

## 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.

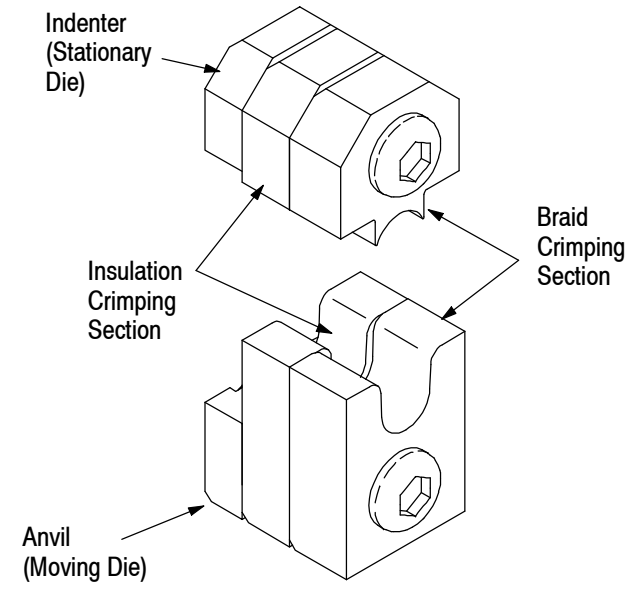


Figure 1

## 1. INTRODUCTION

This instruction sheet covers the use and maintenance of Crimping Die Assemblies 58166-[ ], which are used in Hand Crimping Tool 69710-1. Each die assembly crimps a ferrule onto round shielded cable used with Shielded Data Link (SDL) Connectors.

Catalogs 296642 and 1307612 provides guides for cable-to-connector and ferrule selection. Read these and all referenced materials before using the die assemblies.

### NOTE



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

Reasons for revision to this document are given in Section 7, REVISION SUMMARY.

## 2. DESCRIPTION

Each die assembly consists of an indenter (stationary die) which has chamfered corners and an anvil (moving die) which has square corners. When mated, the dies form two crimping sections: the braid and the insulation. The braid section crimps the front part of the ferrule onto the cable shield and the cable outlet of the connector shield assembly, and simultaneously,

the insulation section crimps the back part of the ferrule onto the cable insulation. See Figure 1.

The ferrule, which is ordered separately from the SDL connector, is sized according to the insulation diameter of the cable. Each die assembly is marked with the cable insulation diameter range.

## 3. DIE INSTALLATION

The die assembly is designed to fit securely into the tool by upper and lower die holder plates; each die is held in by a single screw. To install the die assembly, refer to Instruction Sheet 408-2095 (Hand Crimping Tool 69710-1).

## 4. CRIMPING PROCEDURE

Assemble the connector by referring to Instruction Sheet 408-9072. Make sure the ferrule is over the connector shield cable outlet and butted against the shield body. Then, proceed as follows:

1. Place the ferrule on the stationary die, with the cable extending out the back side of the die. Make sure that the front part of the ferrule is positioned in the braid section and the back part of the ferrule is positioned in the insulation section. See Figure 2.

### CAUTION



*Connector body must be clear of dies.*

2. Actuate tool for crimping according to the instructions packaged with the tool.
3. Remove connector from die assembly and inspect the crimped ferrule according to the requirements outlined in Application Specification 114-2090.

See Figure 3 for a properly crimped ferrule.

## 5. MAINTENANCE AND INSPECTION

The die assembly is inspected prior to shipment, however, Tyco Electronics recommends that the die assembly be inspected immediately upon arrival. Tyco Electronics recommends that a maintenance and inspection program be performed periodically to ensure continued reliability of the die assembly. The inspection frequency should be based on the amount of use, working conditions, operator training and skill, and established company standards.

### 5.1. Daily Maintenance

1. Remove accumulated dust, moisture, and other contaminants with a clean, soft brush or lint-free

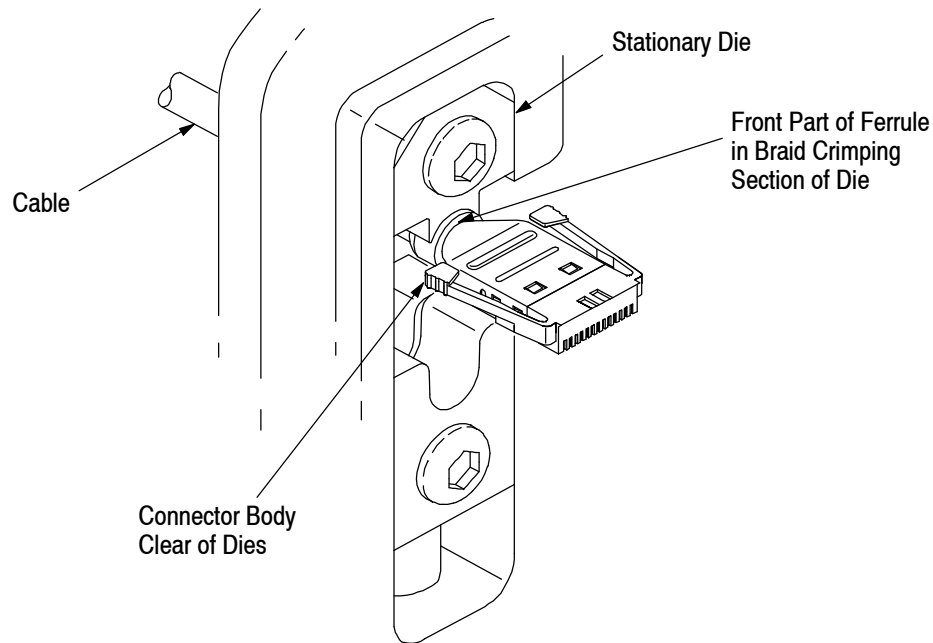


Figure 2

cloth. Do NOT use hard or abrasive objects that could damage the dies.

2. Make sure dies are protected with a THIN coat of any good SAE No. 20 motor oil. Do NOT oil excessively.

3. When die assembly is not in use, mate and store them in a clean, dry area.

## 5.2. Periodic Inspection

### A. Visual Inspection

1. Remove all lubrication and accumulated film from the dies by immersing the dies in a suitable commercial degreaser that will not affect paint or plastic material.
2. Make sure that all die retention screws and die components are properly secured.
3. Inspect die assembly for worn, cracked, or broken surfaces. If damage is evident, the dies must be replaced. See Section 6, REPLACEMENT PARTS.

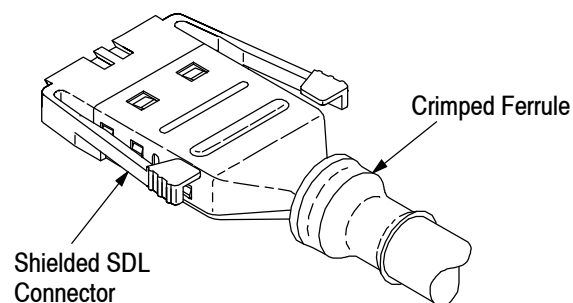


Figure 3

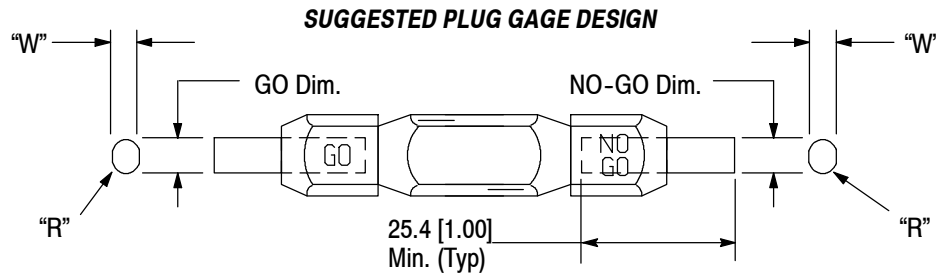
### B. Gaging the Crimping Section

This inspection requires the use of plug gages conforming to the dimensions provided in Figure 4. Tyco Electronics does not manufacture or market these gages. For each crimping section, proceed as follows:

1. Remove traces of oil or dirt from the crimping section and plug gage.
2. Mate the dies until the crimping surfaces have bottomed; then hold in this position. DO NOT force the dies beyond initial contact.
3. Carefully insert GO element into the corresponding crimping section; do not force it. The GO element must pass completely through the crimping section.
4. In the same manner, try to insert the NO-GO element into the same crimping section. The NO-GO element may start entry, but must not pass completely through the crimping section.

If the crimping sections conform to the gage inspection, they are considered dimensionally correct, and should be lubricated with a THIN coat of any good SAE No. 20 motor oil. If not, the die assembly must be replaced. Refer to Section 6, REPLACEMENT PARTS.

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



| DIE<br>ASSEMBLY | GAGE ELEMENT DIMENSIONS      |                              |                       |                        |                              |                              |                       |                        |
|-----------------|------------------------------|------------------------------|-----------------------|------------------------|------------------------------|------------------------------|-----------------------|------------------------|
|                 | BRAID CRIMPING SECTION       |                              |                       |                        | INSULATION CRIMPING SECTION  |                              |                       |                        |
|                 | GO                           | NO-GO                        | WIDTH<br>(MAX)<br>"W" | RADIUS<br>(MAX)<br>"R" | GO                           | NO-GO                        | WIDTH<br>(MAX)<br>"W" | RADIUS<br>(MAX)<br>"R" |
| 58166-1         | 6.426-6.433<br>[.2530-.2533] | 6.525-6.527<br>[.2569-.2570] | 6.35<br>[.250]        | 3.18<br>[.125]         | 4.267-4.274<br>[.1680-.1683] | 4.467-4.470<br>[.1759-.1760] | 3.96<br>[.156]        | 1.98<br>[.078]         |
| 58166-2         | 6.426-6.433<br>[.2530-.2533] | 6.525-6.527<br>[.2569-.2570] | 6.35<br>[.250]        | 3.18<br>[.125]         | 4.775-4.782<br>[.1880-.1883] | 4.975-4.978<br>[.1959-.1960] | 4.52<br>[.178]        | 2.26<br>[.089]         |
| 58166-3         | 7.061-7.068<br>[.2780-.2783] | 7.160-7.162<br>[.2819-.2820] | 6.99<br>[.272]        | 3.45<br>[.136]         | 4.470-4.478<br>[.1760-.1763] | 4.671-4.673<br>[.1839-.1840] | 4.22<br>[.166]        | 2.11<br>[.083]         |
| 58166-4         | 7.061-7.068<br>[.2780-.2783] | 7.160-7.162<br>[.2819-.2820] | 6.99<br>[.272]        | 3.45<br>[.136]         | 5.384-5.392<br>[.2120-.2123] | 5.585-5.588<br>[.2199-.2200] | 5.28<br>[.208]        | 2.64<br>[.104]         |
| 58166-5         | 7.340-7.348<br>[.2890-.2893] | 7.439-7.442<br>[.2929-.2930] | 7.11<br>[.280]        | 3.56<br>[.140]         | 5.029-5.036<br>[.1980-.1983] | 5.229-5.232<br>[.2059-.2060] | 4.78<br>[.188]        | 2.39<br>[.094]         |
| 58166-7         | 8.966-8.973<br>[.3530-.3533] | 9.065-9.067<br>[.3569-.3570] | 8.79<br>[.346]        | 4.39<br>[.173]         | 6.248-6.256<br>[.2460-.2463] | 6.449-6.451<br>[.2539-.2540] | 6.05<br>[.238]        | 3.02<br>[.119]         |
| 1-58166-1       | 7.061-7.068<br>[.2780-.2783] | 7.160-7.162<br>[.2819-.2820] | 6.99<br>[.272]        | 3.45<br>[.136]         | 5.384-5.392<br>[.2120-.2123] | 5.585-5.588<br>[.2199-.2200] | 5.28<br>[.208]        | 2.64<br>[.104]         |
| 1-58166-2       | 7.340-7.348<br>[.2890-.2893] | 7.439-7.442<br>[.2929-.2930] | 7.11<br>[.280]        | 3.56<br>[.140]         | 5.715-5.722<br>[.2250-.2253] | 5.915-5.918<br>[.2329-.2330] | 5.64<br>[.222]        | 2.82<br>[.111]         |
| 1-58166-3       | 8.966-8.973<br>[.3530-.3533] | 9.065-9.067<br>[.3569-.3570] | 8.79<br>[.346]        | 4.39<br>[.173]         | 7.112-7.119<br>[.2800-.2830] | 7.312-7.315<br>[.2879-.2880] | 6.99<br>[.272]        | 3.45<br>[.136]         |
| 1-58166-7       | 7.340-7.348<br>[.2890-.2893] | 7.439-7.442<br>[.2929-.2930] | 7.11<br>[.280]        | 3.56<br>[.140]         | 4.775-4.782<br>[.1880-.1883] | 4.953-4.978<br>[.1950-.1960] | 4.52<br>[.178]        | 2.26<br>[.089]         |
| 1-58166-8       | 7.340-7.348<br>[.2890-.2893] | 7.439-7.442<br>[.2929-.2930] | 6.99<br>[.272]        | 3.56<br>[.140]         | 6.121-6.129<br>[.2410-.2413] | 6.322-6.324<br>[.2489-.2490] | 5.99<br>[.236]        | 3.00<br>[.118]         |
| 1-58166-9       | 7.061-7.068<br>[.2780-.2783] | 7.160-7.162<br>[.2819-.2820] | 8.79<br>[.272]        | 3.45<br>[.136]         | 6.756-6.764<br>[.2660-.2663] | 6.957-6.959<br>[.2739-.2740] | 6.60<br>[.260]        | 3.30<br>[.130]         |
| 2-58166-0       | 8.966-8.973<br>[.3530-.3533] | 9.065-9.067<br>[.3569-.3570] | 8.79<br>[.346]        | 4.39<br>[.173]         | 8.229-8.237<br>[.3240-.3243] | 8.430-8.432<br>[.3319-.3320] | 8.03<br>[.316]        | 4.01<br>[.158]         |
| 2-58166-1       | 8.966-8.973<br>[.3530-.3533] | 9.065-9.067<br>[.3569-.3570] | 8.79<br>[.346]        | 4.39<br>[.173]         | 4.775-4.782<br>[.1880-.1883] | 4.975-4.978<br>[.1959-.1960] | 4.52<br>[.178]        | 2.26<br>[.089]         |

Figure 4

## 6. REPLACEMENT PARTS

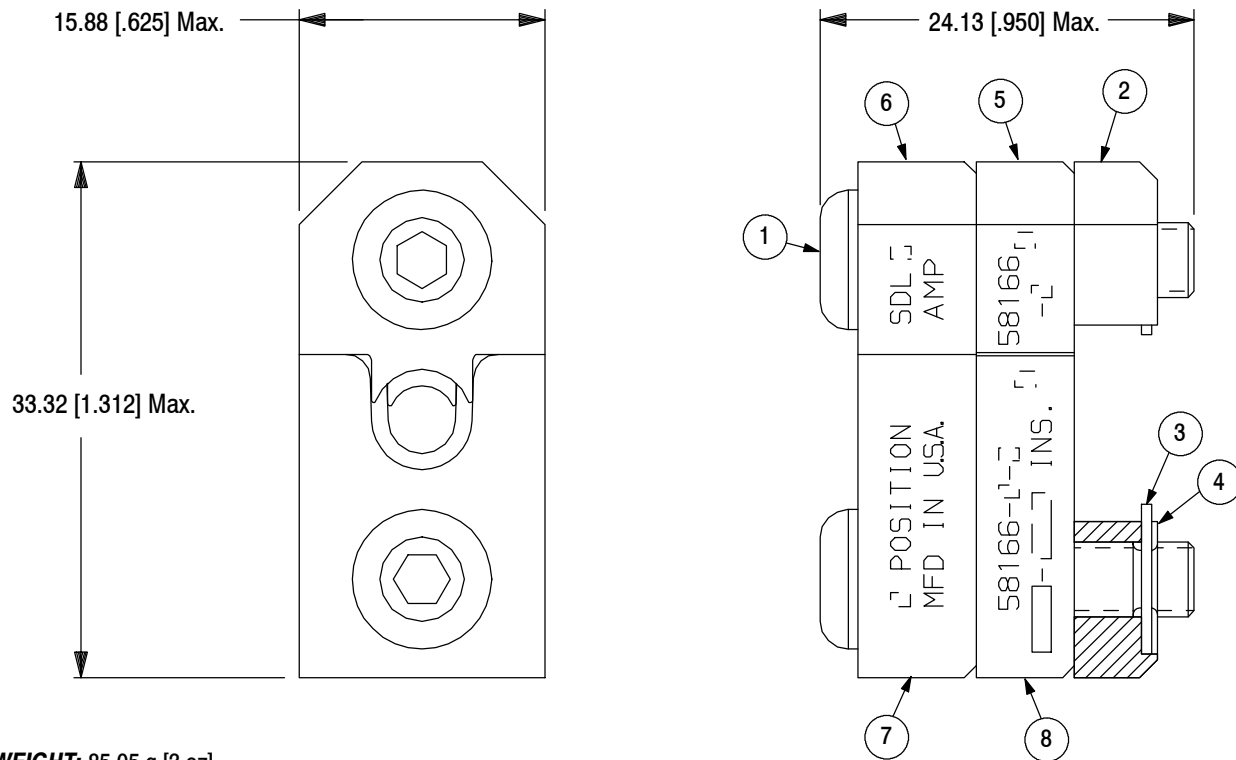
The parts listed in Figure 5 are customer-replaceable. A complete inventory can be stocked and controlled to prevent lost time when replacement of parts is necessary. Order replacement parts through your Tyco Electronics Representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605, or write to:

CUSTOMER SERVICE (38-35)  
TYCO ELECTRONICS CORPORATION  
P.O. BOX 3608  
HARRISBURG, PA 17105-3608

## 7. REVISION SUMMARY

Revisions to this instruction sheet include:

- Updated document to corporate requirements.



**WEIGHT:** 85.05 g [3 oz]

| DIE ASSEMBLY<br>PART NUMBER       | REPLACEABLE PARTS FOR DIE ASSEMBLIES 58166- [ ] |             |                   |                  |
|-----------------------------------|-------------------------------------------------|-------------|-------------------|------------------|
|                                   | ITEM NO.                                        | PART NUMBER | DESCRIPTION       | QTY PER DIE ASSY |
| 58166- [ ]                        | 1                                               | 306105-7    | SCREW, Special    | 2                |
| 58166- [ ]                        | 2                                               | 305832-3    | SPACER, Upper     | 1                |
| 58166- [ ]                        | 3                                               | 1-21046-3   | RING, Retaining   | 2                |
| 58166- [ ]                        | 4                                               | 2-59675-2   | SPACER, Lower     | 1                |
| 58166-1                           | 5                                               | 312729-1    | ANVIL, Insulation | 1                |
| 58166-2<br>1-58166-7<br>2-58166-1 | 5                                               | 1-312729-0  | ANVIL, Insulation | 1                |
| 58166-3                           | 5                                               | 312729-2    | ANVIL, Insulation | 1                |
| 58166-5                           | 5                                               | 312729-4    | ANVIL, Insulation | 1                |
| 58166-7                           | 5                                               | 312729-6    | ANVIL, Insulation | 1                |
| 58166-4<br>1-58166-1              | 5                                               | 312729-3    | ANVIL, Insulation | 1                |
| 1-58166-2                         | 5                                               | 312729-5    | ANVIL, Insulation | 1                |
| 1-58166-3                         | 5                                               | 312729-7    | ANVIL, Insulation | 1                |
| 1-58166-8                         | 5                                               | 1-312729-1  | ANVIL, Insulation | 1                |
| 1-58166-9                         | 5                                               | 1-312729-2  | ANVIL, Insulation | 1                |
| 2-58166-0                         | 5                                               | 1-312729-3  | ANVIL, Insulation | 1                |

Figure 5 (cont'd)

| DIE ASSEMBLY<br>PART NUMBER                    | REPLACEABLE PARTS FOR DIE ASSEMBLIES 58166-[ ] |                                 |                      |                  |
|------------------------------------------------|------------------------------------------------|---------------------------------|----------------------|------------------|
|                                                | ITEM NO.                                       | PART NUMBER                     | DESCRIPTION          | QTY PER DIE ASSY |
| 58166-1<br>58166-2                             | 6                                              | 312726-1                        | ANVIL, Braid         | 1                |
| 58166-3<br>58166-4<br>1-58166-1<br>1-58166-9   | 6                                              | 312726-2                        | ANVIL, Braid         | 1                |
| 58166-5<br>1-58166-2<br>1-58166-7<br>1-58166-8 | 6                                              | 312726-3                        | ANVIL, Braid         | 1                |
| 58166-7<br>1-58166-3<br>2-58166-0<br>2-58166-1 | 6                                              | 312727-1                        | ANVIL, Braid         | 1                |
| 58166-1<br>58166-2                             | 7                                              | 312728-1                        | INDENTER, Braid      | 1                |
| 58166-3<br>58166-4<br>1-58166-1<br>1-58166-9   | 7                                              | 312728-2                        | INDENTER, Braid      | 1                |
| 58166-5<br>1-58166-2<br>1-58166-7<br>1-58166-8 | 7                                              | 312728-3                        | INDENTER, Braid      | 1                |
| 58166-7<br>1-58166-3<br>2-58166-0<br>2-58166-1 | 7                                              | 312728-4                        | INDENTER, Braid      | 1                |
| 58166-1                                        | 8                                              | 313111-7                        | INDENTER, Insulation | 1                |
| 58166-2<br>1-59166-7<br>2-58166-1              | 8                                              | 313111-6                        | INDENTER, Insulation | 1                |
| 58166-3                                        | 8                                              | 313111-1                        | INDENTER, Insulation | 1                |
| 58166-5                                        | 8                                              | 313111-8                        | INDENTER, Insulation | 1                |
| 58166-7                                        | 8                                              | 313111-9                        | INDENTER, Insulation | 1                |
| 1-58166-1                                      | 8                                              | 313111-2                        | INDENTER, Insulation | 1                |
| 1-58166-2                                      | 8                                              | 313111-3                        | INDENTER, Insulation | 1                |
| 1-58166-3                                      | 8                                              | 313111-4                        | INDENTER, Insulation | 1                |
| 1-58166-8                                      | 8                                              | 1-313111-0                      | INDENTER, Insulation | 1                |
| 1-58166-9                                      | 8                                              | 1-313111-1                      | INDENTER, Insulation | 1                |
| 2-58166-0                                      | 8                                              | 1-313111-2                      | INDENTER, Insulation | 1                |
| 58166-4●                                       | 8                                              | 312730-3<br>312731-1<br>22973-2 | INDENTER, Insulation | 1                |

●Requires one of each part number.

*Figure 5 (end)*