



All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of ± 0.13 [$\pm .005$] and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of TE Connectivity Pluggable Bus Bar Connector Series 125 designed to engage 3.18 mm (.125 in.) thick bus bars used in the TE Power Electronic Distribution System (PEDS). Letters and numbers following the series designator indicate the mounting flange orientation in relation to the bus bar slot: connectors designated as 125F have offset right-angle mounting flanges, those designated as 125F2 have in-line mounting flanges, and those designated as 125F3 have right-angle mounting flanges.

All connectors can be used with mounting planes that provide power to the system. The 125F connectors are also designed to accept power supplied by 2 AWG cable. Power cables must be terminated with terminals compatible with the connector materials such as SOLISTRAND* Terminals with silver plating over nickel.

Figure 1 provides terminology for connector features that will be used throughout this specification. Use these terms when corresponding with TE Representatives to facilitate assistance.

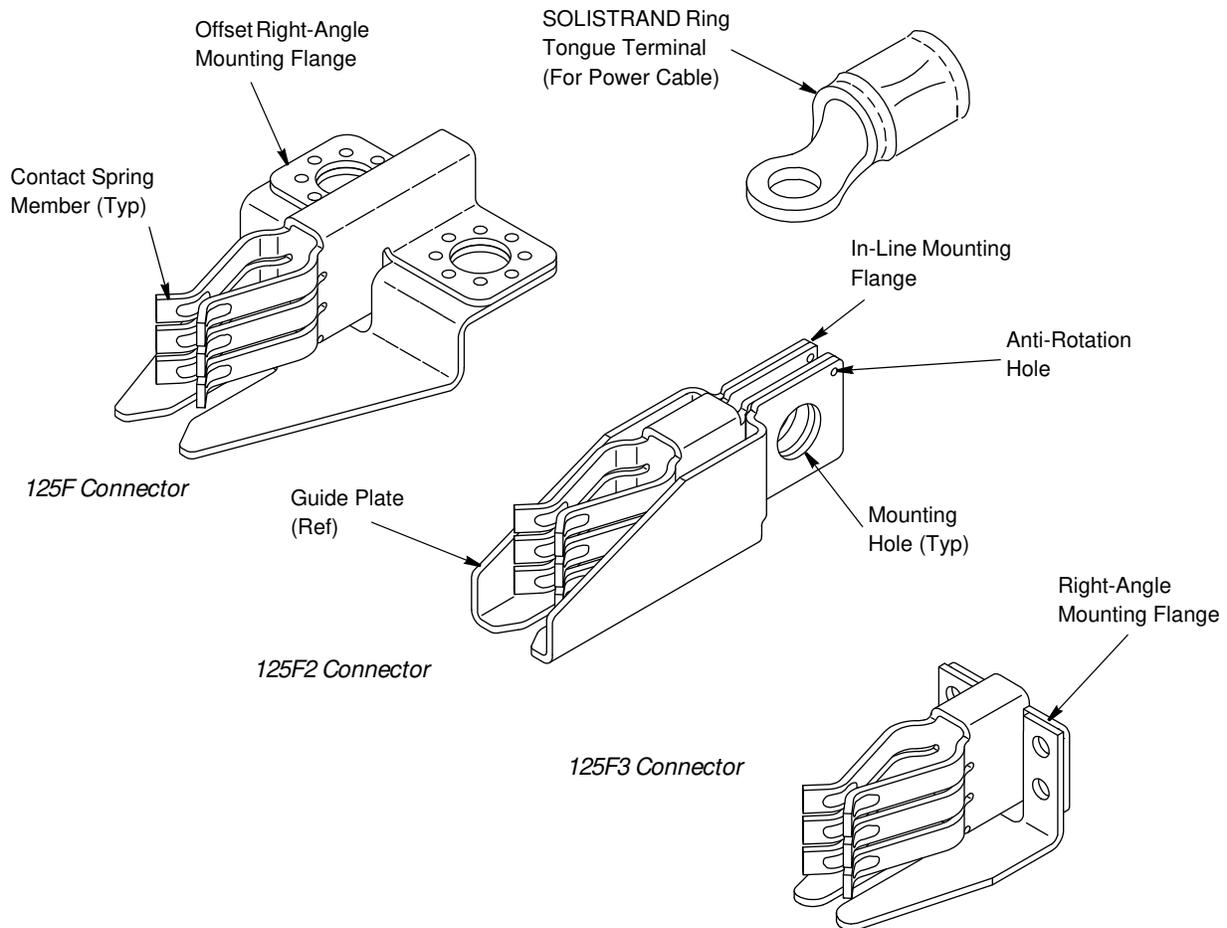


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

This paragraph is reserved for a revision summary covering the most recent additions and changes made to this specification which include the following:

- Updated document to corporate requirements
- Changed lubrication in Paragraph 3.4.A

2.2. Customer Assistance

Reference Part Number 104501 and Product Code 1080 are representative numbers of Bus Bar Connectors Series 125F, 125F2, and 125F3. Use of these numbers will identify the product line and expedite your inquiries through a service network established to help you obtain product and tooling information. Such information can be obtained through a local TE Representative or, after purchase, by calling the Tooling Assistance Center or the Product Information Center number at the bottom of page 1.

2.3. Drawings

Customer Drawings for specific products are available from the service network. The information contained in Customer Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by TE.

2.4. Specifications

A. Product Specification

See Product Specification 108-1101 for test and performance requirements.

B. Finish Specification

See Finish Specifications 112-32-2 for silver and 112-25-2 for nickel plating requirements.

2.5. Instructional Material

Cable preparation and crimping procedures for SOLISTRAND Terminals are provided with the instructions sheets (408-series) and customer manuals (409-series) packaged with the tooling:

<u>Document Number</u>	<u>Document Title</u>
408-9786	Crimping Dies for SOLISTRAND Terminals and Splices
408-2452	Hydraulic Crimping Head 69065
409-1950	Hydraulic Power Units 69120-1 and 69120-2
409-5860	Hydraulic Hand Pump 314979-1

3. REQUIREMENTS

3.1. Safety Limitations

Safety interlocks and/or insulating devices must be designed into the system in which the connector will be installed to avoid inadvertent electrical shock to the installer and equipment operator.



To avoid shock or electrocution, the electrical system must be de-energized before installing or removing a connector, AND before mating and unmating the connector with the bus bar.

3.2. Chemical Exposure Limitations

The connectors are not intended for use in concentrated sulfur- or chlorine-bearing atmospheres.

3.3. Keying and Polarization

Connectors are designed for single voltage, single contact applications. Customer-supplied keying and polarization features must be designed into systems that will be using multiple voltages or contacts.

3.4. Bus Bar

A. Material



The bus bar may NOT be made of aluminum NOR may it be tin plated.

For optimum performance, the bus bar must be made of highly conductive copper (101% @ 20°C [68°F] per International Anneal Copper Standards {IACS}) silver plated 0.00635 to 0.00889 mm [.000250 to .000350 in.] over 0.00127 to 0.00254 mm [.00050 to .00010 in.] nickel plating, and lubricated with MS-381H† or equivalent. Refer to IACS for copper material, TE Finish Specification 112-32-2 for silver plating, and TE Finish Specification 112-25-2 for nickel plating.

B. Design

The bus bar must be rigidly constructed and capable of preventing movement that could cause stubbing or misalignment of the contact with the bus bar. The leading edge must have a full radius or a gradual taper to provide a lead-in and ease mating of the connector with the bus bar. The bar must be 3.18 ±0.05 mm [.125 ±.002 in.] thick, and capable of engaging the contact a minimum of 13.97 mm [.550 in.] over the full height of the contact.

C. Finish

The finish surface of the bus bar must be .40 to .80 kPa [16 to 32 microinch] rms.

3.5. Power Cable Size, Selections, and Bend Radii

These connectors are designed for 2 AWG cable size. There are three specific types of cable recommended for these connectors, each with its own minimum cable bend radii.

1. UL 7-strand with a minimum bend radius 203.2 mm [8 in.].
2. Weld cable with a minimum bend radius of 406.4 mm [2 in.].
3. Cooner† wire (Cooner Wire Co.) with a bend radius of 25.4 mm [1 in.].

3.6. Mounting Dimensions

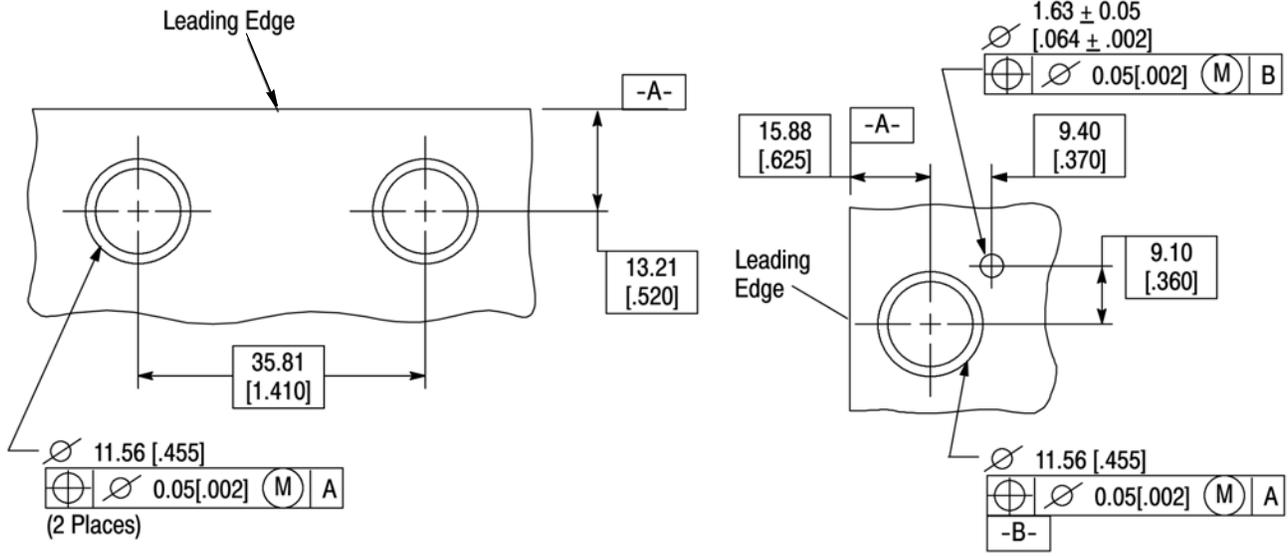
A. Mounting Holes

The 125F and 125F2 require the same size mounting hole. An anti-rotation hole is provided for the 125F2 Connectors with one mounting hole. The 125F3 requires four mounting holes as shown in Figure 2. The mounting hole and panel cutout dimensions are provided in Figure 2.

B. Panel Cutouts

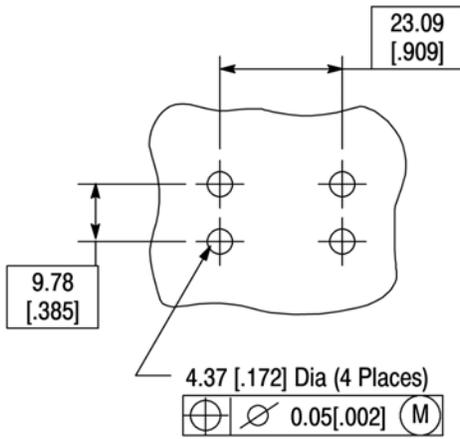
The panel cutout dimensions provide the necessary minimum clearance of 4.06 mm [.160 in.] on all four sides of the connector. The distance from the mounting plane to the panel is immaterial as long as the panel will not interfere with the insertion depth of the mating bus bar.

†Trademarks of their respective owners.

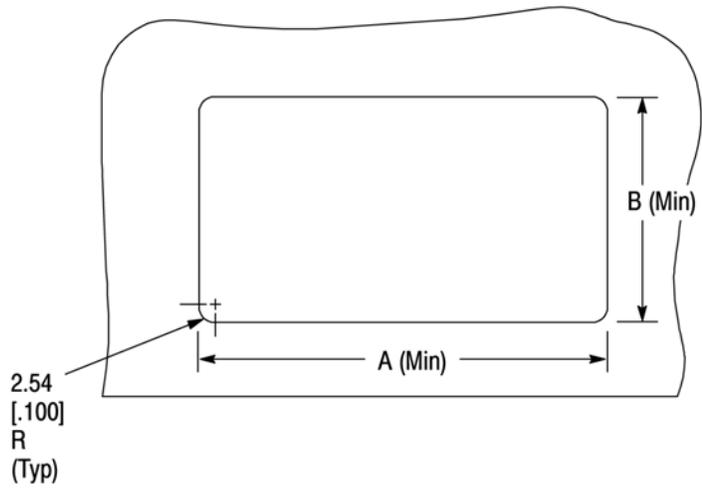


**Mounting Plane Holes
for 125F Connectors**

**Mounting Plane Holes
for 125F2 Connectors**



**Mounting Plane Holes
for 125F3 Connectors**



Panel Cutout

CONNECTOR		REFERENCE FIGURE 5	DIMENSION	
DESIGNATOR	POWER SOURCE		A	B
125F	Cable	View A	66.55 [2.620]	36.83 [1.450]
125F	Mounting Plane	View B	66.55 [2.620]	37.47 [1.475]
125F2	Mounting Plane	View C	29.71 [1.170]	38.1 [1.500]
125F3	Mounting Plane	View D	40.13 [1.580]	37.47 [1.475]

Figure 2

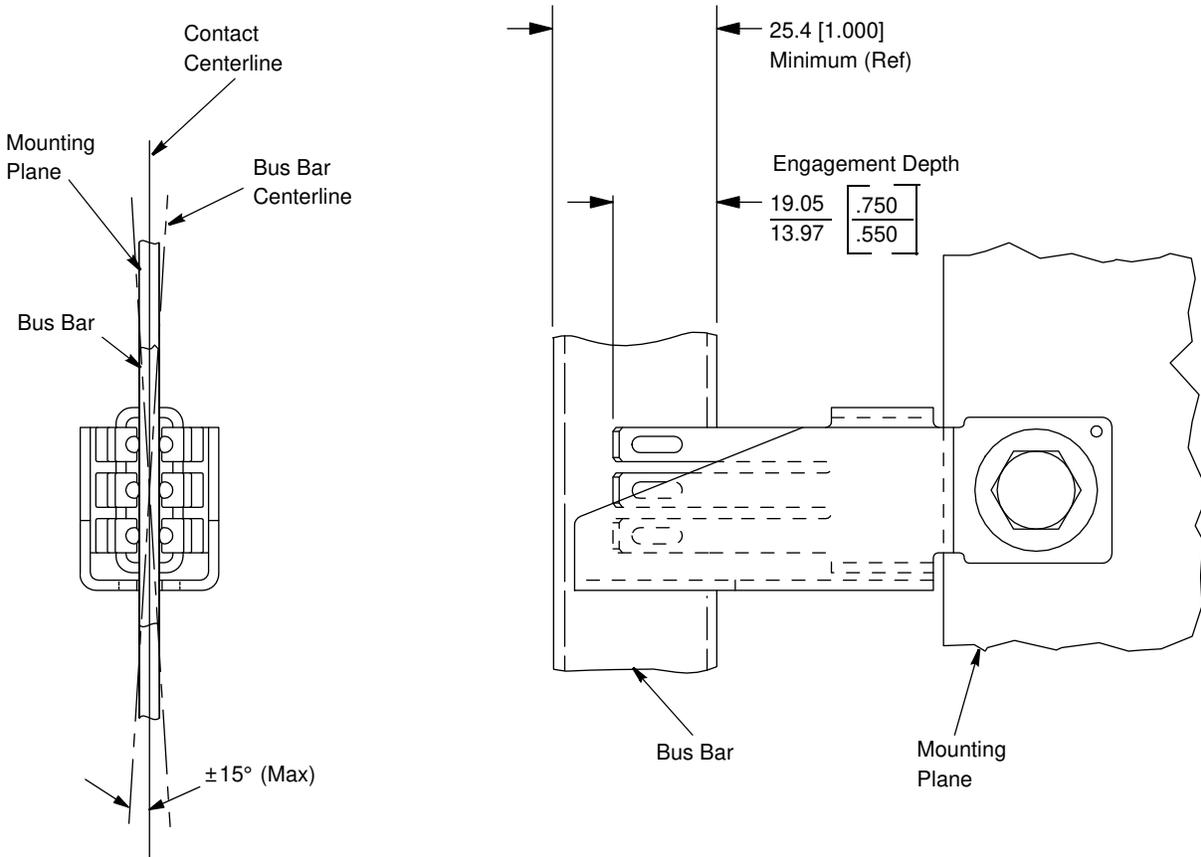


Figure 3

3.7. Mating and Alignment Considerations

A. Bus Bar-to-Connector Alignment

This alignment should be 90° within 1.5° at the crossover point as indicated in Figure 3.

B. Bus Bar Engagement

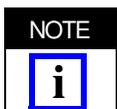
The connector must engage the bus bar a minimum of 13.97 mm [.550 in.] as indicated in Figure 3. A stabilizing device must be designed into the system to ensure proper insertion depth, and to prevent movement during operation of the system.

C. Mating Tolerance

Drawer-mounted, removable power supplies, and other similar applications have a recommended misalignment tolerance of ± 0.51 mm [± 0.020 in.]; however, the guide plate will accept bus bar misalignment of ± 1.52 mm [± 0.060 in.] providing the power supply module weighs less than 45.4 kg [100 pounds] and the mechanical means are provided to prevent deflection of the bus bar and mounting plane.

3.8. Mounting Hardware

All hardware must be stainless steel, and is to be supplied by the customer. The primary recommendation for attaching connectors to a bus bar is to use bolts (7/16 for 125 and 125F, and No. 8 for 125F3), washers, lock washers, and nuts, and slotted pins to prevent rotation when installing in-line 125F connectors. See Figure 4.



All recommended hardware is commercially available. The washers and lock washers will ensure a secure connection that will not loosen as a result of heat, vibration, handling of equipment, etc.

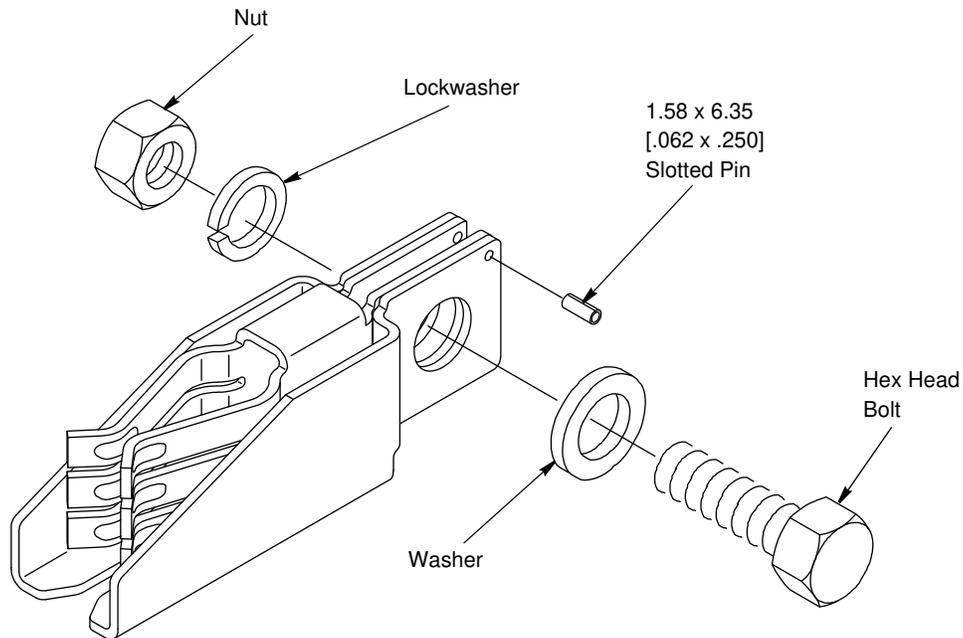
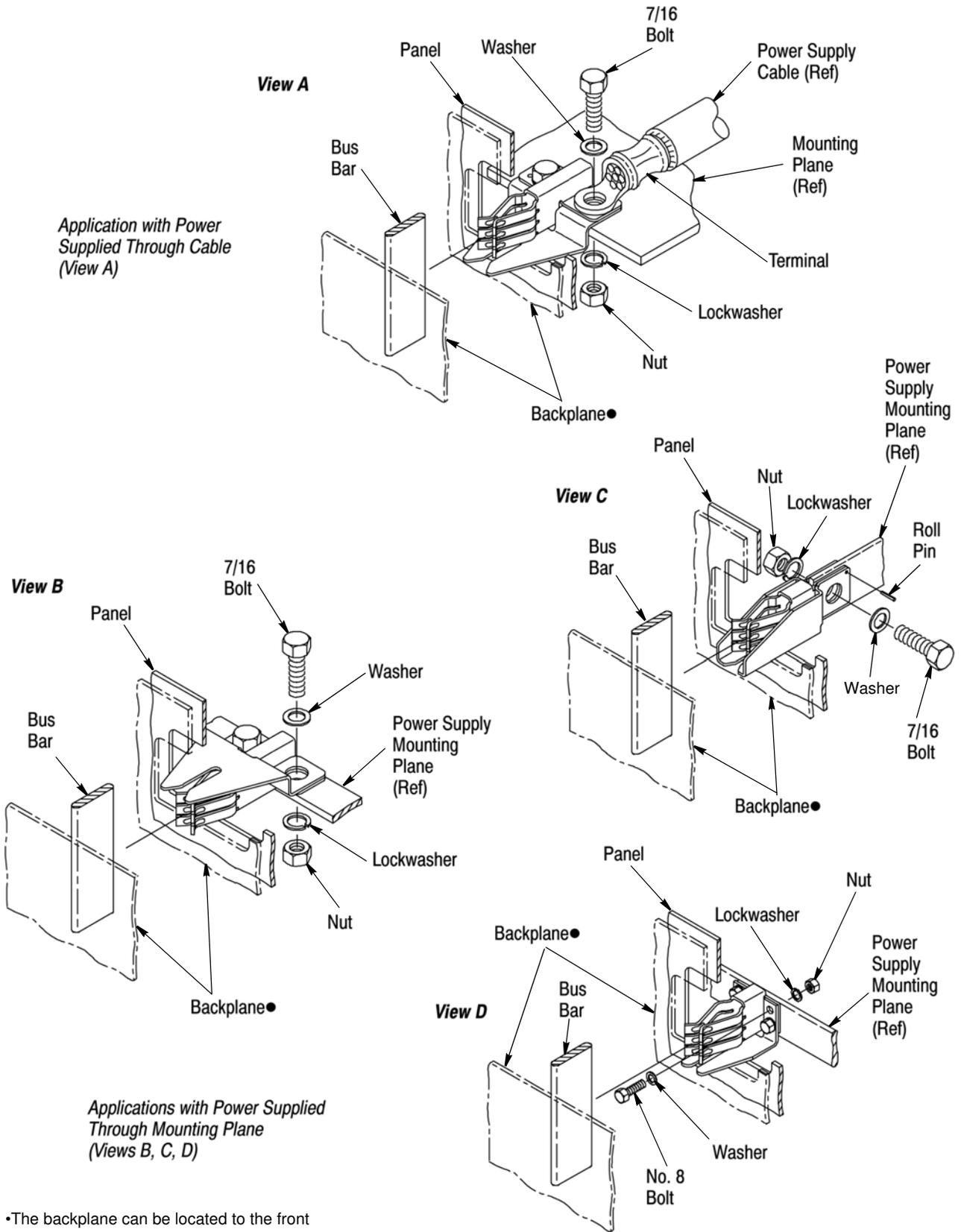


Figure 4

3.9. Applications

Figure 5 illustrates the recommended applications, possible mounting plane locations, hardware installation, and mounting orientations for these connectors. View 5A shows the 125F2 attached to a mounting plane with power being supplied by a cable crimped to a SOLISTRAND Ring Tongue Terminal. Views 5B, 5C, and 5D show 125F, 125F2, and 125F3 (respectively) attached to a mounting plane that also serves as the power supply. Note that a commercially available bolt, washer, lockwasher, and nut, or a locking insert assembly can be used to secure a 125F2 connector.

Notice that the backplane can be located on either side of the bus bar. If it is located between panel and bus bar, a cutout will be required in the backplane that is equivalent to the panel cutout referenced in Figure 2.



•The backplane can be located to the front or rear of the bus bar.

Figure 5

3.10. Special Considerations

Lubricate with MS-181N after plating to insure cleanliness and electrical integrity, and to allow storage of sealed connectors at up to 100°C [212°F] for up to 5 years. If the lubricant is removed during the installation process, the entire connector should be relubricated by dipping or spraying with the specified lubricant or one with equivalent properties.

3.11. Repair

Damage connectors and terminals must be removed, discarded, and replaced with new components.

4. QUALIFYING SUPPORT

All connector in the 125 series contain UL recognized components.

5. TOOLING

Commercially available tooling can be used to secure the hardware used to attach connectors to the mounting plane. SOLISTRAND ring tongue terminals are designed to be crimped to cable using TE crimping dies, a crimping head, and a power source. For tooling and instruction material numbers, see Figure 6.

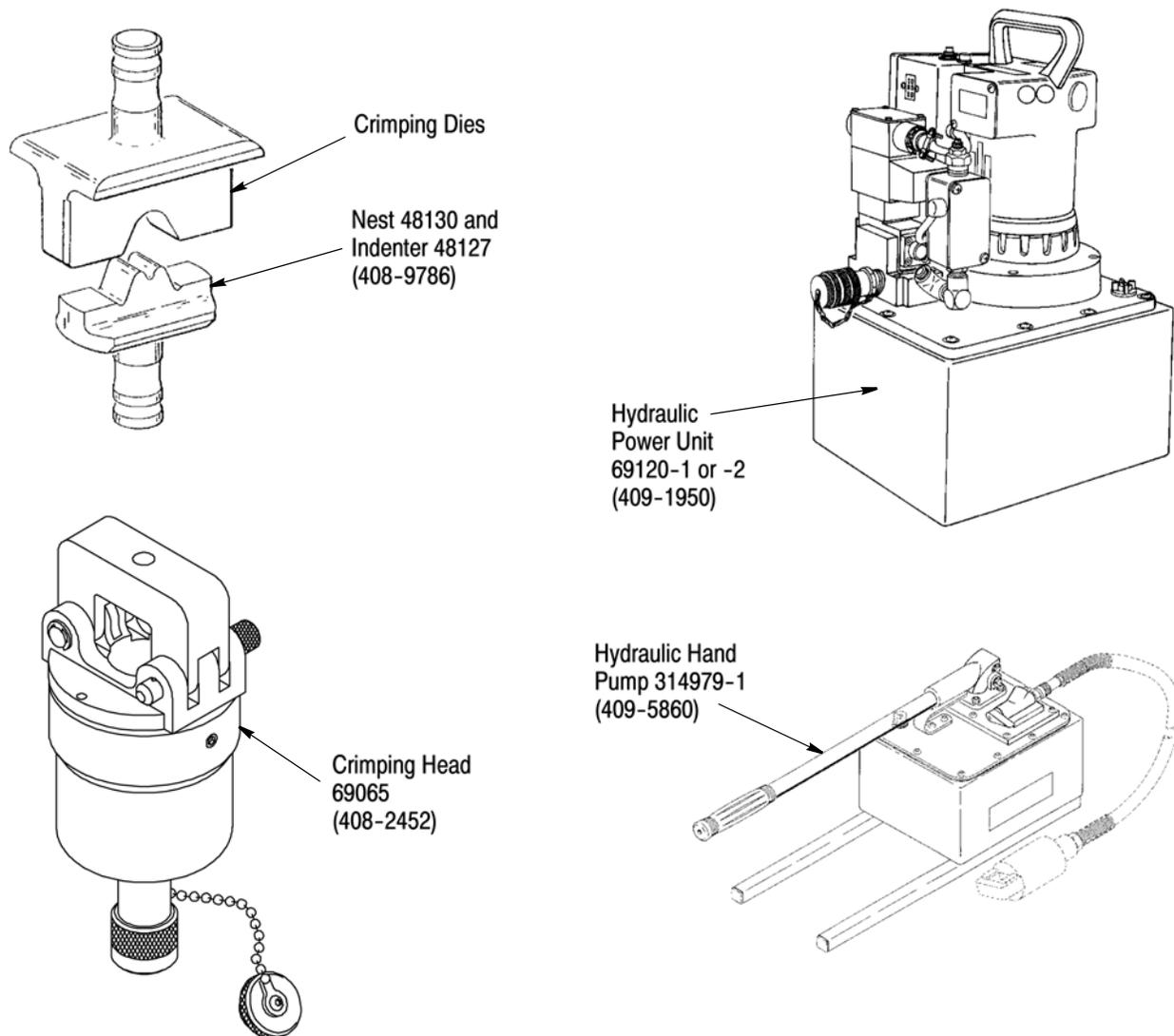


Figure 6

6. VISUAL AID

The illustration below shows a typical application of this product. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.

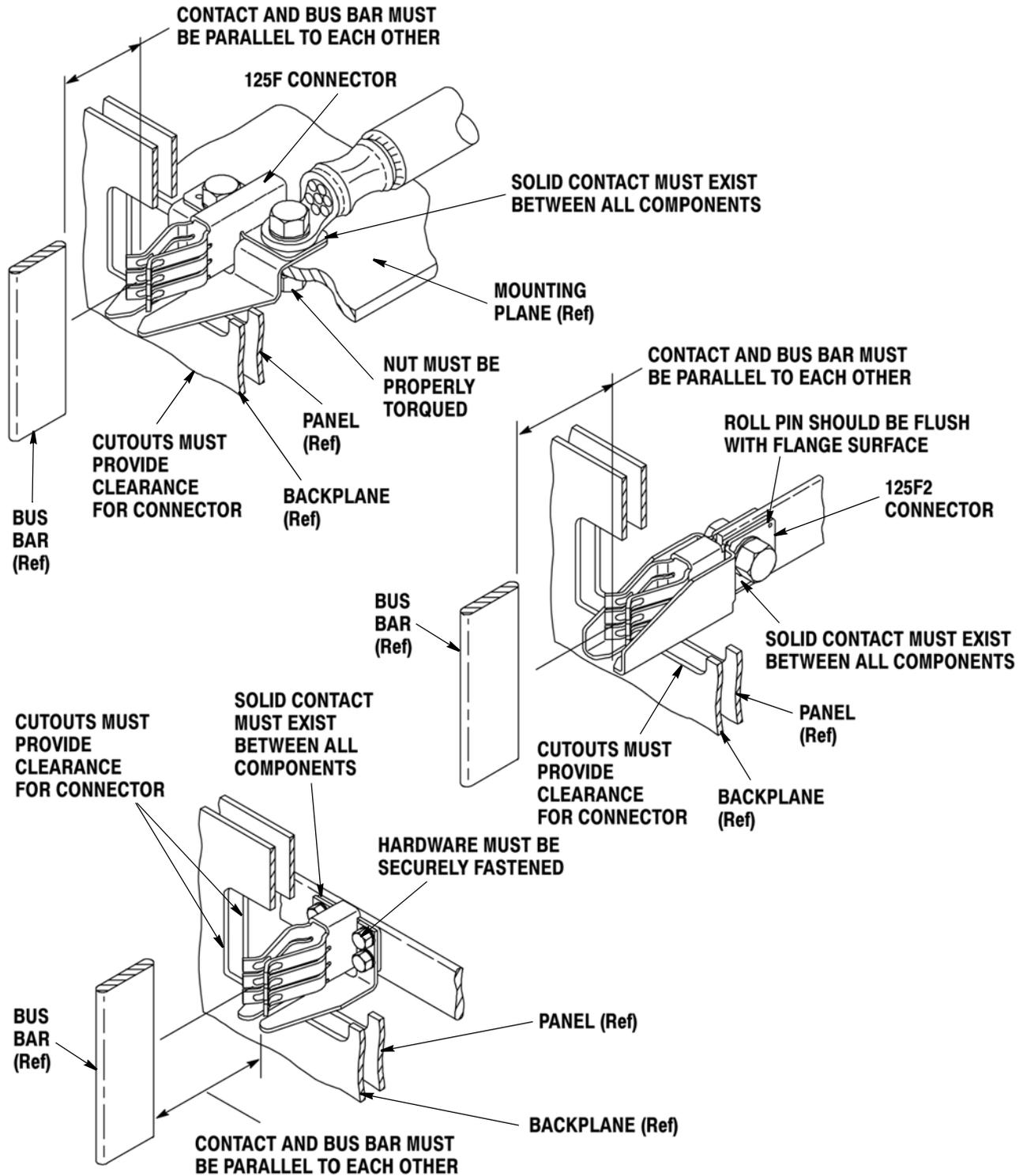


FIGURE 7. VISUAL AID