NOTE

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 [±.005] 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 application of power distribution taps. These taps are designed to be mounted onto a printed circuit (pc) board to provide high electrical current to the pc board. The taps can also be attached to a bus bar, terminal, or threaded pin. The taps are available in six types: low–profile (insulated and uninsulated), high–profile (insulated), and board–to–board (vertical, right–angle receptacle, and right–angle pin). These taps have ACTION PIN* contacts. The uninsulated low–profile tap is available in 6– and 10–position with 2.54×7.62 [.100×.300] or 3.18×6.35 [.125×.250] contact centerline spacing, and all others are available in 10–position with 2.54×7.62 [.100×.300] contact centerline spacing which is the standard dual in–line package (DIP) outline.

The low–profile taps are available with or without anti–rotation embossments. The insulated tap offers protection from other components. The high–profile tap features anti–rotation embossments and protects the attached tap with plastic walls (housing) and a cover. A screw is included with some taps or can be customer supplied for use with a bus bar or terminal. It is recommended installing a Belleville washer (customer supplied) between a tap and screw to provide additional locking. The board–to–board taps are insulated and provide a separable connection between pc boards. A threaded pin and hex nut (uninsulated) is available for use with the board–to–board tap to provide board–to–board connection. The hex nut secures the pin to the pc board.

The taps are inserted into the pc board using manual application tooling.

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.

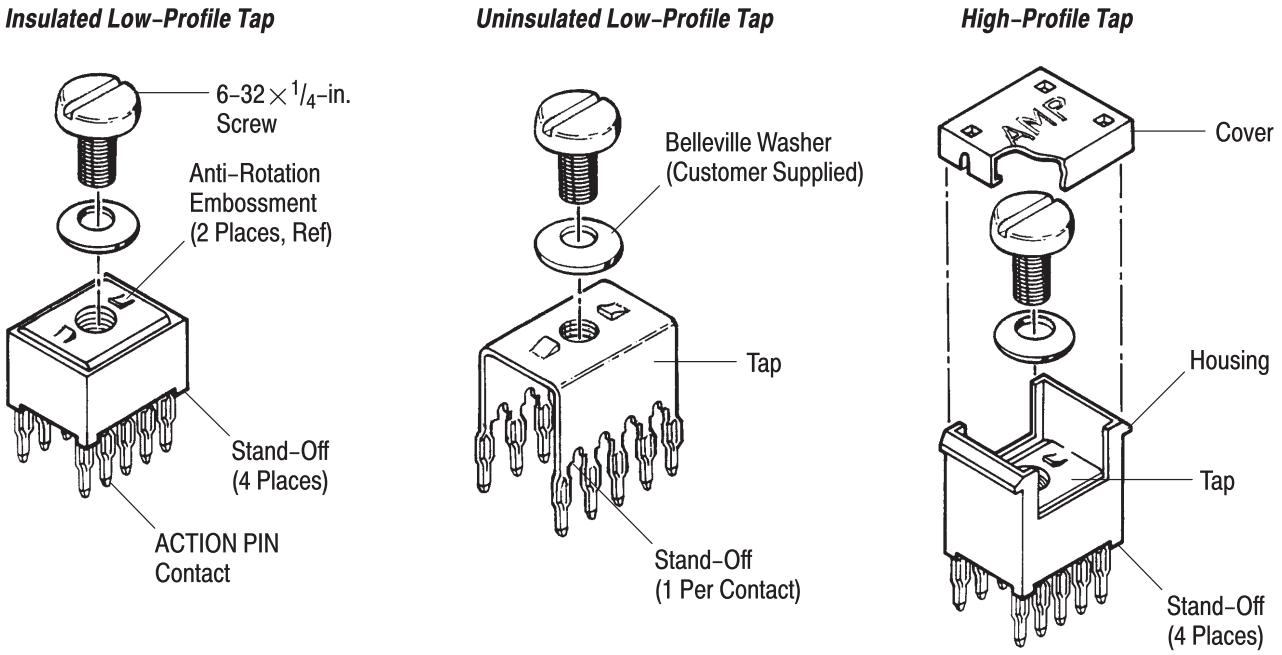


Figure 1 (Cont'd)

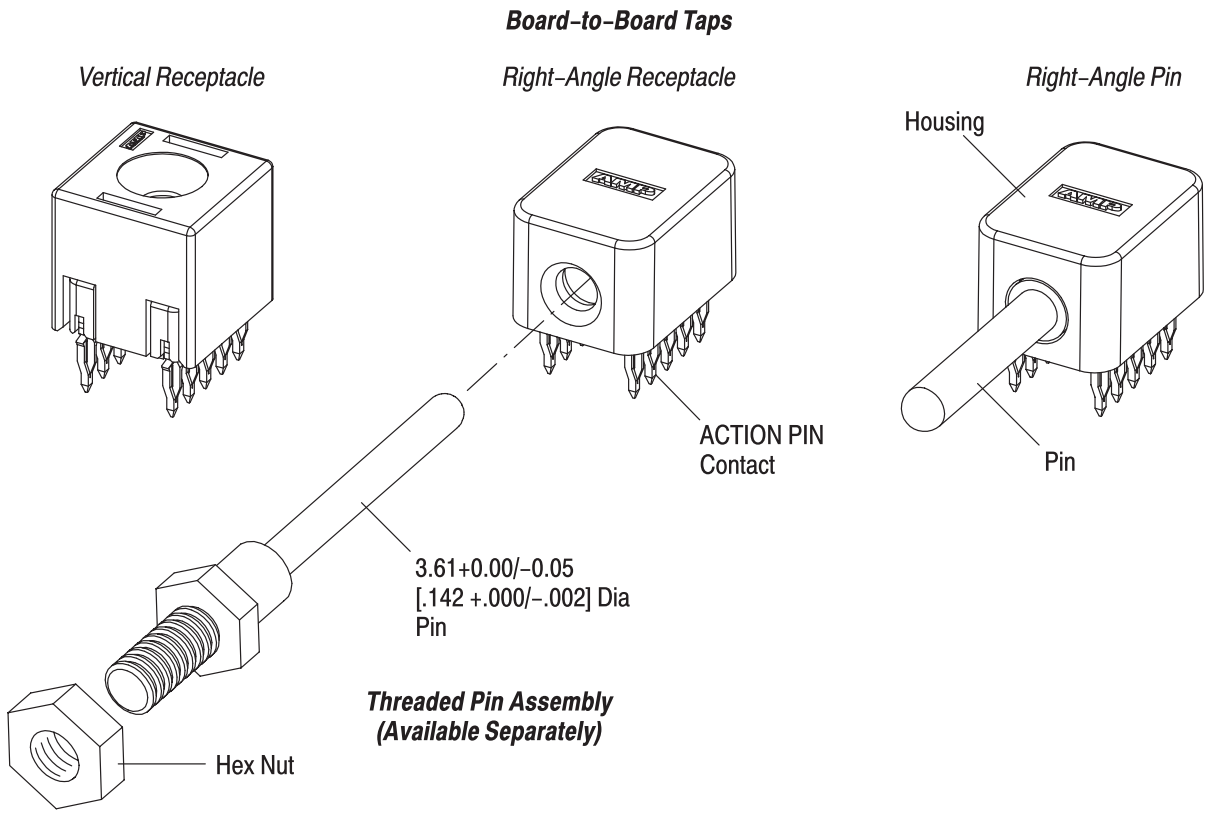


Figure 1 (End)

2. REFERENCE MATERIAL

2.1. Revision Summary

Revisions to this application specification include:

- Updated document to corporate requirements

2.2. Customer Assistance

Reference Product Base Part Number 5055557 and Product Code 3463 are representative of power distribution taps. 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 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

Product Specification (108–series) provides product performance and test information. Documents available which pertain to this product are:

108–1624	Right–Angle Power Tap
108–1624–1	Receptacle and Pin Board–to–Board Power Taps
108–11030	High–Profile, Low–Profile Insulated, and Low–Profile Uninsulated Power Distribution Taps

2.5. Instructional Material

Instruction Sheets (408–series) provide product assembly instructions or tooling setup and operation procedures. Documents available which pertain to this product are:

408–3001	Power Distribution Taps with Action Pin Posts
408–6923	Arbor Manual Arbor Frame Assembly 58024–1
408–9049	Power Distribution Tap Extraction Tool 68380–1
408–9112	Power Distribution Tap Insertion Tip 58133–1

3. REQUIREMENTS

3.1. Printed Circuit Board

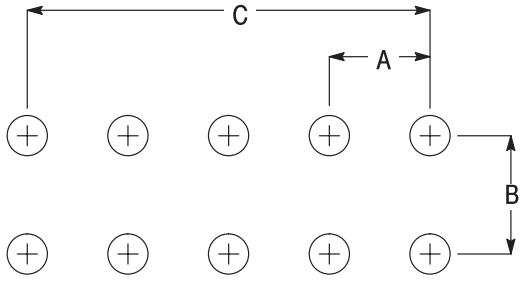
A. Material and Thickness

The pc board material shall be glass epoxy (FR–4). The pc boards shall have a minimum thickness of 1.58 [.062] for low– and high–profile taps and a minimum thickness of 1.37 [.054] for board–to–board taps.

B. Recommended Board Layout

Recommended pattern and dimensions, as well as tolerances, are shown in Figure 2.

Note: Not to Scale



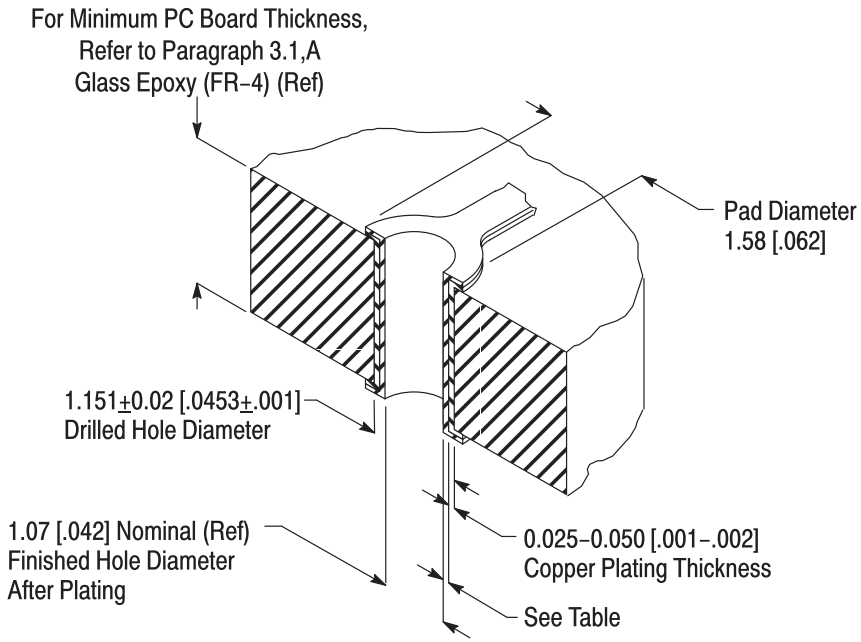
TAP		DIMENSION		
SIZE	CONTACT CENTERLINE SPACING	A±0.05 [±.002]	B±0.05 [±.002]	C▪
6 Position	3.18 × 6.35 [.125 × .250]	3.18 [.125]	6.35 [.250]	6.35 [.250]
10 Position	2.54 × 7.62 [.100 × .300]	2.54 [.100]	7.62 [.300]	10.16 [.400]
	3.18 × 6.35 [.125 × .250]	3.18 [.125]	6.35 [.250]	12.70 [.500]

▪ Location Dimension is Noncumulative

Figure 2

C. Hole Dimensions

Holes shall be drilled and plated according to dimensions in Figure 3.



SURFACE FINISH	
THICKNESS	**PLATING**
0.004–0.015 [.0002–.0006]	Hot Air Solder Leveling (HASL) Tin–Lead (Sn Pb)
0.0005 [.00002] Min	Immersion Tin (Sn)
0.0002–0.0005 [.000008–.00002]	Organic Solderability Preservative (OSP)
0.0001 [.000004] Min	Immersion Silver (Ag)

Figure 3

3.2. Installing the Tap

A. Seating onto PC Board

When seating the tap onto the pc board, a maximum insertion force of 178 N [40 in.–lbs] per contact for low– and high–profile taps and 111 N [25 in.–lbs] per contact for board–to–board taps is required. The tap standoffs must be seated on the pc board not exceeding the dimension given in Figure 4.

If the threaded pin is used with a board–to–board tap, the pin must be secured to the pc board using the hex nut.

If desired, the tap can be soldered to the pc board following locally approved soldering guidelines.

B. Connecting to Terminal or Bus Bar

CAUTION

Tap current rating of 2.5 A per contact must not be exceeded.

It is recommended installing a Belleville washer (customer supplied) between the tap and screw. The screw must be tightened to a torque of no more than 1.02 Nm [9 in.–lbs].

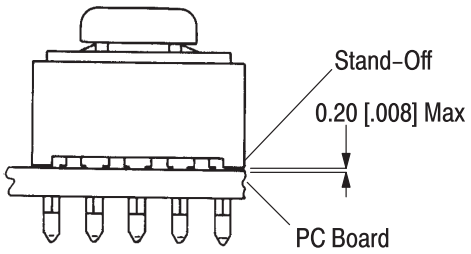
CAUTION

The maximum torque must not be exceeded; otherwise, the screw threads could be stripped.

C. Pin Insertion

The recommended minimum pin insertion depth is given in Figure 4.

Seating Low– and High–Profile Taps



Seating and Pin Insertion for Board–to–Board Taps

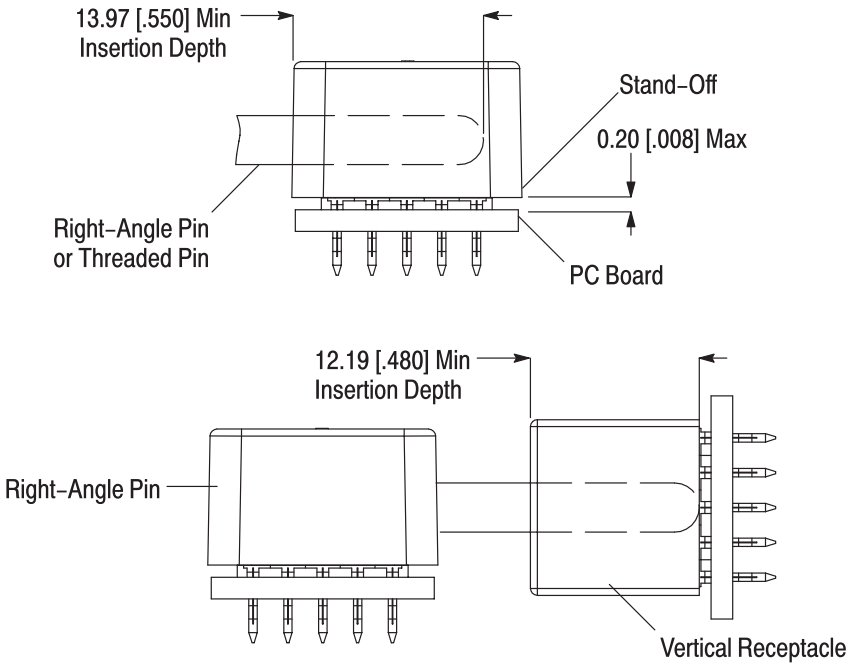


Figure 4

3.3. Removal

Low– and high–profile taps may be removed without damage to the plated–through holes by using an extraction tool. Board–to–board taps must be removed by pushing evenly against the contacts with tooling described in Section 5.

If a tap is soldered to the pc board, it must be removed using standard de–soldering methods.

3.4. Replacement and Repair

The components of the tap assembly are not repairable. Any defective or damaged taps or components must be replaced. A tap must not be re–used after it has been removed from the pc board.

4. QUALIFICATIONS

Power distribution taps are component recognized by Underwriters Laboratories Inc. (UL) under file E28476 and certified under Canadian Standards Association (CSA) File LR 7189A.

5. TOOLING

Tooling part numbers and instructional material packaged with the tooling are shown in Figure 5.

5.1. Application Power Unit

The manual arbor frame assembly or the power distribution block assembly power unit can be used to provide the necessary force to drive tooling (locating block and support block) for a specific purpose.

5.2. Insertion Tooling

The impact tool (with insertion tip) or an application power unit (with the locating block and support block) is recommended for inserting the low– and high–profile taps into the pc board. For inserting board–to–board taps into the pc board, an application power unit (with flat rock tooling and pc board support) must be used for even pressure on the housing.

5.3. PC Board Support

A pc board support must be used to provide proper support for the pc board and to protect the pc board and tap from damage. The pc board support must be designed using the following recommendations:

— it should be at least 25.4 [1] wider than the pc board

— it should have a flat surface with a cutout or holes deep enough to allow adequate clearance for the contacts

5.4. Extraction Tool

The extraction tool is recommended for removing low– and high–profile taps from the pc board. For board–to–board taps, an application power unit (with flat rock tooling and pc board support) is recommended.

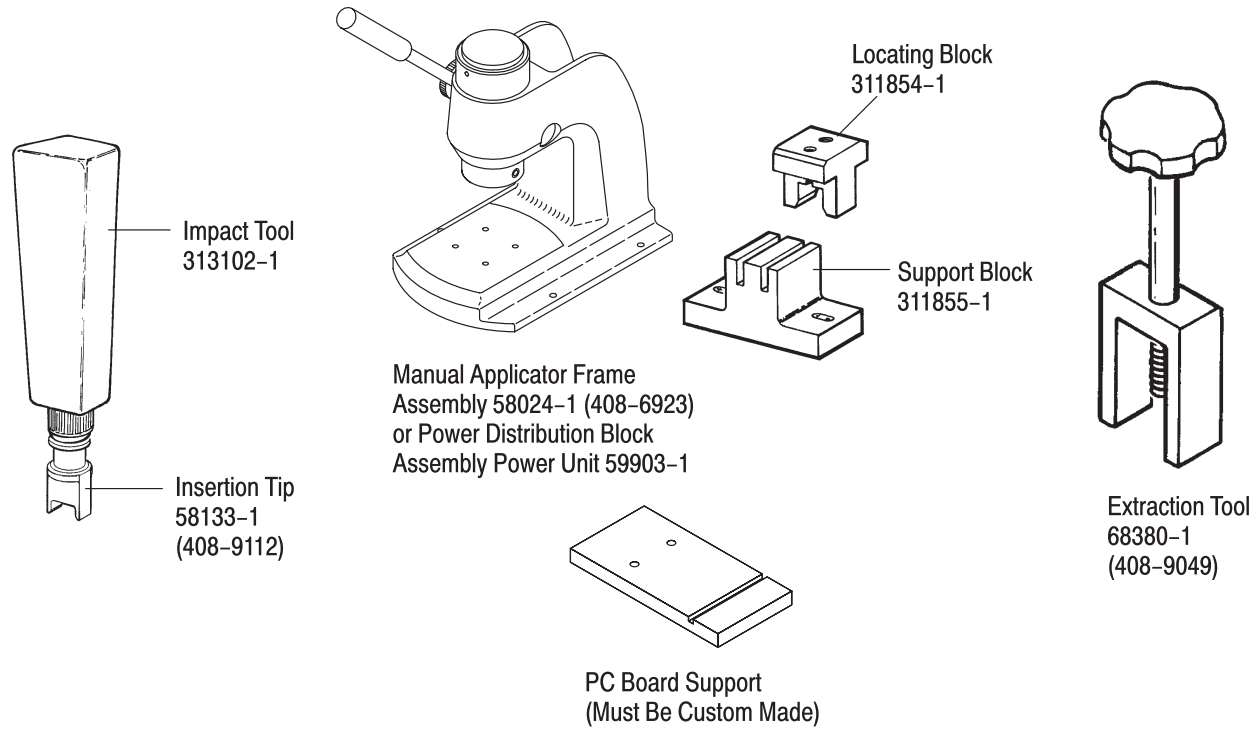
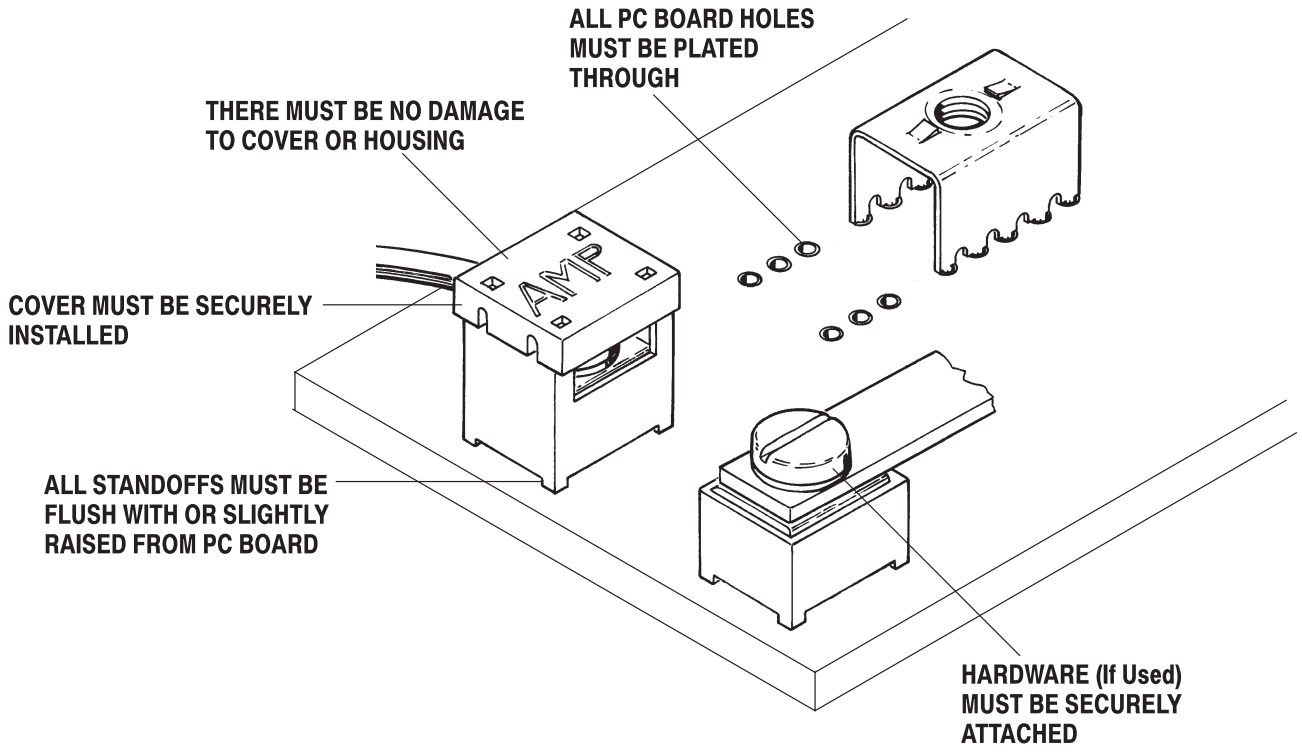


Figure 5

6. VISUAL AID

The illustration below shows a typical application of power distribution taps. 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.

LOW– AND HIGH–PROFILE TAPS



BOARD–TO–BOARD TAPS

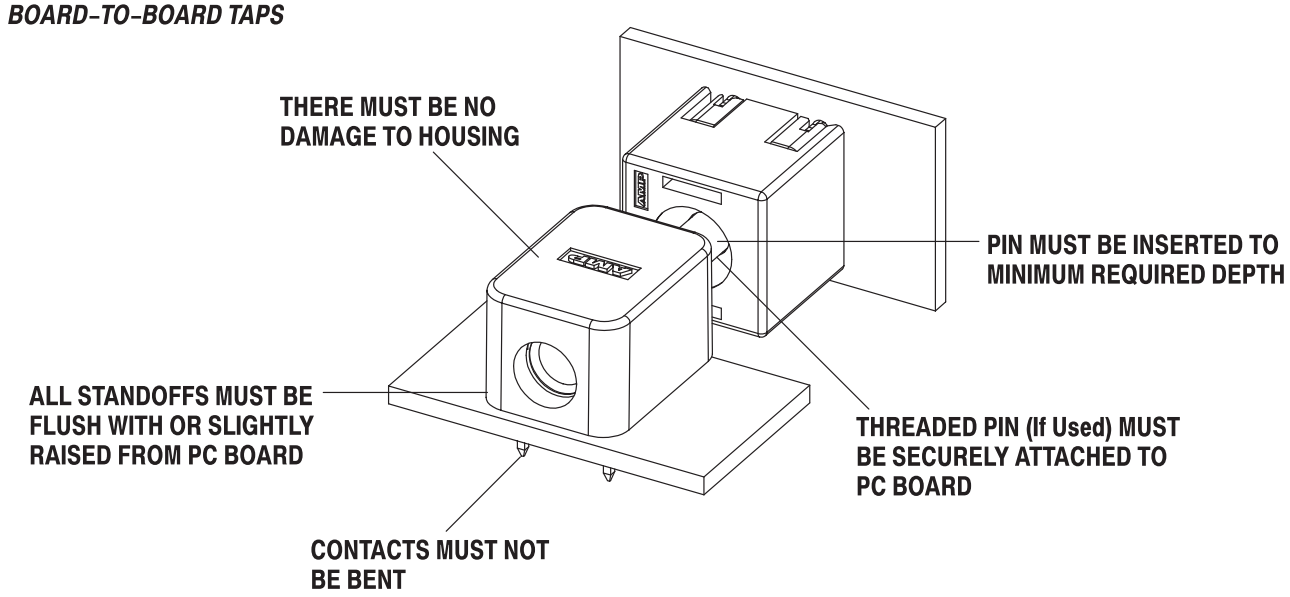


FIGURE 6. VISUAL AID