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

1. INTRODUCTION

This specification covers the requirements for the General Purpose Rectangular Two-Cavity (GPRB2) Connectors designed specifically for the Galley Insert (GAIN) Equipment Interface as defined by the ARINC 810 Specification.

The standard mating interface for the GAIN connectors uses blind mate guide pin and socket hardware to allow for lateral misalignment. The plug shell also includes float-mounting hardware to ensure full connector mating. The standard connector is provided with Arrangement 06 and Arrangement 25Q1 inserts. The pin inserts are installed in the receptacle assembly; the socket inserts are installed in the plug assembly. The Arrangement 06 inserts accepts (6) size 12 power contacts. The Arrangement 25Q1 insert can accept a size 8 bi-pin Twinax Contact as well as up to (24) size 22 signal contacts needed for the CANBUS data bus system used for GAIN.

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

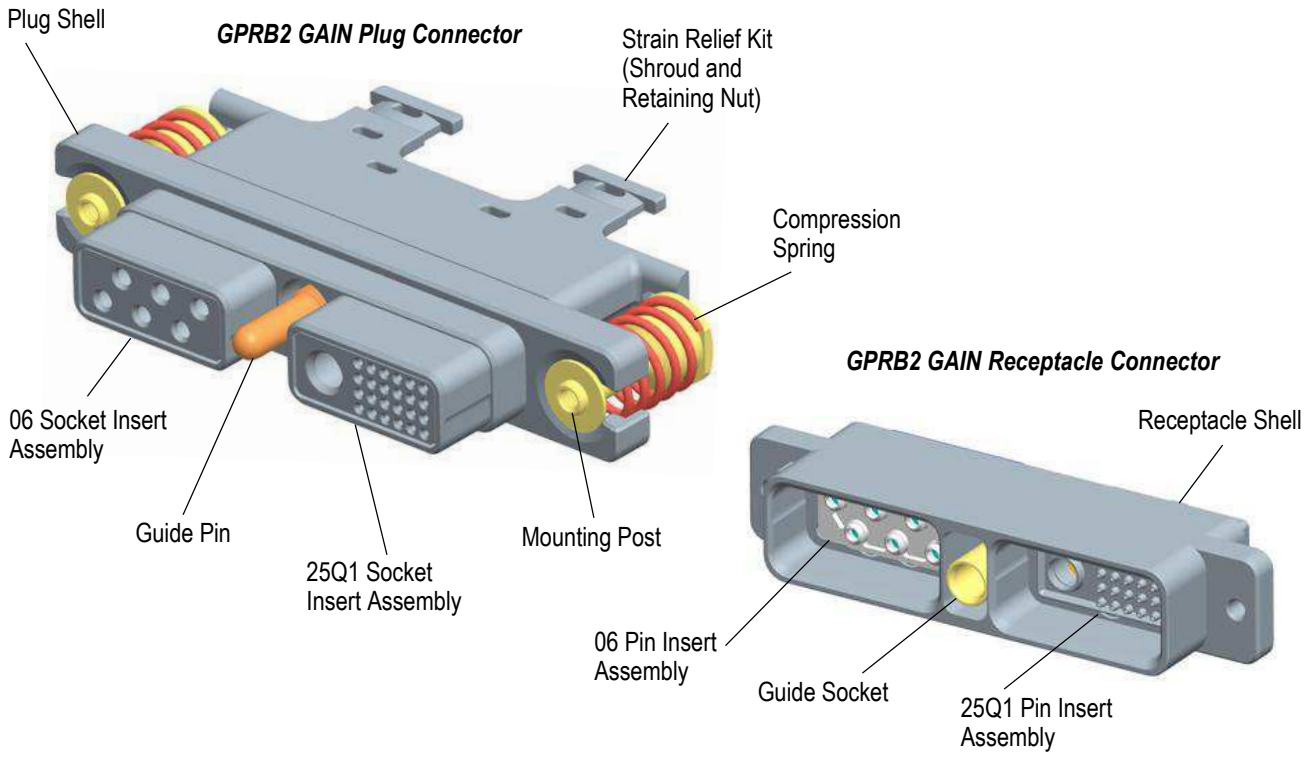

Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

- Updated document to corporate requirements
- Added new Paragraph 5.3

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2.2. Customer Assistance

Reference Product Base Part Numbers 1877646 and 1877652, and Product Code K336 are representative of the General Purpose Rectangular Two-Cavity (GPRB2) GAIN Connectors. Use of these numbers will identify the product line and help you to obtain product and tooling information. Such information can be obtained through a local TE Representative, by visiting our website at www.te.com, or by calling PRODUCT INFORMATION or the TOOLING ASSISTANCE CENTER at the numbers 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, the information contained in the Customer Drawings takes priority.

2.4. Specifications

Application Specification 114-13188 provides information on Non-Concentric Twinax Pin and Socket Assemblies.

2.5. Instructional Material

The following list includes available instruction sheets (408-series) that may provide assembly procedures for product, operation, maintenance, and repair of tooling.

408-2766	Coaxial Cable Stripper Kits 603995-[ ]
408-6958	Extraction Tool 58284-1
408-7424	Checking Terminal Crimp Height or Gaging Die Closure
408-7491	Insertion/Extraction Tools 91066-[ ]
408-7516	Application Tooling for Screw-Machine Contacts

3. REQUIREMENTS

3.1. Safety

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

3.2. Limitations

The connectors are designed to operate in a temperature range of -65° to 155°C [-85° to 31°F]

3.3. Storage

A. Ultraviolet Light

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

B. Shelf Life

The product should remain in the shipping containers until ready for use to prevent deformation to components. The product 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 product near any chemical listed below as they may cause stress corrosion cracking in the material.

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

3.4. Cable Selection and Preparation

Refer to Application Specification 114-13188 for all information on cable selection and preparation, and contact crimp requirements.

3.5. Panel Cutout

Dimensions of the panel cutout for the plug connector is provided in Figure 2 and the panel cutout for the receptacle connector is provided in Figure 3.

3.6. Panel Mounting Requirements

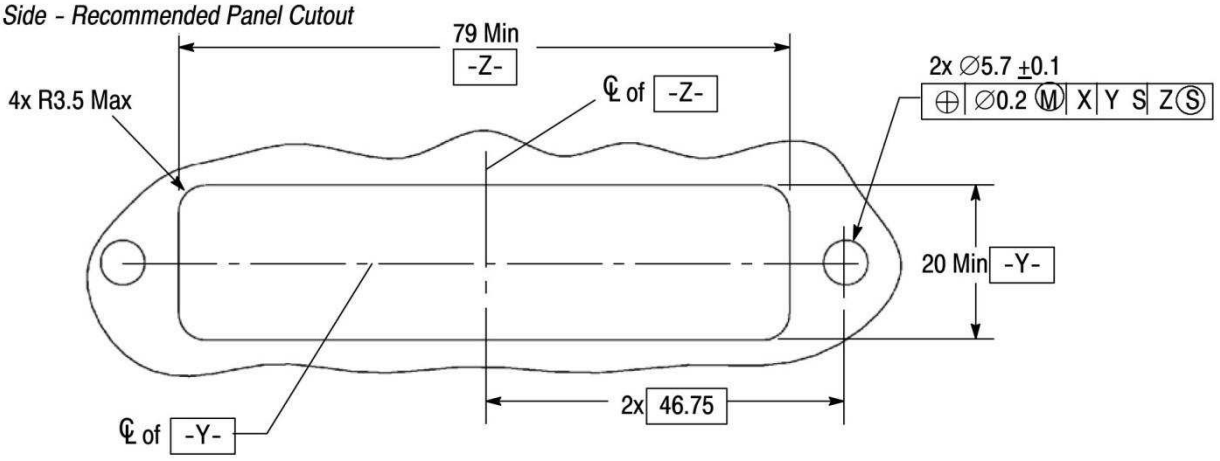
The plug and receptacle connectors are both designed for panel mounting application. The plug shell is to be mounted on the galley side (i.e. the “rail”); the receptacle shell is to be mounted on the galley insert side (i.e. the “unit”).

A. Plug Side

Two (6-32) UNC customer supplied screws are required for panel mounting. The screw head diameter shall be 8.5 mm maximum. The recommended torque is 1.3 N●m [11.5 in.-lb] minimum. See Figure 2.

NOTE
The threaded holes on the mounting posts have Spiralock thread form, and are self-locking. The recommended panel thickness is 3 mm with a maximum thickness of 4.06 mm.

Plug Side - Recommended Panel Cutout



Plug Side - Panel Mount Assembly

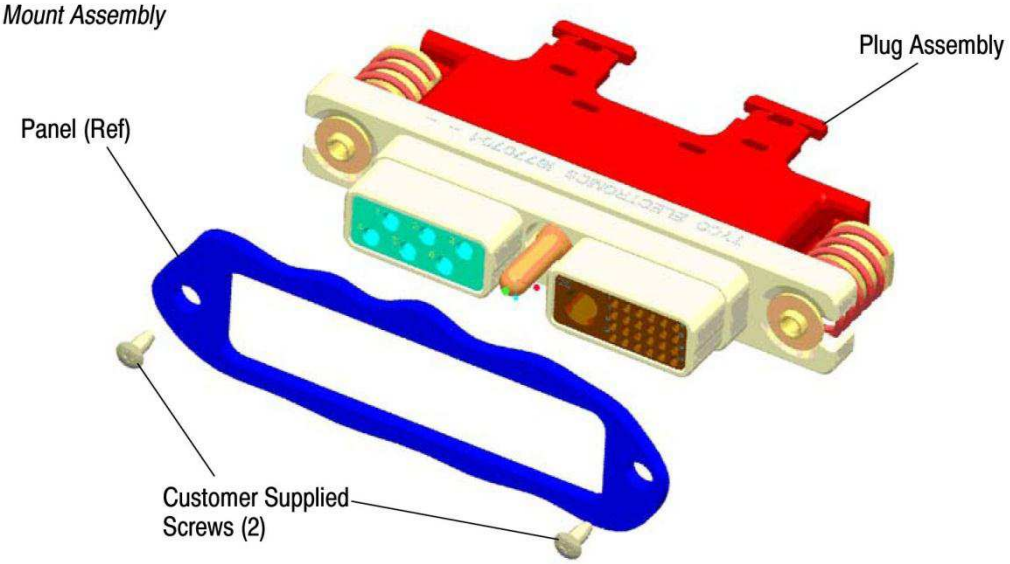


Figure 2

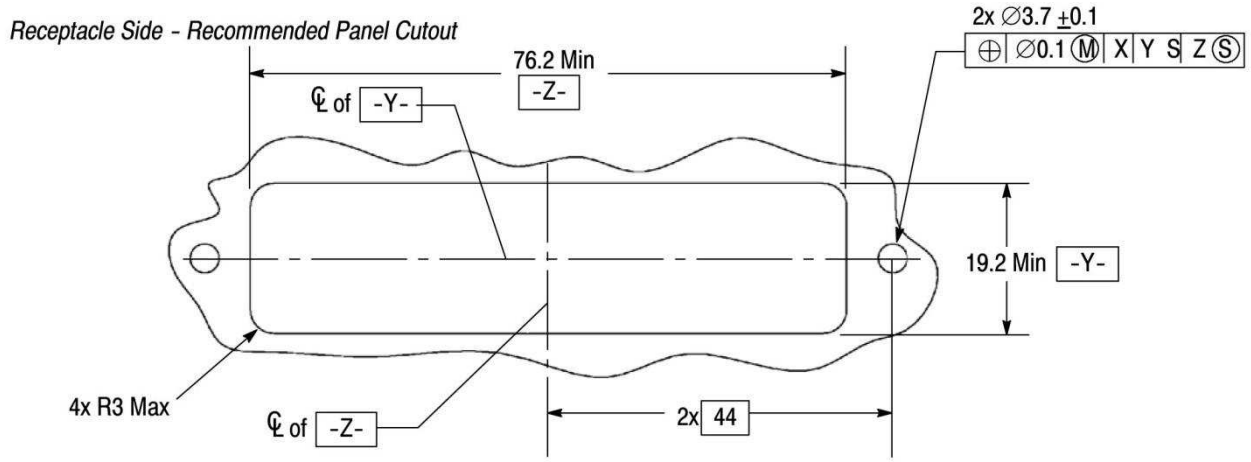
Spiralock is a trademark.

B. Receptacle Side

Two 6-32 UNC customer supplied screws are required for panel mounting. The screw head diameter shall be 8.5 mm maximum. The recommended torque is 1.3 N●m [11.5 in.-lb] minimum. See Figure 3.

NOTE
The threaded holes on the mounting posts have Spiralock thread form, and are self-locking. The shell includes a polarizing feature to prevent rear panel mounting.

Receptacle Side - Recommended Panel Cutout



Receptacle Side - Panel Mount Assembly

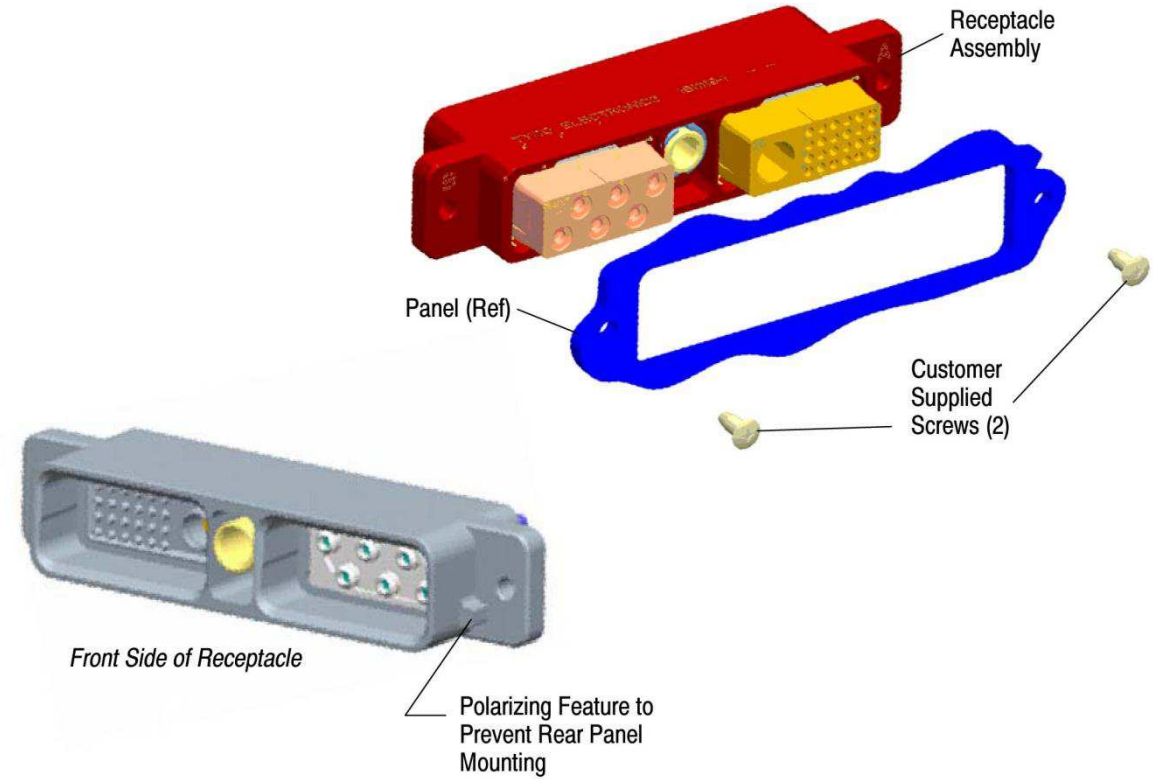


Figure 3

Spiralock is a trademark.

3.7. Mating

The blind mating guide pin and socket hardware are designed to accept +2 mm and +25 of lateral mis-alignment. In addition, the plug shell is spring-loaded to ensure that the connectors are fully mated. The relative positions of the shell flanges and panels shall be as shown in Figure 4 for proper mating.

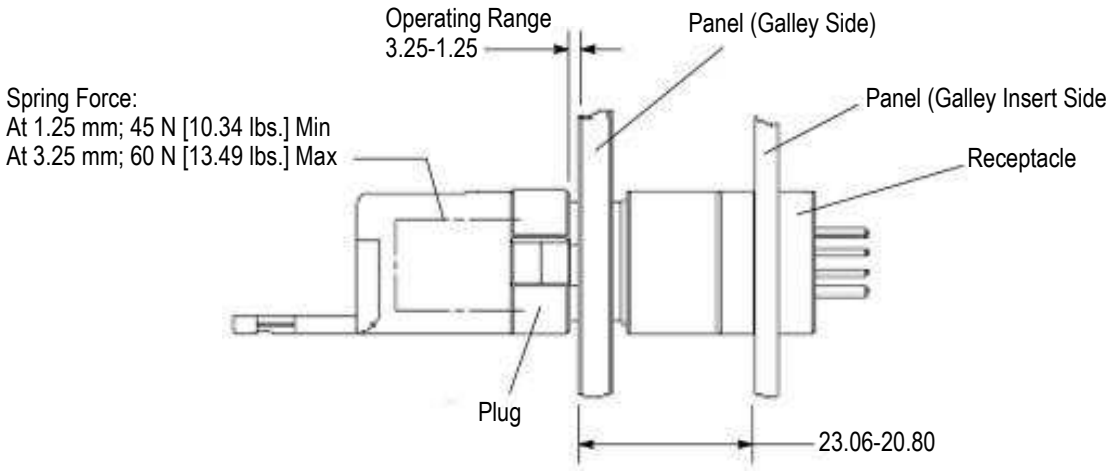


Figure 4

3.8. Sealing

The insert assemblies include grommets and interfacial seals to provide the necessary level of environmental sealing. The following is necessary for complete sealing:

A. Twinax Assembly

The Twinax seal assembly (1954046-1) should be threaded onto the Twinax cable prior to crimping the cable to the Twinax contact. After the contact is installed into the insert, the seal assembly should be slid down and inserted into the grommet for sealing. The seal assembly is fully seated in the grommet when the step of the outer sleeve is at the rear surface of the grommet. See Figure 5.

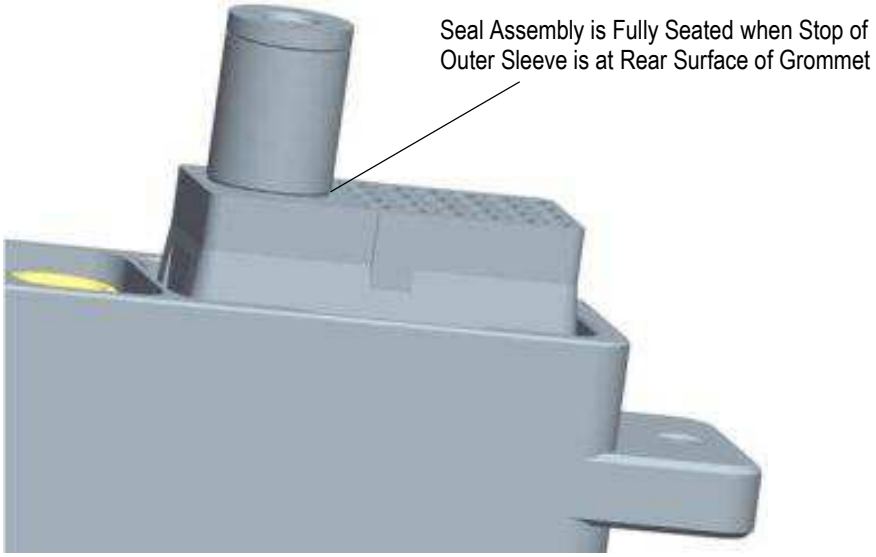


Figure 5

B. Size 22 Contact Cavities

The Arrangement 25Q1 inserts can accept up to (24) size 22 contacts for data signal lines for pin programming applications. For cavities that will not have a signal contact installed, a sealing plug (592104-4) should be installed.

3.9. Repair and Maintenance

A. Insert Removal

The insert assemblies can be removed with the Insert/Extraction Tool (1738218-1). The tool is installed from the rear side of the shell around the insert, to release the spring clips, and then the insert can be removed. The inserts can be installed by pushing them in from the rear side until the spring clips lock them in place.

B. Pin Guide, Socket, and Strain Relief Removal

These items are secured by a locking nut, which can be removed using Spanner wrench 1738220-1, with a 1/4-turn adapter, or Spanner wrench 1738221-1 with a T-handle. Locking nut should be tightened to a torque value of 1.5 N•m [13 in.-lb.]. Loctite product 272 thread-locking adhesive shall be applied when installing these on the shell assembly.

4. QUALIFICATION

The General Purpose Rectangular Two-Cavity (GPRB2) GAIN Connector is designed to comply with Boeing Co. BPS-C-179. These specific plug and receptacle connectors also meet the requirements of ARINC Specification 810.

5. TOOLING

5.1. Size 22 and Size 12 Contacts

Refer to Figure 6 for tooling information for Size 22 and Size 12 Contacts.

5.2. Size 8 Twinax Contacts

Refer to Application Specification 114-13188 for crimping and tooling information for Size 8 Twinax Contacts.

5.3. Contact Insertion and Extraction

Applying a small amount of isopropyl alcohol to the grommet may aid in the insertion/extraction of the contact.

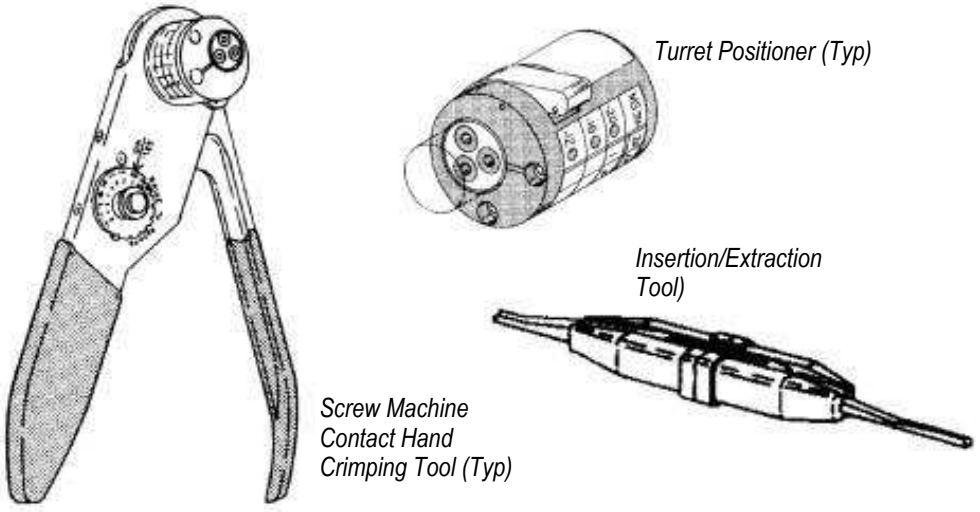


Figure 6 (cont'd)

Loctite is a trademark.

CONTACT SIZE	CONTACT TYPE	WIRE SIZE RANGE	4/8 INDENT HAND CRIMPING TOOL PART NO. [TE TOOL PART NO.] (DOCUMENT)		
			CRIMP TOOL	POSITIONER	INSERT/EXT TOOL
22	Pin	26-24-22	M22520/2-01 [601966-1] (408-7516)	M22520/2-23 [601966-8] (408-7516)	M81969/1-01 [91066-1] (408-7491)
	Socket				
12	Pin	16-14-12	M22520/1-01 [601967-1] (408-7516)	M22520/1-02 [601967-2] (408-7516)	M81969/28-02 [1738327-1]
	Socket				
8	Pin	8	---	---	1738894-1
	Socket				

Figure 6 (end)

6. VISUAL AID

The illustration below shows a typical application of General Purpose Rectangular Two-Cavity (GPRB2) Connectors. 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.

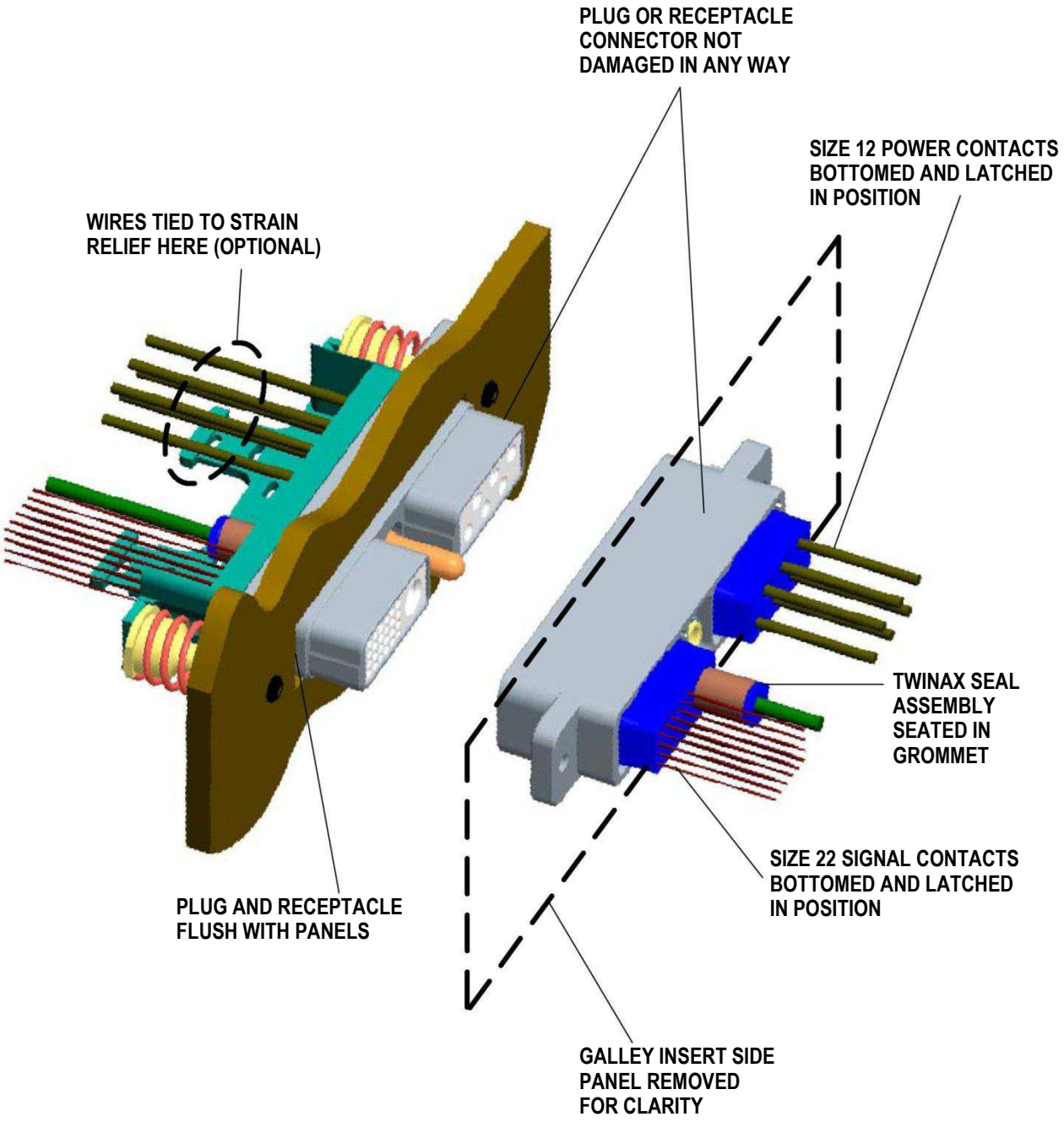


FIGURE 7. VISUAL AID