

PROPER USE GUIDELINES

Cumulative Trauma Disorders can result from the prolonged use of manually powered hand tools. These 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.

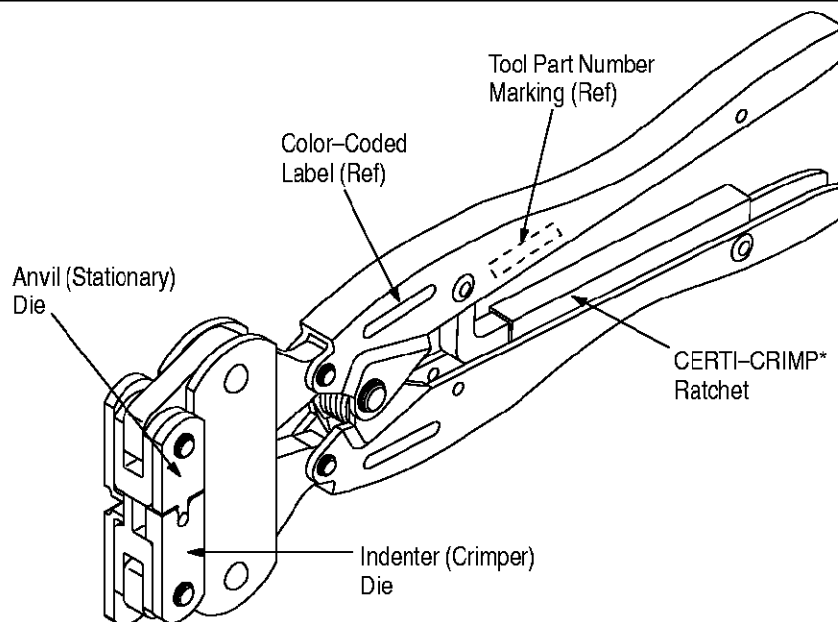


Figure 1

1. INTRODUCTION

AMP* Hand Crimping Tools 46073 and 46074 are designed to crimp CERTI-SEAL* moisture proof splices onto stranded copper wire sizes 24 through 16 AWG. Read these instructions carefully before using the tool.

NOTE *Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.*

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

2. DESCRIPTION (Figure 1)

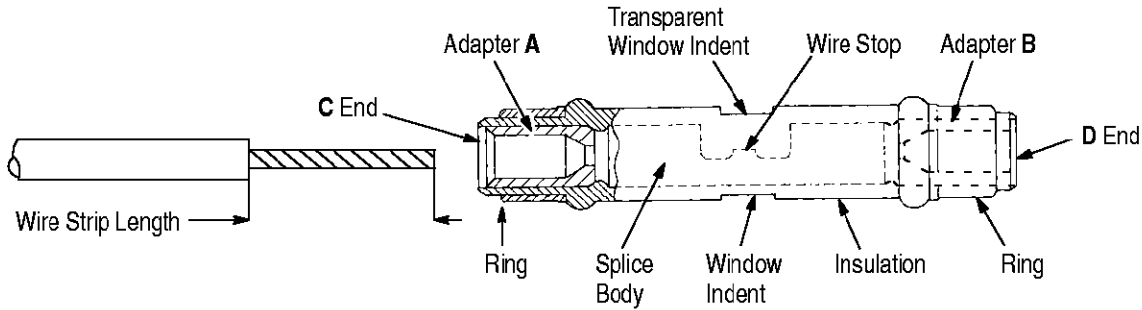
The hand tools are designed with two indenter (crimper) dies, two anvil (stationary) dies, a locator, and a CERTI-CRIMP ratchet. When closed, the dies form one crimping chamber. The CERTI-CRIMP ratchet assures full crimping of the splice. Once engaged, the ratchet will not release until the tool handles have been FULLY closed.

CAUTION *The dies bottom before the ratchet releases. This design feature 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 dies, before using the tool.*

1. Select the correct splice for the wire size and wire insulation diameter being used. Observe color coding of splice, rings, adaptors, and tools. See Figure 2.
2. Strip the wire to dimensions listed in Figure 2. Do NOT nick or cut the wire strands.
3. Open the dies by squeezing the tool handles together until the ratchet releases.
4. Select the proper color-coded end of splice (when applicable) for the wire insulation diameter being used. See Figure 2.
5. Insert stripped wire into splice until it bottoms against wire stop. End of conductor should be visible through transparent window indent of splice.
6. Align splice window indents with tool locator, and push splice into locator until splice bottoms. See Figure 3.



WIRE		SPLICE	SPLICE				WIRE STRIP LENGTH (mm [in.])	SPLICE BODY AND TOOL COLOR CODE	TOOL
SIZE RANGE (AWG)	INSUL DIA (Max) (mm [in.])		ADAPTER		RING COLOR				
			A	B	C	D			
24-20	1.65 [.065]	324987	Yes	Yes	Green	Green	7.37 [.290]	Tin (White)	46073
	1.85 [.073]	1-324987-0			Orange	Orange			
	1.85 [.073]	1-324987-1	—	Yes	—	Orange			
	2.54 [1.00]		—	—	Tin	—			
	2.54 [.100]	324544	—	—	Tin	Tin	6.35 [.250]		
20-18	2.57 [.101]	324988	Yes	Yes	Green	Green	7.87 [.310]	Red	46074
	3.38 [.133]	324548	—	—	Tin	Tin	7.11 [.280]		

Figure 2

Crimping Splice

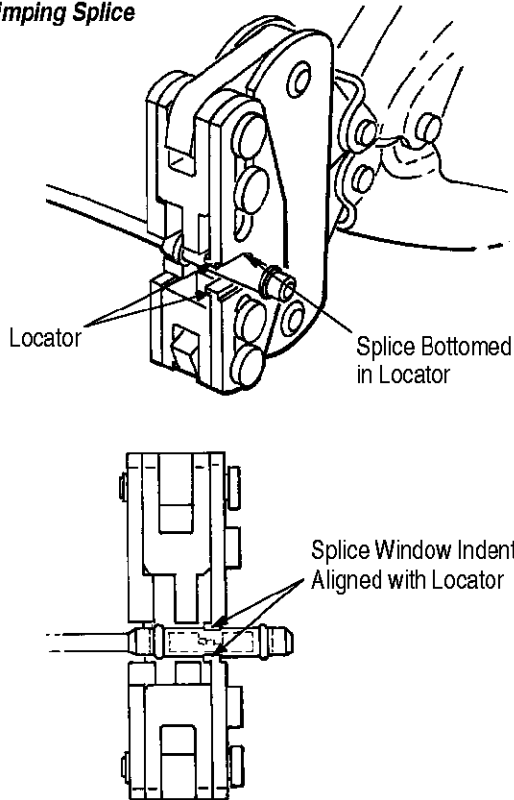


Figure 3

7. Hold wire in place and squeeze tool handles together until the CERTI-CRIMP ratchet releases. Allow tool handles to open FULLY. Crimped splice may be removed.

8. To crimp other half of splice, position uncrimped half in tool and follow same procedure used to crimp first half of splice. If splice cannot be turned, turn tool around.

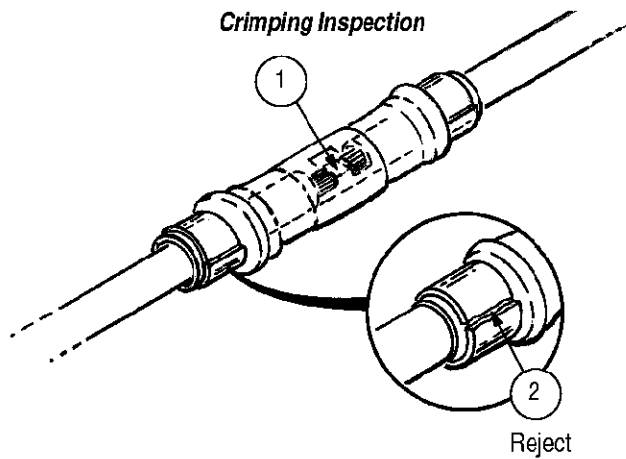
9. Refer to Figure 4 for splice crimp inspection.

4. MAINTENANCE AND INSPECTION

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 from the plant; however, it is recommended that the tool be inspected immediately upon arrival to ensure that the tool has not been damaged during shipment.



- 1 Wire ends should butt against wire stop; however, application is acceptable if wire ends are flush with or protrude beyond inside ends of wire barrels.
- 2 Observe crimped rings for splitting. split rings indicate possible damaged dies or wire insulation diameter is too large (refer to Figure 2). Conductor strands may fracture if over-sized insulation diameter is used.

Figure 4

NOTE

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 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 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:

- Tool used in daily production—lubricate daily
- Tool used daily (occasional)—lubricate weekly
- Tool 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, see Section 5, REPLACEMENT AND REPAIR, for information on obtaining customer repair service.

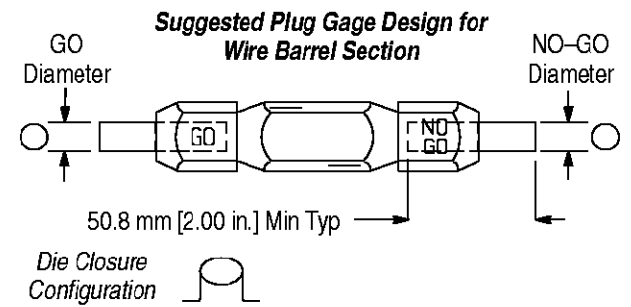
A. Gaging the Crimping Chamber

This inspection requires the use of a plug gage conforming to the dimensions provided in Figure 5. Tyco Electronics does not manufacture or market these gages. To gage the crimping chamber, proceed as follows:

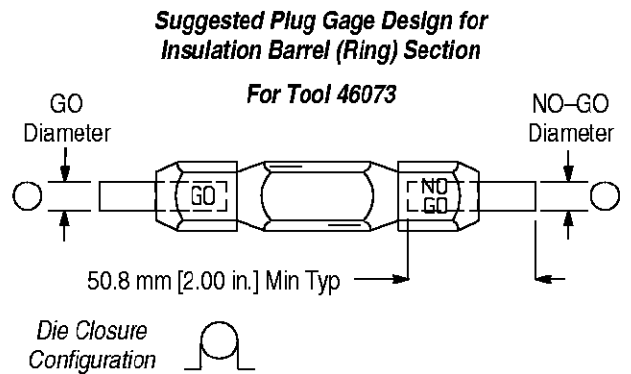
1. Remove traces of oil or dirt from the crimping chamber and plug gage.
2. Close the tool handles until it is evident that the dies have bottomed; then hold in this position. Do NOT force the dies beyond initial contact.
3. Align the GO element with the wire barrel crimping section. Push element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber. See Figure 6.
4. 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 6.
5. With dies bottomed, check insulation (ring) crimping section using the appropriate plug gage in same manner as Steps 3 and 4.

If the crimping chamber conforms to the gage inspection, the tool is considered dimensionally correct, and should be lubricated with a THIN coat of any good SAE 20 motor oil. If not, refer to Section 5, REPLACEMENT AND REPAIR, for information on obtaining further evaluation and repair.

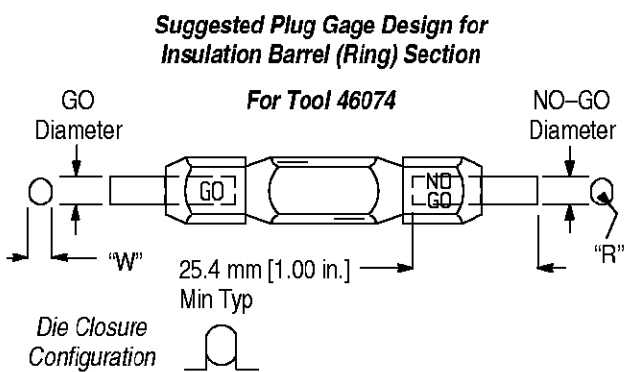
For additional information regarding the use of a plug gage, refer to instruction sheet 408-7424.



TOOL	GAGE ELEMENT DIAMETER (mm [in.])	
	GO	NO-GO
46073	2.464–2.471 [.0970–.0973]	2.614–2.616 [.1029–.1030]
46074	3.000–3.005 [.1180–.1183]	3.147–3.150 [.1239–.1240]



GAGE ELEMENT DIAMETER (mm [in.])	
GO	NO-GO
3.150–3.157 [.1240–.1243]	3.325–3.327 [.1309–.1310]



GAGE ELEMENT DIAMETER (mm [in.])		W (Width) Max (mm [in.])	R (Radius) Max (mm [in.])
GO	NO-GO		
3.480–3.487 [.1370–.1373]	3.655–3.658 [.1439–.1440]	3.15 [.124]	1.57 [.062]

Figure 5

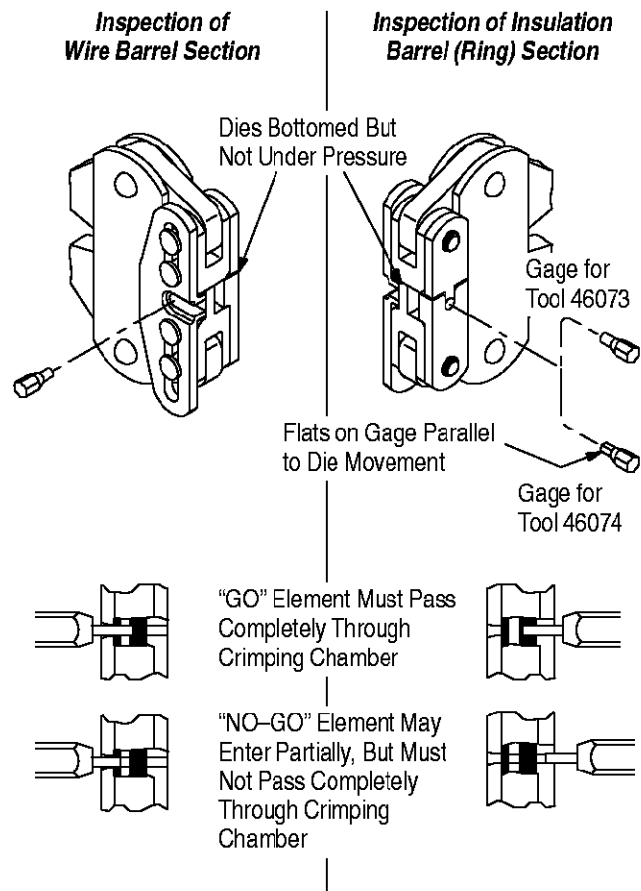


Figure 6

B. CERTI-CRIMP Ratchet Inspection

The CERTI-CRIMP ratchet on these 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 dies. Proceed as follows:

1. Refer to Figure 2, and select a splice and *maximum* size wire for the tool.
2. Position the splice and wire between the dies, as described in Section 3, CRIMPING PROCEDURE.
3. Hold the wire in place and squeeze the handles until the 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 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

Customer-replaceable parts are listed in Figure 7. A complete inventory should be stocked and controlled to prevent lost time when replacement of parts is necessary. Parts other than those listed should be replaced to ensure quality and reliability. Order replacement parts through your Tyco Electronics representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

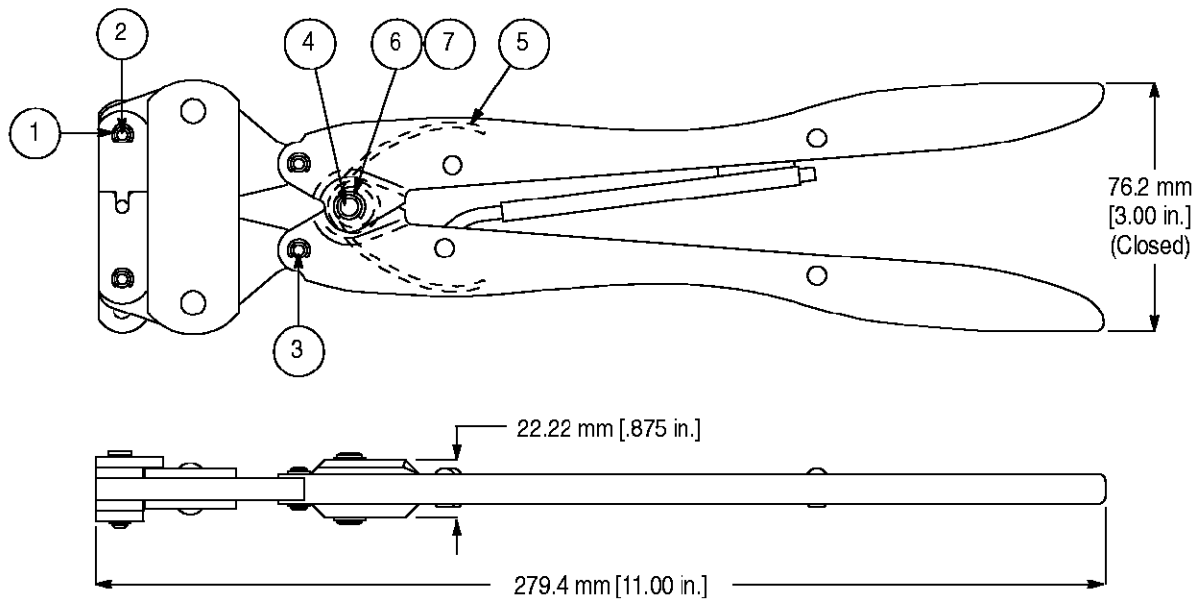
CUSTOMER SERVICE (038-035)
TYCO ELECTRONICS
PO BOX 3608
HARRISBURG PA 17105-3608

For customer repair service, please contact a Tyco Electronics representative at 1-800-526-5136.

6. REVISION SUMMARY

Revisions to this instruction sheet per EC 0990-1344-00 include:

- Changed Figure 2 to reflect new splice adapters
- Updated format



REPLACEMENT PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY PER TOOL
1	21045-3	RING, Retaining	6
2	304197-5	PIN, Retaining	2
3	1-23619-6	PIN, Retaining	2
4	39366	COLLAR	1
5	39364	SPRING	1
6	2-23620-9	PIN, Retaining	1
7	21045-6	RING, Retaining	2

Figure 7