

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.

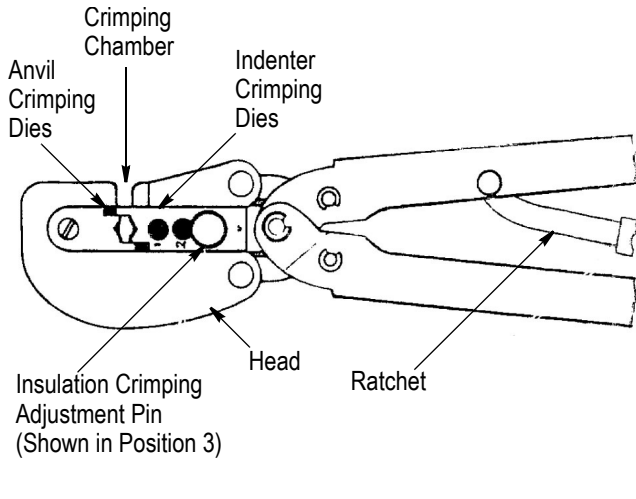


Figure 1

1. INTRODUCTION

CERTI-CRIMP Heavy Head Hand Tool 59054, shown in Figure 1, is designed to crimp DIAMOND GRIP terminals and splices onto stranded wire sizes 12 through 10 AWG. Read these instructions thoroughly before using the tool.

NOTE *Dimensions in this instruction sheet are in millimeters [with inches in brackets]. Figures are not drawn to scale.*

Reasons for reissue of this instruction sheet are provided in Section 7, REVISION SUMMARY.

2. DESCRIPTION

The tool features a head that holds four crimping dies (2 anvils and 2 indenters), an insulation crimping adjustment pin, locator stop, and ratchet. When closed, the crimping dies form one crimping chamber with a wire barrel section and an insulation barrel section.

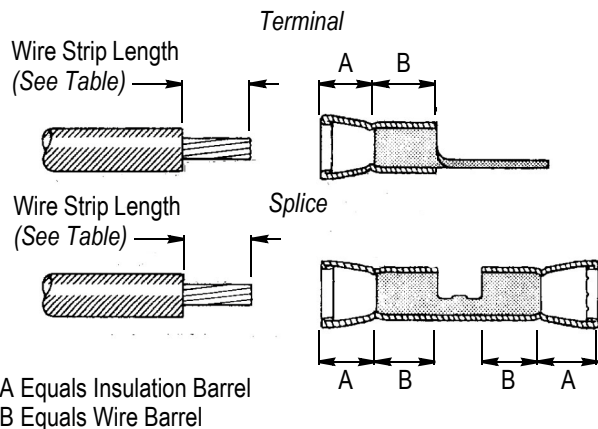
The insulation crimping adjustment pin is used to control the crimp height of the terminal or splice insulation barrel. The tool is marked on the back with the wire size range. The ratchet assures full crimping of the terminal or splice. Once engaged, the ratchet will not release until the handles have FULLY closed.

CAUTION *The crimping dies bottom before the ratchet releases. This feature assures maximum electrical and tensile performance of the crimp. DO NOT re-adjust the ratchet.*

3. CRIMPING PROCEDURE

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

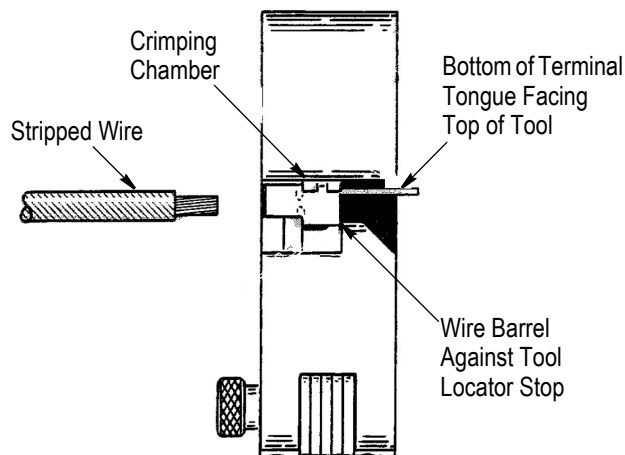
1. Strip the wire within the dimensions given in Figure 2.
2. Open the crimping dies by squeezing the handles until the ratchet releases and then allow the handles to open FULLY.
3. Insert the terminal or splice into the crimping chamber as shown in Figure 3.
4. Close tool handles slowly until the terminal or splice is held firmly in place. DO NOT deform the wire barrel.
5. Insert the stripped wire into terminal or splice wire barrel until the end of the wire butts against the end of the wire barrel.
6. Holding the wire in place, close the tool handles until ratchet releases. Allow the handles to open FULLY.
7. To crimp the other half of the splice, position the un-crimped wire barrel into the crimping dies and follow the same steps used to crimp the first half. If the splice cannot be turned, turn the tool.



WIRE SIZE RANGE (AWG)	WIRE STRIP LENGTH RANGE	
	TERMINAL	SPLICE
12-10	6.35-7.14 [.250-.281]	8.73-9.52 [.344-.375]

Figure 2

Crimping Terminal



Crimping Splice

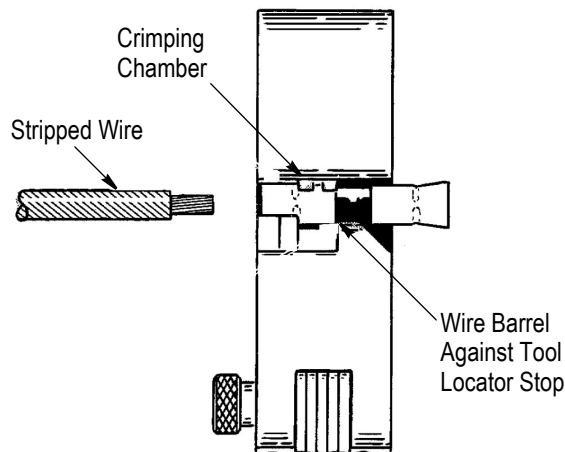


Figure 3

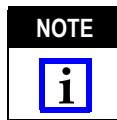
8. Inspect the crimped terminal or splice according to Figure 4.

4. INSULATION CRIMPING ADJUSTMENT

The insulation barrel section of the crimping chamber of the tool has three positions to adjust the wire insulation grip: 1-Tight, 2-Medium, and 3-Loose. To determine the proper insulation crimp setting, proceed as follows:

1. Insert the insulation crimping adjustment pin into Position 3 as shown in Figure 1.
2. Position a terminal or splice into the crimping dies as described in Section 3, CRIMPING PROCEDURE.
3. Insert an UNSTRIPPED wire into ONLY the insulation barrel of the terminal or splice. Crimp the terminal or splice and remove it from the crimping dies.

4. Check the insulation support by bending the wire back and forth once. The insulation barrel should retain grip on the wire insulation. If the wire pulls out, move the insulation crimping adjustment pin to the next tighter position (2) and perform another test crimp. If the wire does not pull out, the pin is properly adjusted and the tool is ready for crimping. Do not use a tighter crimp than necessary.



Adjust pin as necessary until the desired insulation grip is obtained. Crimp should hold wire insulation firmly without cutting into it.

5. 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, it is recommended that the tool be inspected 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 these tools be interchanged except those replacement parts listed in Section 6.

5.1. 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 crimping dies. Store the tool in a clean, dry area.

5.2. Lubrication

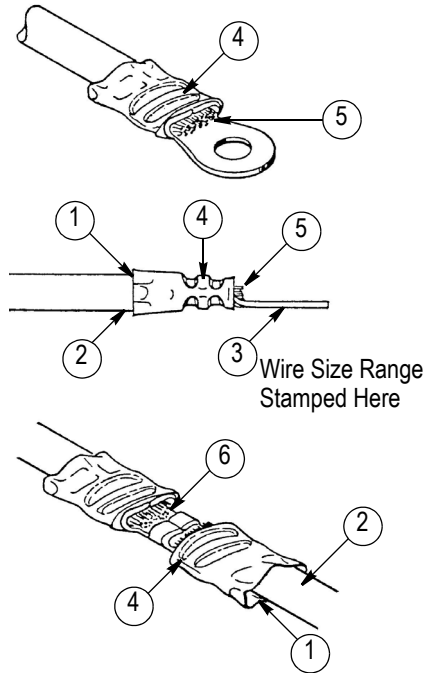
Lubricate all pins, pivot points, and bearing surfaces with SAE 20 motor oil as follows:

- Tools used in daily production—lubricate daily
- Tools used daily (occasional)—lubricate weekly
- Tools used weekly—lubricate monthly

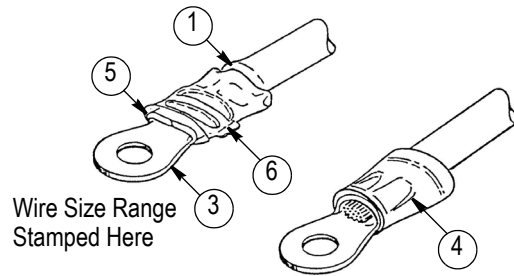
Crimp Inspection

ACCEPT

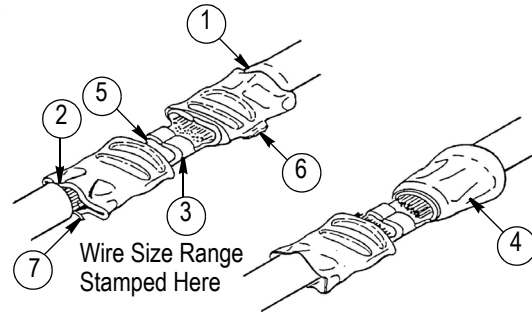
REJECT



Terminals



Splices



- ① Insulation barrel is in firm contact with wire insulation.
- ② Wire is fully inserted.
- ③ Wire size is within wire size range stamped on terminal tongue or splice.
- ④ Crimp is centered on wire barrel.
- ⑤ End of wire conductor is flush with or extends slightly beyond end of wire barrel.
- ⑥ End of wire conductor is against wire stop.
Note: If the conductor is not against the wire stop, the conductor must at least be flush with or extend beyond the wire barrel.

- ① Wire insulation is extruded (insulation crimp is too tight).
- ② Wire is not fully inserted.
- ③ Wire size is not within the wire size range stamped on the terminal tongue or splice.
- ④ Crimp is not centered on the wire barrel.
- ⑤ End of wire conductor is not flush with or extends slightly beyond end of wire barrel (check strip length).
- ⑥ Excessive flash (wrong terminal or splice combination used or crimping dies are damaged).
- ⑦ There are nicked or missing wire conductor strands.

Figure 4

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.

5.3. 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. Inspect head assembly for worn, cracked, or broken dies. See Figure 5. If damage is evident, return the tool to Tyco Electronics for evaluation and repair. See Section 6, REPLACEMENT AND REPAIR.

5.4. Gaging the Crimping Chamber

This inspection requires the use of plug gages conforming to the dimensions provided in Figure 6. Plug gages are not available from Tyco Electronics.

To gage the crimping chamber, proceed as follows:

1. Remove traces of oil or dirt from the crimping chamber and plug gages.
2. Close the tool handles until it is evident that the crimping dies have bottomed; then hold in this position. DO NOT force the dies beyond initial contact.

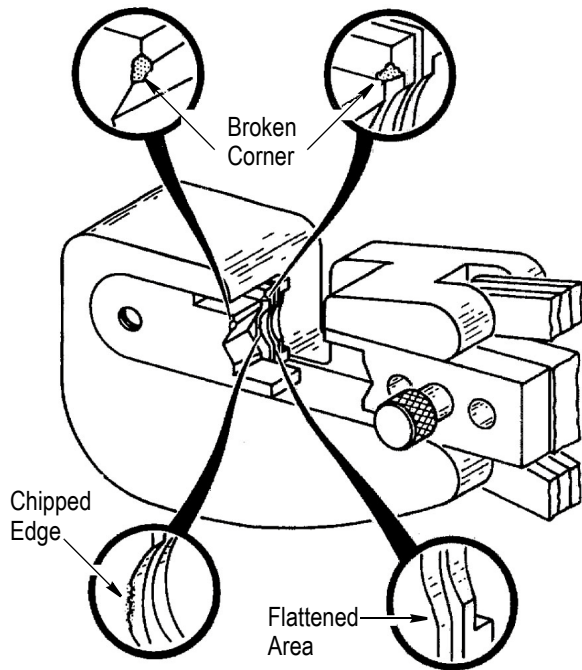


Figure 5

3. Close the tool handles until it is evident that the crimping dies have bottomed; then hold in this position. DO NOT force the dies beyond initial contact.

4. Align the GO element of the wire barrel plug gage with the wire barrel section of the crimping chamber. Push the element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber, as shown in Figure 7.

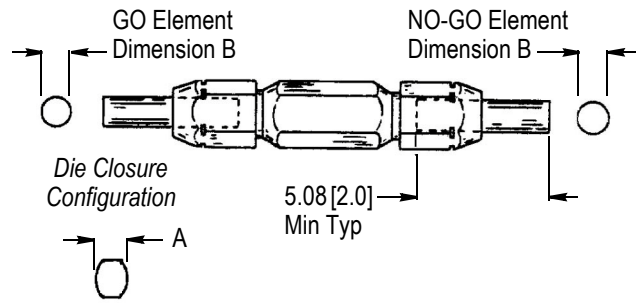
5. Align the NO-GO element and try to insert it straight into the same section. The NO-GO element may start entry, but must not pass completely through the crimping chamber. See Figure 7.

6. Insert the insulation crimping adjustment pin into Position 1. Check the insulation barrel section of the crimping chamber using the insulation barrel plug gage in the same manner as in Steps 3 and 4. See Figure 7.

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 6, REPLACEMENT AND REPAIR, for information on obtaining further evaluation and repair.

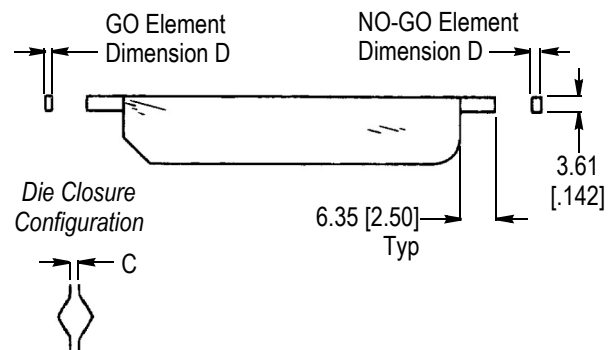
For additional information regarding the use of plug gages, refer to instruction sheet 408-7424.

Suggested Plug Gage for Wire Barrel Section of Crimping Chamber



DIE CLOSURE DIMENSION A ‡		GAGE MEMBER ‡‡ DIMENSION B	
GO	NO-GO	GO	NO-GO
3.327 [.1310]	3.479 [.1370]	3.327-3.335 [.1310-.1313]	3.477-3.479 [.1369-.1370]

Suggested Plug Gage for Insulation Barrel Section of Crimping Chamber



DIE CLOSURE DIMENSION C ‡ (Set Insulation Adjustment Pins in Position 1)		GAGE MEMBER ‡‡ DIMENSION D	
GO	NO-GO	GO	NO-GO
1.321 [.0520]	1.829 [.0720]	1.321-1.328 [.0520-.0523]	1.826-1.829 [.0719-.0720]

‡ Die closure dimensions apply when surface of wire barrel section of crimping dies are bottomed but not under pressure.

‡‡ Material — Tool Steel

Figure 6

5.5. Ratchet Inspection

The ratchet on this hand tool 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 [.001] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping dies. Then proceed with the following.

1. Thoroughly clean the bottoming surfaces of the crimping dies.

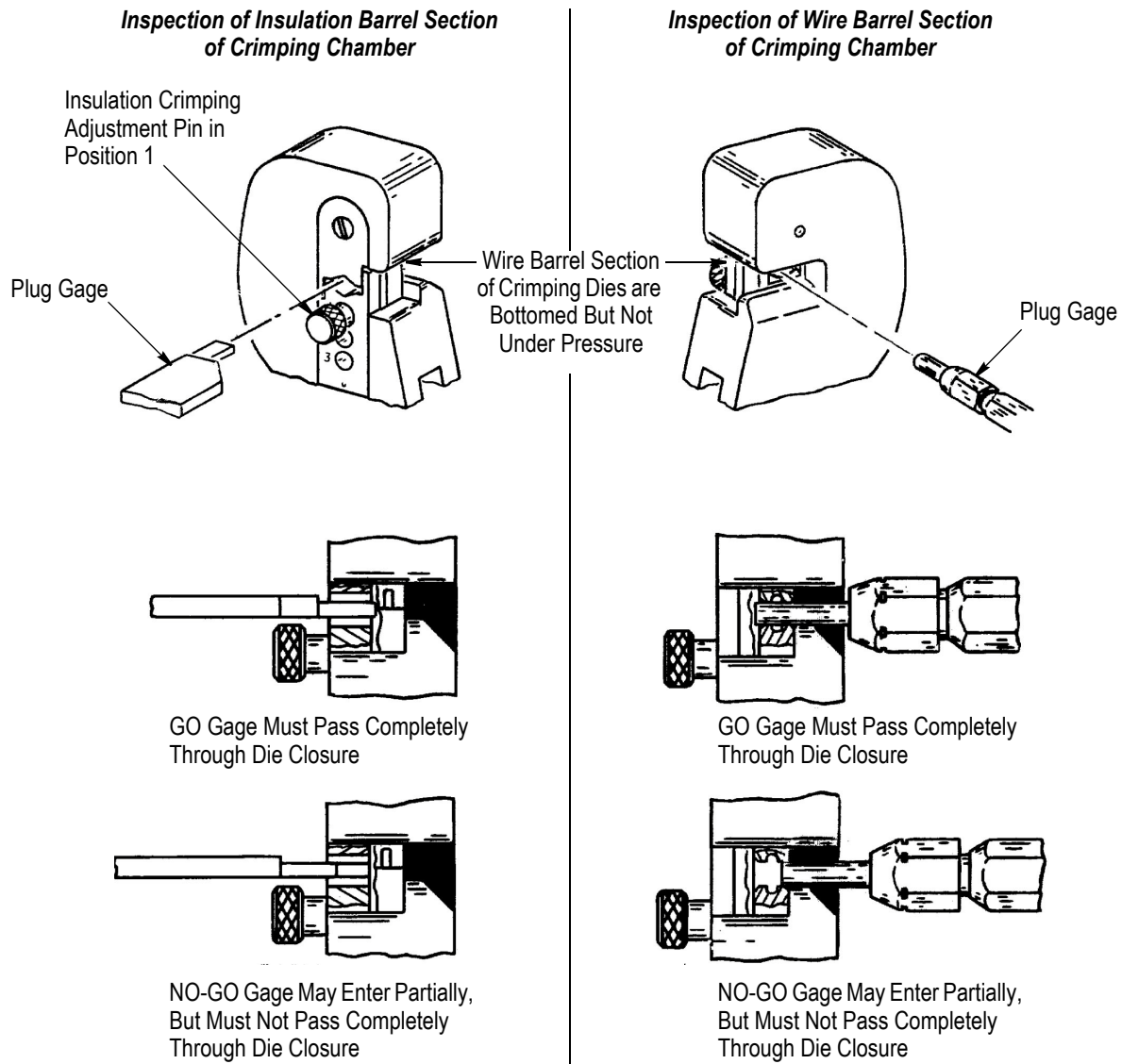


Figure 7

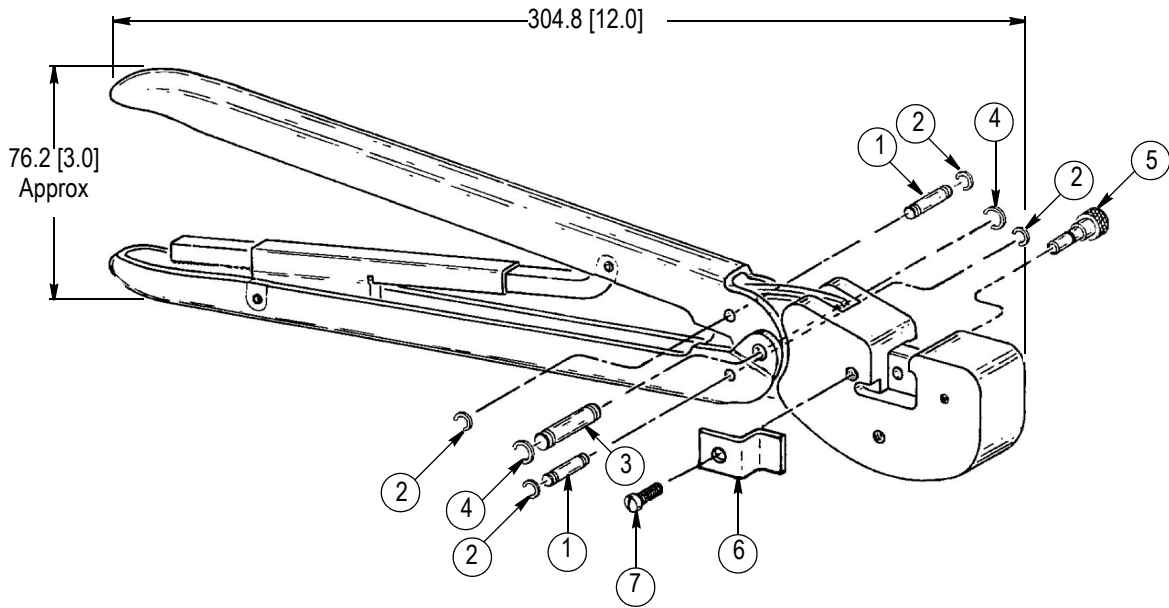
2. Select a maximum size wire and terminal. Strip the wire to the proper dimension.
3. Position the terminal and wire between the crimping dies, as described in Section 3, CRIMPING PROCEDURE.
4. Hold the wire in place and squeeze the handles until the ratchet releases. Hold the handles in this position, maintaining just enough tension to keep the dies closed.
5. Using the shim, check the clearance between the bottoming surfaces of the crimping 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 6, REPLACEMENT AND REPAIR.

6. REPLACEMENT AND REPAIR

Customer-replaceable parts are listed in Figure 8. Parts other than those listed should be replaced by Tyco Electronics to ensure quality and reliability of the tool. Order the replacement part 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 customer repair service, call 1-800-526-5136.



ITEM	PART NUMBER	DESCRIPTION	QTY PER TOOL
1	300388	PIN, Retaining	2
2	21045-3	RING, Retaining	4
3	300389	PIN, Retaining	1
4	21045-6	RING, Retaining	2
5	303848-2	PIN ASSEMBLY, Adjustment	1
6	1-305936-0	LOCATOR, Stop	1
7	5-21016-6	SCREW	1

Figure 8

7. REVISION SUMMARY

Revisions to this instruction sheet include:

- Updated instruction sheet to corporate requirements
- Removed obsolete tools
- Added Section 2
- Modified Section 6
- Added Figure 4

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