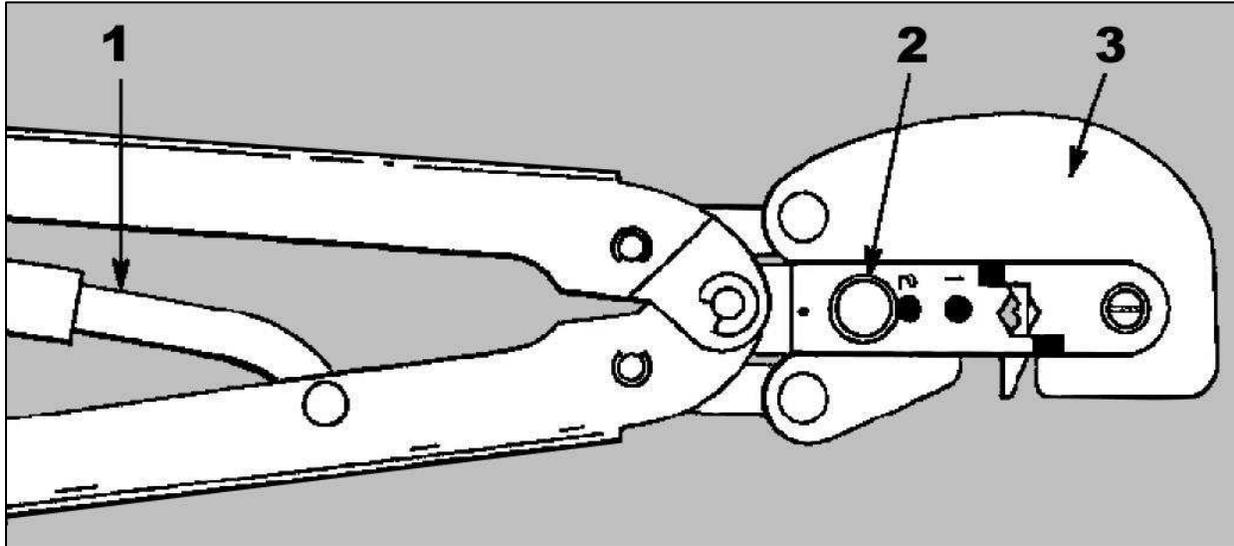


PROPER USE GUIDELINES

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 is available for extended-use production operations.

Figure 1: STRATO-THERM Terminal and Splice Hand Crimping Tools 59294 and 59461



- 1 CERTI-CRIMP tool ratchet
- 2 Insulation crimping adjustment pin
- 3 Front side of tool

1. INTRODUCTION

STRATO-THERM Terminal Hand Crimping Tools 59294 and 59461 are used to crimp high-temperature and heat-resistant STRATO-THERM terminals and splices onto wire sizes 16 through 10 AWG.

i NOTE
For other tools accompanied by this instruction sheet, follow the instructions for tools used to crimp the same wire size.

i NOTE
Dimensions in this instruction sheet are in millimeters with [inches in brackets]. Figures are for reference only and are not drawn to scale.

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

2. DESCRIPTION

Each tool features a head containing two stationary crimping dies (anvils), two movable crimping dies (indenters), a locator, an insulation crimping adjustment pin, and a CERTI-CRIMP tool ratchet.

When closed, the crimping dies form a single crimping chamber with two sections: an insulation barrel section and a wire barrel section. The insulation barrel section crimps the terminal or splice onto the wire insulation. Simultaneously, the wire barrel section crimps the terminal or splice wire barrel onto the stripped wire. The locator positions the terminal or splice in the crimping chamber. The insulation crimping adjustment pin is used to regulate the height of the insulation crimp.

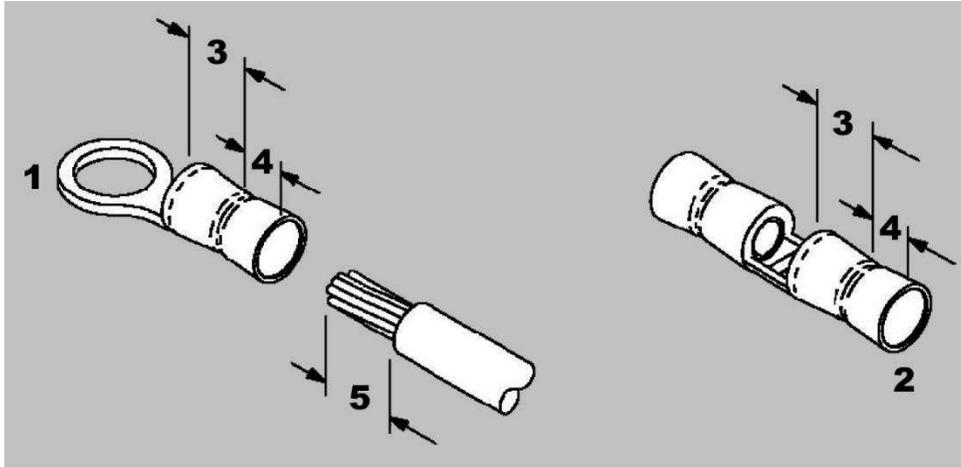
The CERTI-CRIMP tool ratchet assures full crimping of the terminal. When engaged, the ratchet does not release until the tool handles have been **fully** closed. See Figure 1.

! 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

- Strip the wire using the recommended strip length dimensions provided in Table 1.

Figure 2: Terminal and splice



- 1 Terminal
- 2 Splice
- 3 Wire barrel sleeve
- 4 Insulation barrel sleeve
- 5 Wire strip length



NOTE

The wire barrel sleeve on high-temperature terminals and splices is color-coded orange. Heat-resistant terminals and splices are **not** color-coded.

Table 1: Crimping specifications

Tool	Wire	
	Size (AWG)	Strip length
59294	16-14	5.16-5.94 [.203-.234]
59461	12-10	8.74-9.53 [.344-.375]

- To open the crimping dies, close the tool handles until the ratchet releases.

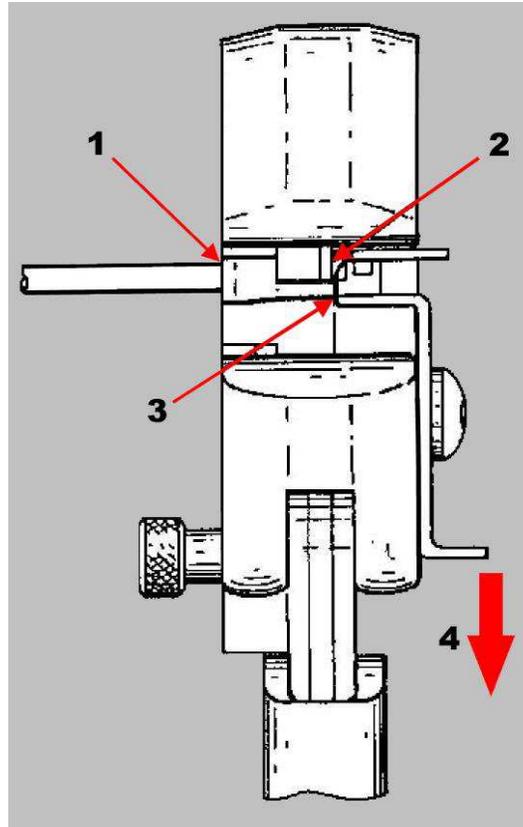


NOTE

The tool handles cannot be opened until they are **fully** closed.

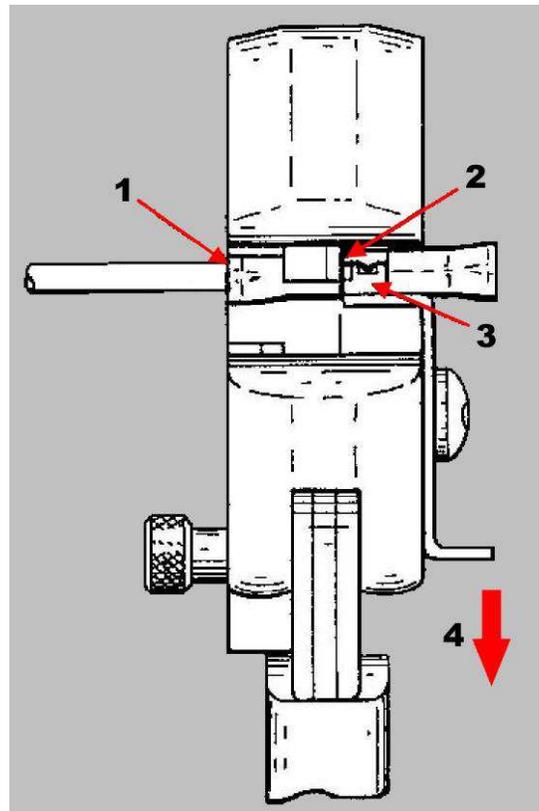
3. Pull the locator down and, from the **front** side of the tool, insert the terminal or splice wire barrel sleeve into the crimping dies. Make sure that the edge of the wire barrel sleeve is flush with the edge of the die and that it rests against the locator. See Figure 3 and Figure 4.

Figure 3: Terminal crimp



- 1 Edge of wire barrel sleeve is flush with edge of crimping die
- 2 Wire is flush with outer edge of crimping die
- 3 Wire barrel sleeve rests against locator
- 4 Pull locator down

Figure 4: Splice crimp



- 1 Edge of wire barrel sleeve is flush with edge of crimping die
- 2 Wire is flush with outer edge of crimping die
- 3 Window indent in splice slides over locator
- 4 Pull locator down

- 4. Close tool handles just enough to hold the terminal or splice within the crimping dies.


CAUTION

Do not close the tool handles too tightly. Doing so deforms the terminal or splice.

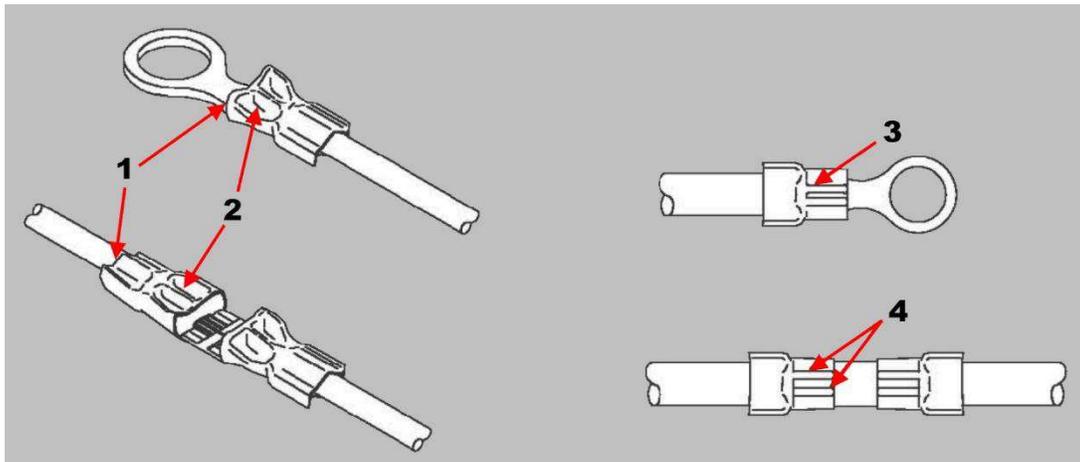
- 5. Insert wire conductor through the insulation barrel sleeve and into the wire barrel sleeve until it is flush with the outer edge of the sleeve. See Figure 3 and Figure 4.
- 6. Close the tool handles **fully** to crimp the terminal or splice, then allow the handles to open **fully**.
- 7. Remove the crimped terminal or splice from the crimping dies.
- 8. To crimp the other half of the splice, reposition the uncrimped sleeve in the crimping dies as described in step 3. Follow steps 4 through 6 to complete the crimp.


NOTE

If the splice cannot be turned around to position the uncrimped sleeve in the crimping dies, turn the tool around.

- Inspect the crimp. Refer to Figure 5 for a properly crimped terminal and splice. Check the insulation grip on the crimped terminal or splice. Refer to section 4, ADJUSTING THE WIRE INSULATION GRIP.

Figure 5: Properly crimped terminals and splices



- No wire conductor strands protruding
- Crimp is centered on wire barrel
- Two hashmarks on bottom of terminal (tool 59294 only)
- Two hashmarks on bottom of splice (tool 59294 only)



NOTE

The hashmark code on the bottom of the wire barrel sleeve created by the tool should match the hashmark code referenced with the appropriate tool.

4. ADJUSTING THE WIRE INSULATION GRIP

The hand tool has three insulation crimping adjustment positions to adjust the wire insulation grip:

- Tight
- Medium
- Loose

To adjust the insulation grip, complete the following steps.

- Insert insulation crimping adjustment pin into position 3 as shown in Figure 1.
- Place terminal or splice in crimping dies as described in section 3, step 3.
- Insert an **unstripped** wire into only the insulation barrel sleeve of the terminal or splice.
- Perform a test crimp as described in section 3, step 6.
- Remove the crimped terminal or splice and check the insulation support. Bend the wire back and forth once. The insulation barrel sleeve should retain grip on the wire insulation.
 - If the wire pulls out, move the insulation crimping adjustment pin to the next tighter position (position 2) and proceed to step 6.
 - If the wire does not pull out, the pin is properly adjusted. The tool is ready for crimping.
- Perform another test crimp as described in step 4. Adjust the pin as necessary until the required insulation grip is obtained. *Do not* use a tighter setting than is required.

5. MAINTENANCE AND INSPECTION

The hand tool is inspected and calibrated before being shipped. Inspect the tool immediately upon arrival to ensure that it has not been damaged during shipment.

Inspect the tool periodically to ensure dependable and uniform terminations. Adjust your inspection as needed, based on:

- The care, amount of use, and handling of the hand tool
- The presence of abnormal amounts of dust and dirt
- The degree of operator skill
- Your own established standards

5.1. Daily maintenance

- Remove accumulated dirt, grease, and foreign matter by immersing the tool (with handles partially closed) in a reliable commercial degreasing compound.
- If no degreasing compound is available, wipe the tool with a clean, soft brush or soft, lint-free cloth. **Do not** use objects that could damage the dies or tool.
- Make certain that the retaining pins are in place and secured with retaining rings.
- Protect all pins, pivot points, and bearing surfaces with a thin coat of any good SAE 20 motor oil. Do not oil excessively.
- When the tool is not in use, keep the handles closed to prevent objects from becoming lodged in the 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 indicated in Table 2.

Table 2: Lubrication schedule

Tool use frequency	Lubrication interval
In daily production	Daily
Daily (occasional)	Weekly
Weekly	Monthly



CAUTION

Wipe excess oil from the tool, particularly from the crimping area. Oil transferred onto some terminations can affect the electrical characteristics of an application.

5.3. Visual inspection

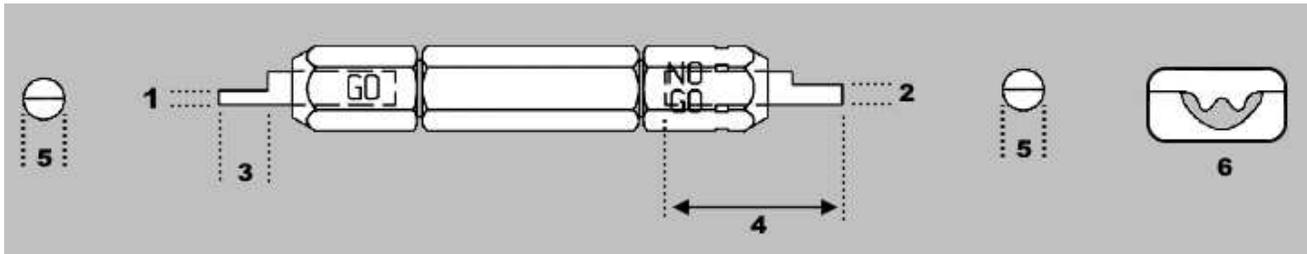
- Close tool handles until ratchet releases and then allow them to open freely. If they do not open quickly and fully, the spring is defective and must be replaced. Refer to section 6, REPLACEMENT AND REPAIR.
- Inspect head assembly for worn, cracked, or broken dies. If damage is evident, return the tool for evaluation and repair. Refer to 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, Table 3, Figure 7, and Table 4. TE Connectivity 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 gages.
2. Close the tool handles until the crimping dies have bottomed. Do **not** force dies beyond initial contact.
3. Pull the locator down for access to the wire barrel section of the crimping chamber. Align the GO element with the wire barrel section of the crimping chamber. Push element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber. See Figure 8 and Figure 9.

Figure 6: Recommended plug gage design for wire barrel section of crimping chamber

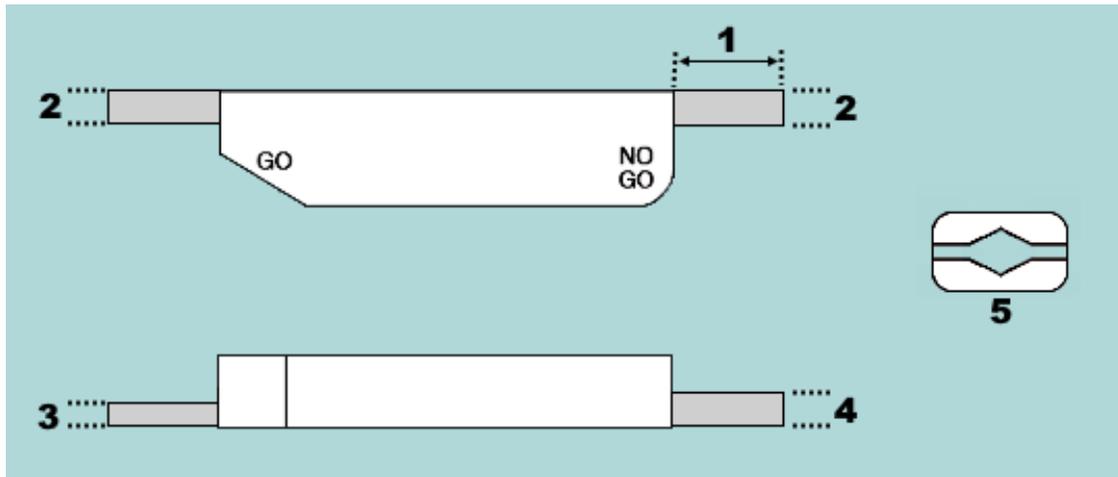


- 1 GO dimension
- 2 NO-GO dimension
- 3 6.35 [2.50] minimum (typical)
- 4 25.4 [1.00] minimum (typical)
- 5 Radius (see Table 3)
- 6 Jaw closure configuration

Table 3: Gage element dimensions (wire barrel)

Hand tool	GO element	NO-GO element	Radius (max)
59294	1.701-1.709 [.0670-.0673]	1.852-1.854 [.0729-.0730]	1.57 [.062]
59461	2.311-2.319 [.0910-.0913]	2.461-2.464 [.0969-.0970]	2.77 [.109]

Figure 7: Recommended plug gage design for insulation barrel section of crimping chamber



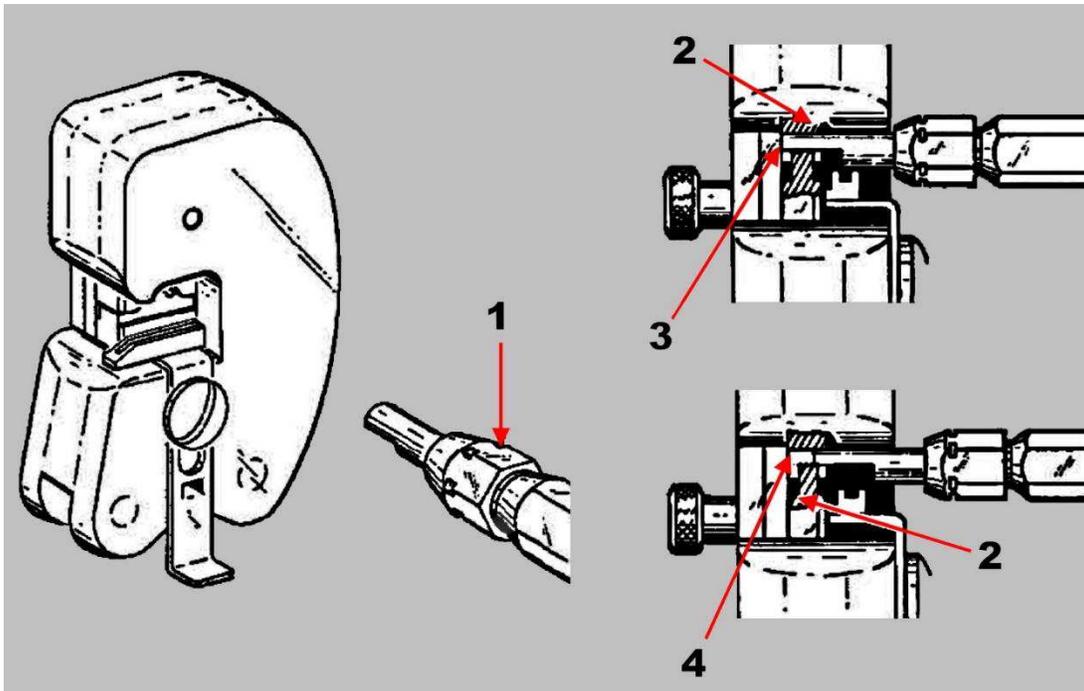
- 1** 6.35 [.250] minimum (typical)
- 2** Width (see Table 4)
- 3** GO dimension
- 4** NO-GO dimension
- 5** Die closure configuration

Table 4: Gage element dimensions (insulation barrel)

Hand tool	GO element	NO-GO element	Width (max)
59294	1.016-1.024 [.0400-.0403]	1.521-1.524 [.0599-.0600]	4.75 [.187]
59461	1.321-1.328 [.0520-.0523]	1.826-1.829 [.0791-.072]	3.56 [.140]

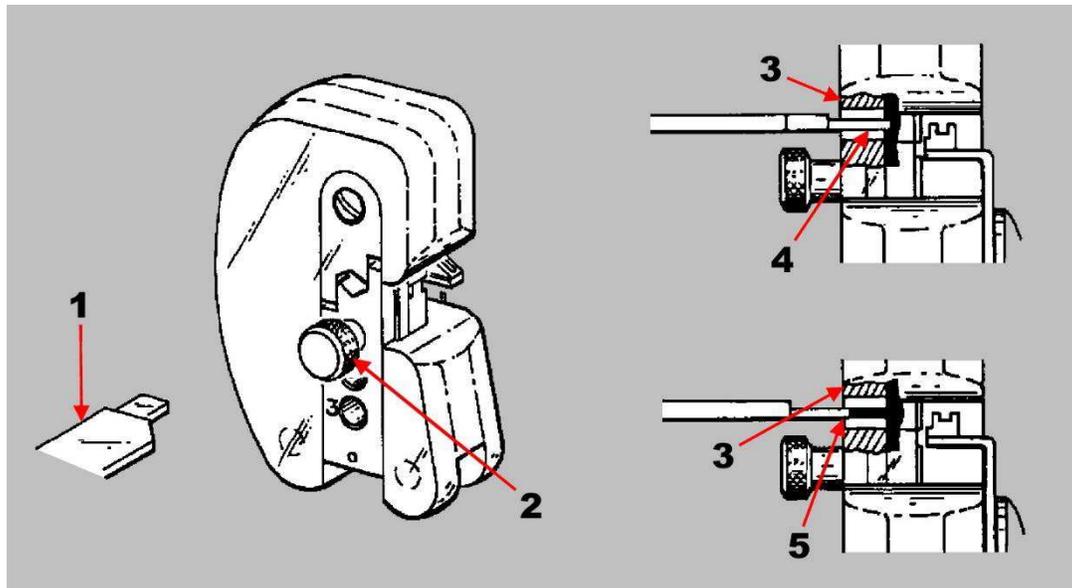
4. Align the NO-GO element and try to insert it straight into the same section of the crimping chamber. The NO-GO element can start entry, but it must not pass completely through the crimping chamber. See Figure 8 and Figure 9.

Figure 8: Inspecting the wire barrel section of the crimping chamber



- 1 Plug gage
- 2 Wire barrel crimping die
- 3 GO element must pass completely through crimping chamber
- 4 NO-GO element can enter partially, but must **not** pass completely through crimping chamber

Figure 9: Inspecting the insulation barrel section of the crimping chamber



- 1 Plug gage
- 2 Insulation crimping adjustment pin in position 1
- 3 Insulation barrel crimping die
- 4 GO element must pass completely through crimping chamber
- 5 NO-GO element can enter partially, but must **not** pass completely through crimping chamber

5. Insert tool insulation crimping adjustment pin into position 1.
6. With crimping dies bottomed, check the insulation barrel section of the crimping chamber as described in steps 4 and 5.
 - 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, the tool must be returned for further evaluation and repair. Refer to section 6, REPLACEMENT AND REPAIR.

For additional information regarding the use of plug gages, refer to instruction sheet [408-7424](#).

5.5. CERTI-CRIMP tool ratchet inspection

Check the ratchet feature on hand tools to ensure that the ratchet does not release prematurely, allowing the dies to open before they have fully bottomed. Proceed as follows:

1. Obtain a .025 [.001] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping dies.
2. Select the maximum size wire for the tool and a terminal or splice.
3. Position the terminal or splice and wire between the crimping dies as described in section 3, CRIMPING.
4. Hold wire in place and squeeze tool handles until the CERTI-CRIMP ratchet releases. Hold the handles in this position, maintaining just enough tension to keep the dies closed.
5. Check the clearance between the bottoming surfaces of the crimping dies with the .025 [.001] shim.
 - If the clearance is .025 [.001] or less, the ratchet is satisfactory.
 - If the clearance exceeds .025 [.001], the ratchet is out of adjustment and must be repaired.

6. REPLACEMENT AND REPAIR

Replaceable parts are listed in Table 5. Parts not listed in Table 5 should be replaced to ensure quality and reliability of the tool. Order replacement parts through your TE representative. You can also order parts by any of the following methods:

- Go to TE.com and click the **Shop TE** link at the top of the page.
- Call 800-522-6752.
- Write to:

CUSTOMER SERVICE (038-035)
 TE CONNECTIVITY CORPORATION
 PO BOX 3608
 HARRISBURG PA 17105-3608

For customer repair services, call 800-522-6752.

Figure 10: Replacement parts

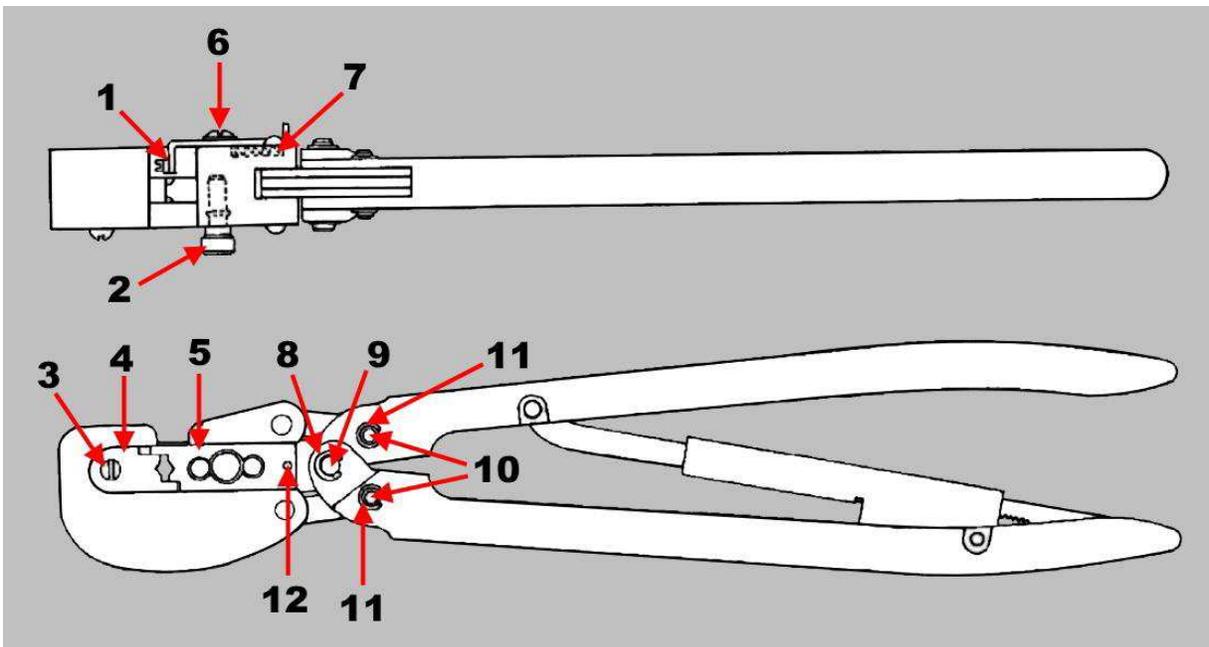


Table 5: Replacement part numbers

Item	Part number		Description	Quantity per tool
	Tool 59294	Tool 59461		
1	304120	305527	Locator, stop assembly	1
2	304124	303848-2	Pin, insulation crimping adjustment	1
3	3-21924-4	3-21924-5	Screw	1
4	304116	39380	Insert, upper insulation	1
5	304117	39381	Insert, lower insulation	1
6	2-305927-7		Screw, special	1
7	304122		Spring	1
8	21045-6		Ring, retaining	2
9	300389		Pin, retaining	1
10	300388		Pin, retaining	2
11	21045-3		Ring, retaining	4
12	21028-3		Pin	1

7. REVISION SUMMARY

Revisions to this instruction sheet include:

- Removed items that are not replacement parts from Figure 10 and Table 5.
- Corrected quantities in Table 5.
- Updated format to the current standard for information sheets.
- Edited for clarity and readability.