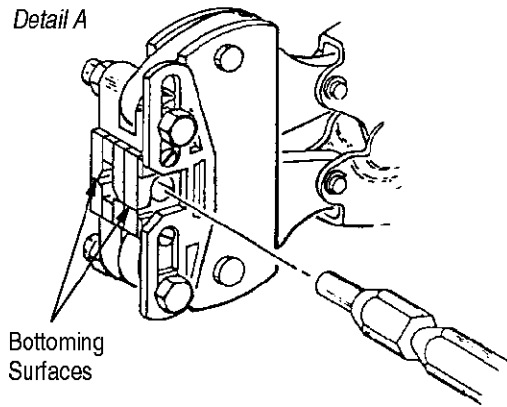


Figure 8

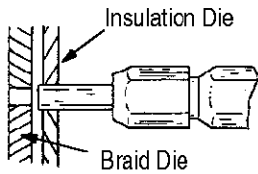
**Inspection Of Insulation Crimping Dies  
And Braid† Crimping Dies**

Detail A

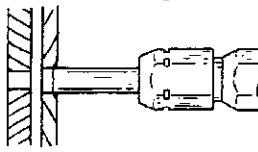


Bottoming Surfaces

**Inspection Of Insulation Die**

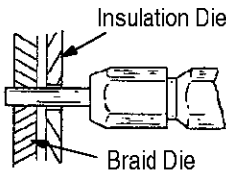


"GO" element must pass completely through the crimping surface.



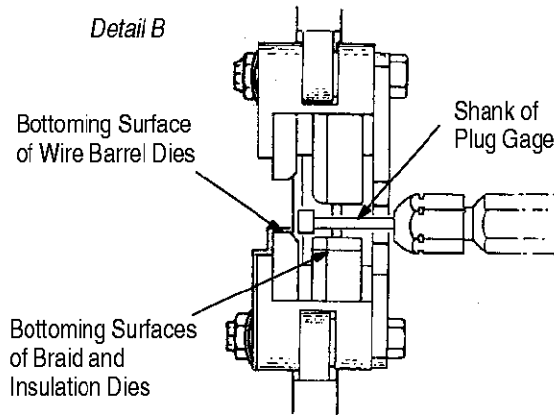
"NO-GO" element may enter partially, but must not pass completely through the length of the crimping surface.

**Inspection Of Braid Die**



**Inspection Of Braid■  
Crimping Dies (Special)**

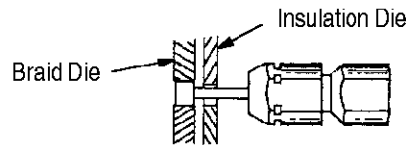
Detail B



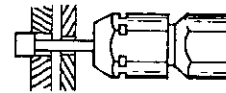
Bottoming Surface of Wire Barrel Dies

Shank of Plug Gage

Bottoming Surfaces of Braid and Insulation Dies



"GO" element must pass completely through the crimping surface of braid die closure.



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

† Where braid dies have a smaller diameter than insulation dies.

■ Where braid dies have a larger diameter than insulation dies.

Figure 9

**4.4. CERTI-CRIMP Ratchet Inspection**

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 terminal and *maximum* size wire for the hand tool.
2. Position the terminal and wire between the crimping jaws, as described in Section 3, CRIMPING PROCEDURE.
3. Holding terminal in place, squeeze the tool handles together 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

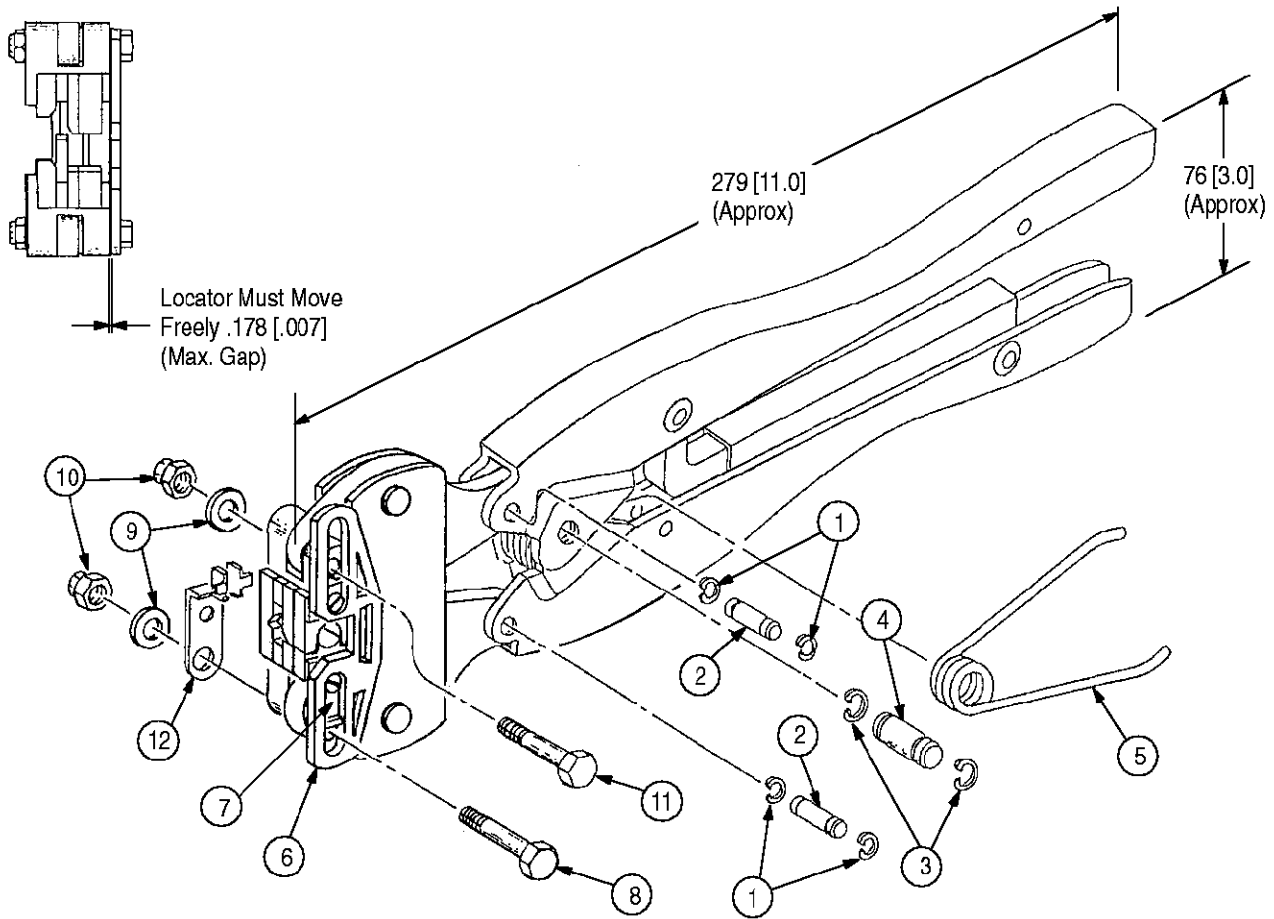
the clearance exceeds 0.025 [.001], the ratchet is out of adjustment and must be repaired.

**5. REPLACEMENT AND REPAIR**

The parts listed in Figure 10 are customer-replaceable. A complete inventory can be stocked and controlled to prevent lost time when replacement of parts is necessary. Order replacement parts through your 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)  
TYCO ELECTRONICS CORPORATION  
P.O. BOX 3608  
HARRISBURG, PA 17105-3608

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



**REPLACEMENT PARTS**

ITEM	PART NUMBER FOR TOOLS			DESCRIPTION	QTY PER TOOL
	45634-3	45740-2 69248-4	45638-2 45638-3 45639-2 69147-2 69186-2 69360-2 45639-5		
1	21045-3	21045-3	21045-3	Ring, Retaining	4
2	1-23619-6	1-23619-6	1-23619-6	Pin, Retaining	2
3	21045-6	21045-6	21045-6	Ring, Retaining	2
4	2-23620-9	2-23620-9	2-23620-9	Pin, Retaining	1
5	39364	39364	39364	Spring, Handle	1
6	307089-1	307089-1	307089-1	Locator	1
7	307339-1	307339-1	307339-1	Spacer	1
8	307087-9	307087-7	307087-6	Screw, Shoulder	1
9	23911-7	23911-7	23911-7	Disc Spring	2
10	21022-2	21022-2	21022-2	Nut, Self-Locking	2
11	307087-8	307087-4	307087-5	Screw, Shoulder	1
12	307366-1	307366-1	307366-1	Guide (Contact Locator)	1

Figure 10

**6. REVISION SUMMARY**

Per EC 0990-0761-99:

- Changed tool repair service information in Section 5, REPLACEMENT AND REPAIR
- Updated document format