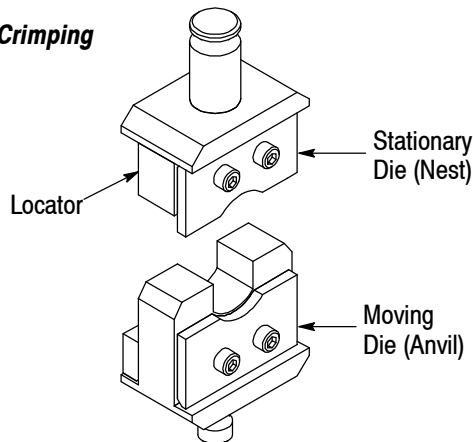


## Typical Crimping Dies



| CRIMPING DIE |                | WIRE SIZE (AWG) | HEAD OR TOOL                                                 |
|--------------|----------------|-----------------|--------------------------------------------------------------|
| PART NUMBER  | COLOR CODE DOT |                 |                                                              |
| 47820        | Red            | 8               | Hydraulic Crimping Head 69051 or Hydraulic Hand Tool 59974-1 |
| 47821        | Blue           | 6               |                                                              |
| 47822        | Yellow         | 4               |                                                              |
| 47823        | Red            | 2               |                                                              |
| 47824        | Blue           | 1/0             | Hydraulic Crimping Head 69066                                |
| 47825        | Yellow         | 2/0             |                                                              |
| 47915        | Red            | 3/0             |                                                              |
| 47918        | Blue           | 4/0             |                                                              |

Figure 1

## 1. INTRODUCTION

Crimping Dies 47820 through 47823 are used with Crimping Head 69051 or Hand Tool 59974-1. Crimping Dies 47824, 47825, 47915, and 47918 are used with Crimping Head 69066. The dies crimp pre-insulated AMPPOWER\* terminals onto wire sizes 4 through 1/0 AWG, TERMINYL\* terminals and splices onto wire sizes 8 through 4/0 AWG, TERMINYL splices with step-down adapters onto wire sizes 16-14 through 1/0 AWG, and PLASTI-GRIP\* terminals and splices onto wire sizes 8 through 4/0 AWG. Refer to Figure 1 to ensure compatibility of crimping die, head or tool, and wire size.

### NOTE



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

For detailed information about the head or tool, refer to the instructions packaged with the head or tool.

Reasons for reissue of this instruction sheet are provided in Section 8, REVISION SUMMARY.

## 2. DESCRIPTION

Each crimping die consists of a stationary die (nest) and a moving die (anvil). The stationary die features a locator. Each die contains a color code dot that matches the color code of the terminal and splice. When mated, the dies form a crimping chamber.

## 3. DIE INSTALLATION AND REMOVAL

### DANGER



To avoid personal injury, ALWAYS release hydraulic pressure to hose or control and disconnect power unit from power supply before installing or removing dies.

### 3.1. Installation

1. Remove latch pin and open yoke on crimping head. See Figure 2.
2. Loosen the setscrew in the yoke.
3. Insert the shank of the stationary die into the yoke, and tighten the setscrew.

### NOTE



The stationary die has a large shank and the moving die has a small shank, as shown in Figure 2.

4. Extend the ram until the ram setscrew is visible.
5. Loosen the setscrew in the ram.
6. Insert the shank of the moving die into the ram, and tighten the setscrew.

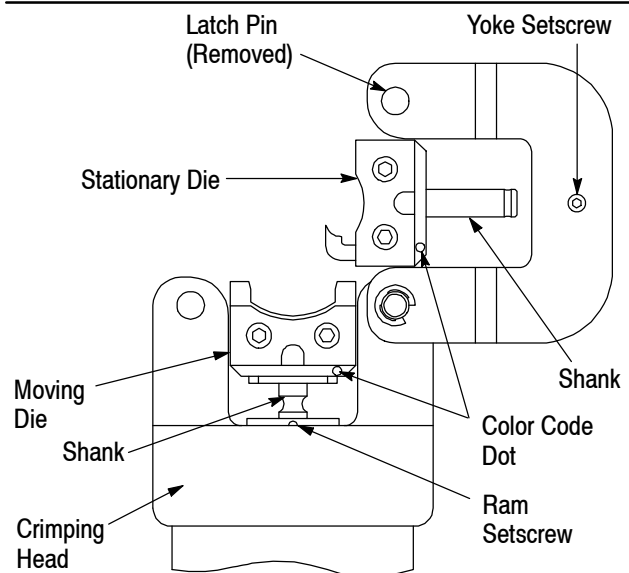


Figure 2



To avoid damage to the dies, be sure that the moving and stationary dies are properly oriented.

7. Activate the tool or power unit to allow the ram to return to the “down” position.
8. Close the yoke, and insert the latch pin.

### 3.2. Removal

1. Remove latch pin and open yoke on crimping head.
2. Loosen the setscrew in the yoke, and remove the stationary die.
3. Extend the ram until the ram setscrew is visible.
4. Loosen setscrew in ram. Remove moving die.

## 4. CRIMPING PROCEDURE

### 4.1. Crimping Terminals



Avoid personal injury. When operating tool or power unit, exercise caution while holding terminals or wire near the crimping area.

1. Strip wire to the dimensions listed in Figure 3. Do not nick or cut the wire strands.
2. Select the proper color-coded terminal for the wire size. The wire size stamped on the terminal tongue and on the crimping die must match the wire size selected.



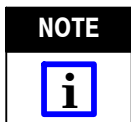
Do NOT turn or twist the wire or terminal during insertion.

4. Remove crimping head latch pin and open yoke.
5. Place the terminal in the stationary die with the edge of the wire barrel resting against the locator and the bottom of the terminal tongue facing the stationary die. See Figure 4.
6. Holding the terminal in place, close the yoke and insert the latch pin.



Be sure that the latch pin is fully inserted, otherwise damage to the die and tool or head will occur when the tool or power unit is activated.

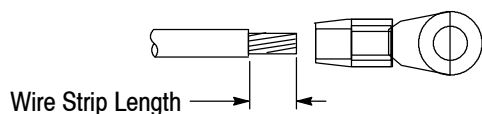
7. Holding wire in place, activate tool or power unit to complete crimp.
8. When crimp is completed, remove the latch pin, open the yoke, and remove the terminal.



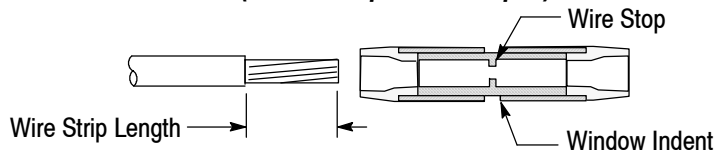
If terminal sticks in die after crimping, apply a rocking action to the terminal to remove it from the die. Wipe light oil on the dies to prevent sticking, or use spray dry lubricant.

9. Inspect the crimp according to Section 5.

Typical Terminal



Typical Splice  
(Without Step-Down Adapter)



| WIRE SIZE (AWG) | WIRE STRIP LENGTH            |                           |                                |                                 |
|-----------------|------------------------------|---------------------------|--------------------------------|---------------------------------|
|                 | TERMINYL TERMINAL AND SPLICE |                           | PRE-INSULATED AMPOWER TERMINAL | PLASTI-GRIP TERMINAL AND SPLICE |
|                 | TERMINAL                     | SPLICE                    |                                |                                 |
| 8               | 7.96-9.53 [.313-.375]        | 15.48-17.07 [.609-.672]   | --                             | 11.51-12.29 [.453-.484]         |
| 6               | 11.18-12.70 [.440-.500]      | 20.24-19.45 [.797-.766]   | --                             | 15.47-16.26 [.609-.640]         |
| 4               | 11.18-12.70 [.440-.500]      | 19.45-21.03 [.766-.828]   | 10.72-12.29 [.422-.484]        | 15.47-16.26 [.609-.640]         |
| 2               | 11.43-13.08 [.450-.515]      | 21.83-30.18 [.859-1.188]  | 13.10-14.68 [.516-.578]        | 11.51-12.29 [.453-.484]         |
| 1/0             | 18.54-20.24 [.730-.797]      | 28.58-30.18 [1.125-1.188] | 21.83-23.42 [.859-.922]        | 18.68-21.83 [.735-.859]         |
| 2/0             | 18.54-20.24 [.730-.797]      | 28.58-30.18 [1.125-1.188] | --                             | 18.68-21.83 [.735-.859]         |
| 3/0             | 19.05-20.64 [.750-.813]      | 28.58-30.18 [1.125-1.188] | --                             | 19.05-21.83 [.750-.859]         |
| 4/0             | 19.45-21.03 [.766-.828]      | 28.58-30.18 [1.125-1.188] | --                             | 19.45-20.64 [.766-.813]         |

Figure 3

## Crimping Terminals

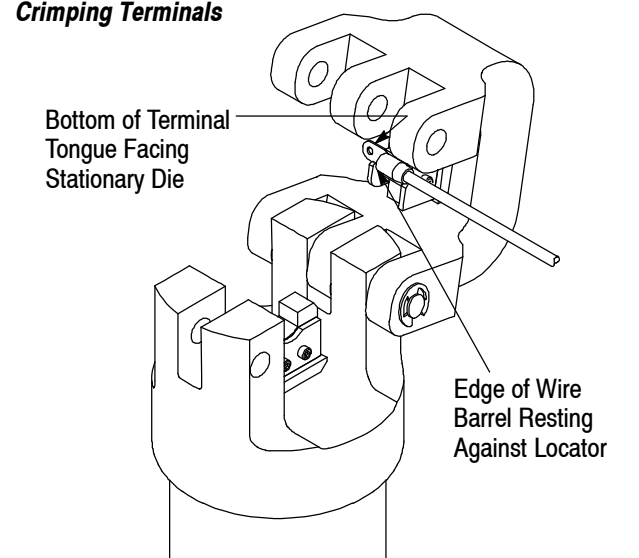


Figure 4

### 4.2. Crimping Splices Without Step-Down Adapter

#### DANGER



Avoid personal injury. When operating tool or power unit, exercise caution while holding splice or wire near the crimping area.

1. Strip wires to the dimensions listed in Figure 3. Do not nick or cut the wire strands.
2. Select the proper color-coded splice for the wire size. The wire size stamped on the splice and on the crimping die must match the wire size selected.
3. Insert the stripped wire into the wire barrel of the end of the splice to be crimped until the wire bottoms against the wire stop within the splice.
4. Remove crimping head latch pin, and open yoke.
5. Place the splice in the stationary die. Grasp the end of the splice to be crimped and point the opposite end toward the top of the head yoke at approximately a 30° angle. Rotate the end of the splice to be crimped into the die. Position the edge of the window indent against the locator. Refer to Figure 5.

6. Holding the splice in place, close the yoke and insert the latch pin.

#### CAUTION



Be sure that the latch pin is fully inserted, otherwise damage to the dies and tool or head will occur when the tool is activated.

7. Holding wire in place, activate tool or power unit to complete first wire barrel crimp.
8. When crimp is completed, remove the latch pin, open the yoke and remove the splice.

#### NOTE



If splice sticks in die after crimping, apply a rocking action to the splice to remove it from the die. Wipe light oil on dies to reduce sticking, or use spray dry lubricant.

9. To crimp the other half of splice, reposition uncrimped end of splice in the stationary die and follow the same procedure used to crimp the first half of splice.

10. Inspect the crimp according to Section 5.

### Crimping Splices With or Without Step-Down Adapter

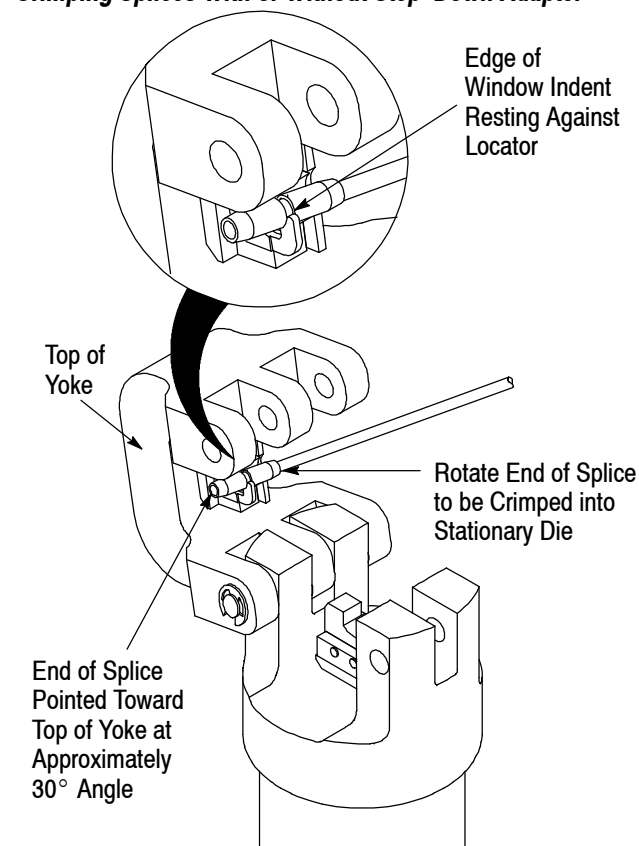


Figure 5

### 4.3. Crimping Splices With Step-Down Adapter

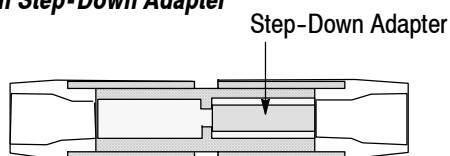
#### DANGER



Avoid personal injury. When operating tool or power unit, exercise caution while holding splice or wire near the crimping area.

1. Strip wires to the dimensions listed in Figure 3. Do not nick or cut the wire strands.
2. Select the proper splice, adapter, and crimping die for the wire size. See Figure 6. Note that the end of the splice containing the adapter has a different color code. Use the crimping die for the larger wire size to crimp both ends of the splice. For example, use Crimping Die 47820 (for wire size 8 AWG) to crimp both ends of the splice with step-down adapter for stepping down from wire size 8 to 16-14 AWG.

### Splices with Step-Down Adapter



| WIRE SIZE (AWG) STEP | CRIMPING DIE | DIE AND SPLICE COLOR CODE | STEP-DOWN ADAPTER COLOR CODE |
|----------------------|--------------|---------------------------|------------------------------|
| 8 to 16-14           | 47820        | Red                       | Blue                         |
| 8 to 12-10           |              |                           | Yellow                       |
| 6 to 8               | 47821        | Blue                      | Red                          |
| 4 to 8               | 47822        | Yellow                    | Red                          |
| 4 to 6               |              |                           | Blue                         |
| 2 to 4               | 47823        | Red                       | Yellow                       |
| 1/0 to 2             | 47824        | Blue                      | Red                          |

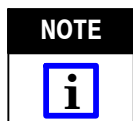
Figure 6

- Insert stripped wire into the wire barrel of the end of the splice to be crimped until the wire bottoms against the wire stop within the splice. Refer to Figure 3.
- Remove crimping head latch pin, and open yoke.
- Place the splice in the stationary die. Grasp the end of the splice to be crimped and point the opposite end toward the top of the head yoke at approximately a 30° angle. Rotate the end of the splice to be crimped into the die. Position the edge of the window indent against the locator. Refer to Figure 5.
- Holding the splice in place, close the yoke and insert the latch pin.



**CAUTION** Be sure that the latch pin is fully inserted, or damage to the dies and tool or head will occur when the tool is activated.

- Holding the wire in place, activate tool or power unit to complete first wire barrel crimp.
- When crimp is completed, remove the latch pin, open the yoke and remove splice.



**NOTE** If splice sticks in die after crimping, apply a rocking action to the splice to remove it from the die. Wipe light oil on dies to reduce sticking, or use spray dry lubricant.

- To crimp the other half of splice, reposition uncrimped end of splice in the stationary die and follow the same procedure used to crimp the first half of splice.
- Inspect the crimp according to Section 5.

### 4.4. Crimping PLASTI-GRIP Butt Splices



**DANGER** Avoid personal injury. When operating tool or power unit, exercise caution while holding butt splices or wire near the crimping area.

- Strip wires to the dimensions listed in Figure 3. Do not nick or cut the wire strands.
- Select the proper color-coded butt splice for the wire size. The wire size stamped on the butt splice and on the crimping die must match the wire size selected.
- Remove crimping head latch pin, and open yoke. Remove the stationary die from the yoke, then remove the locator from the stationary die. Re-assemble the stationary die onto the yoke.



**CAUTION** To avoid damage to the dies, be sure that the stationary die is properly oriented with the moving die.

- Insert the stripped wire into the wire barrel of the end of the butt splice to be crimped until the wire bottoms against the wire stop within the splice.
- Place the butt splice in the stationary die with the wire barrel of the end of the splice to be crimped centered over the crimping chamber. See Figure 7.
- Holding butt splice in place, close the yoke and insert the latch pin.

#### Crimping Butt Splices

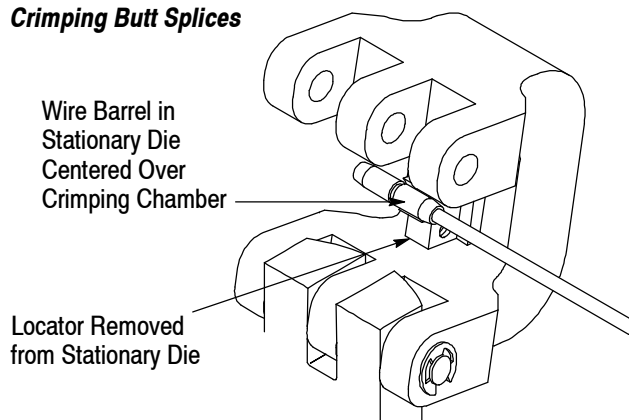


Figure 7



**CAUTION** Be sure that the latch pin is fully inserted, otherwise damage to the die and tool or head will occur when the tool or power unit is activated.

- Holding wire in place, activate tool or power unit to complete first wire barrel crimp.
- When crimp is completed, remove the latch pin, open the yoke and remove the butt splice.

**NOTE**


If butt splice sticks in die after crimping, apply a rocking action to the butt splice to remove it from the die. Wipe light oil on dies to reduce sticking, or use spray dry lubricant.

9. To crimp the other half of butt splice, reposition uncrimped end of splice in the stationary die and follow the same procedure used to crimp the first half of splice.

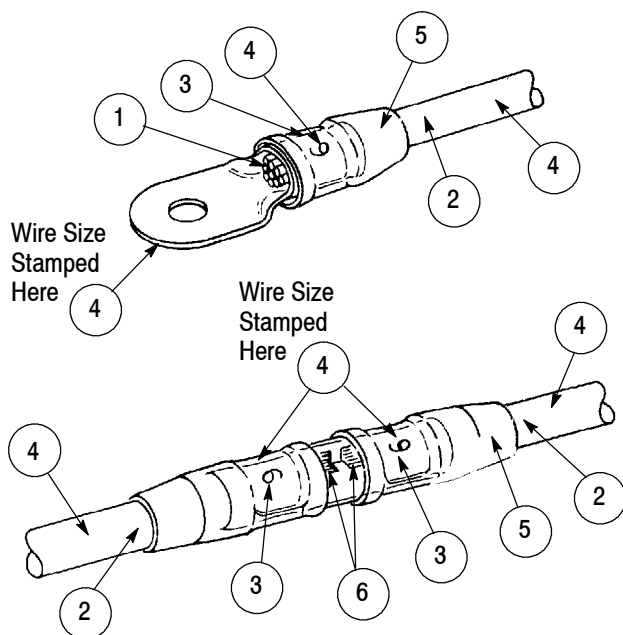
**NOTE**


Be sure to re-assemble locator onto stationary die after crimping PLASTI-GRIP butt splices.

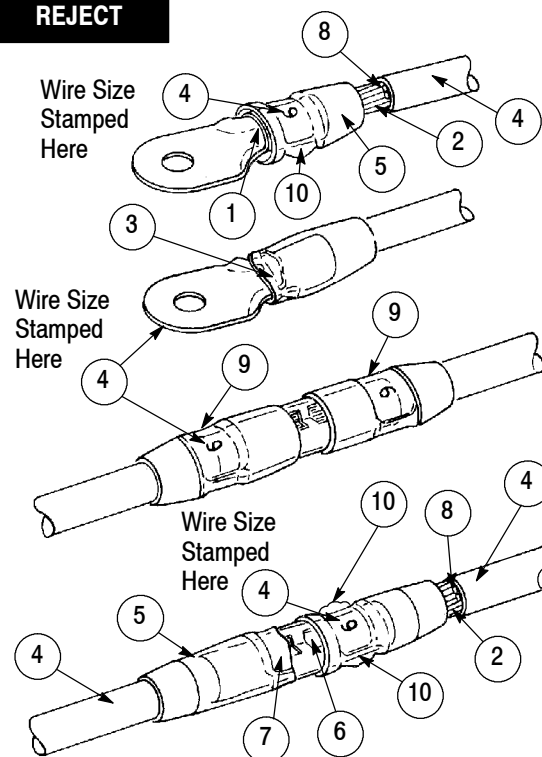
10. Inspect the crimp according to Section 5.

**5. CRIMP INSPECTION**

Inspect crimped terminals and splices by checking the features described in Figure 8. Use only the terminals and splices that meet the conditions shown in the "ACCEPT" column.

**ACCEPT**


- ① End of wire conductor is flush with or extends beyond edge of terminal wire barrel a maximum of 1.60 [.063].
- ② Wire fully inserted.
- ③ Crimp centered on wire barrel.
- ④ Wire size is the same as wire size stamped on terminal tongue, splice body, and wire barrel.
- ⑤ Proper color code, wire size, and tooling combination used.
- ⑥ Wire conductors butted against wire stop, or flush with or extended slightly beyond edge of splice wire barrel.

**REJECT**


- ① End of wire conductor not flush with or extending slightly beyond end of terminal wire barrel.
- ② Wire not inserted fully or wrong strip length used.
- ③ Crimp not centered on terminal wire barrel. Terminal wire barrel was not butted against locator when crimped.
- ④ Wire size not the same as wire size stamped on terminal tongue, splice body, and wire barrel.
- ⑤ Wrong color code, wire size, and tooling combination used.
- ⑥ End of wire conductor not visible. Conductor did not butt against wire stop, or was not flush with or extended slightly beyond splice wire barrel.
- ⑦ Crimp not centered on splice wire barrel. Edge of window indent did not butt against locator when crimped.
- ⑧ Nicked or missing wire strands.
- ⑨ Splice was reversed in die (locator was not oriented with window indent) when crimped.
- ⑩ Excessive "flash" or extruded wire insulation (die was either damaged or incompatible when crimped).

Figure 8



## 6. MAINTENANCE/INSPECTION



To avoid personal injury, ALWAYS release hydraulic pressure to hose or control and disconnect power unit from power supply before performing maintenance or inspection procedure.

Each crimping die is thoroughly inspected before packaging. Since there is a possibility of damage during shipment, the crimping die should be inspected immediately upon arrival at your facility.

Regular inspections should be performed by quality control personnel. A record of scheduled inspections should remain with the dies and/or be supplied to supervisory personnel responsible for the dies. Though recommendations call for at least one inspection a month, the inspection frequency should be based on the amount of use, ambient working conditions, operator training and skill, and established company standards.

### 6.1. Daily Maintenance

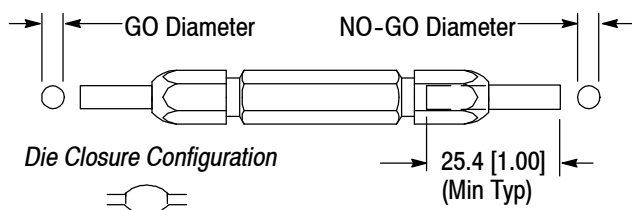
It is recommended that each operator of the dies be made aware of—and responsible for—the following steps of daily maintenance:

1. Remove dust, dirt, and other contaminants with a clean brush, or a soft, lint-free cloth. Do NOT use objects that could damage the dies.
2. Make certain the dies are protected with a THIN coat of any good SAE 20 motor oil. Do not oil excessively.
3. When the dies are not in use, mate them and store in a clean, dry area.

### 6.2. Visual Inspection

1. Remove all lubrication and accumulated film by immersing the dies in a suitable commercial degreaser that will not affect paint or plastic material.
2. Make sure all die components are in place. If replacements are necessary, refer to the replacement parts listed in Figure 11.
3. Check components for wear. Remove and replace worn components.
4. Inspect the crimp area for flattened, chipped, cracked, worn, or broken areas. If damage is evident, the dies must be repaired before returning them to service (see Section 7, REPLACEMENT AND REPAIR).

### Suggested Plug Gage Design



| CRIMPING DIE | GAGE ELEMENT DIAMETER          |                                |
|--------------|--------------------------------|--------------------------------|
|              | GO                             | NO-GO                          |
| 47820        | 5.105-5.113<br>[.2010-.2013]   | 5.255-5.258<br>[.2069-.2070]   |
| 47821        | 6.020-6.027<br>[.2370-.2373]   | 6.170-6.172<br>[.2429-.2430]   |
| 47822        | 6.833-6.840<br>[.2690-.2693]   | 6.982-6.985<br>[.2749-.2750]   |
| 47823        | 8.103-8.110<br>[.3190-.3193]   | 8.252-8.255<br>[.3249-.3250]   |
| 47824        | 10.185-10.193<br>[.4010-.4013] | 10.335-10.338<br>[.4069-.4070] |
| 47825        | 11.354-11.361<br>[.4470-.4473] | 11.504-11.506<br>[.4529-.4530] |
| 47915        | 12.675-12.682<br>[.4990-.4993] | 12.824-12.827<br>[.5049-.5050] |
| 47918        | 14.249-14.257<br>[.5610-.5613] | 14.399-14.402<br>[.5669-.5670] |

Figure 9

### 6.3. Gaging the Crimping Chamber

The die closure inspection is accomplished using plug gages. A suggested gage design and the GO and NO-GO diameters of the plug gage elements are shown in Figure 9. The following procedure is recommended for inspecting the die closures.

1. Mate the dies until it is evident that they have bottomed. Hold the dies in this position.
2. 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 as shown in Figure 10.
3. Align the NO-GO element and try to insert it straight into the crimping chamber. The NO-GO element may start entry but must not pass completely through as shown in Figure 10.

If the crimping chamber conforms to the gage inspection, the crimping die is considered dimensionally correct and should be lubricated with a THIN coat of SAE 20 motor oil. If not, the dies must be repaired before returning them to service (see Section 7, REPLACEMENT AND REPAIR).

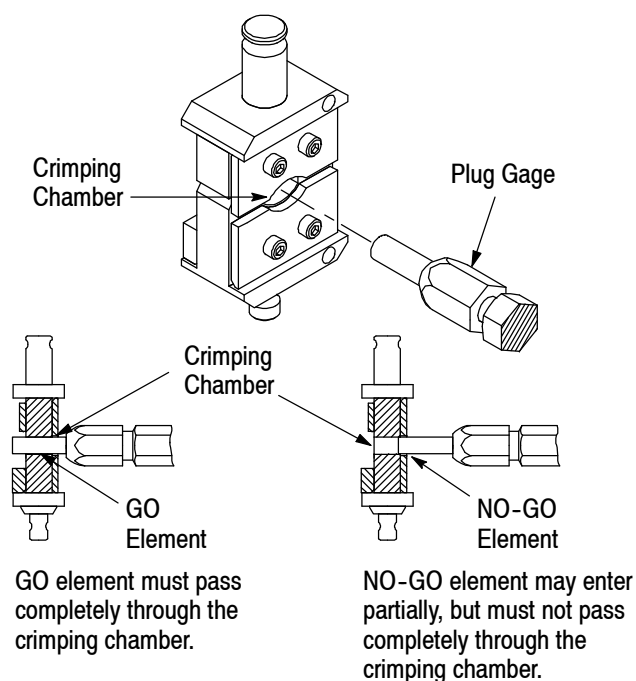


Figure 10

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

## 7. REPLACEMENT AND REPAIR

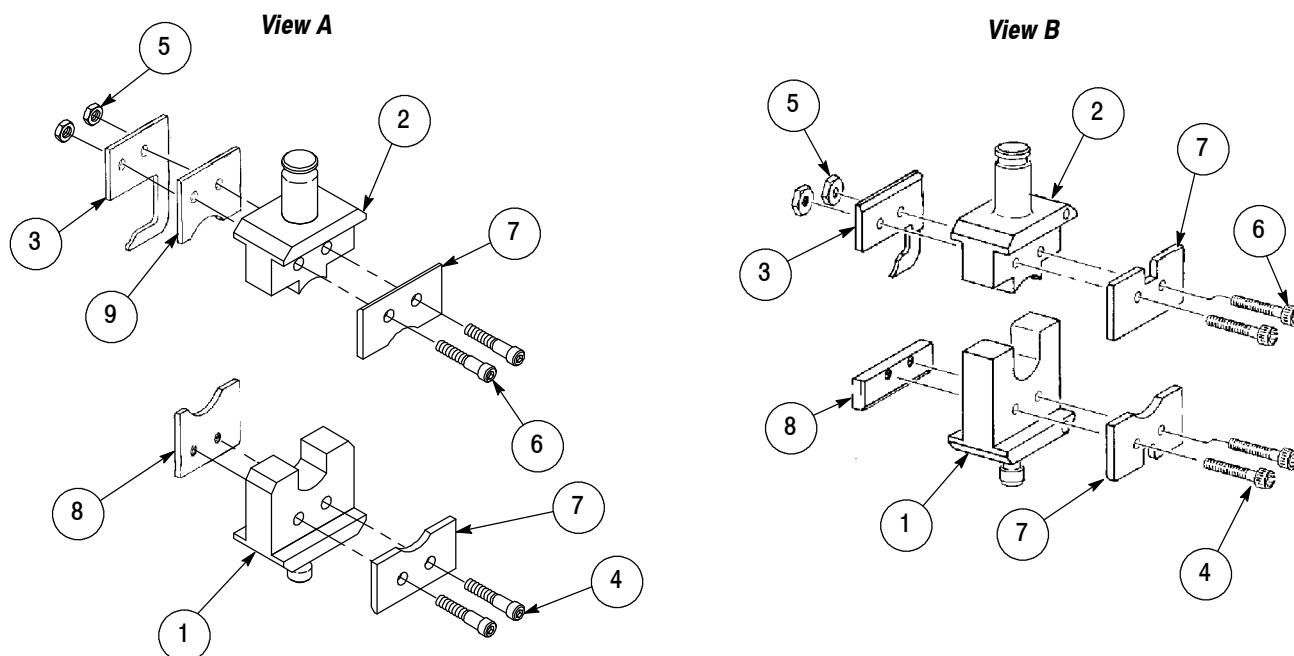
The parts listed in Figure 11 are customer-replaceable. A complete inventory can be stocked and controlled to prevent lost time when replacement of parts is necessary. Order replacement parts through your TE Connectivity Representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605, or write to:

CUSTOMER SERVICE (038-035)  
TYCO ELECTRONICS CORPORATION  
P.O. BOX 3608  
HARRISBURG, PA 17105-3608

Dies may be returned for evaluation and repair. For die repair service, contact a TE Representative at 1-800-526-5136.

## 8. REVISION SUMMARY

- Updated document to corporate requirements.



### REPLACEMENT PARTS

| ITEM | PART NUMBER FOR CRIMPING DIE (VIEW A) |            |            |            |            | DESCRIPTION         | QTY PER ASSEMBLY |
|------|---------------------------------------|------------|------------|------------|------------|---------------------|------------------|
|      | 47823                                 | 47824      | 47825      | 47915      | 47918      |                     |                  |
| 1    | 47950                                 | 47910      | 47913      | 47916      | 47919      | Die, Moving         | 1                |
| 2    | 47949                                 | 47911      | 47914      | 47917      | 47920      | Die, Stationary     | 2                |
| 3    | 313337-1                              | 46606      | 313337-2   | 313337-3   | 313337-4   | Locator             | 2                |
| 4    | 4-306105-4                            | 3-21000-0  | 3-21000-0  | 3-21000-0  | 3-21000-0  | Screw               | 2                |
| 5    | 21018-5                               | 21018-6    | 21018-6    | 21018-6    | 21018-6    | Nut                 | 1                |
| 6    | 4-306105-6                            | 6-305927-4 | 6-305927-4 | 6-305927-4 | 6-305927-4 | Screw               | 1                |
| 7    | 313322-1                              | 313323-1   | 313323-2   | 313323-3   | 313323-4   | Plate, Flare        | 2                |
| 8    | 1-45992-0                             | 45992-3    | 45992-7    | 45992-8    | 45992-9    | Plate, Flare, Lower | 1                |
| 9    | 45992-2                               | 45992-1    | 45992-4    | 45992-5    | 45992-6    | Plate, Flare, Upper | 1                |

| ITEM | PART NUMBER FOR CRIMPING DIE (VIEW B) |            |            | DESCRIPTION         | QTY PER ASSEMBLY |
|------|---------------------------------------|------------|------------|---------------------|------------------|
|      | 47820                                 | 47821      | 47822      |                     |                  |
| 1    | 47941                                 | 47944      | 47947      | Die, Moving         | 1                |
| 2    | 47940                                 | 47943      | 47946      | Die, Stationary     | 2                |
| 3    | 313336-1                              | 313336-2   | 313336-3   | Locator             | 2                |
| 4    | 2-21000-0                             | 2-306105-5 | 2-306105-5 | Screw               | 2                |
| 5    | 21018-5                               | 21018-5    | 21018-5    | Nut                 | 1                |
| 6    | 4-306105-5                            | 2-306105-5 | 2-21000-2  | Screw               | 1                |
| 7    | 313322-4                              | 313322-3   | 313322-2   | Plate, Flare        | 2                |
| 8    | 304383                                | 304384     | 304385     | Plate, Flare, Lower | 1                |

Figure 11