

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 [$\pm .005$] 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 AMPMODU .025 and .045 Square Continuous Posts. AMPMODU Square Continuous Posts are strip-fed, machine applied; and are designed to be soldered to pc boards.

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.

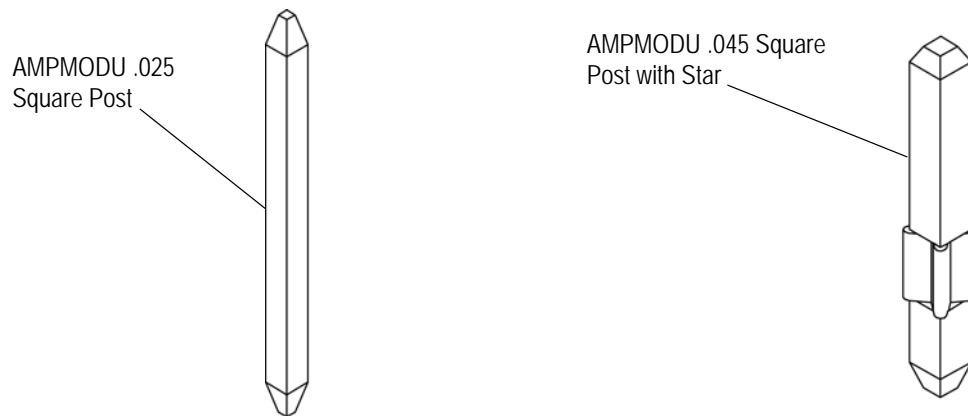


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

- Updated tables in Soldering section.
- Clarified wording in first note in Figure 5.
- Updated document (format, logos, etc) to corporate requirements.

2.2. Customer Assistance

Reference Part Number 147070 and Product Code 4022 are representative numbers of AMPMODU Square Continuous Posts. 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 Tyco Representative (Field Sales Engineer, Field Applications Engineer, etc.) or, after purchase, by calling the Tooling Assistance Center or Product Information number at the bottom of this page.

2.3. Drawings

Customer Drawings for product part numbers 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 Tyco Electronics.

2.4. Manuals

Manual 402-40 is available upon request and can be used as a guide in soldering. This manual provides information on various flux types and characteristics along with the commercial designation and flux removal procedures. A checklist is included in the manual as a guide for information on soldering problems.

2.5. Instructional Material

The following list includes available documents for safety and instructional information. The list includes instruction sheets (408-series) that provide assembly procedures for product, operation, maintenance and repair of tooling, and customer manuals (409-series) that provide setup, operation, and maintenance of machines.

Document Number	Document Title
408-9816	Handling of Reeled Products
409-5863	Comp-U-Sertor* Machine 122300-1 and 122300-2
409-10009	Modular Insertion System Continuous Wire Insertion Heads 904640-[] and 904641-[]

3. REQUIREMENTS

3.1. Storage

A. Orientation

Reels should be stored vertically.

B. Shelf Life

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

C. Chemical Exposure

Do not store the posts near any chemicals listed below, as they may cause stress corrosion cracking in the posts.

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

D. Ultraviolet Light

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

3.2. Material

The AMPMODU Square Continuous Posts are made of pre-plated brass, UNS #C26000.

3.3. PC Boards

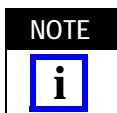
A. Material and Thickness

1. Board material will be glass epoxy (FR-4, G-10).
2. Board thickness shall be 2.54 [.100] maximum for the application of AMPMODU Square Continuous Posts.

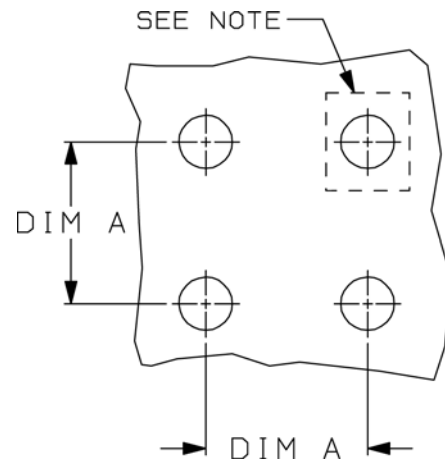
Contact the Tooling Assistance Center number listed at the bottom of page 1 for suitability of other board materials or thicknesses.

B. PC Board Layout

The post holes in the pc board must be precisely located to ensure proper placement and optimum performance of the post. The posts are placed on the pc board by machine. The dimensions provided in Figure 2 must be observed when preparing a pc board for AMPMODU Square Continuous Posts.



For components other than .025 square or .045 square posts, the clearance envelope for application tooling shall be a minimum 9.14 [.360] square centered on the adjacent post. This clearance applies to components with a maximum height equal to, or less than, the post height. For applications with components higher than the .025 square or .045 square posts, or where the 9.14 [.360] square envelope is not allowable, contact the Tooling Assistance Center number at the bottom of page 1 to speak with an insertion application engineer.

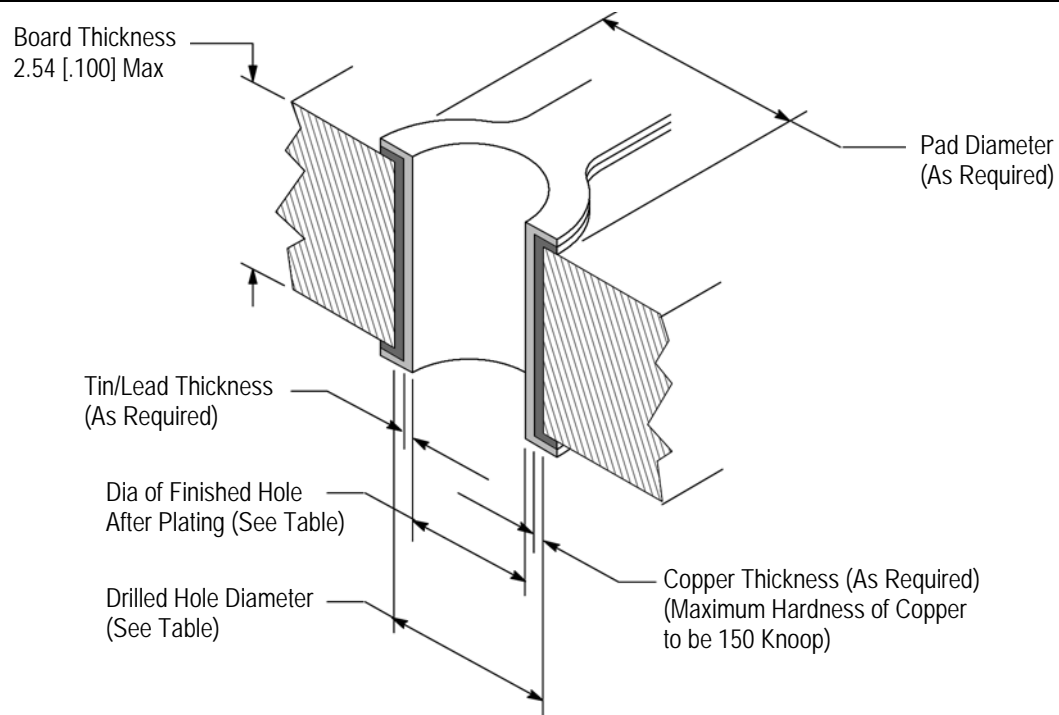


Dim A (Min Nominal C/L Spacing)	
.025 sq.	2.54 [.100]
.045 sq.	3.96 [.156]

Figure 2

3.4. PC Board Post Holes

The pc board holes for AMPMODU Square Continuous Posts must be drilled and plated through to precise dimensions. See Figure 3.



POST SIZE	HOLE DIMENSIONS	
	PLATED-THROUGH	DRILLED (Ref)
.025 Sq.	0.74 ±0.05 [.029 ±.002]	0.84 [.033]
.045 Sq.	1.42 ±0.05 [.056 ±.002]	1.57 [.062]
.025 Sq. with Star	0.84 ±0.05 [.033 ±.002]	0.97 [.038]
.045 Sq. with Star	1.78 ±0.05 [.070 ±.002]	1.96 [.077]

Figure 3

3.5. Post Application

A. Post Rotation

Post rotation shall be within the limits specified in Figure 4.

NOTE: Top View of Posts

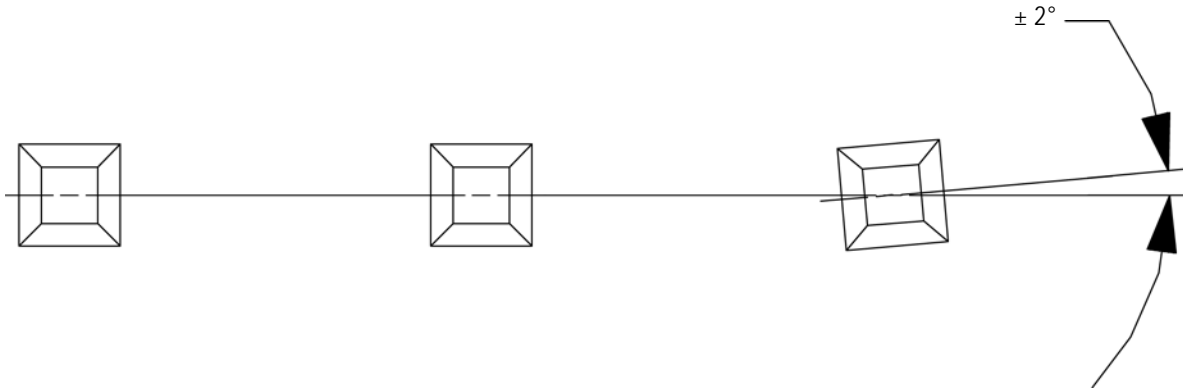
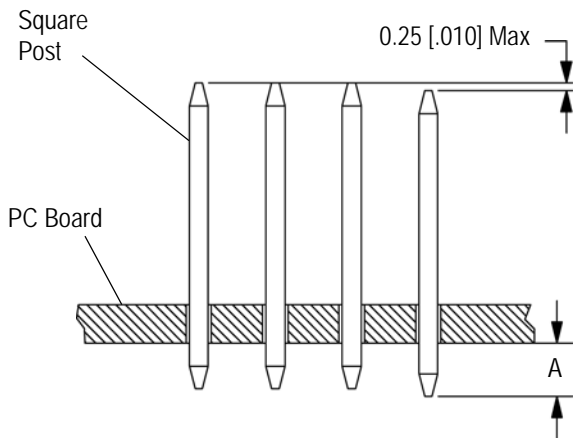


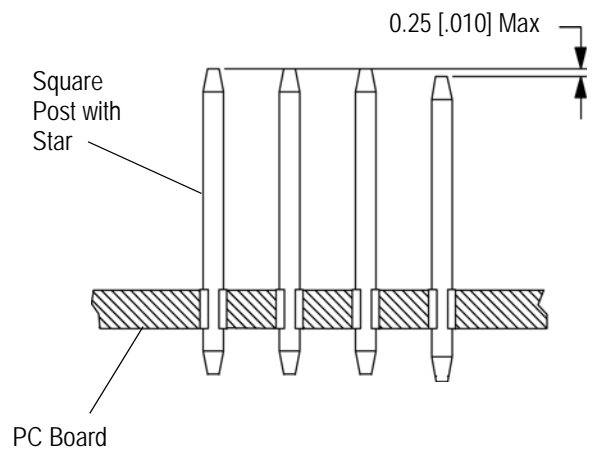
Figure 4

B. Post Insertion

Post insertion shall be as indicated in Figure 5.



NOTE: For insertion depths greater than "A" maximum, contact the Tooling Assistance Center (at the number shown on the bottom of page 1) for information on tooling compatibility.



NOTE: Insertion depth for square post with star will depend on pc board thickness and location of star on post.

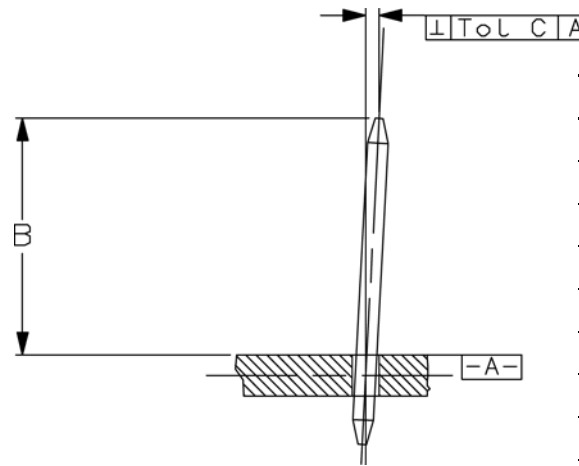
POST SIZE	"A"
.025 Sq.	1.52 Min to 2.29 Max [.060 Min to .090 Max]
.045 Sq.	2.29 Min to 3.05 Max [.090 Min to .120 Max]

Figure 5

C. Post Perpendicularity

Post perpendicularity shall be as indicated in Figure 6.

NOTE: If dimension "B" is between values, then the largest value shall be used to determine dimension "C". For example, if dimension "B" is 12.95 [.510], dimension, "C" shall be 0.381 [.0150].



"B"	"C"
5.08 [.200]	0.191 [.0075]
7.62 [.300]	0.191 [.0075]
10.16 [.400]	0.254 [.0100]
12.7 [.500]	0.318 [.0125]
15.24 [.600]	0.381 [.0150]
17.78 [.700]	0.444 [.0175]
20.32 [.800]	0.508 [.0200]
22.86 [.900]	0.572 [.0225]
25.4 [1.000]	0.635 [.0250]

Figure 6

D. Post Workmanship (See Figure 7)

1. There shall be no scratches, nicks, or tool marks of any kind in the mating area of the post. A burnish is considered an improved surface finish and is an acceptable condition provided that it does not penetrate the finish plating.
2. Scratches and tool marks on the post contact tine are acceptable provided they do not penetrate the plating to the base metal.
3. All inspection shall be performed under 10x magnification.

NOTE: Application tooling shall be adjusted so the cutoff burr does not appear on the mating end of the post (typically the top of the post).

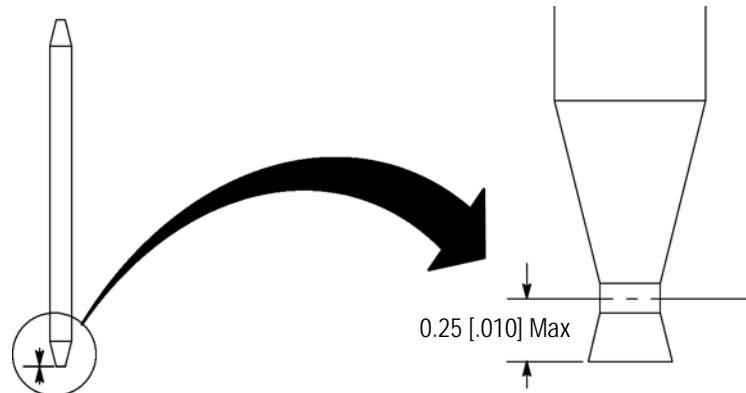


Figure 7

3.6. Soldering

A. Flux Selection

The posts must be fluxed prior to soldering with a mildly active, rosin base flux. Selection of the flux will depend on the type of pc board and other components mounted on the board. Additionally, the flux must be compatible with the wave solder line, manufacturing, health, and safety requirements. Call the Product Information phone number at the bottom of page 1 for consideration of other types of flux. Some fluxes that are compatible with these pc board posts are provided in Figure 8.

FLUX TYPE	ACTIVITY	RESIDUE	COMMERCIAL DESIGNATION	
			KESTER	ALPHA
Type RMA (Mildly Activated)	Mild	Noncorrosive	186	611

ALPHA and KESTER are trademarks of their respective owners.

Figure 8

B. Cleaning

After soldering, removal of fluxes, residues, and activators is necessary. Consult with the supplier of the solder and flux for recommended cleaning solvents. The following is a listing of common cleaning solvents that will not affect the posts for the time and temperature specified. See Figure 9.



Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacturer. Refer to the manufacturer's Material Safety Data Sheet (MSDS) for characteristics and handling of cleaners. Trichloroethylene and Methylene Chloride can be used with no harmful affect to the posts; however Tyco does not recommend them because of the harmful occupational and environmental effects. Both are carcinogenic (cancer-causing) and Trichloroethylene is harmful to the earth's ozone layer.



If you have a particular solvent that is not listed, contact the Tooling Assistance Center or Product Information number at the bottom of page 1.

C. Drying

When drying cleaned posts and pc boards, make certain that temperature limitations are not exceeded: -40_ to 85_C [-40° to 185°F] for standard temperature products. Excessive temperatures may cause degradation.

CLEANER		TIME (Minutes)	TEMPERATURE (Maximum)
NAME	TYPE		
ALPHA 2110	Aqueous	1	132°C [270°F]
BIOACT EC-7	Solvent	5	100°C [212°F]
Butyl CARBITOL	Solvent	1	Ambient Room
Isopropyl Alcohol	Solvent	5	100°C [212°F]
KESTER 5778	Aqueous		
KESTER 5779	Aqueous		
LONCOTERGE 520	Aqueous		
LONCOTERGE 530	Aqueous		
Terpene	Solvent		

ALPHA, BIOACT, CARBITOL, LONCOTERGE, and KESTER are trademarks of their respective owners.

Figure 9

D. Soldering Guidelines

The posts can be soldered using wave or equivalent soldering techniques. The temperatures and exposure time shall be within the ranges specified in Figure 10. We recommend using SN60 or SN62 solder for these posts.



Manual 402-40 provides some guidelines for establishing soldering practices. Refer to Paragraph 2.4, Manuals.

SOLDERING PROCESS	TEMPERATURE		TIME (At Max Temperature)
	CELSIUS	FAHRENHEIT	
WAVE SOLDERING	260 [†]	500 [†]	5 Seconds

[†] Wave Temperature

Figure 10

3.7. Repair/Replacement

If a post is damaged while being inserted into a pc board, then it must be replaced with a new one. The post may be removed by standard de-soldering methods.

4. QUALIFICATIONS

No agency requirements or certification are needed for the application of AMPMODU Square Continuous Posts.

5. TOOLING

This section provides a selection of tools for various application requirements. They include semi-automatic or automatic machines for power assist application of strip form posts. Modified designs and additional tooling concepts may be available to meet other application requirements. For additional information, contact one of the service groups at the bottom of page 1. A listing of tooling recommendations is provided in Figure 11.

- Insertion Head

Insertion heads are designed to insert the posts to a pre-determined depth and can be used in a variety of power sources. Refer to Customer Manual 409-10009.

- Power Units

A power unit is an automatic or semi-automatic device used to assist in the application of a product. Power unit includes the power source used to supply the force or power to an insertion head. Refer to Customer Manual 409-5863.

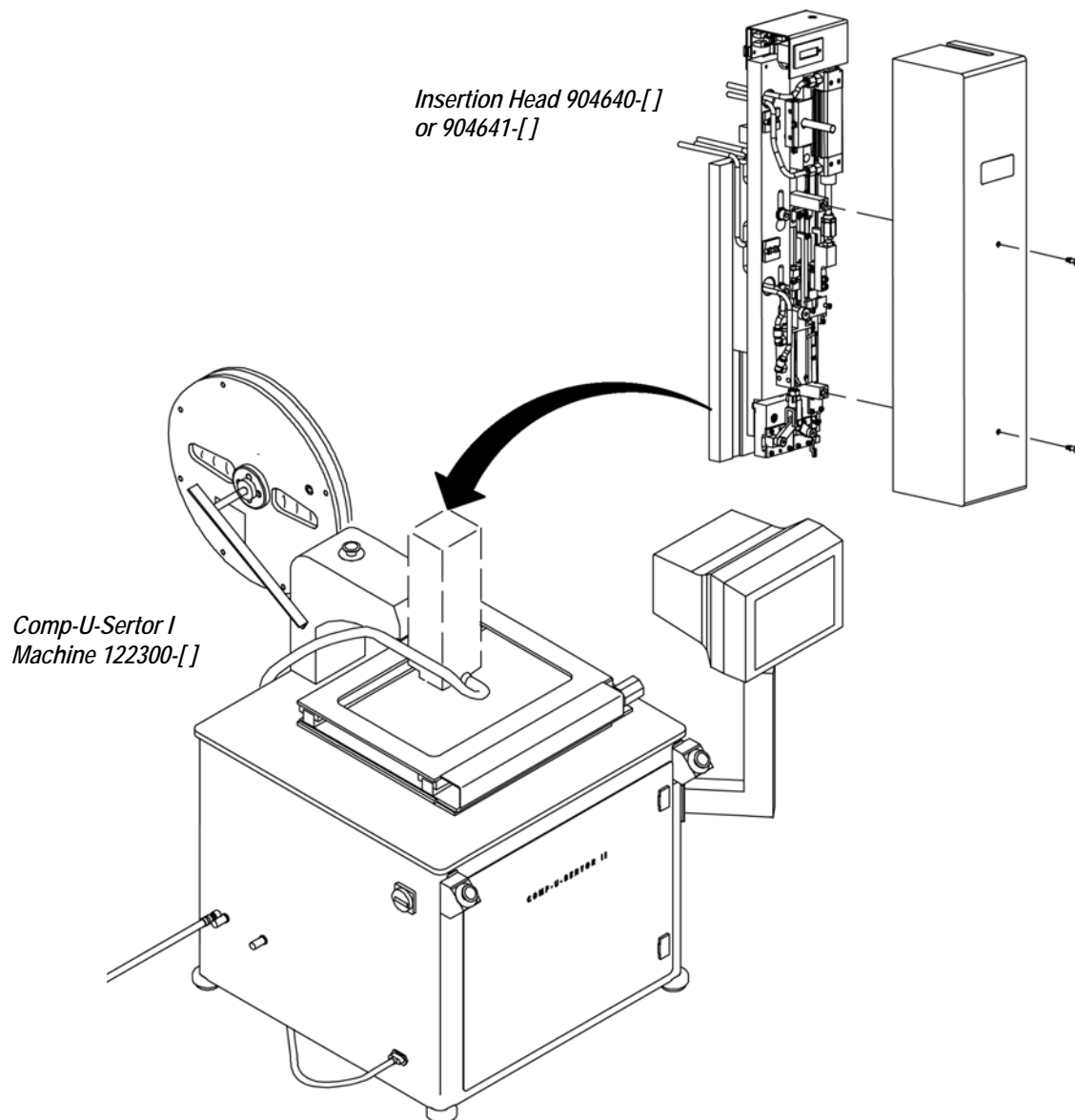


Figure 11

6. VISUAL AID

The illustration below shows a typical application of AMPMODU Square Continuous Posts. 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.

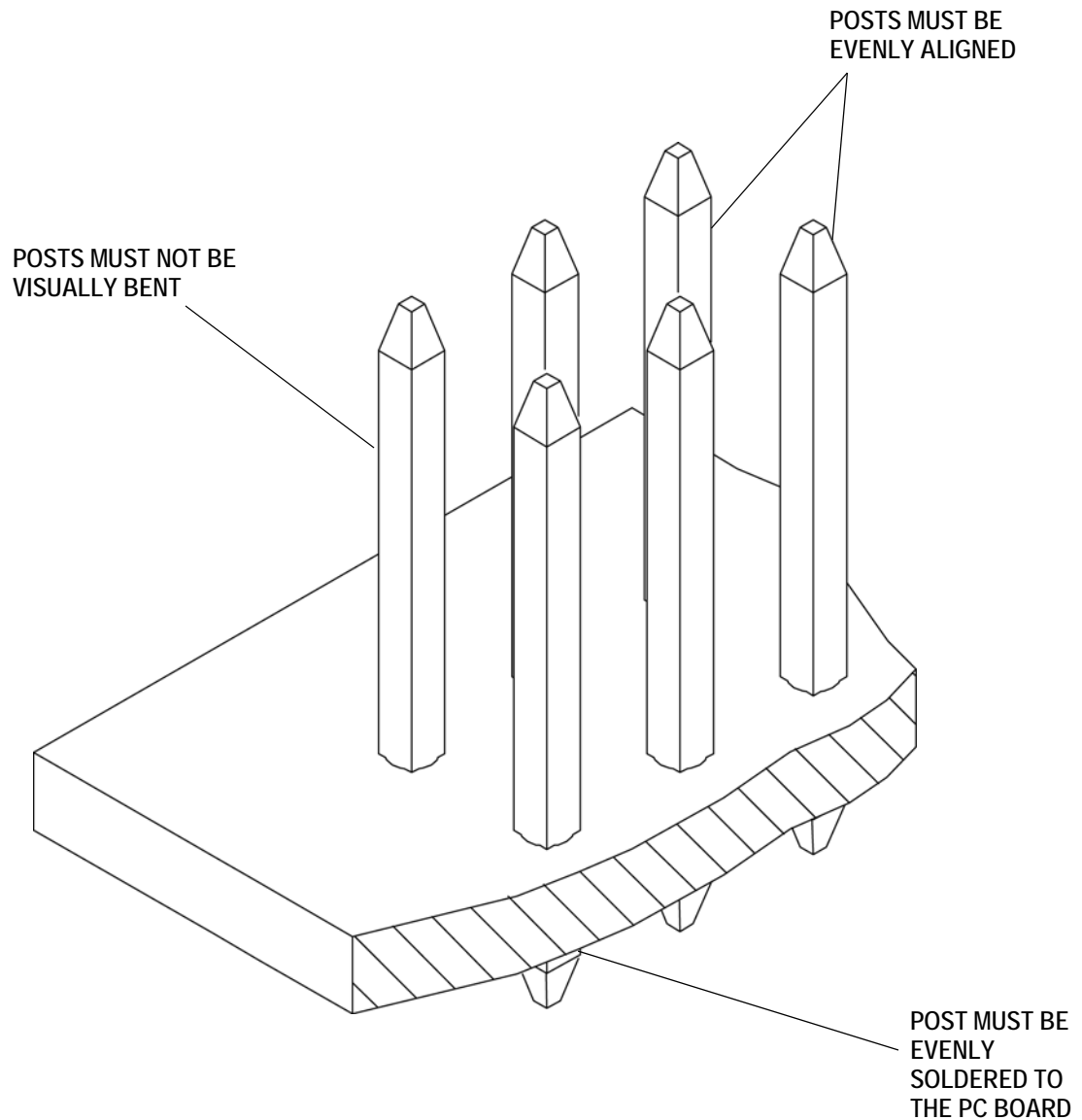


FIGURE 12. VISUAL AID