

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.

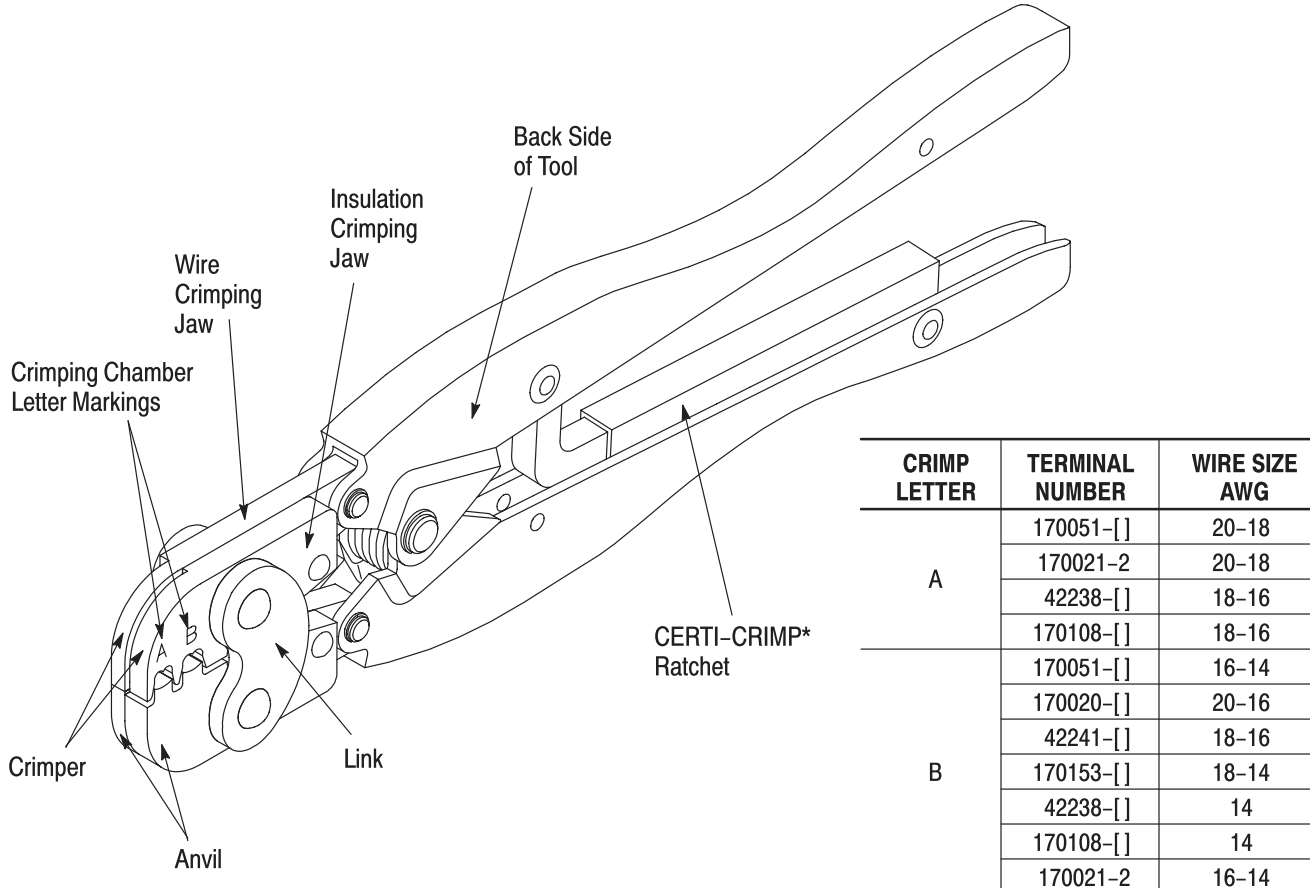


Figure 1

1. INTRODUCTION

Double Action Hand Tool 189508-1 is designed to crimp terminals listed in Figure 1 to stranded wire. Read these instructions thoroughly before using the hand tool.



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

2. DESCRIPTION

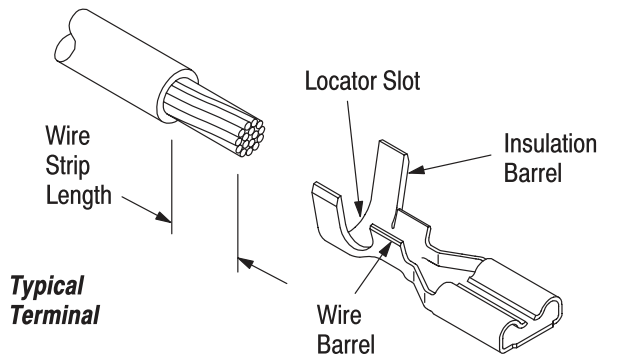
The hand tool features two crimping jaws, each consisting of an anvil and a crimper. When closed, the jaws form two crimping chambers, each marked on the BACK side of the tool with the letters A and B. The wire size range is marked on the link (Figure 1).

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



The crimping jaws bottom before the CERTI-CRIMP ratchet releases. This is a design feature that assures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.

Reasons for reissue are in Section 6, REVISION SUMMARY.



TERMINAL NUMBER	WIRE SIZE AWG	STRIP LENGTH	INSULATION DIAMETER RANGE
170020-[]	20-16	4.2 - 5.2 [.16 - .20]	2.2 - 3.1 [.09 - .12]
170021-2	20-18		
	16-14		
170051-[]	20-18	4.6 - 5.6 [.18 - .22]	
	16-14		
42238-[]	14	5.1 - 6.1 [.20 - .24]	
	18-16		
42241-[]	18-16		
170108-[]	18-16		
	14		
170153-[]	18-14		

Figure 2

3. CRIMPING PROCEDURE

Select the appropriate terminal and wire size, making sure they are compatible. Match the crimp letters in Figure 1 to the wire size selected. These letters must correspond to the markings stamped on the tool head. Mismatched applications will result in improper and unstable terminations.

The wire size and insulation diameter must be within the specified range for the terminal. Strip the wire to the length shown in Figure 2. Do NOT nick or cut the wire strands. Then, proceed as follows:

1. Hold tool so that the BACK side is facing you.
2. Open the crimping jaws by squeezing the tool handles together until the CERTI-CRIMP ratchet releases.

3. Insert terminal barrel into the crimping area as shown in Figure 3. Caution must be taken that the wire barrel and insulation barrel of the terminal are placed in the correct position in the crimping area.
4. Squeeze tool handles together just enough to hold the terminal in place.



Squeezing the handles together too much will deform the wire barrel.

5. Insert stripped wire into terminal barrel from BACK side of tool. Make sure insulation does NOT enter wire barrel.
6. Holding wire in place, squeeze tool handles together FULLY. Open tool handles and remove crimped terminal.

4. MAINTENANCE AND INSPECTION PROCEDURE

It is recommended 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.

The hand tool is inspected before being shipped; however, it is recommended that the tool be inspected immediately upon arrival to ensure that the tool has not been damaged during shipment.

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.

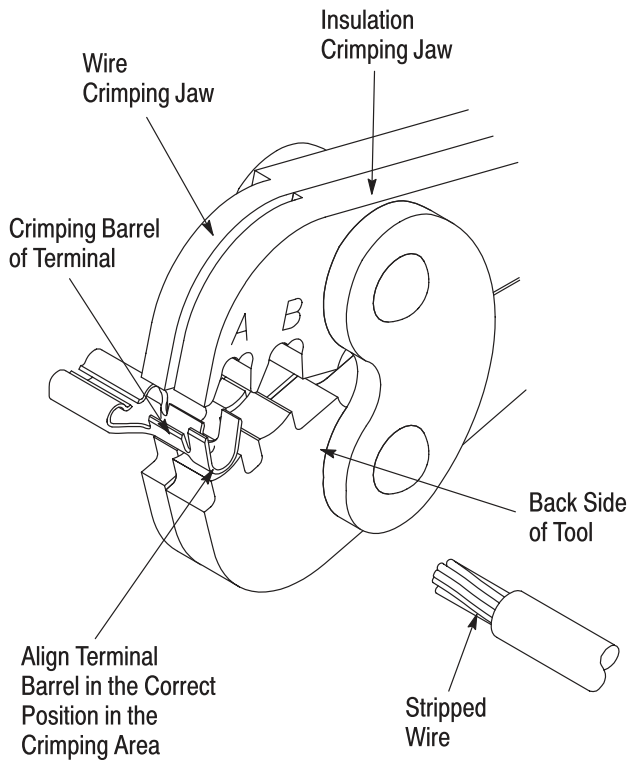


Figure 3

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 jaws. Store the tool in a clean, dry area.

4.2. Periodic Inspection

A. 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.

B. 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 jaws. If damage is evident, return the tool for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

C. Crimp Height Inspection

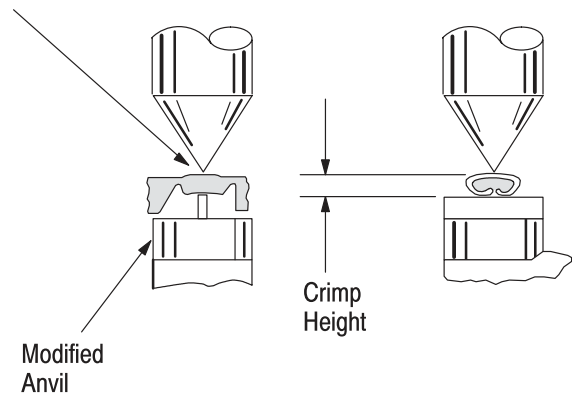
This inspection requires the use of a modified micrometer with a modified anvil and spindle, as shown in Figure 4. Tyco Electronics recommends the Crimp Height Comparator RS-1019-5LP which can be purchased from:

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

Proceed as follows:

1. Select a receptacle and **maximum** size wire for the crimping chamber.
2. Refer to Section 3, CRIMPING PROCEDURE, and crimp the receptacle accordingly.
3. Using a crimp height comparator, measure the wire barrel crimp height as shown in Figure 4. If the crimp height conforms to that height, the tool is considered dimensionally correct. If not, the tool must be returned for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

Position Point On Center of Wire Barrel Opposite Seam



HAND TOOL	CRIMP LETTER	WIRE SIZE (AWG) (Max)	CRIMP HEIGHT DIMENSION
189508-1	A	18 - 20	1.27 ± .076 [.050 ± .003]
	B	14 - 16	1.65 ± .076 [.065 ± .003]

Figure 4

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

clearance exceeds 0.025 [.001], the ratchet is out of adjustment and must be repaired. See Section 5, REPLACEMENT AND REPAIR.

D. 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 jaws 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 crimping jaws. Proceed as follows:

1. Select a terminal and **maximum** size wire for the tool.
2. Position the terminal and wire between the crimping jaws, as described in Section 3, CRIMPING PROCEDURE.
3. Hold the wire 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 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

5. REPLACEMENT AND REPAIR

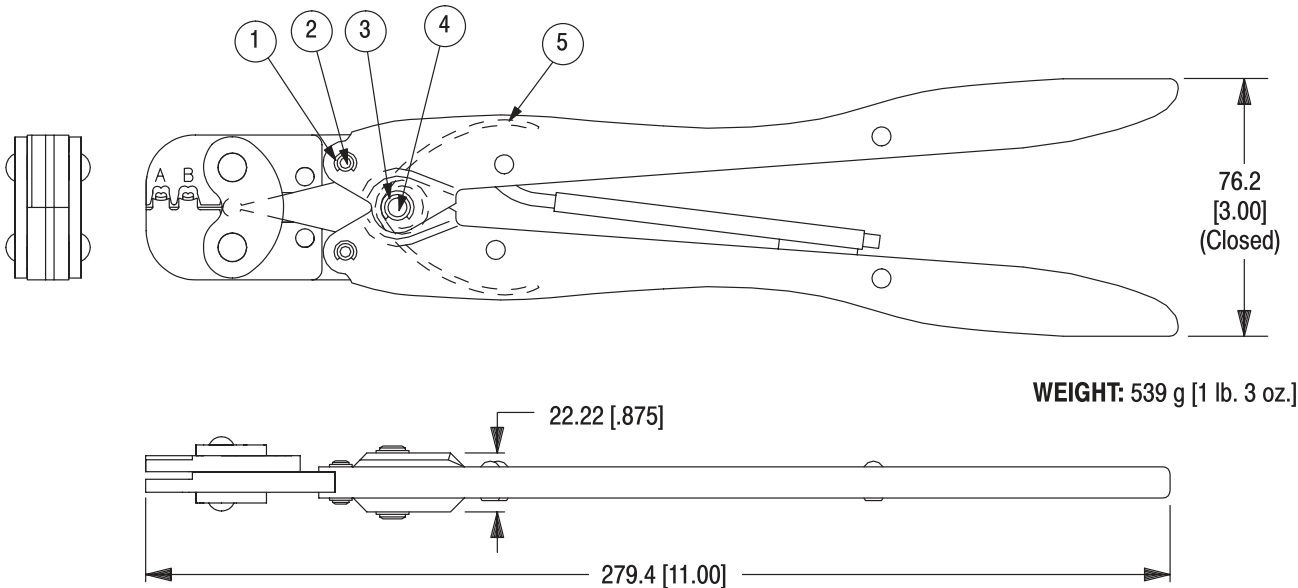
The parts listed in Figure 5 are customer-replaceable. A complete inventory can be stocked and controlled to prevent lost time when replacement of parts is necessary. Order replacement parts through your Tyco Electronics Representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605, or write to:

CUSTOMER SERVICE (38-35)
 TYCO ELECTRONICS CORPORATION
 P.O. BOX 3608
 HARRISBURG, PA 17105-3608

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

6. REVISION SUMMARY

Since the previous release of this sheet, the Tyco Electronics logo was changed.



REPLACEMENT PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY PER ASSY
1	21045-3	RING, External Crescent Retaining	4
2	1-23619-6	PIN, Retaining	2
3	21045-6	RING, External Crescent Retaining	2
4	2-23620-9	PIN, Retaining	1
5	39364	SPRING, Handle	1

Figure 5