

### 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.

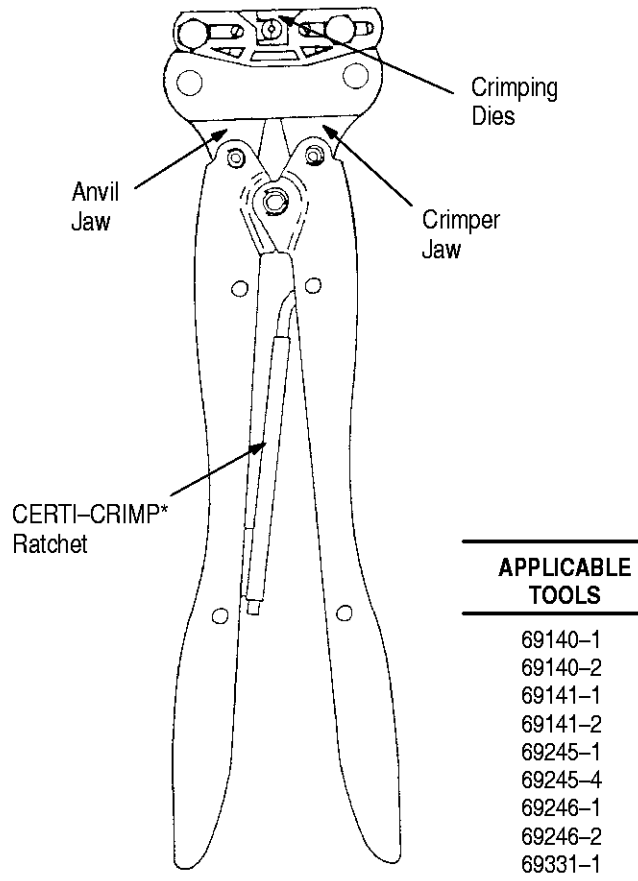


Figure 1

### 1. INTRODUCTION

This instruction sheet covers the use of AMP\* Hand Crimping Tools listed in Figure 1 (Figure 1 shows typical tool). The tools are designed to crimp AMP COAXICON 50-Ohm BNC RF plug and jack connectors to various types of coax cable. Typical plug and jack-type connectors are shown in Figure 2. For applicable connector part numbers and corresponding cable sizes, refer to AMP Catalog 82074. For cable preparation and connector assembly procedures, refer to the applicable instruction sheets listed in Figure 2. Read these instructions thoroughly before using the tool.

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

#### NOTE

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

### 2. DESCRIPTION

The tool (shown in Figure 1) features multiple sets of crimping dies (contained within the crimper and anvil jaws) and a CERTI-CRIMP ratchet.

One set of crimping dies are used to crimp the center contact and another is used to crimp the ferrule. Some tools have a single die set that crimps the entire ferrule (single crimp) and other tools have separate dies for crimping the braid and insulation portions of the ferrule (dual crimp).

The CERTI-CRIMP ratchet assures full crimping of the contacts and ferrules. Once engaged, the ratchet will not release until the handles have FULLY closed.

#### CAUTION

*The crimping dies bottom before the CERTI-CRIMP ratchet releases. This design feature assures 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 jaws, before using the tool.*

These procedures provide instructions on the use of the hand tool for crimping only. For information pertaining to the individual connectors, such as cable stripping dimensions and assembly of component parts, refer to the applicable instruction sheet listed in Figure 2.

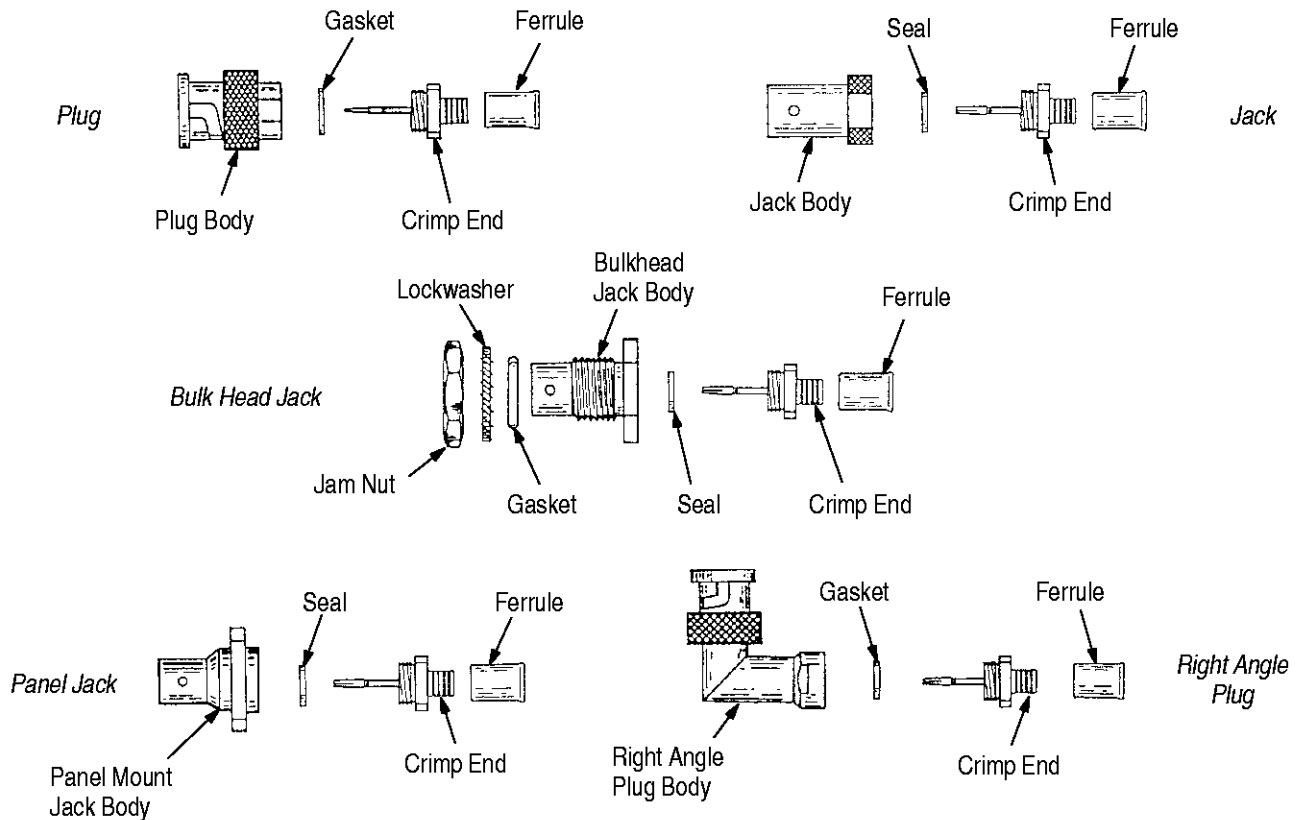
Refer to Figure 3 and proceed as follows:

1. Prepare cable and assemble connector crimp end on cable as described in applicable instructions.
2. Open the tool's jaws by squeezing the handles until the ratchet releases and then allow handles to open FULLY.
3. Position the crimp end in crimping dies, as shown in Figure 3.

#### NOTE

*Make certain that center contact and ferrule are resting firmly on crimping dies.*

4. While holding assembly in place, close tool handles until ratchet releases. Allow handles to open FULLY and remove crimped assembly.



**Typical Connectors**

APPLICABLE INSTRUCTION SHEET	PLUG	JACK	BULKHEAD JACK	PANEL JACK	RIGHT ANGLE PLUG
FOR SINGLE CRIMP	408-1799-1	408-1799-2	408-1799-3	—	408-1799-5
FOR DUAL CRIMP	408-1914-1	408-1914-2	408-1914-3	408-1914-4	408-1914-5

Figure 2

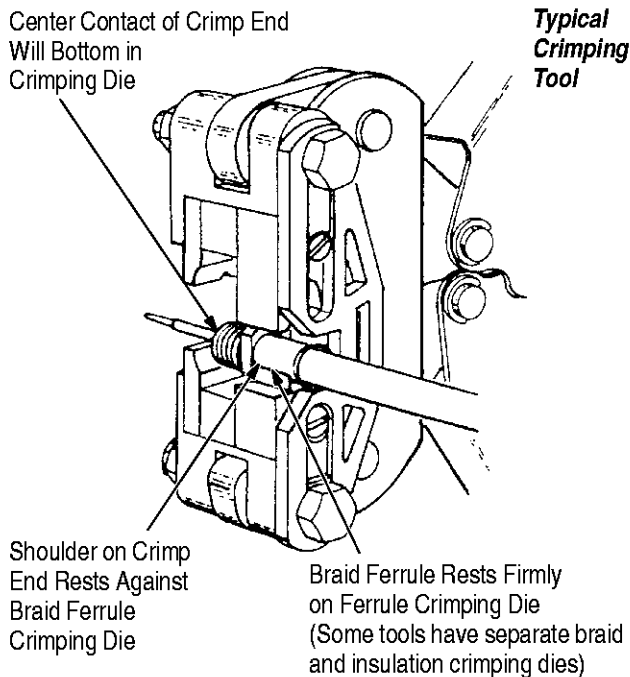


Figure 3

**4. 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. 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 its arrival at your facility 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 8.

#### 4.1. 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.

#### 4.2. 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.

#### 4.3. 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 5, 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 5, REPLACEMENT AND REPAIR.

#### 4.4. Crimping Die Closure Inspections

These inspections are required to check the die closure dimensions of the tool's crimping chambers. To check the ferrule crimping chamber proceed to Paragraph A and to check the center contact crimping chamber proceed to Paragraph B.

#### A. Ferrule Die Closure Inspection

This inspection requires the use of plug gages conforming to the dimensions shown in Figures 4 and 5. AMP does not manufacture or market these gages.

To gage die closure, refer to Figure 6 and proceed as follows:

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 jaws have bottomed; then hold in this position. Do NOT force the jaws beyond initial contact.
3. Align the GO element of the insulation die plug gage with the insulation crimping chamber. Push element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber (refer to Figure 6, Detail A).
4. Check the insulation crimping chamber with the NO–GO element in the same manner as step 3. The NO–GO element may start entry, but must not pass completely through the crimping chamber (refer to Figure 6, Detail A).

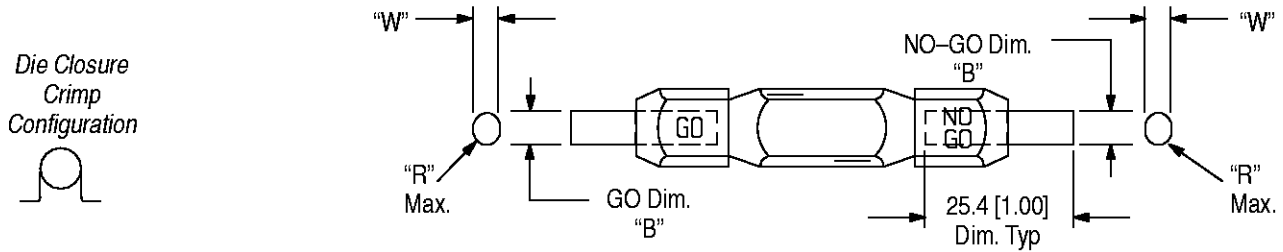
#### NOTE

*The tools listed in Figure 5 have separate braid and insulation dies. The braid crimping chamber for these tools must be checked as follows:*

5. Open the tool's crimping dies by squeezing the handles until the ratchet releases and then allow the handles to open fully.
6. Carefully position the GO element end of braid die plug gage between the center contact and braid crimping chambers. Slowly close tool handles until the dies bottom while making certain that the GO element does not become lodged in the crimping dies (refer to Figure 6, Detail B).
7. Align the GO element with the braid crimping chamber and pull element straight into the chamber without using force. The GO element must pass completely through the crimping chamber (refer to Figure 6, Detail B).
8. Check the NO–GO conditions of the braid crimping chamber by repeating Steps 5, 6, and 7 using the braid die plug gage NO–GO element.

If die closures conform to the gage inspections, the crimping chambers are considered dimensionally correct. If not correct, the tool must be returned to AMP for further evaluation and repair. Refer to Section 5, REPLACEMENT AND REPAIR. For additional information regarding the use of a plug gage, refer to AMP instruction sheet 408–7424.

**SUGGESTED PLUG GAGE DESIGN – INSULATION DIE** (see note)

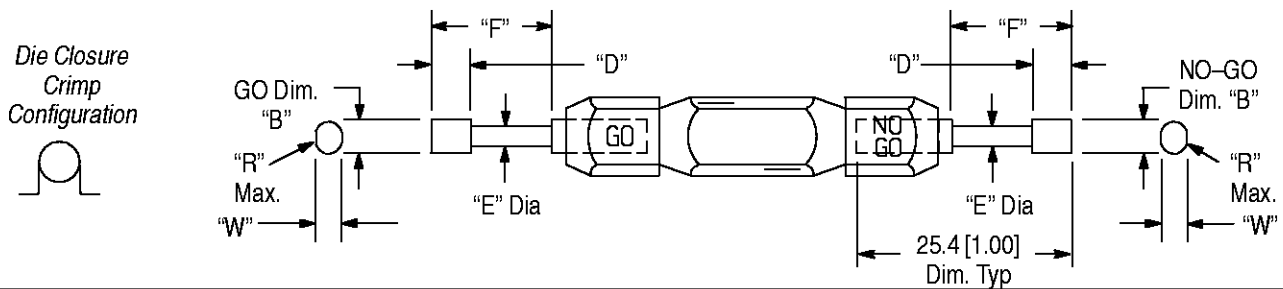


TOOL NUMBER	GAGE ELEMENT DIMENSIONS			
	DIMENSION "B"		"W" MAX.	RADIUS "R" MAX.
	GO	NO-GO		
69140-1 ●	5.004–5.011 [.1970–.1973]	5.128–5.131 [.2019–.2020]	4.78 [.188]	2.39 [.094]
69140-2 ●	5.486–5.494 [.2160–.2163]	5.611–5.613 [.2209–.2210]	5.28 [.208]	2.64 [.104]
69141-1 ●	6.147–6.154 [.2420–.2423]	6.271–6.274 [.2469–.2470]	5.94 [.234]	2.97 [.117]
69141-2 ●	6.452–6.459 [.2540–.2543]	6.576–6.579 [.2589–.2590]	5.84 [.230]	3.18 [.125]
69245-1	2.845–2.852 [.1120–.1123]	2.969–2.972 [.1169–.1170]	2.69 [.106]	1.35 [.053]
69245-4	2.286–2.294 [.0900–.0903]	2.410–2.413 [.0949–.0950]	2.08 [.082]	1.04 [.041]
69246-1	4.039–4.046 [.1590–.1593]	4.163–4.166 [.1639–.1640]	3.81 [.150]	1.91 [.075]
69246-2	4.039–4.046 [.1590–.1593]	4.163–4.166 [.1639–.1640]	3.81 [.150]	1.91 [.075]
69331-1 ●	5.486–5.494 [.2160–.2163]	5.611–5.613 [.2209–.2210]	5.33 [.210]	2.67 [.105]

● These tools have single dies for both insulation and braid. Additional plug gages are not required for the braid section of dies.

Figure 4

**SUGGESTED PLUG GAGE DESIGN – BRAID DIE**



TOOL NUMBER	GAGE ELEMENT DIMENSIONS						
	DIM "F"	DIM "D"	DIMENSION "B"		"E" DIA	"W" MAX.	RADIUS "R" MAX.
			GO	NO-GO			
69245-1	17.3 [.680]	4.57 [.180]	3.556–3.564 [.1400–.1403]	3.680–3.683 [.1449–.1450]	2.54 [.100]	3.30 [.130]	1.65 [.065]
69245-4	21.7 [.855]	5.38 [.212]	2.718–2.725 [.1070–.1073]	2.842–2.845 [.1119–.1120]	2.08 [.082]	2.44 [.096]	1.22 [.048]
69246-1	26.8 [1.055]	4.50 [.177]	4.445–4.456 [.1750–.1753]	4.569–4.572 [.1799–.1800]	3.81 [.150]	4.22 [.166]	2.11 [.083]
69246-2	26.8 [1.055]	4.50 [.177]	4.445–4.456 [.1750–.1753]	4.569–4.572 [.1799–.1800]	3.81 [.150]	4.22 [.166]	2.11 [.083]

Figure 5

**B. Center Contact Crimp Height Inspection**

This inspection requires the use of micrometer with a modified anvil as shown in Figure 7. AMP recommends use of the modified micrometer (Crimp Height Comparator RS-1019-5LP) which can be purchased from:

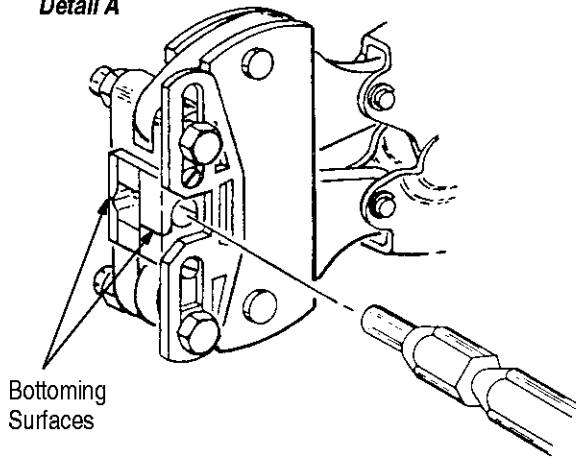
Shearer Industrial Supply Co. 20 North Penn Street York, PA 17401-1014 or VALCO 1410 Stonewood Drive Bethlehem, PA 18017-3527

Refer to Figure 7 and proceed as follows:

1. Obtain a slug of No. 14 AWG solid commercial wire.
2. Refer to Section 3, CRIMPING PROCEDURE, and crimp the slug in the center contact crimping dies.
3. Using a crimp height comparator, measure the crimp height as shown in Figure 7. If the crimp height conforms to that shown in the chart, the tool

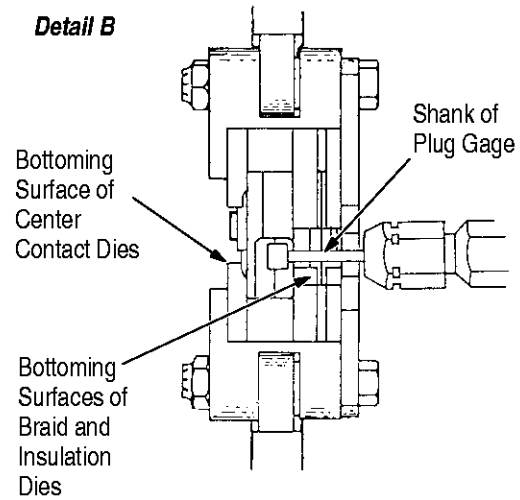
**Inspection of Braid and Insulation Crimping Dies**

**Detail A**

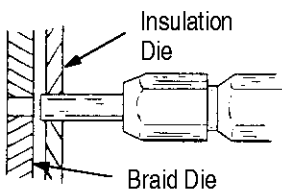


**Inspection of Braid† Crimping Dies**

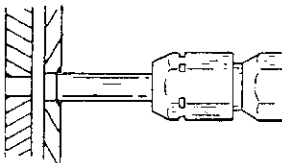
**Detail B**



**Inspection of Insulation Dies**

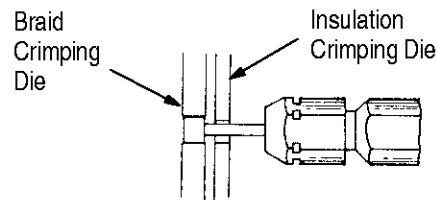
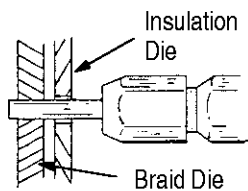


"GO" gage must pass completely through the crimping surface.

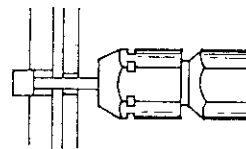


"NO-GO" gage may enter partially, but must not pass completely through the length of the crimping surface.

**Inspection of Braid Dies**



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



"NO-GO" gage 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 6**

is considered dimensionally correct. If not, return the tool to AMP for evaluation and repair (refer to Section 5, REPLACEMENT AND REPAIR).

For additional information concerning the use of the crimp height comparator, refer to AMP instruction sheet 408-7424.

**4.5. CERTI-CRIMP Ratchet Inspection**

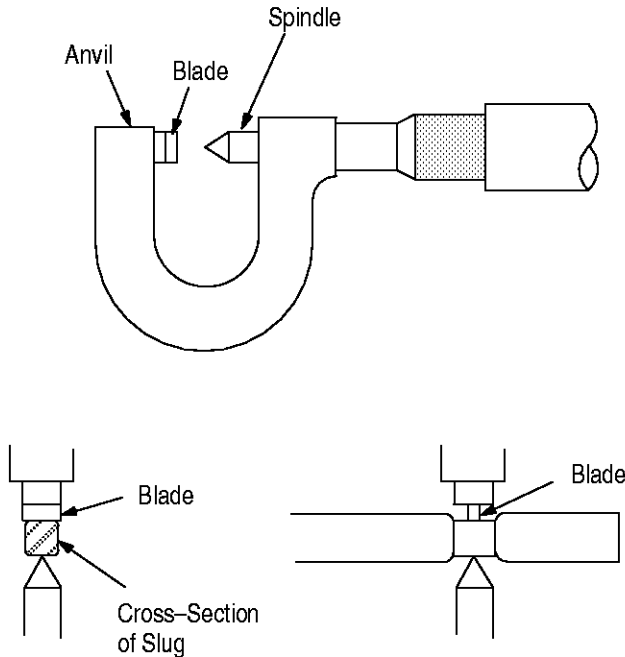
The CERTI-CRIMP ratchet feature on AMP hand tools should be checked to ensure that the ratchet does not release prematurely, allowing the crimping dies to open before they have fully bottomed. Obtain a 0.025-mm [.001-in.] shim that is suitable for

checking the clearance between the bottoming surfaces of the crimping dies. Proceed as follows:

1. Assemble an appropriate connector to be used for a test crimp.
2. Position the connector assembly with cable between the crimping dies, as described in Section 3, CRIMPING PROCEDURE.
3. Hold the connector assembly and cable in place and squeeze the tool's handles until the CERTI-CRIMP ratchet releases. Hold the handles in this position, maintaining just enough tension to keep the dies closed.

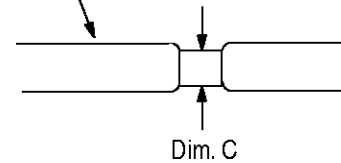
**Crimp Height Micrometers**

The micrometer shown here is conventional outside type with exception of the design of anvil and spindle. The anvil's measuring surface is a blade, perpendicular to the movable spindle, which is conical. AMP does not stock or sell these items.



**Measurement of Center Contact Crimp**

Crimped Wire Slug (No. 14 Solid AWG Commercial Copper Wire)



TOOL PART NUMBER	DIMENSION C**	
69140-1	1.257	
69141-1	1.334	
69141-2	[.0495]	
69246-2	[.0525]	
69140-2	1.219	
69245-1	1.295	
69245-4	[.0480]	
69246-1	[.0510]	
69331-1	1.346	
	1.384	
	[.0530]	
	[.0545]	

\*\* One side can go .064 [.0025] out of tolerance as long as the average measurements of both sides are within dimension specified.

Figure 7

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 5, REPLACEMENT AND REPAIR.

**5. REPLACEMENT AND REPAIR**

Replaceable 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 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

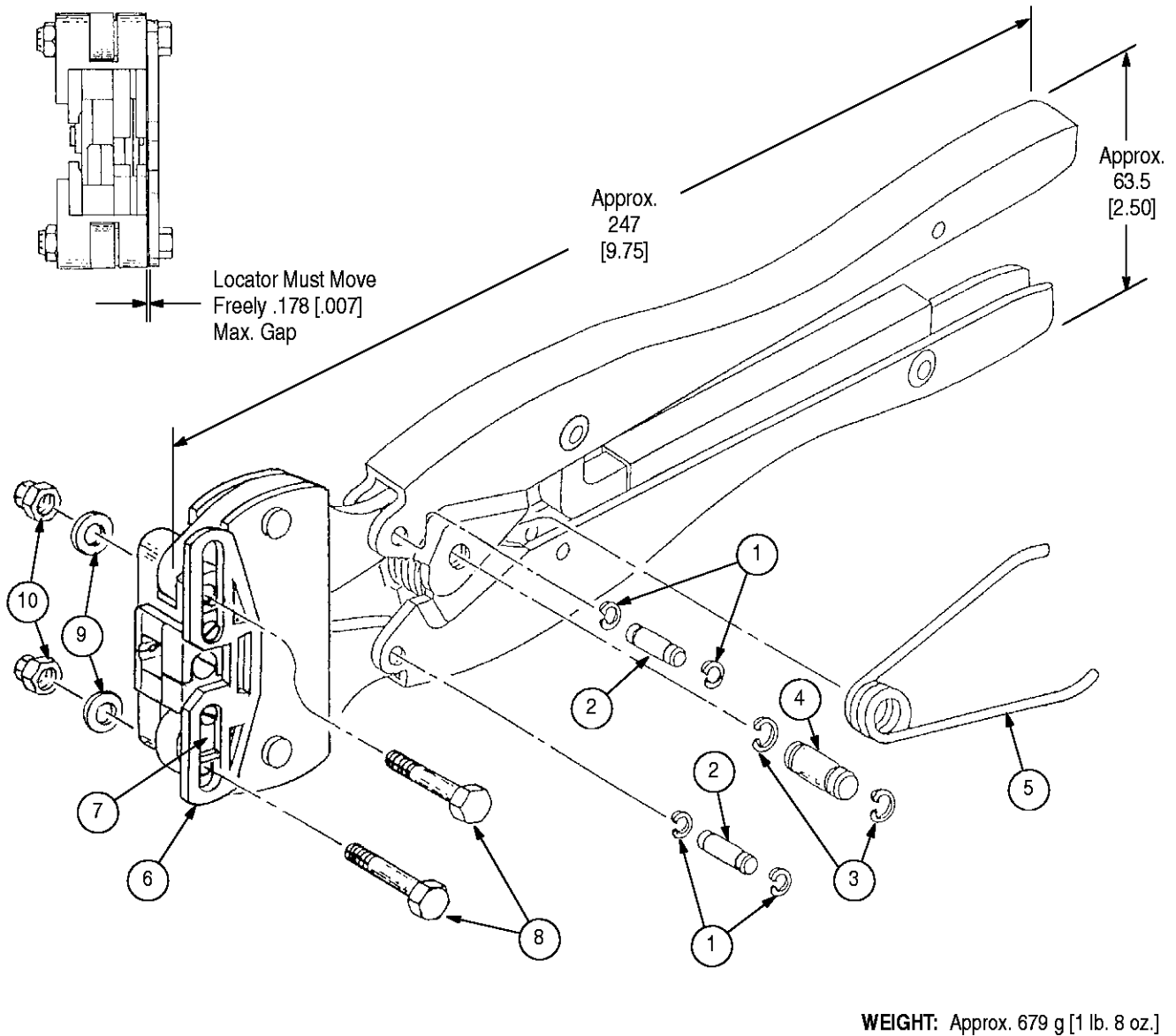
For tool repair service, please contact an AMP representative at 1-800-526-5136.

**6. REVISION SUMMARY**

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

Per EC 0990-0755-99:

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



**REPLACEMENT PARTS**

ITEM	PART NUMBER	DESCRIPTION	QTY PER ASSY
1	21045-3	RING, Retaining	2
2	1-23619-6	PIN, Retaining	2
3	21045-6	RING, Retaining	2
4	2-23620-9	PIN, Retaining	1
5	39364	SPRING	1
6	307089-2	LOCATOR	1
7	307339-1	SPACER	1
8	307087-4	SCREW, Shoulder	2
9	23911-7	DISC SPRING	2
10	21022-2	SELF-LOCKING NUT	2

Figure 8