

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.

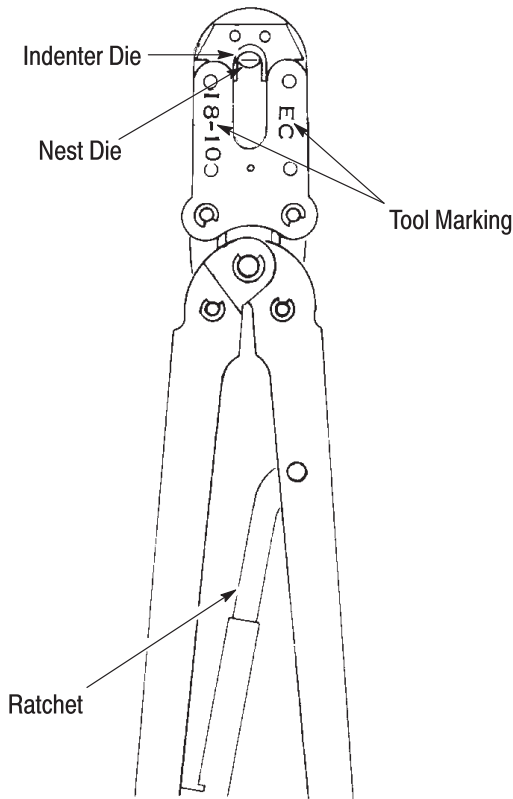


Figure 1

1. INTRODUCTION

Hand Crimping Tool 46866 shown in Figure 1 is used to crimp Type EC, ECV, and PVF² closed end splices listed in Figure 2 onto solid or stranded wire. These splices consist of metal inserts insulated with nylon (EC), vinyl (ECV), or Kynar (PVF²). Read these instructions thoroughly before using the hand tool.

NOTE *Measurements are in millimeters [followed by inch equivalents in brackets]. Figures and illustrations are for identification only and are not drawn to scale.*

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

2. DESCRIPTION

The hand tool features a U-head with a nest die and indenter die that form one crimping chamber, locator and stop that position the splice for proper crimping,

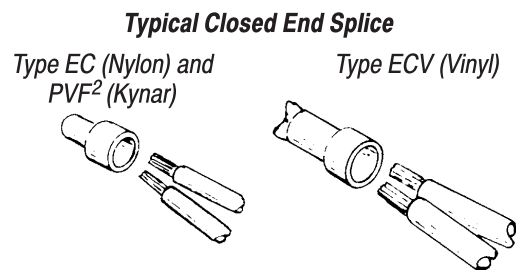
and CERTI-CRIMP* Hand Crimping Tool Ratchet Control. The tool is marked with the part number and "18-10 EC" on the front of the tool. The ratchet ensures full crimping of the splice. Once engaged, the ratchet will not release until the tool handles have been fully closed.

CAUTION *The dies bottom before the ratchet releases. This feature ensures maximum electrical and tensile performance of the crimp. Do not re-adjust the ratchet.*

3. CRIMPING PROCEDURE

Select compatible wire size(s) and splice for the application. Strip wires to the required length shown in Figure 2, allowing for number of wires and twisting. Note that the strip length must be maintained after twisting as required for minimum loading. The length of the exposed conductor may vary depending upon number of wires used in an application.

NOTE *For wire combination charts, refer to 408-1003 for nylon splices, 408-1479 for vinyl splices, and 408-2907 for kynar splices.*




SPLICE			WIRE STRIP LENGTH	
PN	TYPE	SIZE		
324067 328730 53915-1 55929-1	EC	22-10		
329251 53234-1	ECV	22-12		
54316-1	PVF ²			

Figure 2

Proceed as follows:

1. Hold tool so that FRONT of tool (with tool markings) is facing you.
2. Make sure ratchet is released by squeezing the tool handles and allowing them to open fully.
3. Insert stripped wires into splice insert until wire is fully bottomed.

NOTE  Wire insulation must be held as close as possible to metal insert of splice.

4. Holding wires in place, insert the splice, wire barrel first, into the crimping chamber as shown in Figure 3.

Crimping Splice

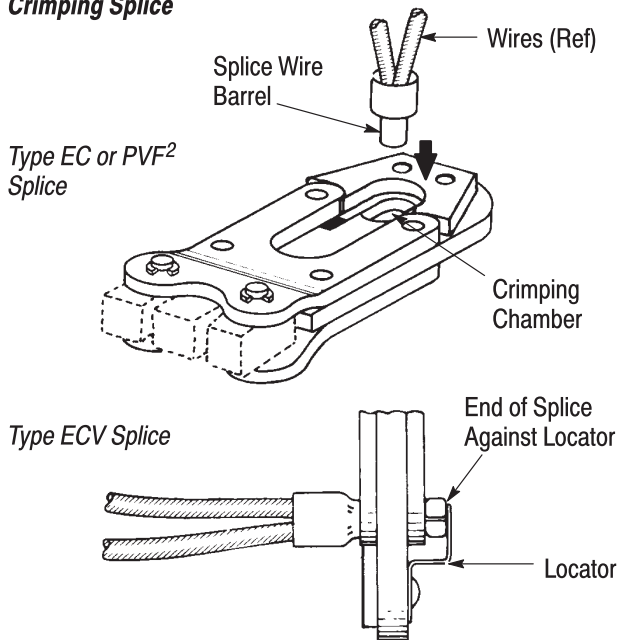


Figure 3

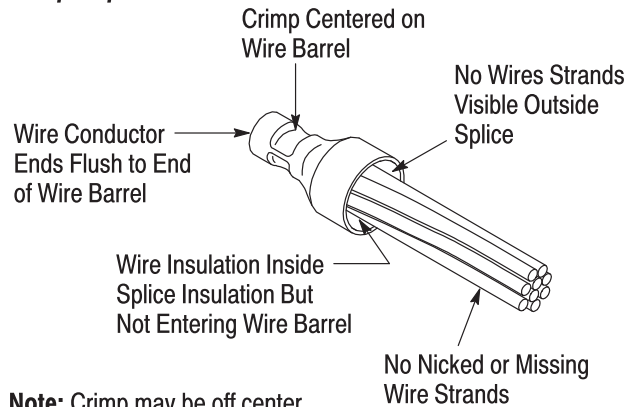
5. Holding splice in place, squeeze tool handle *with slow, even pressure* until ratchet releases.
6. Allow tool handles to open fully, and remove crimped splice from tool.
7. Inspect crimped splice according to Figure 4.

4. MAINTENANCE AND INSPECTION

Tyco Electronics recommends that a maintenance and inspection program be performed periodically to ensure dependable and uniform terminations. Though recommendations call for at least one inspection a month, 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.

Crimp Inspection




Note: Crimp may be off center but not off end of wire barrel

Figure 4

4.1. Daily Maintenance

1. Hand tool should be immersed (handles partially closed) in a reliable commercial degreasing compound to remove accumulated dirt, grease, and foreign matter. When degreasing compound is not available, tool may be wiped clean with a soft, lint-free cloth. Do NOT use hard or abrasive objects that could damage the tool.
2. Make certain that the retaining pins are in place and that they are secured with retaining rings.

CAUTION  Do not remove the retaining pins as permanent damage to the tool could result.

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

Keep all pins, pivot points, and bearing surfaces lubricated with SAE 20 motor oil as follows:

- Tool used in daily production—lubricate daily
- Tool used daily (occasionally)—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. Inspection

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

A. Visual Inspection

1. 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.
2. Inspect head assembly for worn, cracked, or broken crimping dies. If damage is evident, see Section 5, REPLACEMENT AND REPAIR, for information on obtaining further evaluation and repair.

B. Gaging the Crimping Chamber

This inspection requires the use of a plug gage conforming to the dimension in Figure 5. Tyco Electronics does not manufacture or market these gages. Proceed as follows:

1. Remove traces of oil or dirt from tool crimping chamber and plug gage.
2. Close tool handles until dies are bottomed. Do not apply additional pressure to tool handles.
3. Align GO element with the crimping chamber and carefully try to insert straight through without forcing. The GO element must pass completely through the crimping chamber.
4. Now align the NO-GO element and try to insert it straight into the crimping chamber. The NO-GO element may enter partially but must not pass completely through the length of the crimping surface.

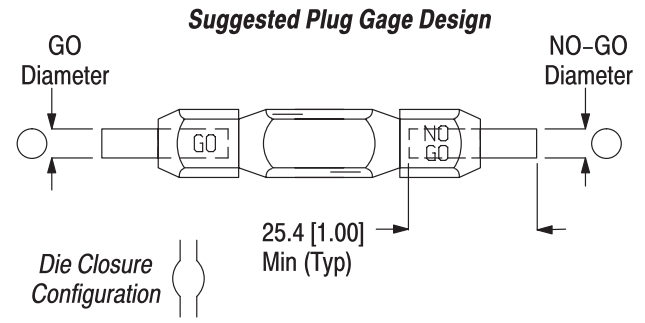
If the crimping chamber conforms to the gage inspection, the tool is considered dimensionally correct and should be lubricated with a THIN coat of any good SAE 20 motor oil. If the crimping chamber does not pass inspection, the tool must be repaired before returning it to service. Refer to Section 5, REPLACEMENT AND REPAIR.

For additional information regarding the use of plug gages, refer to 408-7424.

C. Ratchet Inspection

The ratchet on the tool 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 [.001] shim that is suitable for checking the clearance between the bottoming surfaces of the dies. Proceed as follows:

1. Make a test crimp using the *maximum* number of wires (refer to wire combination chart) for the splice being used. When crimp is made, squeeze handles until ratchet releases. Hold the handles in this position, maintaining just enough tension to keep the dies closed.



GAGE ELEMENT DIAMETER	
GO	NO-GO
2.921-2.929 [.1150-.1153]	3.071-3.073 [.1209-.1210]

Inspection of Crimping Chamber

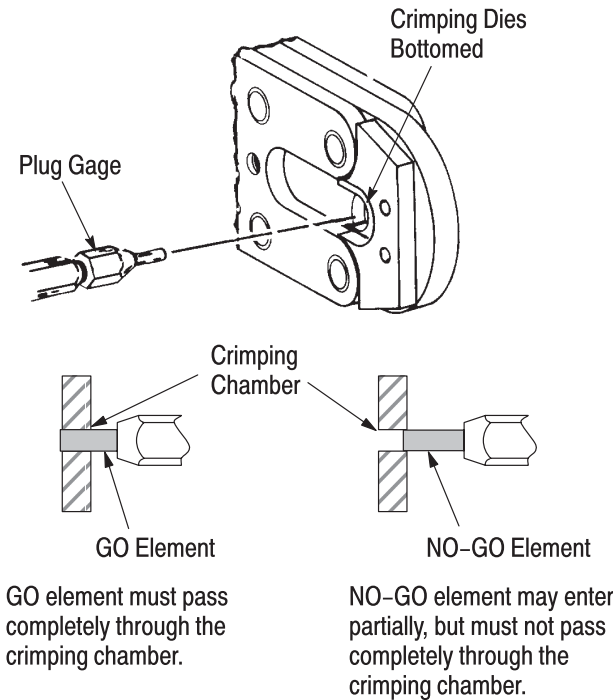


Figure 5

2. Check the clearance between the bottoming surfaces of the dies. If the clearance is 0.025 [.001] or less, the ratchet is satisfactory. If clearance exceeds 0.025 [.001], the ratchet is out of adjustment and must be repaired. See Section 5, REPLACEMENT AND REPAIR.

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 CORPORATION
 PO BOX 3608
 HARRISBURG PA 17105-3608

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

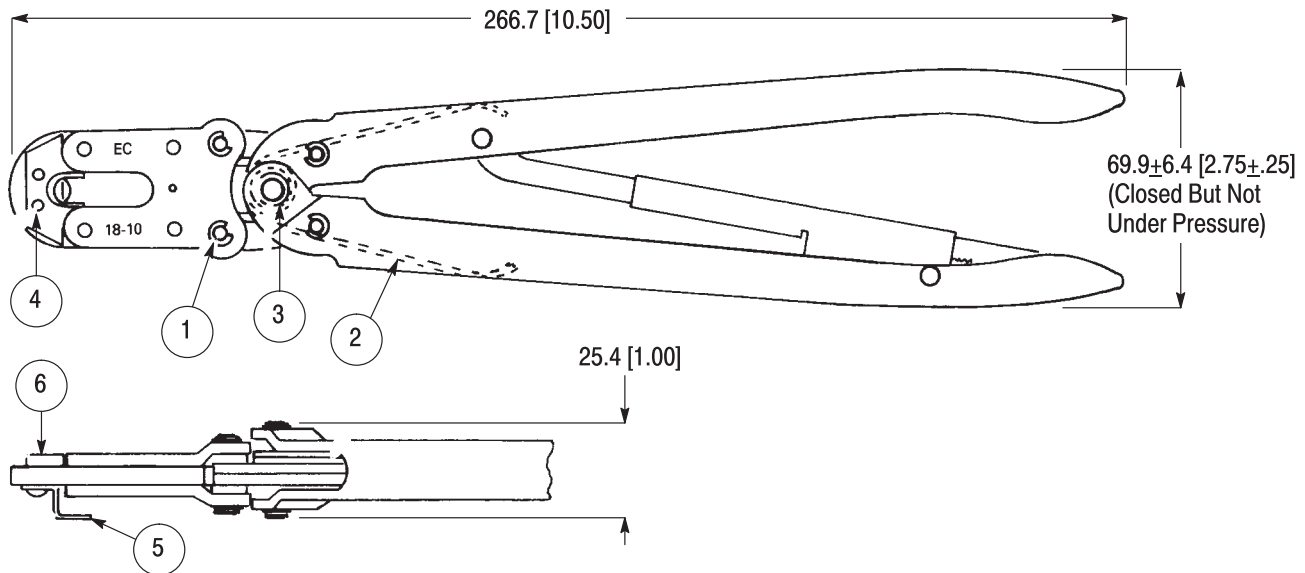
5. REPLACEMENT AND REPAIR

Customer-replaceable parts are listed in Figure 6. 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 by Tyco Electronics to ensure quality and reliability. Order replacement parts through your Tyco Electronics representative, or call

6. REVISION SUMMARY

Since the last revision of this document, the following changes have been made:

- Updated document to corporate requirements



REPLACEMENT PARTS			
ITEM	PART NUMBER	DESCRIPTION	QTY PER TOOL
1	21045-3	RING, Retaining	8
2	304552	SPRING	1
3	21045-6	RING, Retaining	2
4	1-21002-7	SCREW	2
5	6-304052-1	LOCATOR	1
6	313712-1	STOP	1

Figure 6