

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.

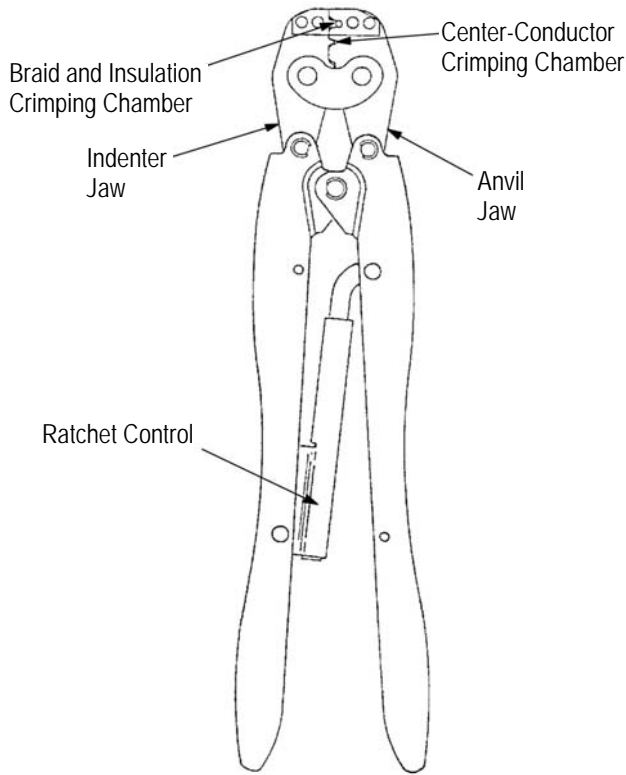


Figure 1

1. INTRODUCTION

CERTI-CRIMP hand crimping tools 220141-1 and 220141-2 (see Figure 1) are designed to crimp the Braid-Pic terminals listed in Figure 2.

Read these instructions thoroughly before using the tool.

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

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

2. DESCRIPTION

Each tool features an anvil jaw and an indenter jaw. When closed, the jaws form a center-conductor crimping chamber and cable braid and insulation crimping chamber. The ratchet control ensures full crimping of the terminals. Once engaged, the ratchet will not release until the handles have FULLY closed.



CAUTION
The crimping jaws bottom before the ratchet control releases. This feature assures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.

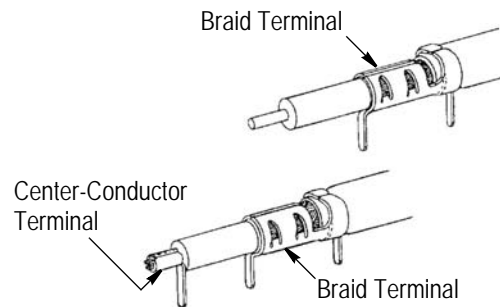
Applicable terminals are available in permanent-mount (with or without center-conductor termination) and vertical disconnect (contact termination). See Figure 2.

3. CRIMPING PROCEDURE

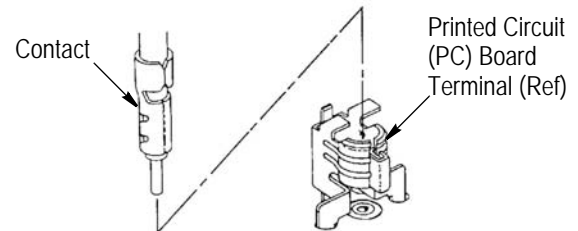
i **NOTE**
The hand tool is coated with a preservative to prevent rust or corrosion. Wipe this preservative from the tool, particularly from the crimping jaws, before using the tool.

The crimping procedure provides instructions on the use of the tool for termination. For information such as cable stripping and terminal assembly, refer to instruction sheet 408-2472-2 (permanent-mount terminals) and 408-2472-1 (vertical disconnect terminal).

Crimped Permanent-Mount Terminals



Crimped Contact of Vertical Disconnect Terminal



TERMINAL	HAND CRIMPING TOOL
226286-3, 226176-2, 226177-2, 226176-3	220141-1
226176-4	220141-2

Figure 2

The permanent-mount terminal *with* center-conductor termination requires two separate crimps: the center-conductor terminal to the cable center conductor, then the braid terminal to the cable braid and insulation. For the permanent-mount terminal *without* center-conductor termination or the contact of vertical disconnect terminal, proceed to Paragraph 3.2.

3.1. Crimping Center-Conductor Terminal

Refer to Figure 3, and proceed as follows:

1. Strip the cable to the appropriate dimension, and bend the solder tab of the center-conductor terminal to a 90° angle as shown in Figure 2.
2. Open the tool jaws by squeezing the handles until the ratchet releases, then allow the handles to open FULLY.
3. Close the tool handles partially and insert the center-conductor terminal into the center-conductor crimping chamber. The solder tab of terminal must rest in the slot in tool jaw. Refer to Figure 3.
4. Insert the center conductor of the cable into the center-conductor terminal until it bottoms.
5. While holding the cable and terminal in place, close the tool handles until the ratchet releases. Allow the handles to open fully, then remove the crimped terminal.

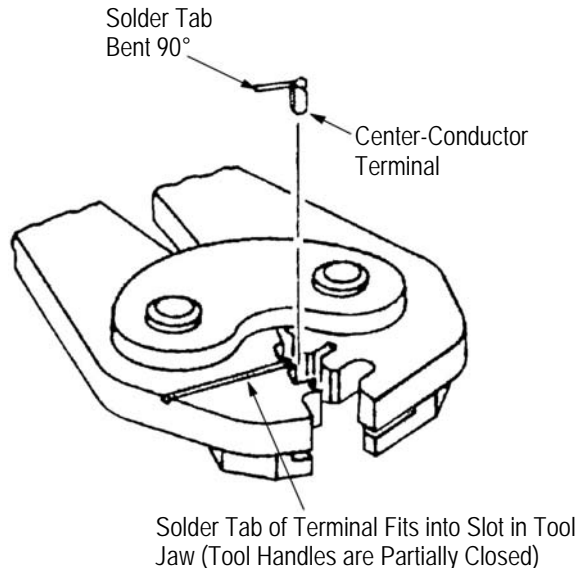


Figure 3

3.2. Crimping Braid Terminal or Contact of Vertical Disconnect Terminal

Refer to Figure 4, and proceed as follows:

1. Insert the exposed braid of the cable into the braid barrel of the braid terminal or contact in a straight downward motion until the braid is seated and the cable outer insulation is seated in insulation barrel.

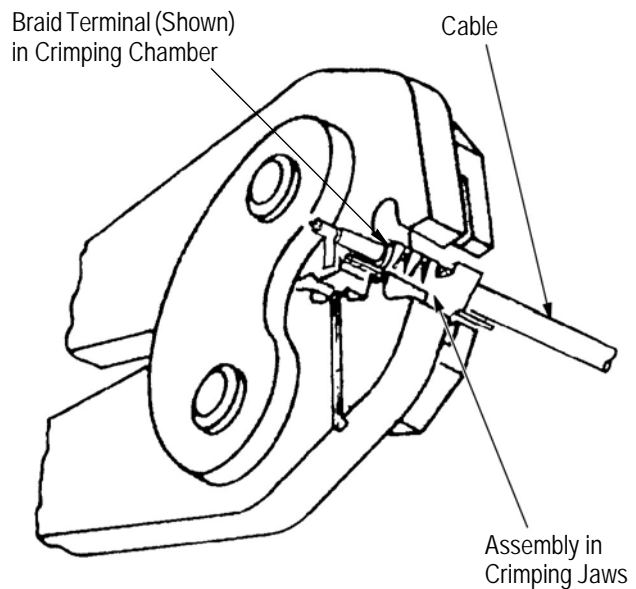


Figure 4



NOTE

Solder tabs of braid terminal should NOT be bent until after crimping.

2. Open the tool jaws by squeezing the handles until the ratchet releases, then allow the handles to open FULLY.
3. Place the braid terminal or contact and cable into the cable braid and insulation crimping chamber as shown in Figure 4.



NOTE

The cable braid and insulation crimping chamber will simultaneously crimp both the braid and outer insulation.

4. Close the tool handles until the ratchet releases. Allow the handles to open FULLY, and remove the crimped assembly.
5. For the braid terminal, bend the solder tabs to a 90° angle as shown in Figure 2.

4. MAINTENANCE AND INSPECTION

It is recommended 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, inspect the tool immediately upon 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 the tool be interchanged except the replacement parts referred to in Section 5, REPLACEMENT AND REPAIR.

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 jaws. 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. The 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 the tool head assembly for worn, cracked, or broken jaws. If damage is evident, return the tool to TE for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

4.4. Jaw Closure Inspection

This inspection requires the use of plug gages conforming to the dimensions given in Figure 5. To gage the crimping chambers, proceed as follows:

1. Remove traces of oil or dirt from the crimping chambers 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 braid and insulation plug gage with the braid section of the braid and insulation crimping chamber. Push the gage element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber.

4. Check the insulation section of the braid and insulation crimping chamber with the NO-GO gage in the same manner as step 3. The NO-GO element may start entry, but must not pass completely through the crimping chamber.

5. Check the center-conductor crimping chamber using the proper plug gage in the same manner as steps 3 and 4.

6. If the crimping chambers conform to the jaw closure inspection, the jaws are considered dimensionally correct. If not correct, the tool must be returned for further evaluation and repair. Refer to Section 5, REPLACEMENT AND REPAIR.

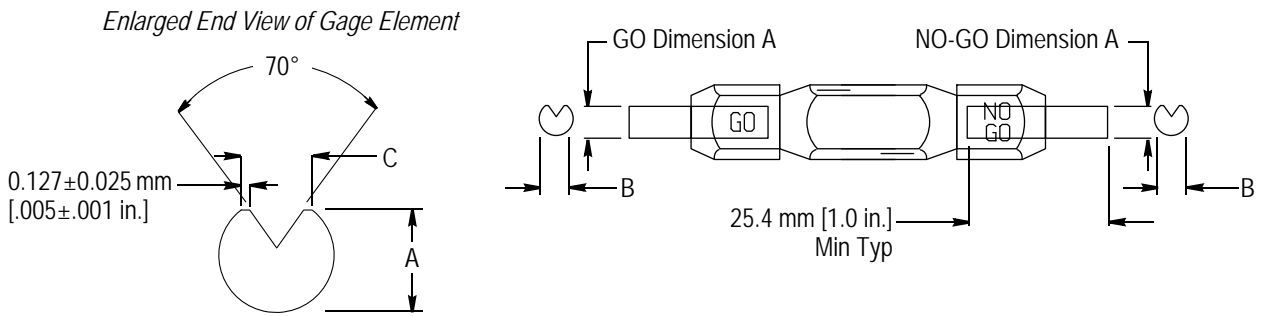
For additional information regarding the use of a plug gage, refer to instruction sheet 408-7424.

4.5. Ratchet Control Inspection

The ratchet control feature on these hand tools should be checked to ensure that the ratchet does not release prematurely, allowing the jaws to open before they have fully bottomed. Proceed as follows:

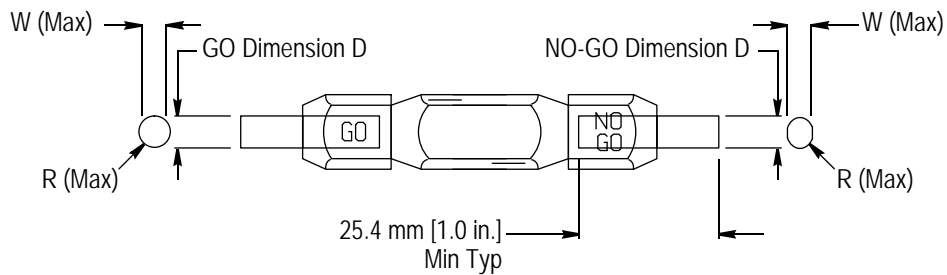
1. Obtain a 0.025-mm [.001-in.] shim that is suitable for checking the clearance between the bottoming surfaces of the jaws.
2. Select a terminal and maximum size cable for the tool.
3. Position the terminal and cable into the crimping chamber as described in Paragraph 3.2, Crimping Braid Terminal.
4. Hold the terminal and cable in place and squeeze the tool handles until the ratchet control releases. Hold the handles in this position, maintaining just enough tension to keep the jaws closed.
5. Check the clearance between the bottoming surfaces of the jaws. 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.

Center-Conductor Crimping Chamber Suggested Plug Gage Design



HAND TOOL	GAGE ELEMENT				DIAMETER C (mm [in.])
	DIMENSION A (mm [in.])		DIMENSION B (mm [in.])		
	GO	NO-GO	GO	NO-GO	
220141-1	0.686-0.693 [.0270-.0273]	0.836-0.838 [.0329-.0330]	0.914 [.0360]	0.991 [.0390]	0.767 [.0302]
220141-2					

Braid and Insulation Crimping Chamber Suggested Plug Gage Design



HAND TOOL		GAGE ELEMENT			
PART NUMBER	CRIMPING CHAMBER	DIMENSION D (mm [in.])		DIMENSION (mm [in.])	
		GO	NO-GO	"W" (Max)	"R" (Radius, Max)
220141-1	Braid	2.311-2.319 [.0910-.0913]	2.461-2.464 [.0969-.0970]	2.29 [.090]	1.14 [.045]
	Insulation	2.616-2.624 [.1030-.1033]	3.223-3.226 [.1269-.1270]	2.54 [.100]	1.27 [.050]
220141-2	Braid	2.311-2.319 [.0910-.0913]	2.461-2.464 [.0969-.0970]	2.29 [.090]	1.14 [.045]
	Insulation	2.794-2.801 [.1100-.1103]	3.299-3.302 [.1299-.1300]	2.54 [.100]	1.27 [.050]

Figure 5

5. REPLACEMENT AND REPAIR

Replacement parts are listed in Figure 6. Parts other than those listed in Figure 6 should be replaced by TE to ensure quality and reliability of the tool. Order replacement parts through your representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605, or write to:

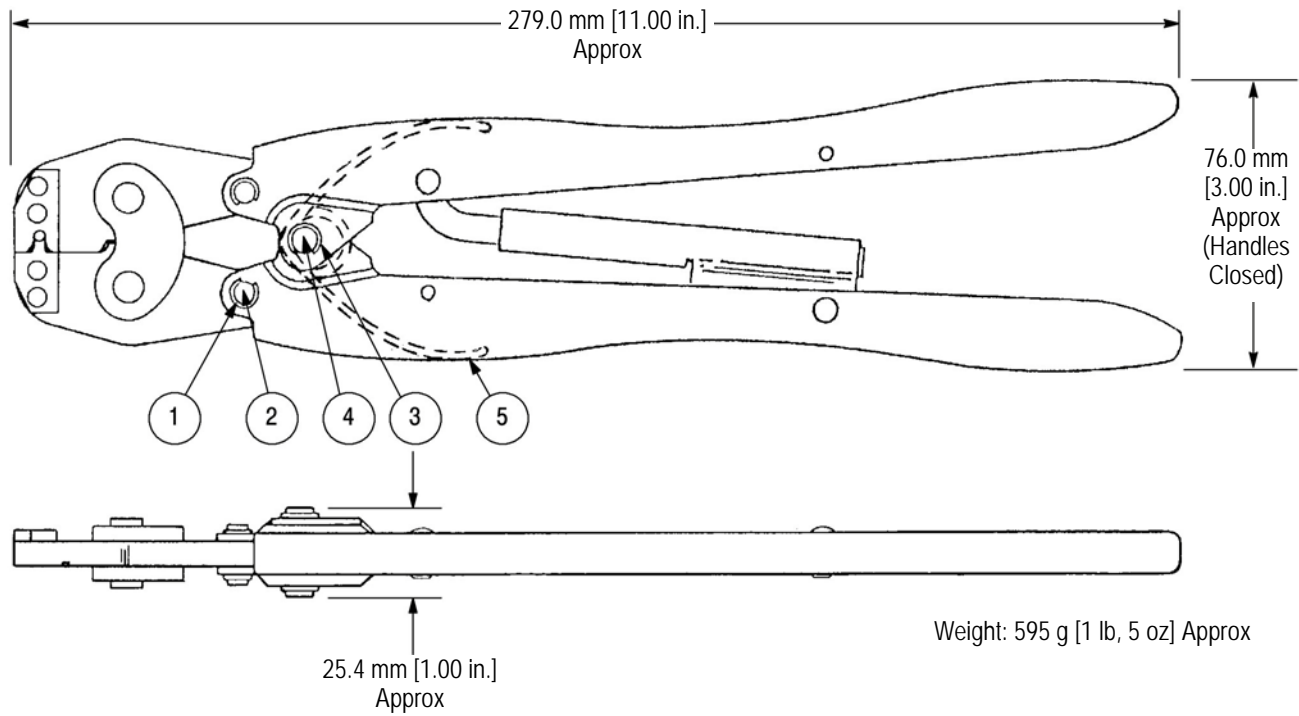
CUSTOMER SERVICE (038-035)
 TYCO ELECTRONICS CORPORATION
 PO BOX 3608
 HARRISBURG PA 17105-3608

For tool repair service or ratchet control adjustment, contact your local representative.

6. REVISION SUMMARY

Revisions to this instruction sheet include:

- Corrected arrow for callout in Figure 4
- Corrected end view illustration in Figure 5



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

Figure 6