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**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.

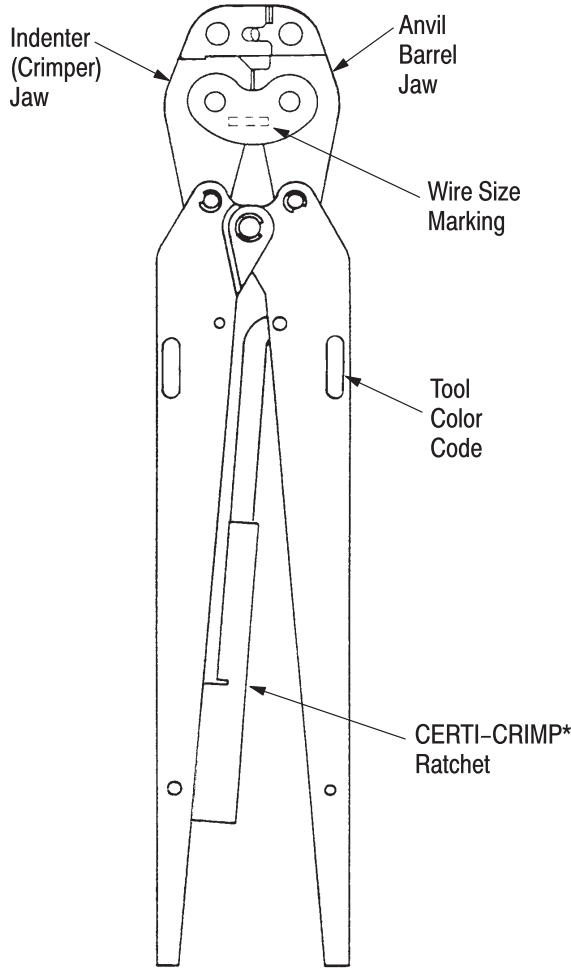


Figure 1

**1. INTRODUCTION**

This instruction sheet covers the use of Hand Crimping Tools 45449 and 45450 (see Figure 1) which are designed to crimp PLASTI-GRIP parallel splices shown in Figure 2. Read these instructions thoroughly before using the tool.

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

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

**2. DESCRIPTION**

Each tool features outer and inner crimping dies (contained within the crimper and anvil jaws) and a CERTI-CRIMP ratchet.

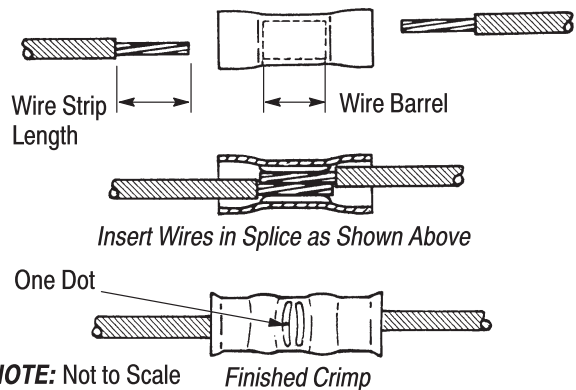
The outer crimping dies crimp the insulation barrels of the splice and the inner dies crimp the wire barrel of the splice.

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



*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.*

Tool 45449, which has red-colored labels on its handles, is used to crimp red-colored PLASTI-GRIP splices on wire sizes 22 through 16 AWG (wire sizes 1 through 2 for Navy Ships) and tool 45450, which has blue-colored labels on its handles, is used to crimp blue-colored PLASTI-GRIP splices on wire sizes 16 through 14 AWG (wire sizes 2 1/2 through 4 for Navy Ships). Thus, the splice and tool handles are color coded for a given wire size range as listed in Figure 2. Additionally, each tool will impress a dot code on the splice, when the splice is crimped properly. A red color-coded tool impresses one dot and a blue color-coded tool impresses two dots.



NOTE: Not to Scale Finished Crimp

TOOL	WIRE SIZE	COLOR AND DOT CODE	WIRE STRIP LENGTH	
			MIN.	MAX.
45449	22-16	Red - One Dot	7.87 [.310]	8.64 [.340]
45450	16-14	Blue - Two Dots		

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 PLASTI-GRIP splice (refer to Catalog 82042 for desired size and part number).

Refer to Figure 2 and Figure 3 and proceed as follows:

1. Open the tool's jaws by squeezing the handles until the ratchet releases and then allow the handles to open FULLY.
2. Insert stripped wires into both ends of the splice.
3. Center splice (with wires inserted) in crimper jaws.
4. To complete crimp, close handles until ratchet releases. Allow handles to open FULLY. Crimped splice may be removed.

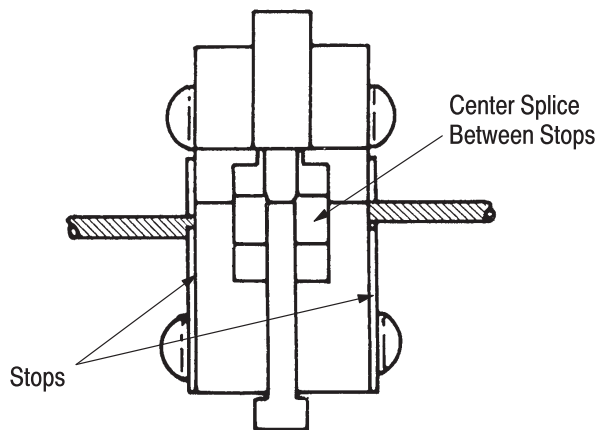


Figure 3

### 4. MAINTENANCE AND INSPECTION PROCEDURE

Tyco Electronics 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, Tyco Electronics 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 7.

#### 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 No. 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 No. 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.

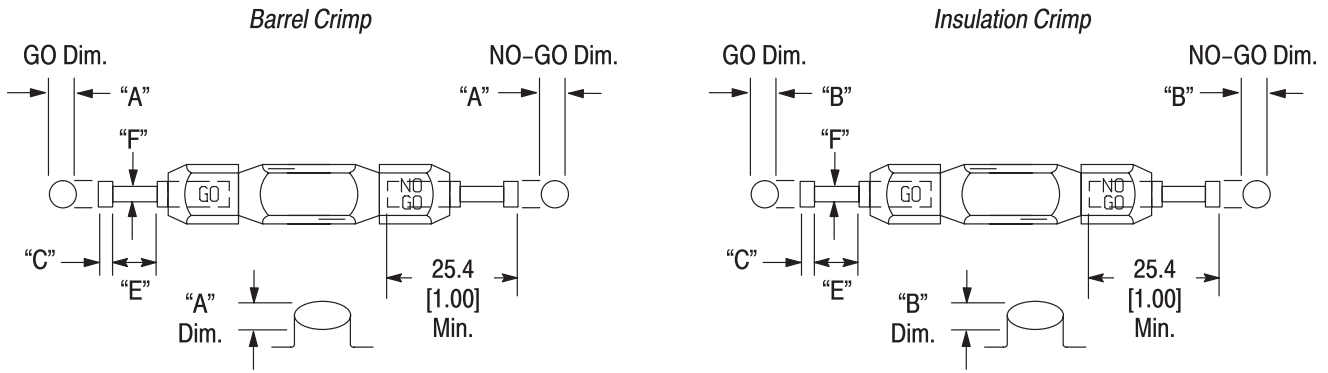
#### 4.3. Periodic Inspection

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 Tyco Electronics for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

#### 4.4. Crimping Die Closure Inspection

This inspection requires the use of plug gages conforming to the dimensions shown in Figure 4. Tyco Electronics does not manufacture or market these gages.

**Suggested Plug Gage Design**



TOOL NUMBER	BARREL CRIMP DIMENSIONS† “A”		“C”	“E”	“F”	INSULATION CRIMP DIMENSIONS† “B”		“C”	“E”	“F”
	GO	NO-GO				GO	NO-GO			
	45449	2.77 [.109]				2.92 [.115]	3.18 [.125]			
45450	3.02 [.119]	3.18 [.125]	3.18 [.125]	9.53 [.375]	2.74 [.108]	2.84 [.112]	3.35 [.132]	3.18 [.125]	9.53 [.375]	2.74 [.108]

†Plug gage dimensions apply when tool is bottomed, but not under pressure.

Figure 4

To gage die closure, refer to Figure 5 and Figure 6 and proceed as follows:

1. Remove traces of oil or dirt from the crimping chambers and plug gage.
2. Open tool crimping jaws and insert the GO element of the proper wire barrel plug gage into the space between the wire barrel die (inner) and the insulation die (outer). Plug gage may be inserted from either side of the tool.

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 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.

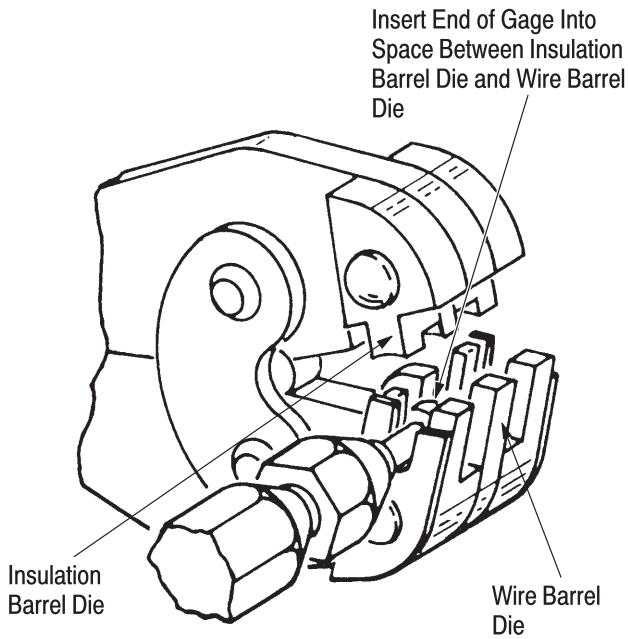


Figure 5

5. Check the wire barrel crimping chamber with the NO GO element in the same manner as steps 2 through 4. The NO GO element may start entry, but must not pass completely through the crimping chamber.

6. Check both sets of insulation barrel crimping dies with the proper insulation barrel plug gage in the same manner as steps 2 through 5.

If both wire barrel and insulation barrel crimping dies conform 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 No. 20 motor oil and returned to service. If not correct, the tool must be returned to Tyco Electronics for further evaluation and repair. Refer to Section 5, REPLACEMENT AND REPAIR.

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

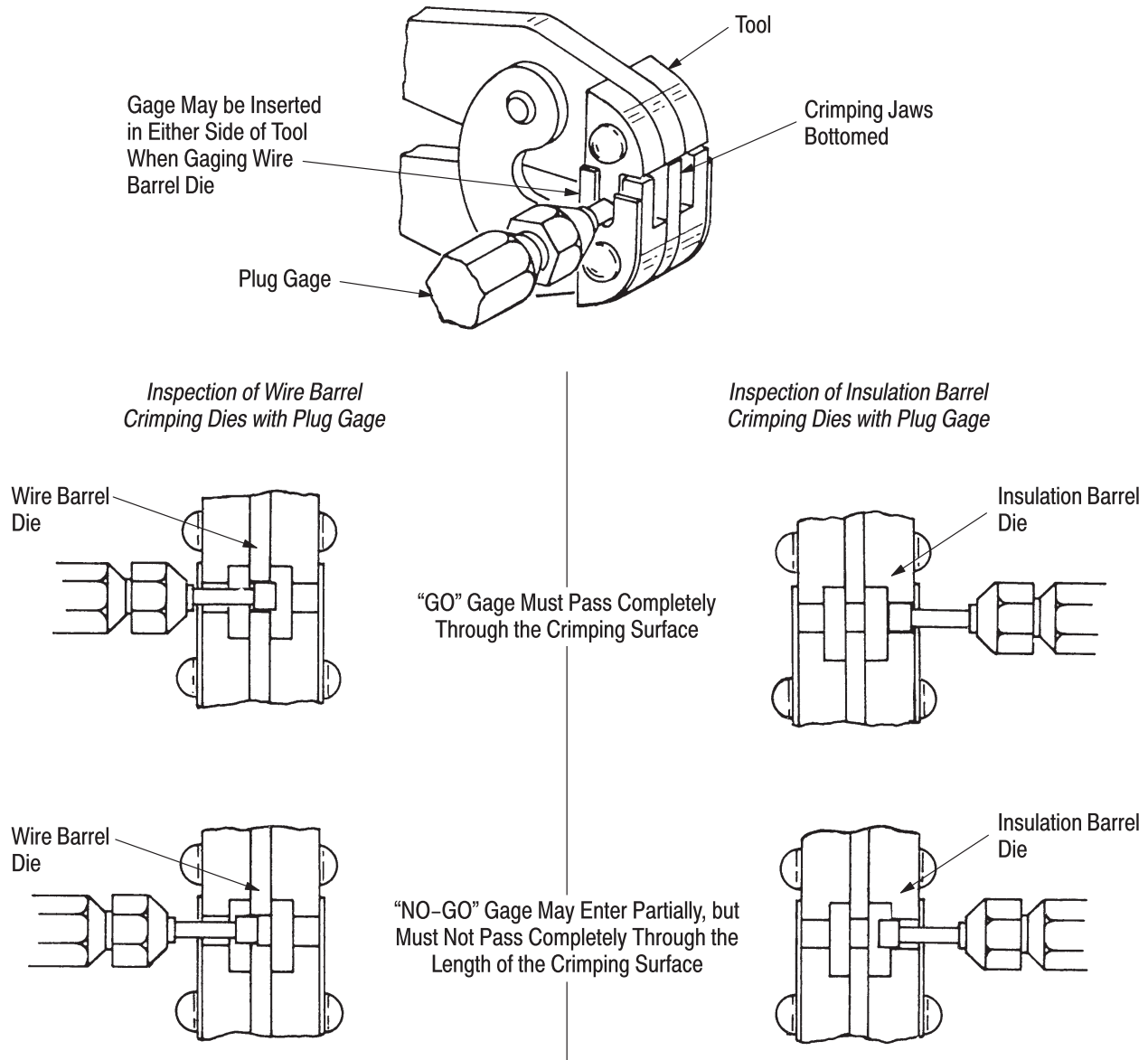


Figure 6

#### 4.5. CERTI-CRIMP Ratchet Inspection

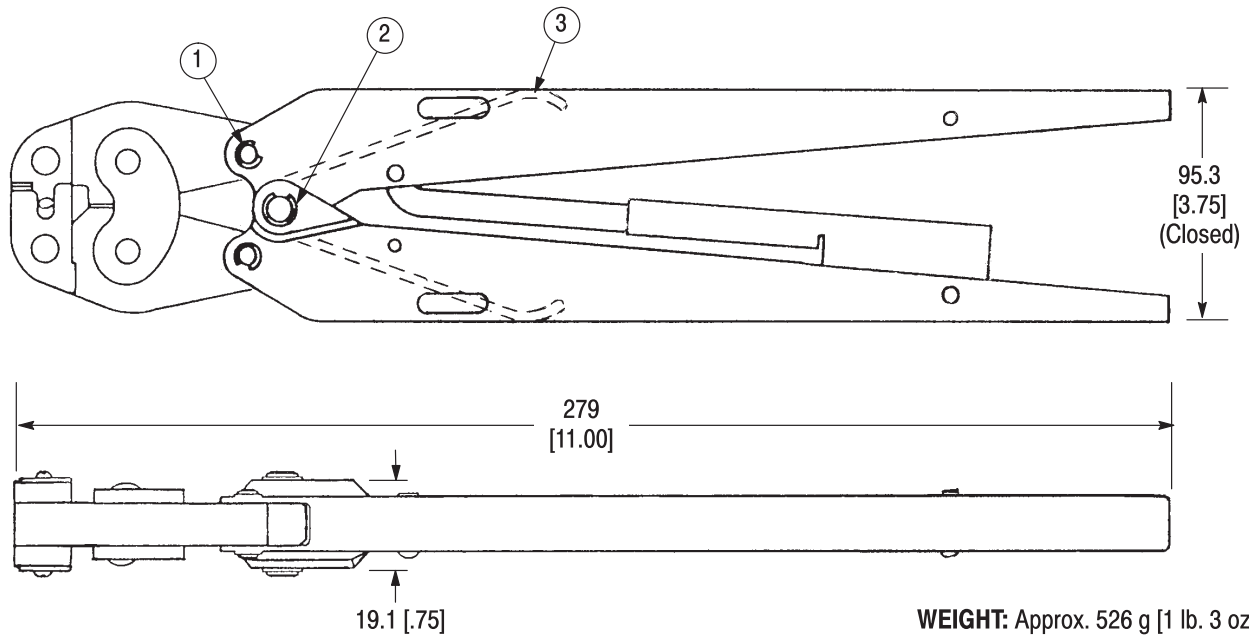
The CERTI-CRIMP ratchet feature on hand tools should be checked to ensure that the ratchet does not release prematurely, allowing the crimping dies to open before they have fully bottomed. Obtain a 0.025-mm [.001-in.] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping dies. Proceed as follows:

1. Select the maximum size wires and strip them according to dimensions listed in Figure 2.
2. Select splice corresponding to the selected wire size (refer to Figure 2).

3. Position the splice and wires between the crimping dies, as described in Section 3, CRIMPING PROCEDURE.

4. Hold the splice and wires 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.

5. 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.



ITEM	PART NUMBER	DESCRIPTION	QTY
1	21045-3	RING, Retaining	1
2	21045-6	RING, Retaining	1
3	39364	SPRING	1

Figure 7

69-65

**5. REPLACEMENT AND REPAIR**

Replacement parts are listed in Figure 7. Parts other than those listed in Figure 7 should be replaced to ensure quality and reliability of the tool. Order replacement parts through your Tyco Electronics 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

**6. REVISION SUMMARY**

This is a summary of changes and additions made to this instruction sheet:

- Updated document to corporate requirements
- New format