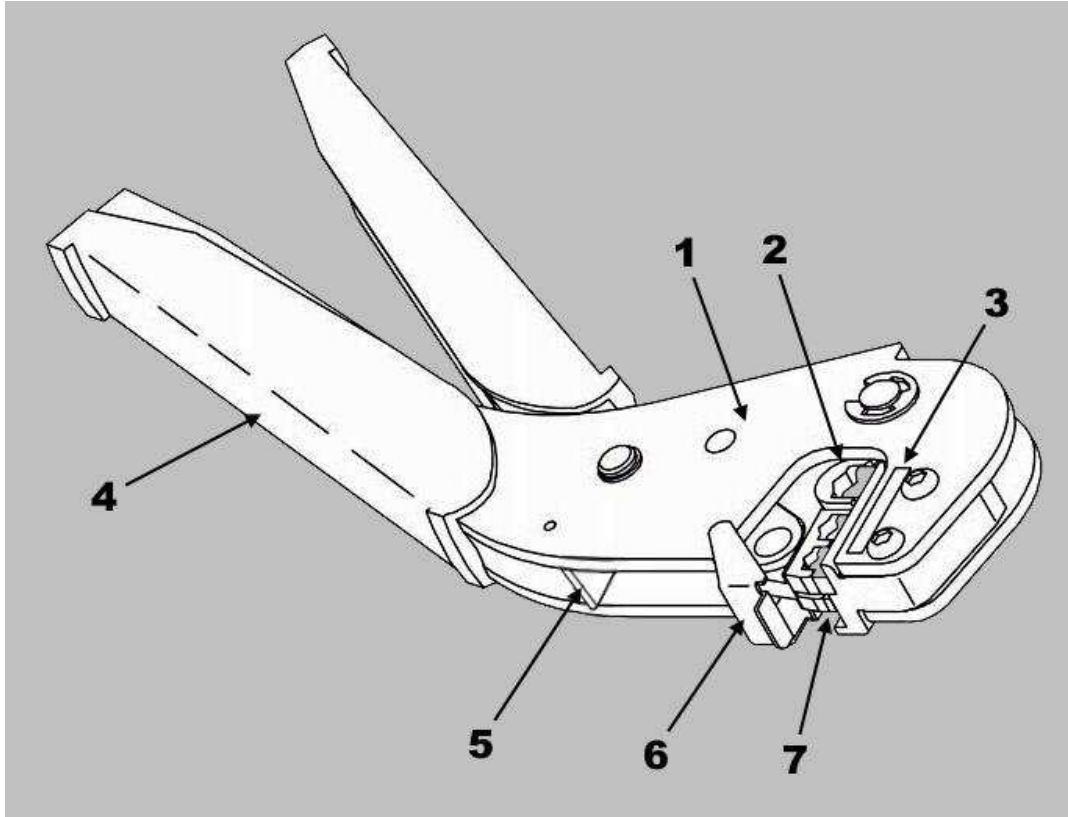


**PROPER USE GUIDELINES**

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: TETRA-CRIMP Hand Crimping Tool PN 59824-1*



- |                                      |                           |
|--------------------------------------|---------------------------|
| <b>1</b> Back side of tool           | <b>5</b> Ratchet pawl     |
| <b>2</b> Crimping chamber (3 places) | <b>6</b> Locator assembly |
| <b>3</b> Crimping chamber label      | <b>7</b> Crimping dies    |
| <b>4</b> Ratchet handle              |                           |

## 1. INTRODUCTION

The TETRA-CRIMP Hand Crimping Tool 59824-1 (Figure 1) is designed to crimp the terminals and splices shown in Figure 2 onto stranded wire sizes 22 through 10 AWG (Table 1). For product part numbers, refer to [AMP Terminals & Splices](#) on the TE Connectivity website.

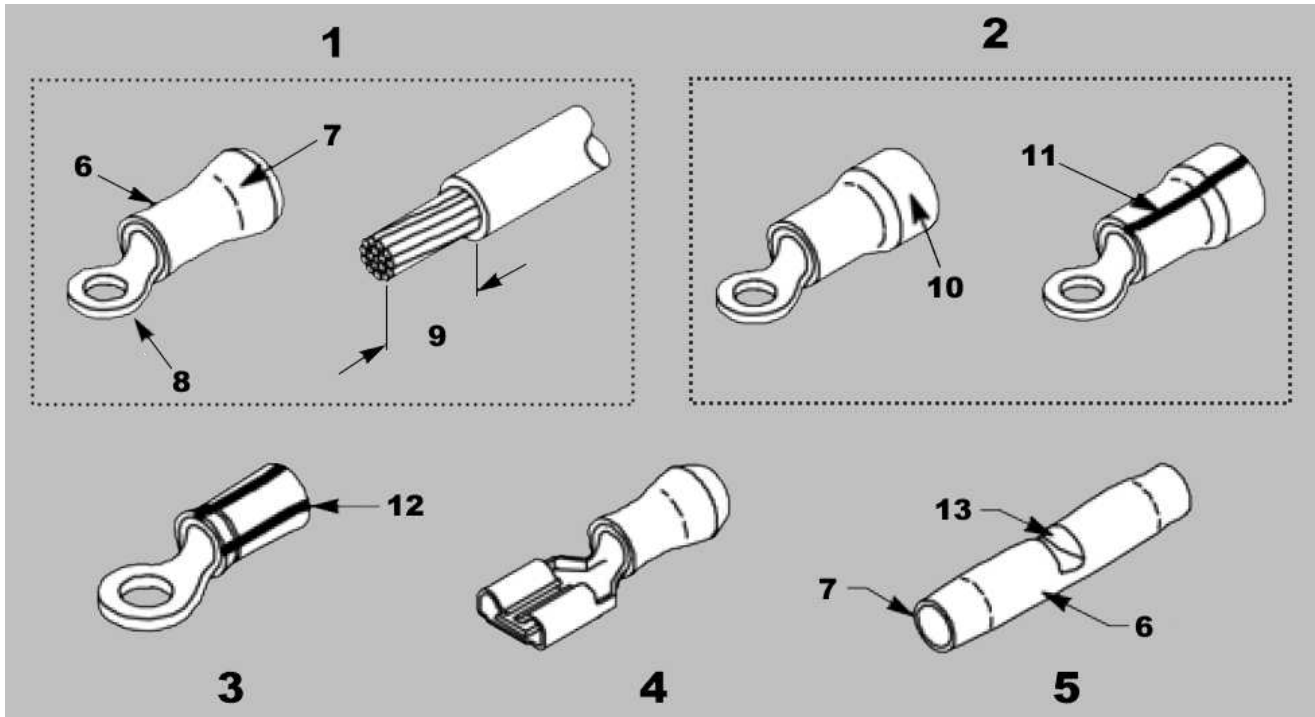


### NOTE

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

Read these instructions thoroughly before crimping connectors.

Figure 2: Terminals and splices



- |   |   |
|---|---|
| <b>1</b> PIDG™ ring tongue terminal                       | <b>8</b> Flat side                      |
| <b>2</b> PLASTI-GRIP™ ring tongue terminal                | <b>9</b> Strip length                   |
| <b>3</b> PIDG insulation restriction ring tongue terminal | <b>10</b> Color-coded insulation        |
| <b>4</b> PIDG FASTON™ terminal                            | <b>11</b> Striped color code for HD     |
| <b>5</b> PIDG butt splice                                 | <b>12</b> Equally-spaced shaded stripes |
| <b>6</b> Wire barrel                                      | <b>13</b> Window indent                 |
| <b>7</b> Insulation barrel                                |   |

Table 1: Crimping specifications

Terminal or splice	Wire size	Insulation diameter	Strip length ±0.397 [±.016]	Crimp dot code* (after crimping)
PIDG ring tongue terminal	22-16	2.03-3.56 [.080-.140]	5.56 [.219]	1
	16-14	2.67-4.32 [.105-.170]		2
	12-10	3.81-6.35 [.150-.250]	8.33 [.328]	1
	16-14 HD	3.81-6.35 [.150-.250]		1
PLASTI-GRIP ring tongue terminal	22-16	2.03-3.56 [.080-.140]	5.56 [.219]	1
	16-14	2.67-4.32 [.105-.170]		2
	12-10	3.81-6.35 [.150-.250]	8.33 [.328]	1
	16-14 HD	2.67-6.35 [.105-.250]		1
PIDG insulation restriction ring tongue terminal	22	0.97-2.79 [.038-.110]	6.75 [.266]	1
	20	1.17-2.79 [.046-.110]		1
	18	1.42-2.79 [.056-.110]		1
	16	1.60-3.30 [.063-.130]		2
	14	1.98-3.30 [.078-.130]		2
	12	2.41-5.08 [.095-.200]	9.92 [.391]	1
	10	3.02-5.08 [.119-.200]		1
PIDG FASTON terminal	22-18	2.67-3.56 [.105-.140]	7.94 [.313]	1
	16-14	2.92-4.32 [.115-.170]		2
	12-10	3.81-6.35 [.150-.250]	8.73 [.344]	1
PIDG butt splice	22-16	2.03-3.18 [.080-.125]	6.75 [.266]	1
	16-14	2.67-3.81 [.105-.150]		2
	12-10	4.32-5.59 [.170-.220]	9.13 [.359]	1

\*Tools with revision AA and later do not have crimp dot codes.

## 2. DESCRIPTION

Each hand tool features two crimping dies, a spring-loaded locator assembly, and a ratchet handle with a ratchet pawl (Figure 1). When closed, the dies form three crimping chambers, each labeled by color on the back side of the tool. The color indicates the wire size, and must match the insulation color of the terminal or splice (Table 2).

Table 2: Wire sizes

Color	Wire size
Yellow	12-10
Blue	16-14
Red	22-16
Black heavy duty	16-14 HD
Green	20-16 HD

The locator assembly positions the terminal or splice between the crimping dies. The ratchet handle assures full crimping. When engaged, the ratchet does not release until the tool handles have been **fully** closed, unless the ratchet pawl is depressed to manually release the ratchet. This feature prevents crimping of an improperly positioned terminal or splice.



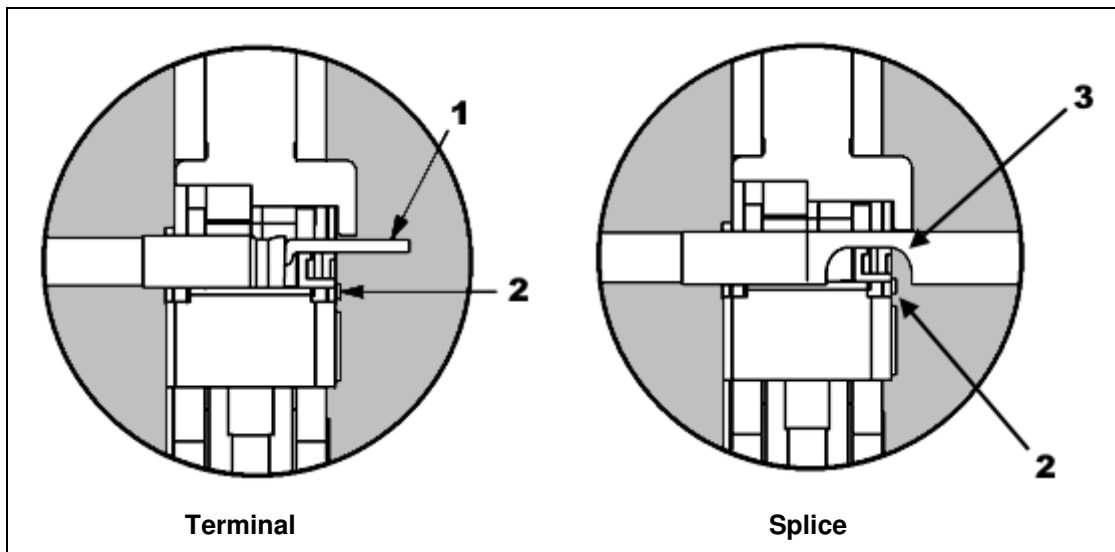
### CAUTION

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

1. Select the appropriate wire size and terminal or splice for the hand tool. The wire size and insulation diameter must be within the specified range for the terminal or splice.
2. Strip the wire to the dimension provided in Table 1. Do **not** nick or cut the wire strands.
3. Open the crimping dies by squeezing the tool handles together until the ratchet releases.
4. Push the locator assembly away from the upper crimping die slightly and hold.
  - If crimping a terminal, position the wire barrel in the appropriate crimping chamber between the locator assembly and the upper die. Make sure that the flat side of the terminal faces up (Figure 3).
  - If crimping a splice, position the wire barrel in the appropriate crimping chamber. Seat the splice window indent on the locator assembly (Figure 3).

Figure 3: Positioning the wire barrel

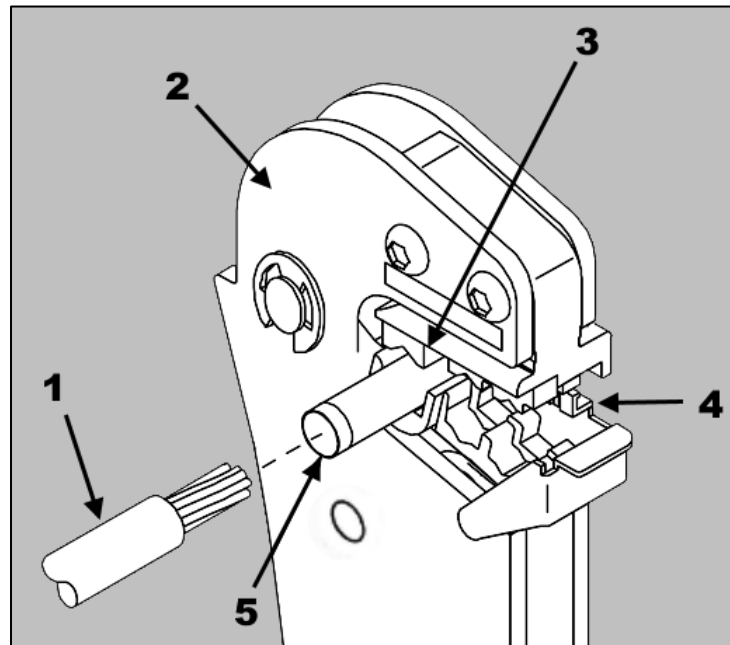


- 1** Flat side of terminal
- 2** Locator assembly
- 3** Splice window indent

5. Holding the wire barrel in place, release the locator assembly.

6. Holding the tool so that the back side is facing you, insert the stripped wire into the wire barrel until the wire bottoms (Figure 4).

Figure 4: Inserting the wire



- 1 Stripped wire
- 2 Back side of tool
- 3 Upper die
- 4 Locator assembly
- 5 Wire barrel

7. Holding the wire in place, squeeze the tool handles together until the ratchet releases. Allow the tool handles to open **fully**.
8. Remove crimped terminal or splice from the tool.
9. If crimping a splice, position the uncrimped wire barrel in the crimping chamber. Make sure to seat the splice window indent on the locator assembly. Repeat steps 5 through 7.



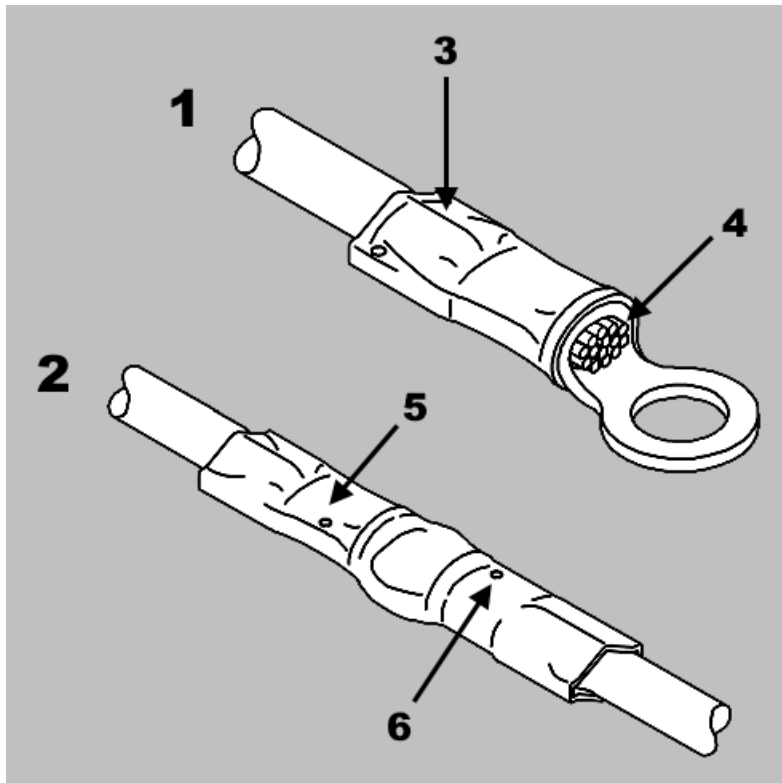
**CAUTION**

*Do not use damaged or worn terminals. Terminals can be removed from the wire, discarded, and replaced with new ones.*

#### 4. INSPECTING THE CRIMP

- Verify that the crimp dot code on the color-coded insulation indicates the crimping chamber used (see Table 1).
- Verify that the crimp is centered on the wire barrel (Figure 5).
- Make sure that the wire insulation does not enter the wire barrel (Figure 5).
- Verify that the wire end is flush with or slightly beyond the end of the wire barrel (Figure 5).

Figure 5: Inspecting the crimp



- 1 Terminal
- 2 Splice
- 3 Wire insulation does not enter wire barrel
- 4 Wire end extends slightly beyond end of wire barrel
- 5 Crimp is centered on wire barrel
- 6 Crimp dot code (one dot shown)

#### 5. MAINTENANCE AND INSPECTION

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

Perform a maintenance and inspection program at least once a month to ensure dependable and uniform terminations. Base your frequency of inspection depends on the following:

- 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

1. Immerse the hand tool (with handles partially closed) in a reliable commercial degreasing compound to remove accumulated dirt, grease, and foreign matter. If no degreasing compound is available, the tool can 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 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 the handles closed to prevent objects from becoming lodged in the dies.
5. Store the tool in a clean, dry area.

### 5.2. Periodic inspection

#### A. Lubrication

Lubricate all pins, pivot points, and bearing surfaces with SAE 20 motor oil as indicated in Table 3. Wipe excess oil from the tool, particularly from the crimping area. Oil transferred from the crimping area onto terminations can affect the electrical characteristics of an application.

*Table 3: Lubrication schedule*

Tool is used . . .	Lubricate . . .
Daily (production)	Daily
Daily (occasional)	Weekly
Weekly	Monthly

#### B. Visual inspection

1. Close the tool handles until the 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 7, REPLACEMENT AND REPAIR.
2. Inspect the crimping area for worn, cracked, or broken dies. If damage is evident, return the tool for evaluation and repair. See section 7, REPLACEMENT AND REPAIR.

#### C. Ratchet inspection

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

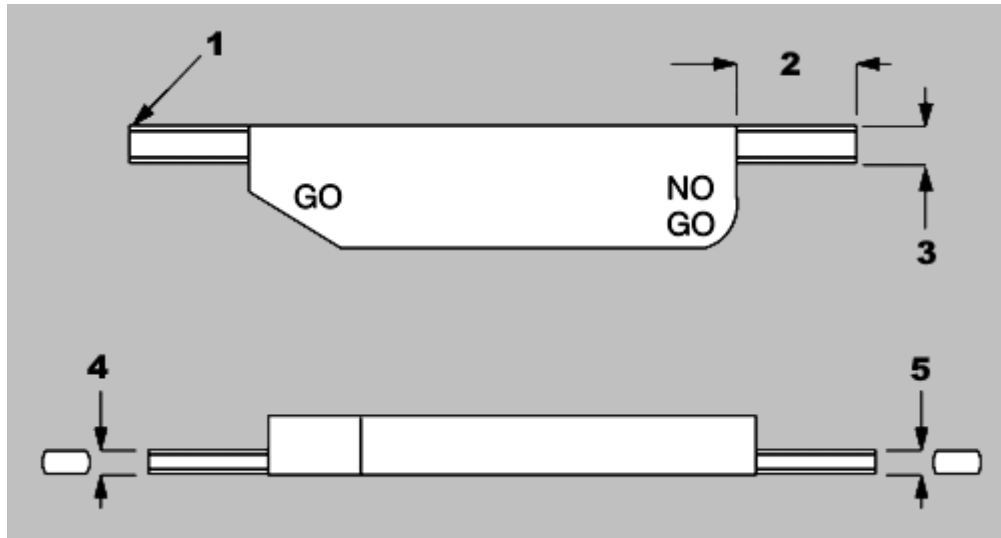
Squeeze the tool handles together and count the number of ratchet stops. Five stops, including the release position, should be indicated by the movement of the ratchet pawl and the clicking sound associated with its movement. Refer to Figure 1.

- If fewer than five positions are indicated, the ratchet pawl and ratchet handle must be replaced. Refer to section 7, REPLACEMENT AND REPAIR.
- If dies do not bottom after five ratchet stops, return the tool for repair. Refer to section 7, REPLACEMENT AND REPAIR.
- If the tool passes the ratchet inspection, lubricate it with a **thin** coat of any good SAE 20 motor oil.

### D. Gaging the crimping chamber

Figure 6 shows a recommended plug gage design for the wire crimping chamber.

Figure 6: Recommended plug gage design



- 1 0.51 [.020] x 45° (typical)
- 2 12.7 [.50] (typical)
- 3 Width (Table 4)
- 4 GO diameter (Table 4)
- 5 NO-GO diameter (Table 4)

Table 4: Plug gage specifications

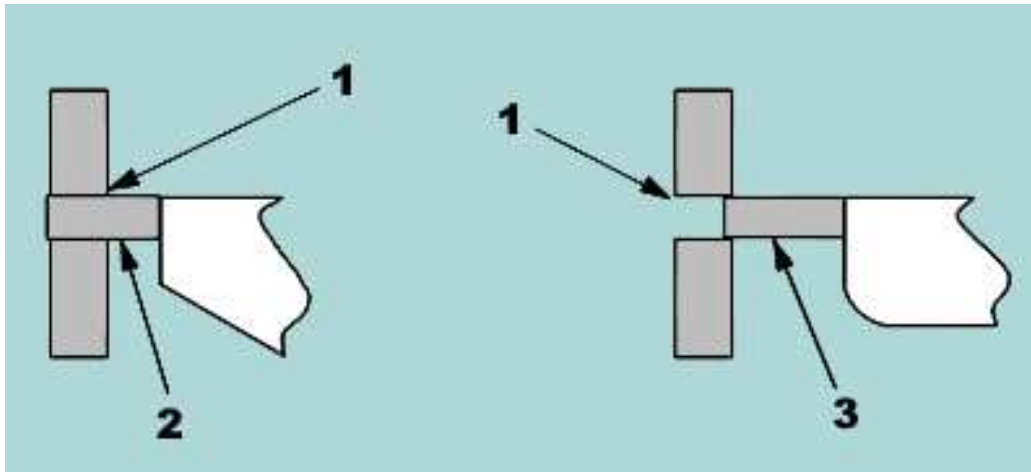
Crimping chamber color code	Gage element diameter		Width (maximum)
	GO	NO-GO	
<b>Red</b>	1.981-1.988 [.0780-.0783]	2.181-2.184 [.0859-.0860]	4.69 [.185]
<b>Blue/green</b>	2.336-2.344 [.0920-.0923]	2.537-2.540 [.0999-.1000]	5.33 [.210]
<b>Yellow/black</b>	3.251-3.258 [.1280-.1283]	3.451-3.454 [.1359-.1360]	6.85 [.270]

1. Remove any traces of oil or dirt from the crimping chamber and plug gage.
2. In order to properly gage this tool, a terminal must be crimped in the crimping chamber being inspected. In place of a terminal, a soft material such as brass or solder can be used to seat the tooling.
3. Close the tool handles until the crimping dies have bottomed and hold in this position. **Do not** force the dies beyond initial contact.
4. Hold the locator assembly away from the crimping dies.



1. Carefully insert the GO element into the the corresponding crimping chamber. Do not force it. The GO element must pass completely through the crimping chamber. See Figure 7.
2. Try to insert the NO-GO element into the same crimping chamber. The NO-GO element can start entry, but must not pass completely through the crimping chamber. See Figure 7.
  - If the crimping chambers conform to the crimping chamber inspection, the tool is considered dimensionally correct, and should be lubricated with a **thin** coat of any good SAE 20 motor oil.
  - If not, return the tool for further evaluation and repair. See section 7, REPLACEMENT AND REPAIR.

Figure 7: Gaging the crimping chamber



## 6. CONVERTING OLD TOOLS TO SINGLE RATCHET PAWL

To convert an existing tool to single ratchet pawl, use the retrofit kit that corresponds to the frame type of your tool (Table 5). Refer to instruction sheet [408-10339](#).

Table 5: Retrofit kits

Frame type	Retrofit kit
Stamped	2119486-1
Solid	2119486-2

## 7. REPLACEMENT AND REPAIR

Customer-replaceable parts (Figure 8) are listed in Table 6. Stock and control a complete inventory to prevent lost time when replacement of parts is necessary. Parts other than those listed should be replaced by TE Connectivity to ensure quality and reliability.

Order replacement parts through your TE representative. You can also order parts by any of the following methods:

- Go to [TE.com](https://www.te-connectivity.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 8: Customer-replaceable parts

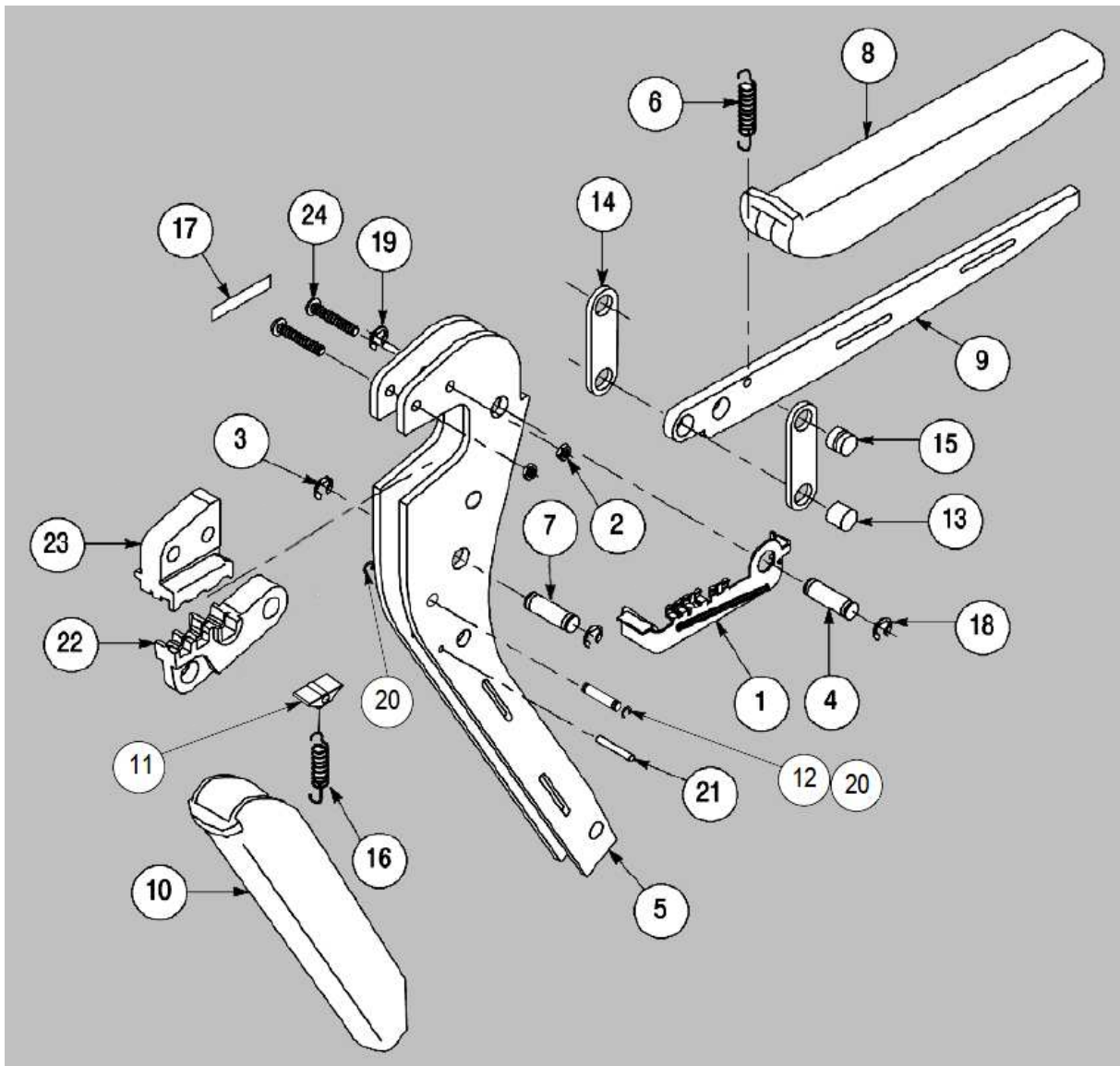


Table 6: Replacement parts

Item	Part number	Description	Quantity per tool
1	310581-1	Stop, terminal and wire	1
2	21018-6	Nut, 8-32	2
3	1-21116-0	Ring, retaining	2
4	7-59558-9	Pin, jaw, pivot	1
5	—	Frame, subassembly	1
6	354266-1	Spring, extension	1
7	7-59558-8	Pin, handle, retaining	1
8	2217549-1	Handle, plastic	1
9	—	Handle, ratchet	1
10	2217548-1	Handle, plastic	1
11	1583388-1	Pawl, ratchet	1
12	9-59558-0	Pin, grooved	1
13	—	Pin	1
14	—	Link, toggle	2
15	—	Pin, toggle link	2
16	310690-1	Spring, extension	1
17	852980-1	Label, vinyl, five-color	1
18	18202-1	E-ring, bowed	1
19	1-21113-6	E-ring, external	1
20	21045-1	Ring, retaining	2
21	3-21028-8	Pin, slotted, .094 D .630 L	1
22	—	Crimping die, indenter	1
23	—	Crimping die, anvil	1
24	2-21002-4	Screw, button, 8-32.75 L	2

## 8. REVISION SUMMARY

Revisions to this instruction sheet include:

- Corrected error in Figure 8
- Reformatted to match current standard for instruction sheets

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