

Figure 1

## 1. INTRODUCTION

Pneumatic crimping heads listed in Figure 1 are designed for use in Pneumatic Tool 69015. The heads, when installed in the tool, will crimp SOLISTRAND\* terminals and splices and STRATO-THERM\* heat-resistant uninsulated terminals onto solid or stranded copper wire sizes 8 through 1/0 AWG. Refer to Figure 2 for types of terminals and splices and applicable crimping heads. Read these instructions thoroughly before using the crimping head.

### NOTE



*Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures and illustrations are for reference only and are not drawn to scale.*

For information regarding head insertion and removal and general operation of the pneumatic tool, refer to Instruction Sheet 408-1310.

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

## 2. DESCRIPTION

Each crimping head features an upper and lower crimping jaw linked to a toggle lever which is used to

position the head in the tool and to control the opening and closing of the crimping jaws when the tool is actuated (refer to Figure 1).

## 3. CRIMPING PROCEDURE

Install the appropriate crimping head onto the tool according to Instruction Sheet 408-1310. Refer to Figure 2, and select the appropriate terminal or splice and wire. Ensure that the wire size stamped on terminal or splice corresponds with the wire size stamped on the link of the crimping head.

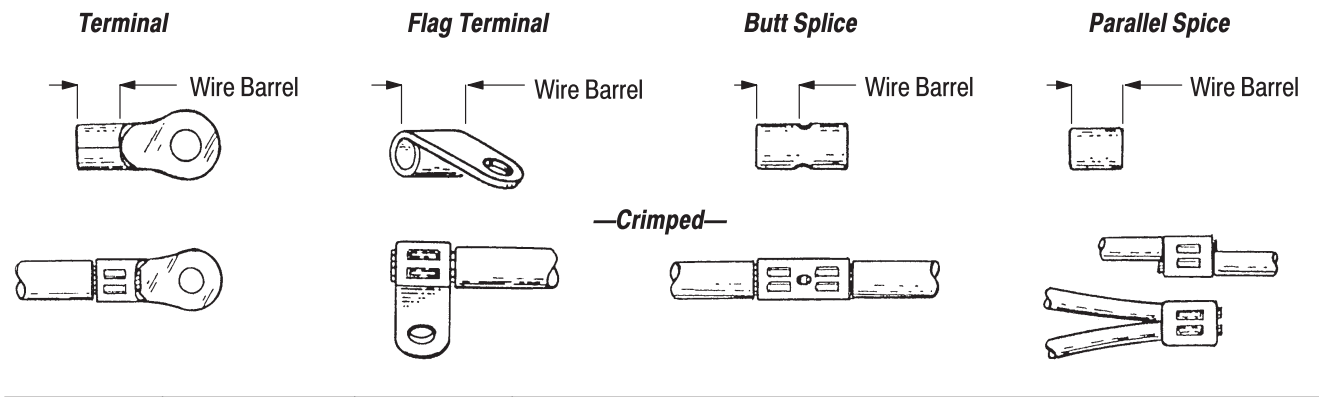
### NOTE



*For product part numbers, refer to Catalog 65505 for SOLISTRAND terminals and splices, and Catalog 82011 for STRATO-THERM heat-resistant uninsulated terminals.*

Strip the wire to the length indicated in Figure 2. Do NOT cut or nick the wire. Then proceed as follows:

1. Insert stripped wire into terminal or splice until end of wire is flush with or extended slightly beyond end of wire barrel, or until wire butts against wire stop.



| WIRE SIZE (AWG) | CIRCULAR MIL AREA RANGE | CRIMPING HEAD | WIRE STRIP LENGTH          |                            |                            |                            |
|-----------------|-------------------------|---------------|----------------------------|----------------------------|----------------------------|----------------------------|
|                 |                         |               | TERMINAL                   | FLAG TERMINAL              | BUTT SPLICE                | PARALLEL SPLICE            |
| 8               | 13,100-20,800           | 49956         | 8.33-9.12<br>[.328-.359]   | —                          | 10.31-11.13<br>[.406-.438] | 10.31-11.13<br>[.406-.438] |
|                 |                         | 48412         | —                          | 9.53-11.13<br>[.375-.438]  | —                          | —                          |
| 6               | 20,800-33,100           | 48172         | 9.93-10.72<br>[.391-.422]  | —                          | 11.91-12.70<br>[.469-.500] | 11.13-11.91<br>[.438-.469] |
|                 |                         | 48413         | —                          | 12.70-14.30<br>[.500-.563] | —                          | —                          |
| 4               | 33,100-52,600           | 48173         | 11.13-11.91<br>[.438-.469] | —                          | 13.49-14.30<br>[.531-.563] | 13.49-14.30<br>[.531-.563] |
|                 |                         | 48414         | —                          | 13.89-15.47<br>[.547-.609] | —                          | —                          |
| 2               | 52,600-83,700           | 48174         | 12.70-13.49<br>[.500-.531] | —                          | 15.09-19.05<br>[.594-.750] | 16.66-17.48<br>[.656-.688] |
|                 |                         | 48415         | —                          | 17.07-18.64<br>[.672-.734] | —                          | —                          |
| 1/0             | 83,700-119,500          | 48183■        | 19.05-19.84<br>[.750-.781] | —                          | 17.48-18.26<br>[.688-.719] | 19.05-19.84<br>[.750-.781] |
|                 |                         | 48416■        | —                          | 22.23-23.83<br>[.875-.938] | —                          | —                          |

■ Requires minimum air pressure of 655 kPa [95 psi] Figure 2

2. Place the wire barrel in the crimping jaws as shown in Figure 3 for terminals and Figure 4 for splices. Position butt splice so that the inspection window faces the top of the head. Position flag terminal so that the tongue is held against the “flat” of the crimping jaw just until the crimp is started.

Hold the thumb control down until crimping stroke is completed.



**CAUTION** Air pressure must be adjusted to a minimum of 655 kPa [95 psi] when crimping terminals or splices onto wire size 1/0 AWG.



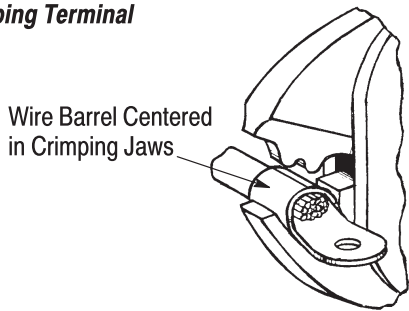
**DANGER** To avoid personal injury when actuating pneumatic tool, exercise caution when holding terminals or wires near crimping area.

3. Hold the terminal or splice (with wire) in position and press the thumb control to actuate the tool.

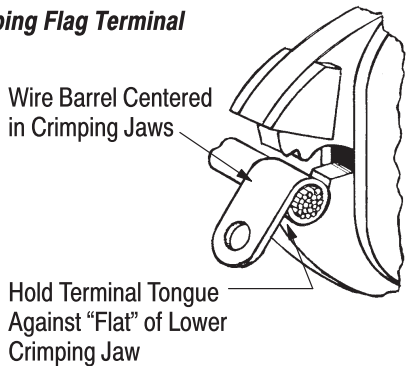
4. Release thumb control, and remove crimped terminal or splice.

5. For butt splices, position uncrimped half in crimping jaws, and follow same procedure used to crimp first half of splice.

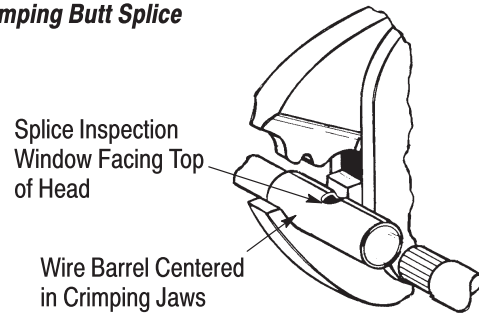
**Crimping Terminal**



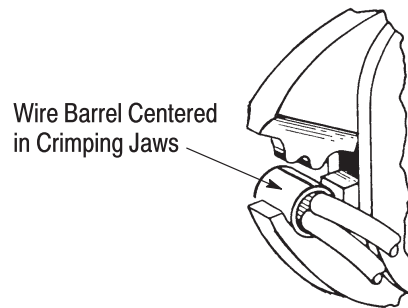
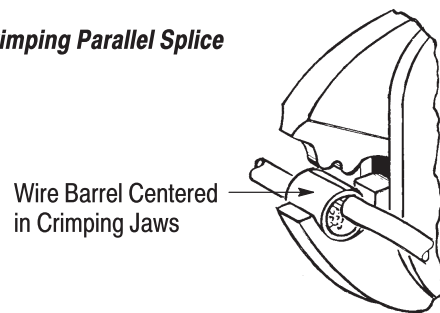
**Crimping Flag Terminal**



**Crimping Butt Splice**



**Crimping Parallel Splice**



**Crimping Parallel Splice (Stub-Type Head)**

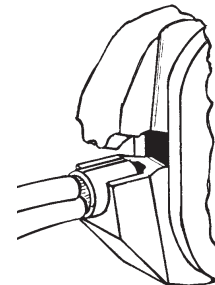


Figure 3

6. Inspect crimped terminals or splices according to Figure 5. Use only the terminals or splices that meet the conditions shown in the “ACCEPT” column. “REJECT” terminals can be avoided by carefully following the above procedures and by performing regular tool maintenance, as provided in Section 4, MAINTENANCE AND INSPECTION.

**4. MAINTENANCE AND INSPECTION**

Tyco Electronics recommends that a maintenance and inspection program be performed periodically to ensure dependable and uniform terminations. Frequency of inspection depends on:

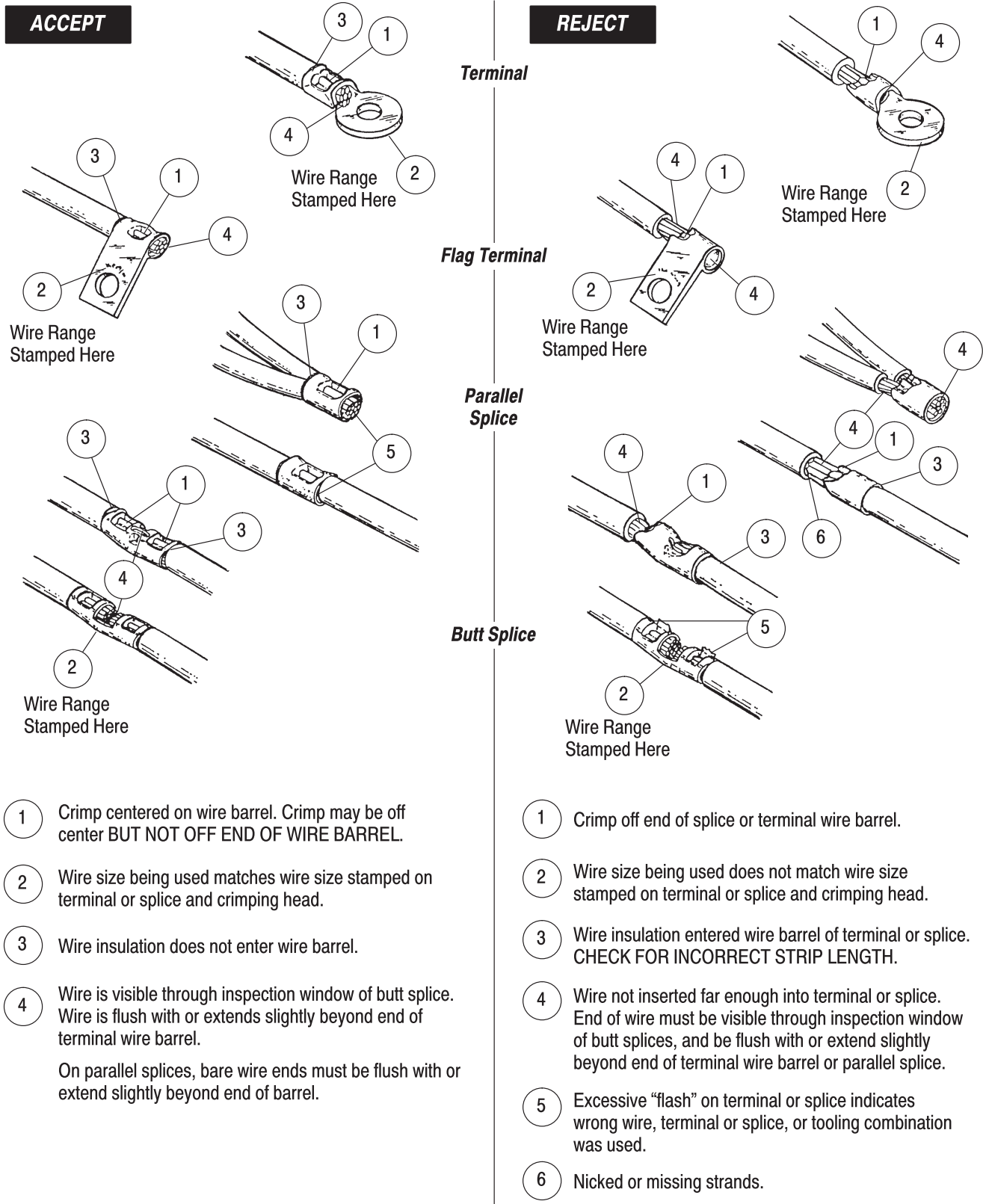
1. The care, amount of use, and handling of the dies.
2. The presence of abnormal amounts of dust and dirt.
3. The degree of operator skill.
4. Your own established standards.

The crimping head is inspected before being shipped; however, Tyco Electronics recommends that it be inspected immediately upon arrival at your facility to ensure that no damage occurred during shipment. Due to the precision design, it is important that no parts of these heads be interchanged except replacement parts. Refer to Section 5, REPLACEMENT AND REPAIR.

Figure 4

**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 jaws of the crimping head.
2. All surfaces should be protected with a thin coat of any good SAE 20 motor oil. Do NOT oil excessively.
3. When the head is not in use, store it in a clean, dry area.



- ① Crimp centered on wire barrel. Crimp may be off center BUT NOT OFF END OF WIRE BARREL.
- ② Wire size being used matches wire size stamped on terminal or splice and crimping head.
- ③ Wire insulation does not enter wire barrel.
- ④ Wire is visible through inspection window of butt splice. Wire is flush with or extends slightly beyond end of terminal wire barrel.  
On parallel splices, bare wire ends must be flush with or extend slightly beyond end of barrel.

- ① Crimp off end of splice or terminal wire barrel.
- ② Wire size being used does not match wire size stamped on terminal or splice and crimping head.
- ③ Wire insulation entered wire barrel of terminal or splice. CHECK FOR INCORRECT STRIP LENGTH.
- ④ Wire not inserted far enough into terminal or splice. End of wire must be visible through inspection window of butt splices, and be flush with or extend slightly beyond end of terminal wire barrel or parallel splice.
- ⑤ Excessive "flash" on terminal or splice indicates wrong wire, terminal or splice, or tooling combination was used.
- ⑥ Nicked or missing strands.

Figure 5

**4.2. Lubrication**

Lubricate all pins, pivot points, and bearing surfaces with a high quality grease. Tyco Electronics recommends the use of Molykote paste, which is a commercially available lubricant. Lubricate according to the following schedule:

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

Wipe excess grease from crimping head, particularly from jaw closure areas. Grease transferred from the jaw closure area onto certain terminations may affect the electrical characteristics of a termination.

**4.3. Periodic Inspection**

1. Remove accumulated dirt, grease, and foreign matter by immersing the head in a suitable commercial degreaser that will not affect paint or plastic material.
2. Inspect crimping area for worn, cracked, or broken surfaces. If damage is evident, return the head to Tyco Electronics for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

**4.4. Gaging the Crimping Chamber**

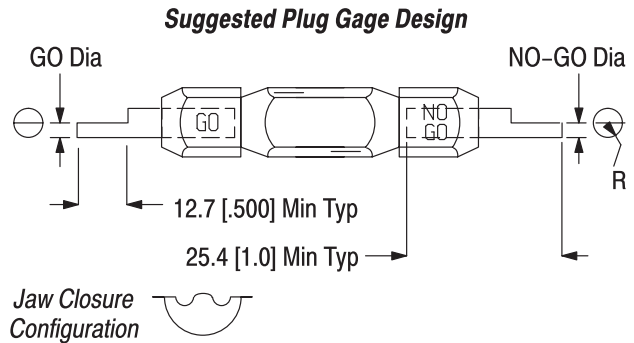
This inspection requires the use of a plug gage conforming to the dimensions shown in Figure 6. Tyco Electronics does not manufacture or market gages. Proceed as follows:

1. Remove crimping head from tool as described in Instruction Sheet 408-1310.
2. Remove traces of oil or dirt from the crimping jaws and plug gage.
3. Close the jaws until they are bottomed but not under pressure.
4. Align the GO element with 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 7.
5. Align the NO-GO element with the crimping chamber. Push element straight into the crimping chamber. The NO-GO element may start entry, but must NOT pass completely through the crimping chamber. See Figure 7.

If crimping chamber conforms to the gage inspection, the head is considered dimensionally correct. If

correct, the head should be lubricated with a thin coat of any good SAE 20 motor oil and returned to service. If not correct, the head must be returned to Tyco Electronics for further evaluation and repair. Refer to Section 5, REPLACEMENT AND REPAIR.

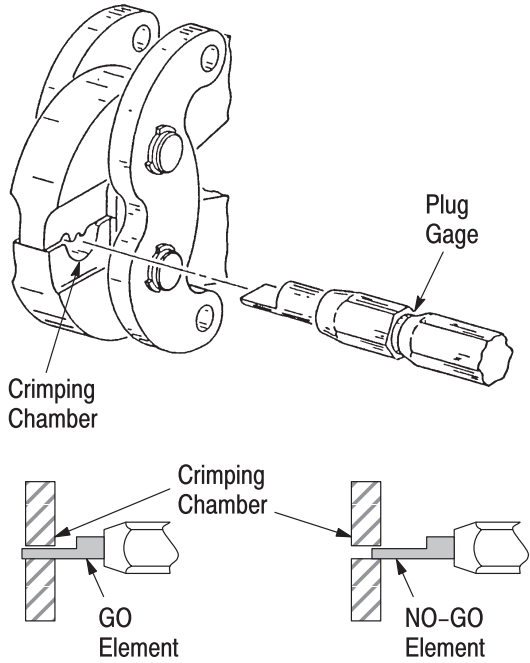
For additional information on the use of a plug gage, refer to Instruction Sheet 408-7424.



| CRIMPING HEAD | GAGE ELEMENT DIAMETERS       |                              |                |
|---------------|------------------------------|------------------------------|----------------|
|               | GO                           | NO-GO                        | DIM. R RADIUS  |
| 48172         | 3.937-3.945<br>[.1550-.1553] | 4.087-4.089<br>[.1609-.1610] | 4.67<br>[.184] |
| 48173         | 4.724-4.732<br>[.18-60.1863] | 4.874-4.877<br>[.1919-.1920] | 5.87<br>[.231] |
| 48174         | 5.436-5.443<br>[.2140-.2143] | 5.585-5.588<br>[.2199-.2200] | 6.55<br>[.258] |
| 48183         | 6.198-6.205<br>[.2440-.2443] | 6.347-6.350<br>[.2499-.2500] | 7.52<br>[.296] |
| 48412         | 2.540-2.548<br>[.1000-.1003] | 2.690-2.692<br>[.1059-.1060] | 3.18<br>[.125] |
| 48413         | 3.531-3.538<br>[.1390-.1393] | 3.680-3.683<br>[.1449-.1450] | 4.09<br>[.161] |
| 48414         | 4.166-4.173<br>[.1640-.1643] | 4.315-4.318<br>[.1699-.1700] | 4.93<br>[.194] |
| 48415         | 4.978-4.986<br>[.1960-.1963] | 5.128-5.131<br>[.2019-.2020] | 6.10<br>[.240] |
| 48416         | 6.198-6.205<br>[.2440-.2443] | 6.347-6.350<br>[.2499-.2500] | 7.52<br>[.296] |
| 49956         | 2.540-2.548<br>[.1000-.1003] | 2.690-2.692<br>[.1059-.1060] | 3.18<br>[.125] |

Figure 6

**Inspecting the Crimping Chamber**



GO element must pass completely through the crimping chamber.

NO-GO element may enter partially, but must not pass completely through the crimping chamber.

Figure 7

**5. REPLACEMENT AND REPAIR**

Customer-replaceable parts are listed in Figure 8. A complete inventory should be stocked and controlled to prevent lost time when replacement of parts is necessary. Parts other than those listed should be replaced by Tyco Electronics to ensure quality and reliability. Order replacement parts through your Tyco Electronics Representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

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

For customer repair service, please contact an Tyco Electronics Representative at 1-800-526-5136.

**6. REVISION SUMMARY**

- Updated document to corporate requirements
- Switched Paragraph 4.4.5 to 4.4.3 and renumbered

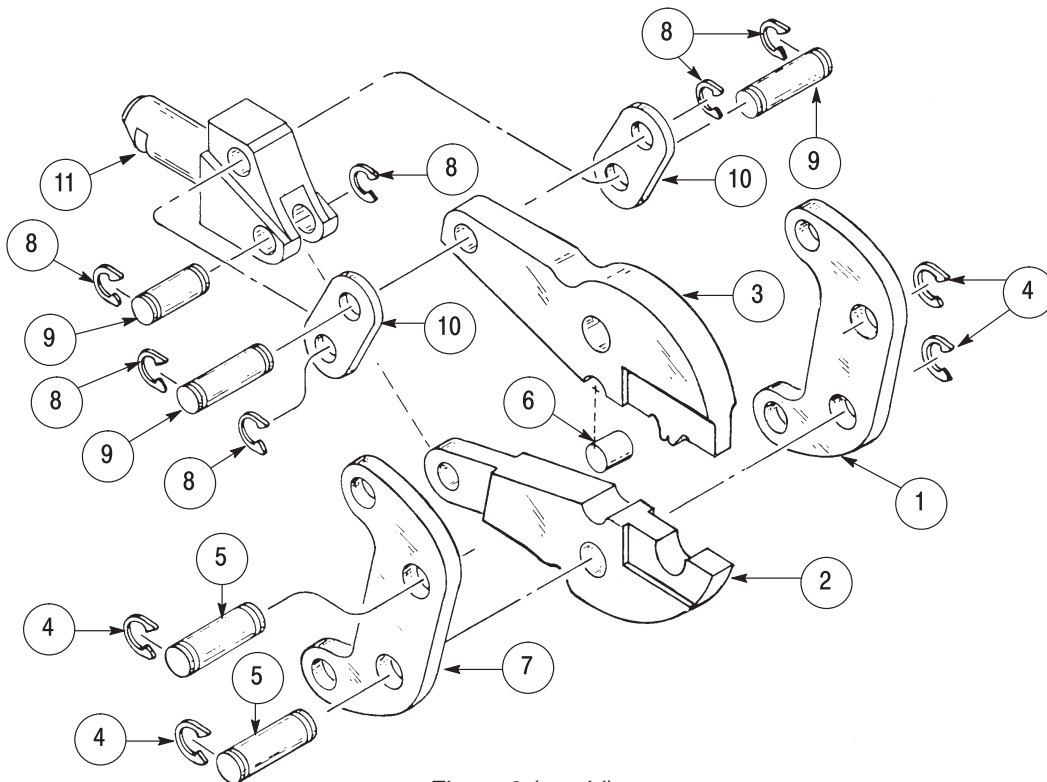


Figure 8 (cont'd)

## REPLACEMENT PARTS

| ITEM | CRIMPING HEAD PART NUMBER |           |           |         |           | DESCRIPTION           | QTY PER HEAD |
|------|---------------------------|-----------|-----------|---------|-----------|-----------------------|--------------|
|      | 48172                     | 48173     | 48174     | 48183   | 48412     |                       |              |
| 1    | 2-59649-5                 | 2-59649-4 | 2-59649-6 | 300527  | 2-59649-3 | LINK                  | 1            |
| 2    | 48176                     | 48177     | 48178     | 48182   | 59688-5   | JAW, Lower (Nest)     | 1            |
| 3    | 59687-5                   | 59687-5   | 59687-5   | 59687-4 | 59691-8   | JAW, Upper (Indenter) | 1            |
| 4    | 1-21048-6                 |           |           |         |           | RING, Retaining       | 4            |
| 5    | 300042                    |           |           |         |           | PIN, Retaining        | 2            |
| 6    | 300115                    |           |           |         |           | PIN, Pivot            | 1            |
| 7    | 300114                    |           |           |         |           | LINK                  | 1            |
| 8    | 300102                    |           |           |         |           | RING, Retaining       | 6            |
| 9    | 302563                    |           |           |         |           | PIN, Retaining        | 3            |
| 10   | 302562                    |           |           |         |           | LINK, Toggle          | 2            |
| 11   | 302561                    |           |           |         |           | LEVER, Toggle         | 1            |

## REPLACEMENT PARTS

| ITEM | CRIMPING HEAD PART NUMBER |         |        |           |        | DESCRIPTION           | QTY PER HEAD |
|------|---------------------------|---------|--------|-----------|--------|-----------------------|--------------|
|      | 48413                     | 48414   | 48415  | 48416     | 49956  |                       |              |
| 1    | 301398                    | 301393  | 301377 | 2-59649-2 | 300194 | LINK                  | 1            |
| 2    | 59688-4                   | 48501   | 48485  | 48644     | 48016  | JAW, Lower (Nest)     | 1            |
| 3    | 59691-6                   | 59691-6 | 48487  | 48517-1   | 48015  | JAW, Upper (Indenter) | 1            |
| 4    | 1-21048-6                 |         |        |           |        | RING, Retaining       | 4            |
| 5    | 300042                    |         |        |           |        | PIN, Retaining        | 2            |
| 6    | 300115                    |         |        |           |        | PIN, Pivot            | 1            |
| 7    | 300114                    |         |        |           |        | LINK                  | 1            |
| 8    | 300102                    |         |        |           |        | RING, Retaining       | 6            |
| 9    | 302563                    |         |        |           |        | PIN, Retaining        | 3            |
| 10   | 302562                    |         |        |           |        | LINK, Toggle          | 2            |
| 11   | 302561                    |         |        |           |        | LEVER, Toggle         | 1            |

Figure 8 (end)