



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  $\pm 0.13$  [ $\pm .005$ ] and angles have a tolerance of  $\pm 2^\circ$ . Figures and illustrations are for identification only and are not drawn to scale.

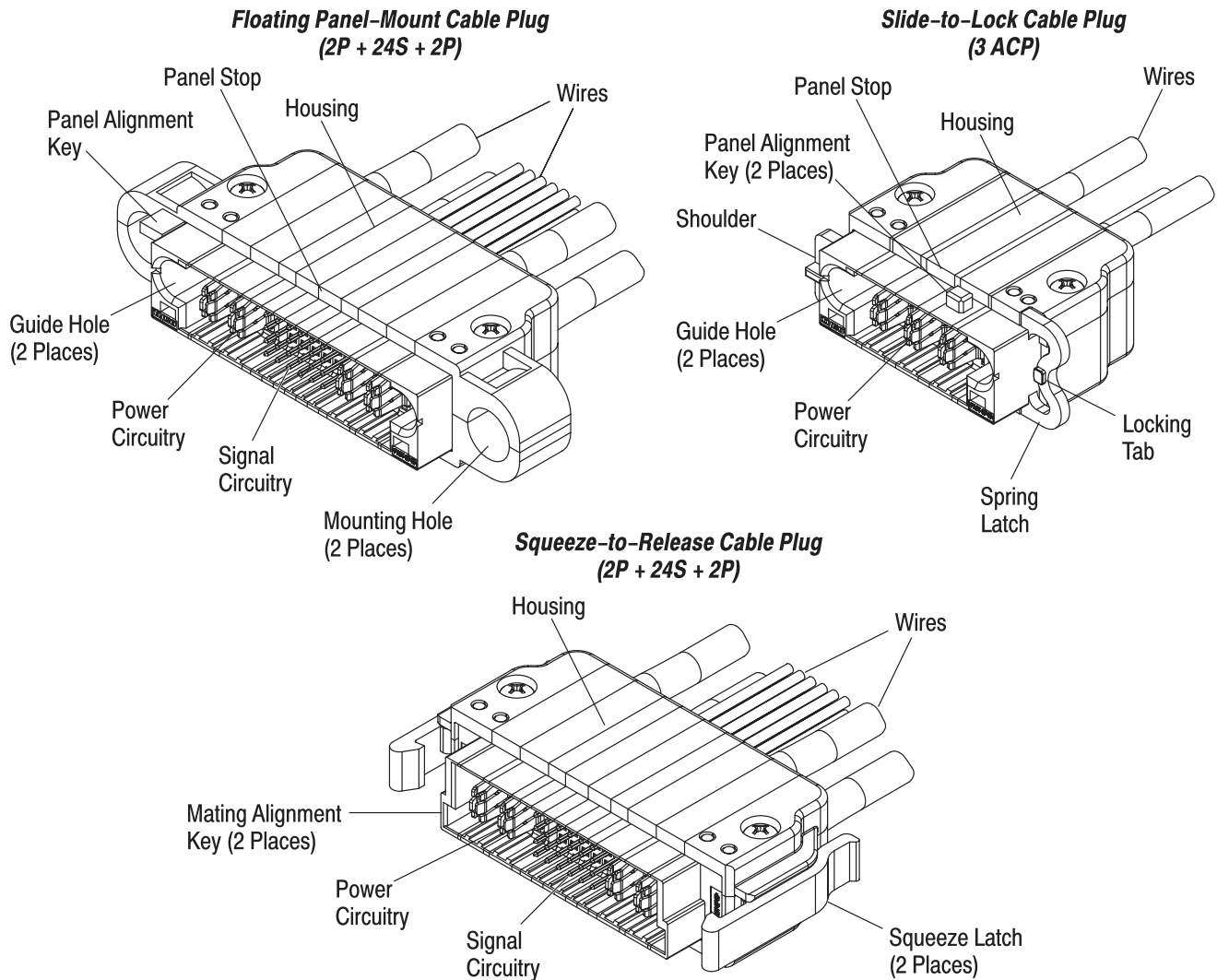
**1. INTRODUCTION**

This specification covers the requirements for application of Multi-Beam XL cable plug assemblies used in power distribution systems. The cable plugs are available in floating panel-mount and slide-to-lock for panel-mount applications and squeeze-to-release for free-hanging applications. The cable plugs are supplied fully assembled with terminated contacts.



The amount and location of power and signal contacts is customer determined. Different cable plug configurations can be designed to meet customer requirements within the limitations stated in this document.

When corresponding with personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of this product are provided in Figure 1.



**NOTE:** 'P' stands for power circuitry with contact centerline spacing of 6.35 [.250], 'S' stands for signal contacts, 'ACP' stands for power circuitry with contact centerline spacing of 7.62 [.300], and 'HDP' stands for high density power circuitry with contact centerline spacing of 5.08 [.200].

Figure 1

The cable plugs are available with power contacts having wire sizes 16 through 8 AWG and signal contacts having wire sizes 26 through 22 AWG. The cable plug is capable of holding combinations of power contacts and/or signal contacts within a maximum length of 134.6 [5.3] between guide holes or a maximum length of 154.9 [6.1] between squeeze latches.

For sequencing applications, the cable plugs are available with a standard mating length for power contacts and two mating lengths for signal contacts: standard and make-last-break-first (MLBF). Signal contacts have a centerline spacing of 2.54 [.100]. Available power contact centerline spacing according to wire size and insulation diameter is given in Figure 2.

WIRE		CENTERLINE SPACING OF POWER CONTACTS
SIZE (AWG)	INSULATION DIAMETER	
(2) 16	2.29 [.090] Max	6.35 [.250]
(2) 14	3.48 [.137] Max	7.62 [.300]
(2) 12	3.48 [1.37] Max	7.62 [.300]
14	3.96 [.156] Max	5.08 [.200] or 6.35 [.250]
12	3.96 [.156] Max	5.08 [.200] or 6.35 [.250]
	4.47 [.176] Max	6.35 [.250]
10	5.46 [.215] Max	6.35 [.250] or 7.62 [.300]
8	6.91 [.272] Max	7.62 [.300]

Figure 2

The housing of the cable plug consists of power and/or signal circuitry which accept the contacts, and features that provide for blind mating, misalignment, polarization (mating and/or panel).

The floating panel-mount and slide-to-lock cable plugs feature panel alignment key(s) and guide holes. The panel alignment key(s) ensure proper orientation of the cable plug to the panel. The guide holes provide ease of mating and are offset to prevent improper mating of connectors. The squeeze-to-release cable plug features mating alignment keys that ensure proper orientation of connectors when mating, and squeeze latches to ensure that free-hanging mating connectors do not accidentally back-out.

Mounting holes (which accept hardware available in kits) are used to secure the floating panel-mount cable plug to the panel. When mounted, this cable plug is designed to "float" in the panel to aid in alignment when mating connectors. An integral spring latch with locking tab is used to secure the slide-to-lock cable plug to the panel (the panel stop ensures that the locking tab is compatible with the thickness of the panel).

These cable plugs mate with Multi-Beam XL printed circuit (pc) board receptacle assemblies covered in Application Specification 114-13038.

## 2. REFERENCE MATERIAL

### 2.1. Revision Summary

- Updated document to corporate requirements
- Modified Paragraph 2.4

## 2.2. Customer Assistance

Reference Product Base Part Numbers 1600236 (floating panel-mount), 1761421 (slide-to-lock), 1600238 (squeeze-to-release), and 1600914 (panel mount hardware kit) and Product Code H091 are representative of Multi-Beam XL cable plug assemblies. 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 Representative (Field Service Engineer, Field Applications Engineer, etc.) or, after purchase, by calling PRODUCT INFORMATION at the number at the bottom of page 1.

## 2.3. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, call PRODUCT INFORMATION at the number at the bottom of page 1.

## 2.4. Specifications

Application Specification 114-13038 provides product description and application requirements for Multi-Beam XL connectors.

Product Specification 108-2157-1 provides expected product performance and test information.

## 2.5. Standards

These cable plugs comply to Electronic Industries Alliance (EIA)-364, "Electrical Connector Test Procedures Including Environmental Classifications".

## 3. REQUIREMENTS

### 3.1. Safety

Do not stack product shipping containers so high that the containers buckle or deform.

### 3.2. Storage

#### A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the cable plug material.

#### B. Shelf Life

The cable plugs should remain in the shipping containers until ready for use to prevent deformation to the contacts. The cable plugs should be used on a first in, first out basis to avoid storage contamination that could adversely affect performance.

#### C. Chemical Exposure

Do not store cable plugs near any chemical listed below as they may cause stress corrosion cracking in the contacts.

Alkalies	Ammonia	Citrates	Phosphates	Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur Nitrites		Tartrates

### 3.3. Panel

#### A. Thickness

The panel thickness range for the floating panel-mount cable plug shall be 0.79 through 2.54 [.031 through .100], and for the slide-to-lock cable plug, the panel thickness range shall be 1.02±0.13 [.040±.005].

#### B. Cutout

The panel must be cut using the dimensions provided on the customer drawing for the specific cable plug. Reference *samples* of recommended panel cutouts are shown in Figure 3.



**3.4. Panel Mounting**

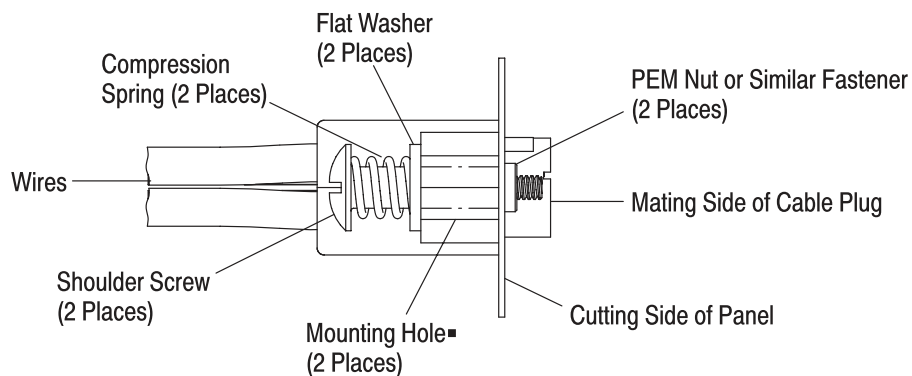
**A. Floating Panel-Mount Cable Plug**

The floating panel-mount cable plug is designed to be front or rear panel mounted using a panel mount hardware kit chosen according to the length of the cable plug (refer to customer drawing of specific cable plug for appropriate hardware kit part number). The hardware kit contains two each of shoulder screws, compression springs, and flat washers.

This cable plug is polarized to the panel by matching the panel alignment key with the notch in the panel cutout. It is important to note that this cable plug can only be inserted into the panel opposite the cutting side of the panel. When secured to the panel, this cable plug is designed to float in the panel cutout. This floating ability aids in alignment of mating connectors. The dimension of float is given in Figure 4.

When this cable plug is mounted, the shoulder of the shoulder screw must be bottomed on the panel. Refer to Figure 4.

**Floating Panel-Mount Cable Plug**



- The mounting holes are much larger than the screws to allow the cable plug to float in the panel cutout.

DIMENSION OF FLOAT (Nominal)		
X and Y (Horizontal and Vertical)	Z (Back-and-Forth)	
	Standard Panel Mount Hardware Kit	High-Force Panel Mount Hardware Kit
±1.52 [±.060]	±1.52 [±.060]	±1.14 [±.045]

Figure 4

**B. Slide-to-Lock Cable Plug**

The slide-to-lock cable plug is designed to be front or rear panel mounted without hardware. When secured to the panel, this cable plug has a ±0.76 [±.030] nominal X and Y (horizontal and vertical) float in the panel cutout. This floating ability aids in alignment of mating connectors.

Requirements of mounting this cable plug are as follows (refer to Figure 5):

1. The panel alignment keys of the cable plug must be aligned with the notches in the panel; then the cable plug can be inserted into the panel until the panel stop is against the panel. The panel alignment keys must be through the panel.
2. The cable plug must be slid sideways toward the shoulder of the cable plug until the locking tab “snaps” into place.
3. The locking tab must engage the panel, and the shoulder of the cable plug must be in front of the panel.

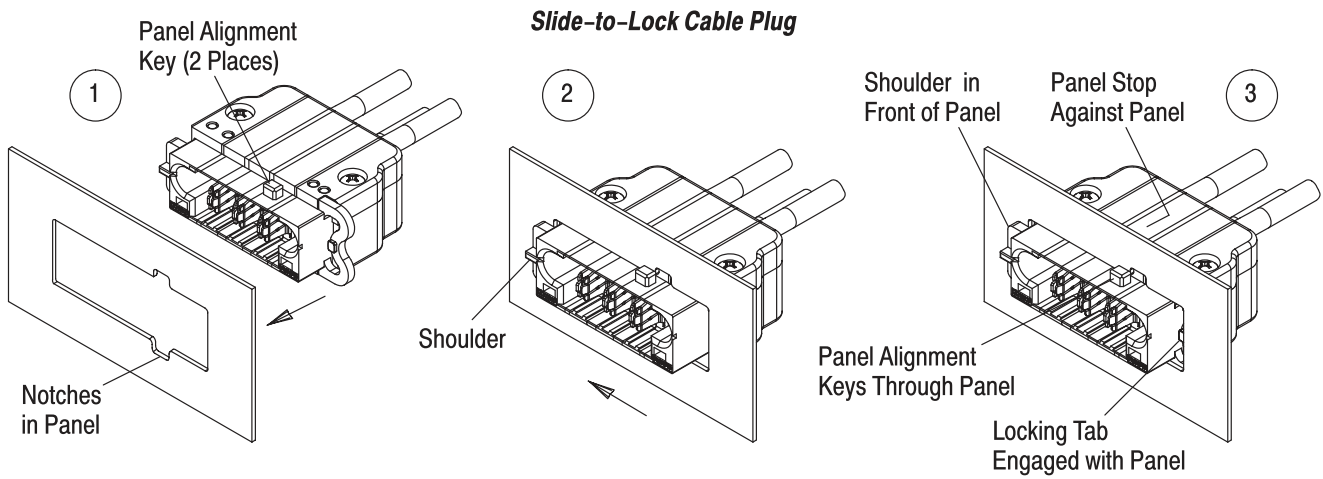


Figure 5

The mounted slide-to-lock cable plug must meet the dimension given in Figure 6.

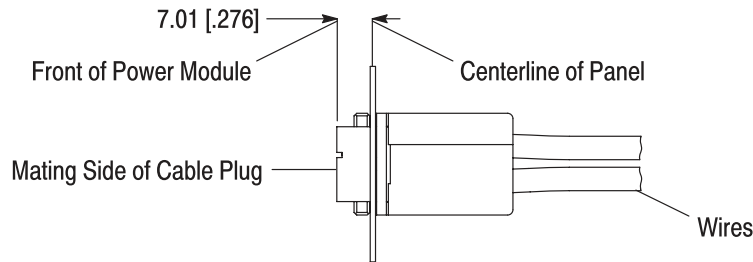


Figure 6

**3.5. Mating**

**A. Polarization**

For the floating panel-mount and slide-to-lock cable plug, polarization is provided by matching the guide holes with the guide posts of the mating connector. For the squeeze-to-release cable plug, polarization is provided by matching the mating alignment keys with the key slots of mating connector.

**B. Mating Force**

The average mating force per contact is given in Figure 7.

CONTACT	AVERAGE MATING FORCE PER CONTACT (N [oz])
Power	7.8 [28]
Signal	1.7 [6]

Figure 7

**C. Mating Length**

Contact mating lengths (represented by terms) available for the cable plugs are given in Figure 8.

CONTACT MATING LENGTH	
Power Contact	Signal Contact
Standard	Standard
	MLBF

Figure 8

**D. Wipe Length and Sequencing**

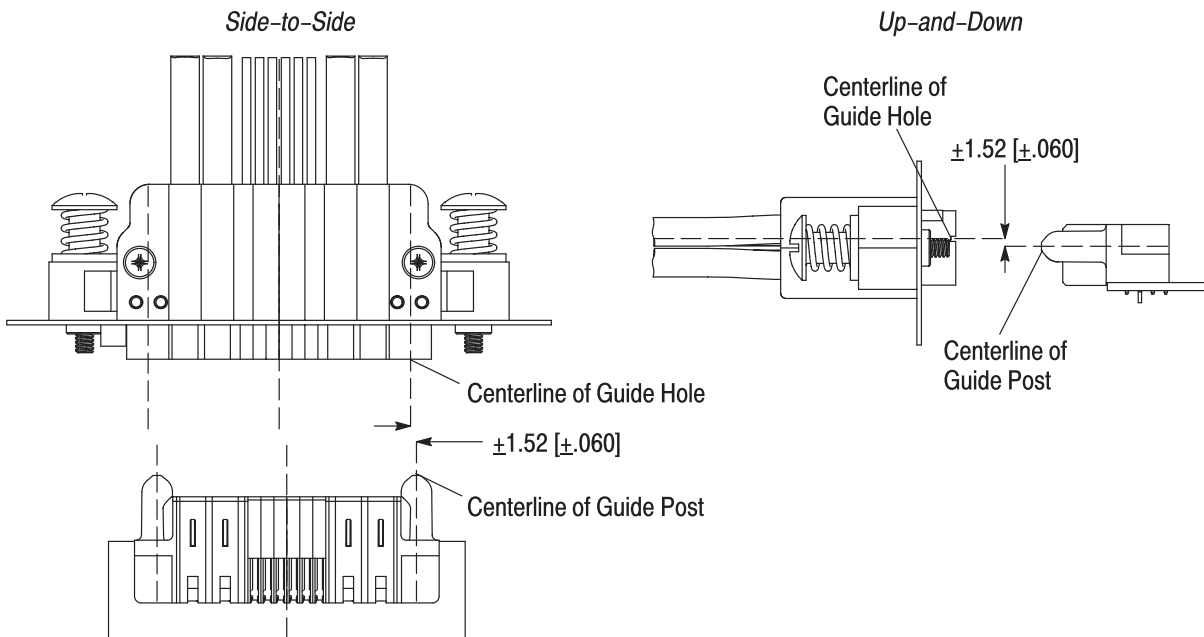
Wipe length and sequencing for the connectors is given in 114-13038.

**E. Misalignment**

When mating connectors, side-to-side and up-and-down misalignment is allowed to the dimensions given in Figure 9.

There is no misalignment for the squeeze-to-release cable plug.

**Misalignment for Floating Panel-Mount Cable Plug**



**Misalignment for Slide-to-Lock Cable Plug**

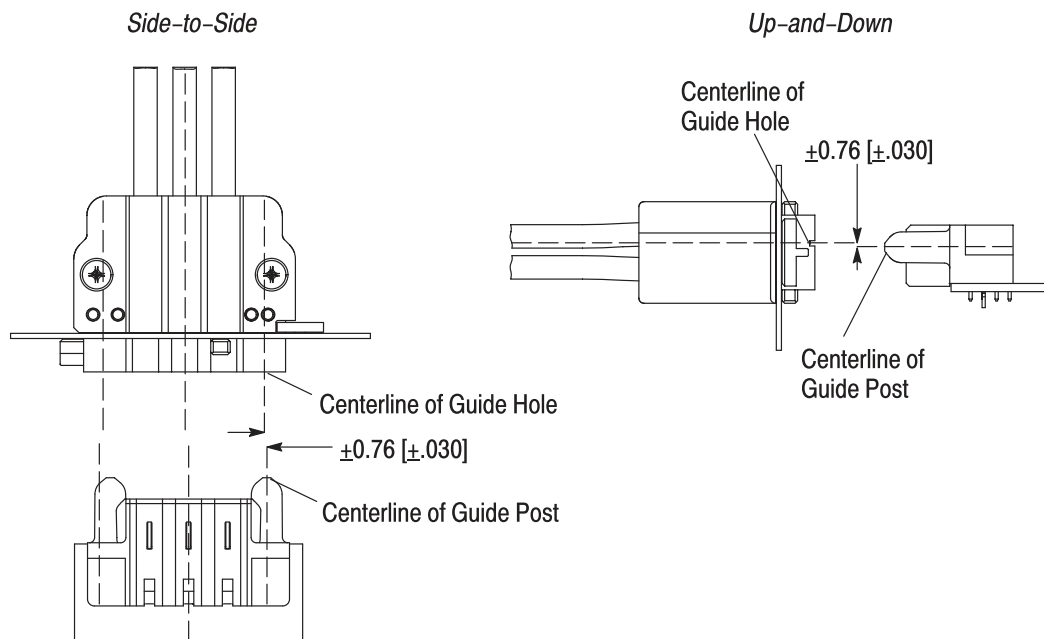


Figure 9

**F. Mating Dimension**

The required nominal mating dimension to ensure full mating is provided in Figure 10.

**G. Squeeze-to-Release Cable Plug**

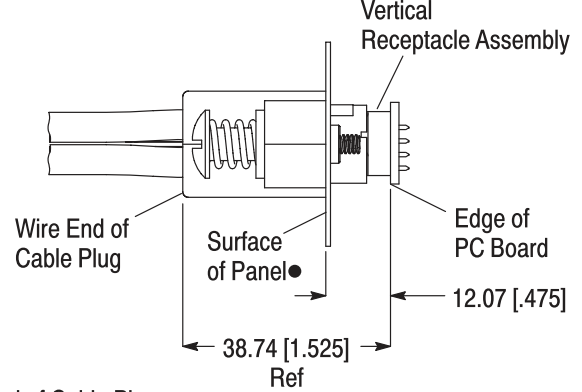
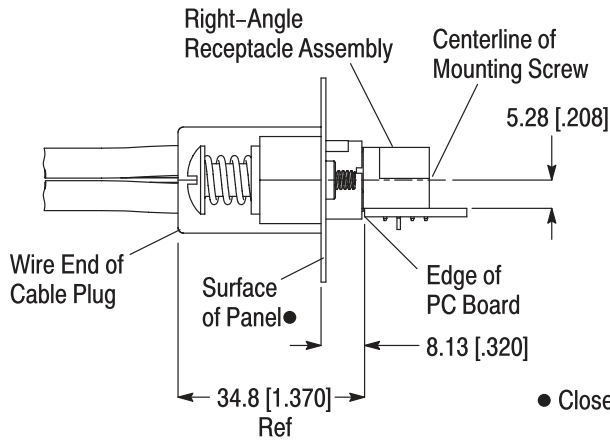
After mating the connectors, the squeeze latches of the squeeze-to-release cable plug must be engaged to the latch receivers of the mating connector.

**Mating Dimension**

**Floating Panel-Mount Cable Plug**

*Mated to Right-Angle Receptacle Assembly*

*Mated to Vertical Receptacle Assembly*

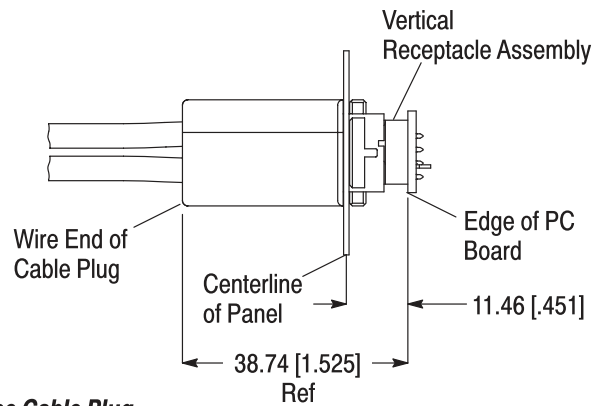
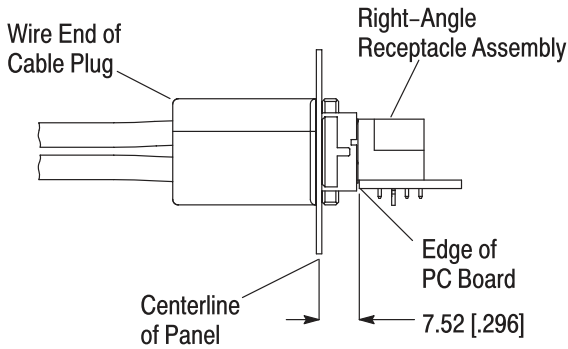


● Closest to Wire End of Cable Plug

**Slide-to-Lock Cable Plug**

*Mated to Right-Angle Receptacle Assembly*

*Mated to Vertical Receptacle Assembly*



**Squeeze-to-Release Cable Plug**

*Mated to Vertical Receptacle Assembly*

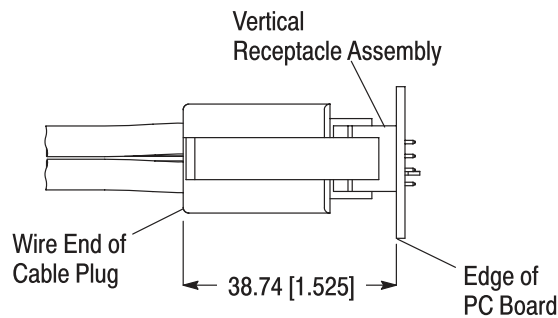


Figure 10



### 3.6. Connector Unmating

#### A. Squeeze-to-Release Cable Plug

The squeeze latches of the squeeze-to-release cable plug must be released from the latch receivers of the mating connector before the connectors can be unmated.

#### B. Unmating Force

The minimum amount of unmating force per contact is given in Figure 11.

CONTACT	MINIMUM UNMATING FORCE PER CONTACT (N [oz])
Power	2.22 [8]
Signal	0.19 [.7]

Figure 11

### 3.7. Removal from Panel

Connectors must be unmated before removal from panel.

#### A. Floating Panel-Mount Cable Plug

The mounting hardware must be removed from the panel before removing the cable plug from the panel.

#### B. Slide-to-Lock Cable Plug

The locking tab of the cable plug must be disengaged from the panel, then the cable plug slid sideways until the panel alignment keys align with the notches in the panel cutout. The panel alignment keys must align with the notches before the cable plug can be removed from the panel. Refer to Figure 12.

#### Removing Slide-to-Lock Cable Plug from Panel

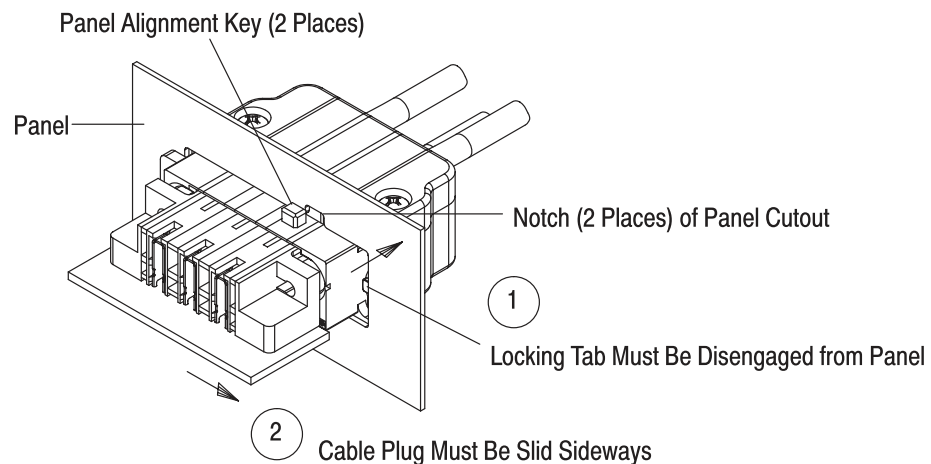


Figure 12

### 3.8. Repair

Damaged or defective cable plugs must not be used. Wires MUST NOT be removed from the cable plug.

## 4. QUALIFICATION

Multi-Beam XL cable plug assemblies have been submitted for UL and CSA International evaluation.

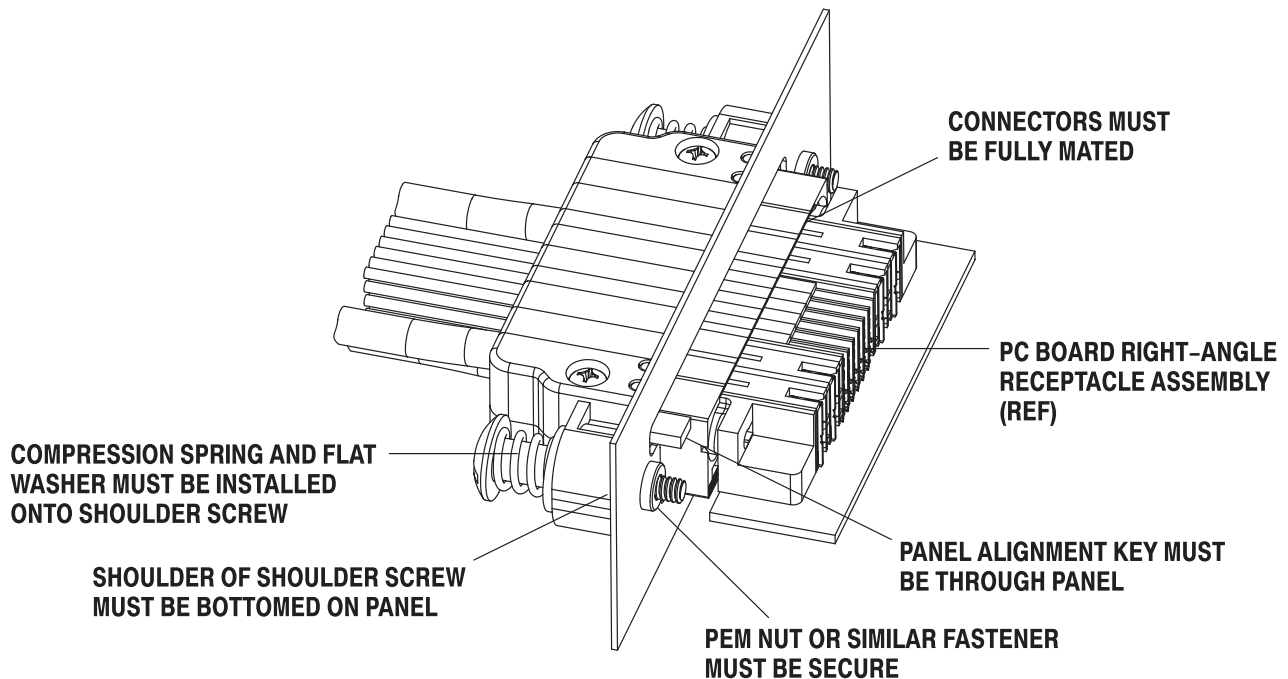
## 5. TOOLING

A No. 3 cross-recessed screwdriver can be used to install the hardware for securing the floating panel-mount cable plug to the panel.

## 6. VISUAL AID

The illustration below shows a typical application of Multi-Beam XL cable plug assemblies. 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.

### FLOATING PANEL-MOUNT CABLE PLUG



### SLIDE-TO-LOCK CABLE PLUG

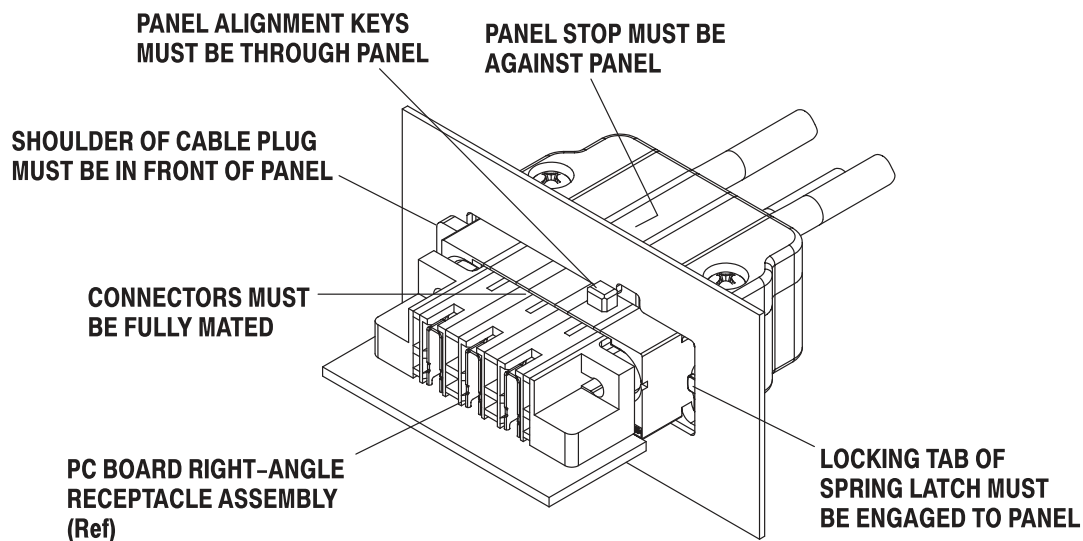
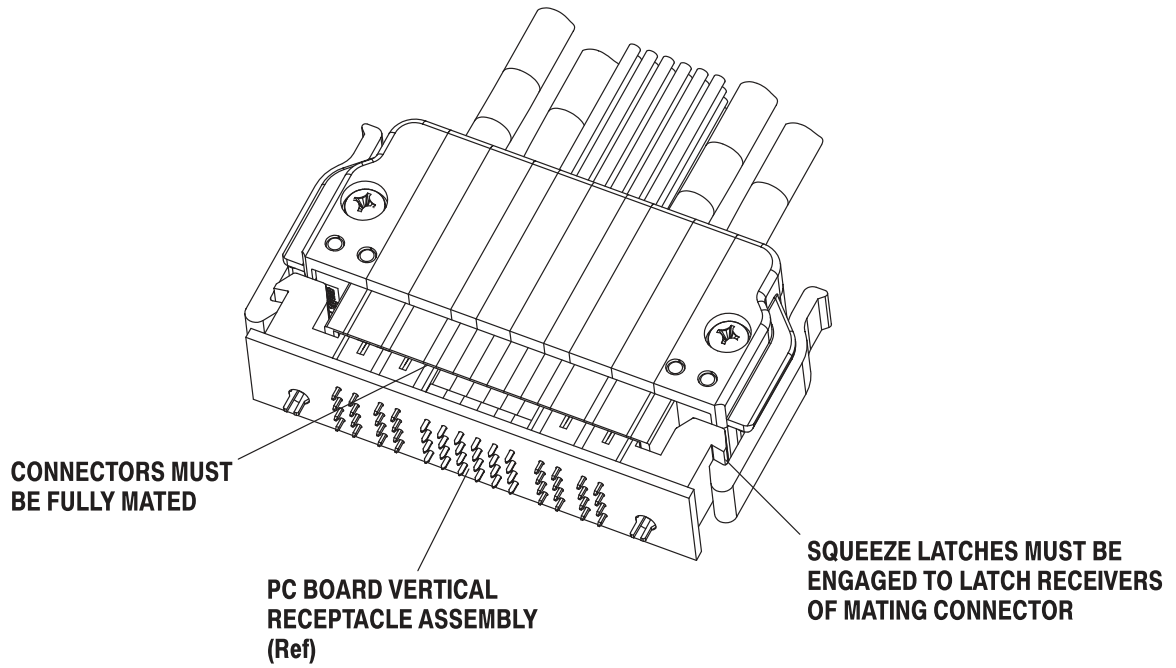


FIGURE 13. VISUAL AID (CONT'D)

**SQUEEZE-TO-RELEASE CABLE PLUG**



**FIGURE 13. VISUAL AID (END)**