

**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  $\pm 0.13$  [ $\pm .005$ ] 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 AMP-LATCH Universal Headers with ACTION PIN Contacts. The headers are available in various positions from 10 through 64. These headers are mounted on a printed circuit (pc) board by a seating tool which uses various power units for application. The headers are available with short or long tail contacts and optional ejector latches.

Figure 1 provides contact features and terms used throughout this specification. Use these terms when corresponding with Tyco Electronics Representatives to facilitate assistance.

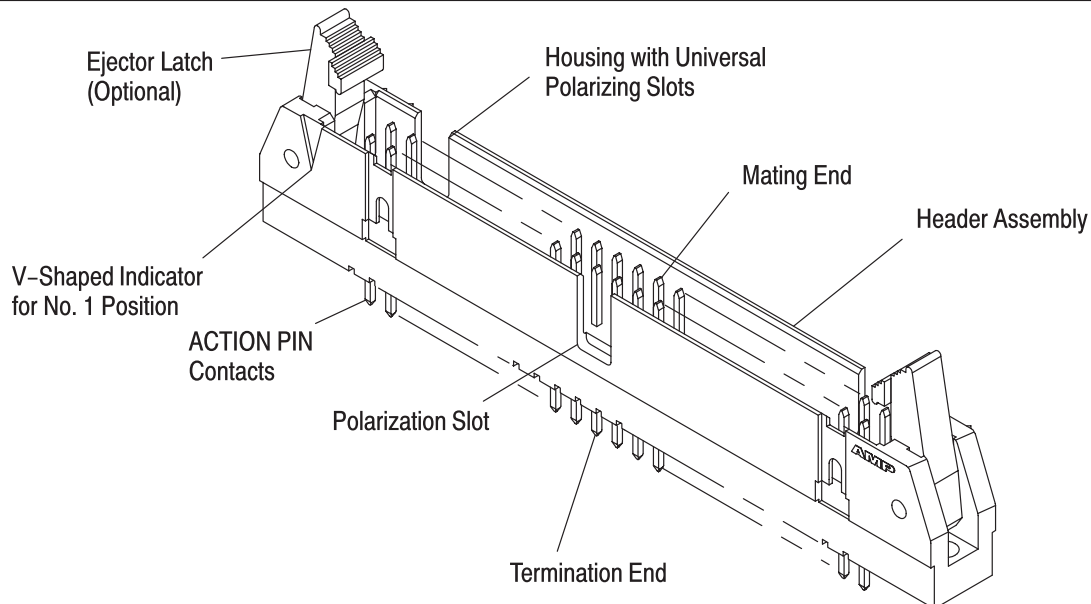


Figure 1

## 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 application specification to corporate requirements
- Added new text to Paragraph 3.2
- Added new callouts and table to Figure 3

### 2.2. Customer Assistance

Reference Part Number 499582 and Product Code 5275 are representative numbers of AMP-LATCH Universal Headers with ACTION PIN Contacts. 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 Electronics Representative or, after purchase, by calling the Tooling Assistance Center or the Product Information number at the bottom of this page.

### 2.3. Drawings

Customer Drawings for each product part number 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 technical documentation supplied by Tyco Electronics.

## 2.4. Specifications

Product Specification 108-40019 covers test and performance requirements.

## 2.5. Instructional Material

The following list includes available 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.

<u>Document Number</u>	<u>Document Title</u>
408-6926	Seating Tools 91268-[ ]
408-6927	Design Recommendations for PC Board Support Fixture
408-6939	Removal Tool 91269-1 for Universal Header Latches
409-5626	SM-3 Machine No. 814700-[ ]

## 3. REQUIREMENTS

### 3.1. Storage

#### A. Ultraviolet Light

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

#### B. Shelf Life

The headers should remain in the shipping containers until ready for use to prevent damage. The products should be used on a first in, first out basis to avoid storage contamination that could adversely affect signal transmissions.

### 3.2. Material

AMP-LATCH Universal Headers are made from 94V-0 rated black thermoplastic. The ACTION PIN Contacts are made from phosphor bronze plated with gold on the mating area, and tin/lead or tin on the ACTION PIN tail, all over nickel underplate.

### 3.3. Intermateability

The headers are designed to mate with AMP-LATCH Receptacle Connectors such as Novo, AMPMODU\* MTE Connectors, FFC Connectors, and other industry standard receptacles having identical number of contact positions on 2.54 [.100] centers and compatible polarization. Refer to the instructional material provided with the mating connectors for termination procedures.

### 3.4. PC Board

#### A. Tolerances

Maximum allowable bow of the pc board will be 0.13 mm [.005 in.] over the length of the header.

#### B. Material and Thickness

The pc board material must be glass epoxy (FR-4 or G-10). The minimum pc board thickness must be 2.03 mm [.080 in.]. Headers are available with post lengths of 4.42 mm [.174 in.] or 15.49 mm [.610 in.].

#### NOTE



Contact the Product Information Center at the number listed at the bottom of page 1 for suitability of other pc board materials and thicknesses.

#### C. Layout

Recommended pc board patterns and dimensions, as well as tolerance, are provided in Figure 2. The layout shows the top (header) side of the pc board.

#### NOTE



Figure 2 represents a **typical** pc board layout for this product. For dimensions and hole pattern layout for specific product, obtain the appropriate customer drawing through your Tyco Electronics Representative or refer to the telephone numbers at the bottom of page 1.

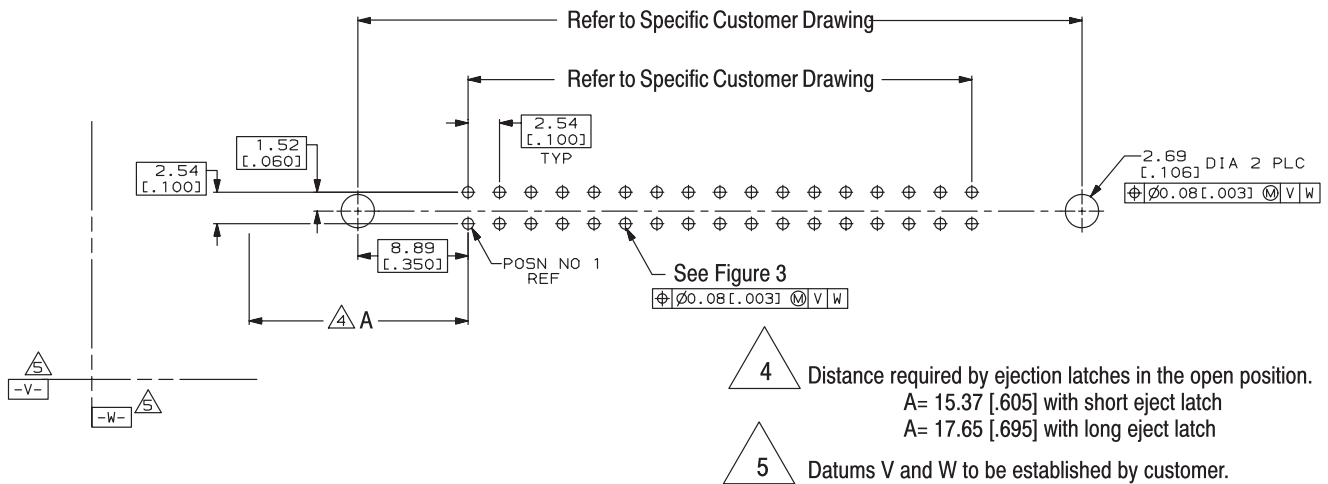
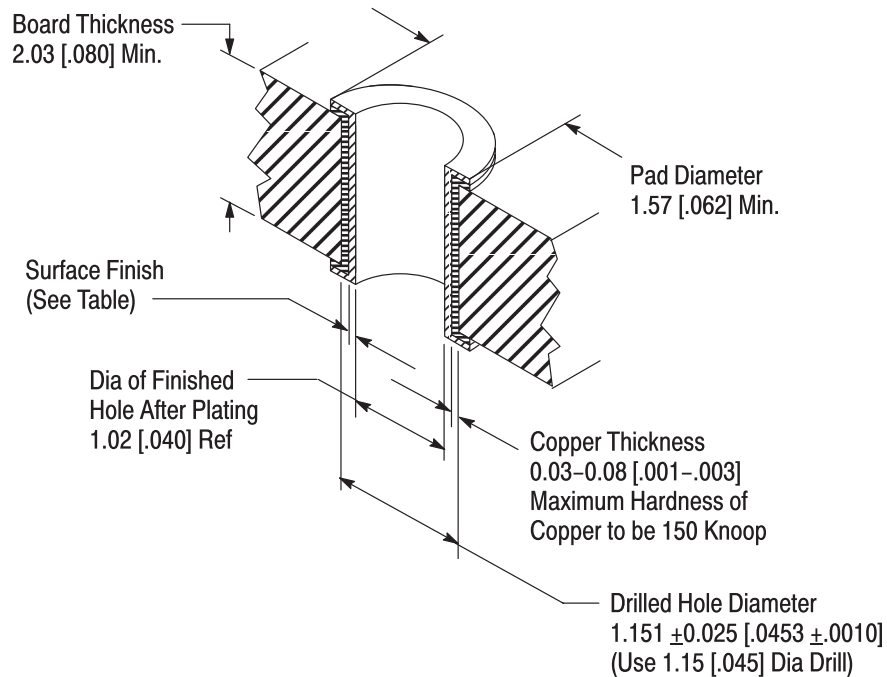


Figure 2

#### D. PC Board Plated Thru Holes

The pc board holes must be drilled and plated as shown in Figure 3.



SURFACE FINISH	
PLATING	THICKNESS
Hot Air Solder Leveling (HASL) Tin-Lead (Sn-Pb)	0.008 [0.0003] Min
Immersion Tin (Sn)	0.0005-0.004 [0.00002-.00016]
Organic Solderability Preservative (OSP)	0.0002-0.0005 [0.000008-.000020]
Immersion Gold (Au) over Nickel (Ni) (ENIG)	0.0001-0.0005 [0.000004-.000020] Au, 0.00127-0.0076 [0.00005-.00030] Ni
Immersion Silver (Ag)	0.0001-0.0005 [0.000004-.000020]

Figure 3

### 3.5. Header Spacing

Care must be used to avoid interference between adjacent header assemblies and/or other components. The information provided in Figure 4 is to ensure proper clearance for the headers.

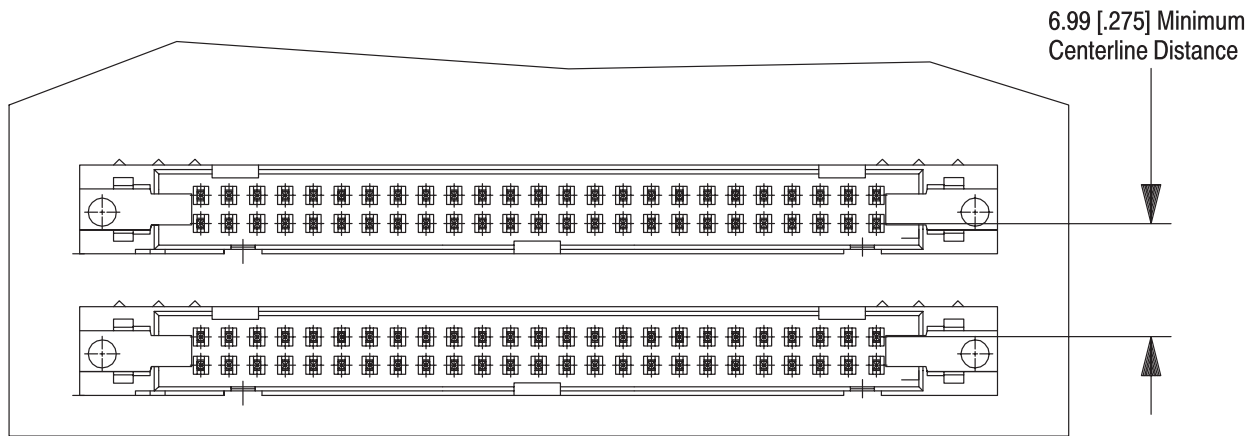


Figure 4

### 3.6. Installing Headers

The headers must be installed using the seating tools provided in Section 5, TOOLING. Refer to Figure 5 for seating information.



*When seating the headers onto the pc board, make sure the ejector latches are not installed on the headers. If the headers already have pre-installed ejector latches on them, they must be removed prior to seating the headers on the pc board. Refer to Paragraph 3.10 and Figure 8 for installation of ejector latches.*

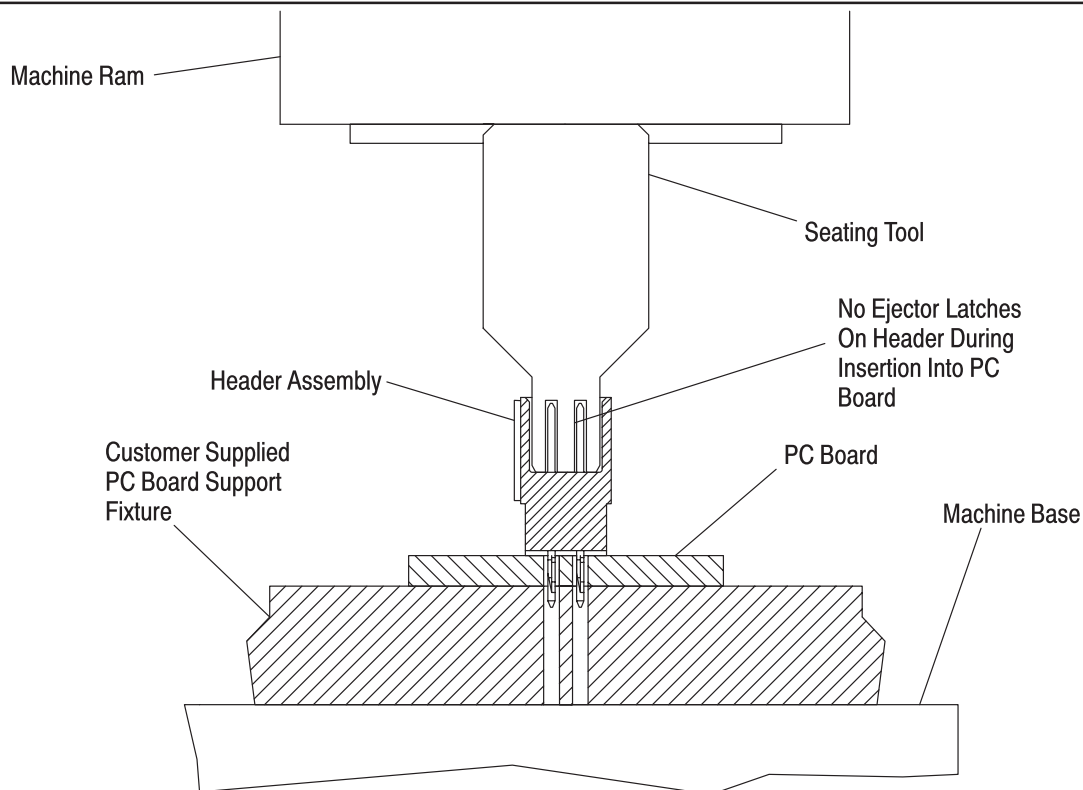


Figure 5

### 3.7. Installed Headers

Installed headers must meet the requirements provided in Figure 6.

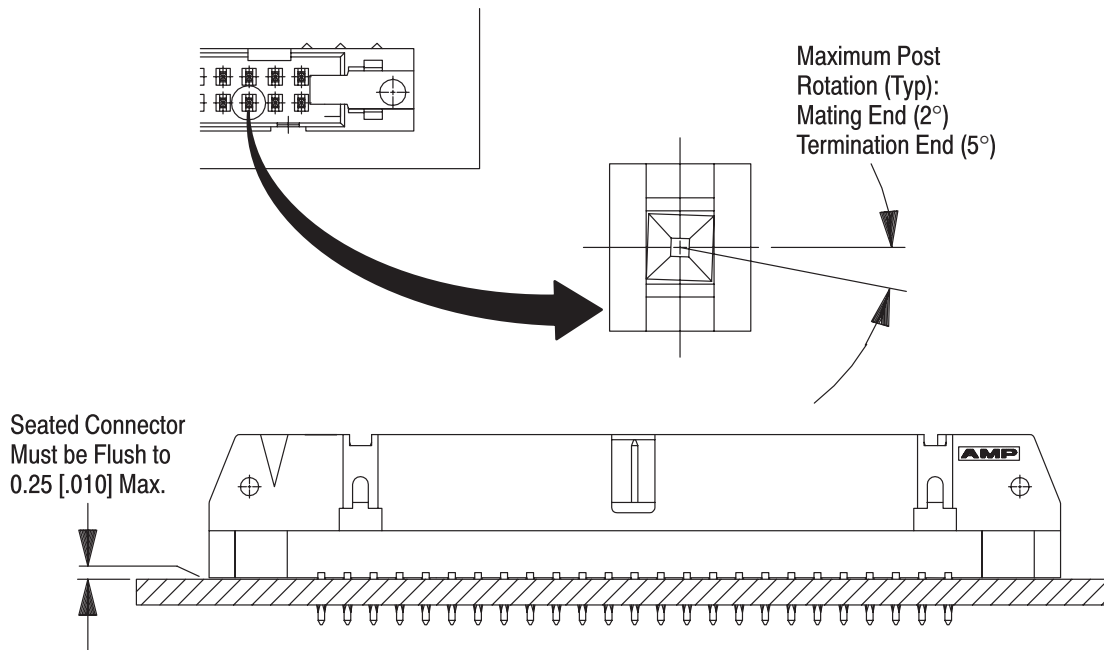


Figure 6

### 3.8. Keying (Military Applications)

Keying plugs can be installed in the connectors to prevent mismatching of compatible connectors. The keys must be installed in slots that have webbing in them. The tab latch must be toward the inside of the connector and the flat must be on the outside. See Figure 7.

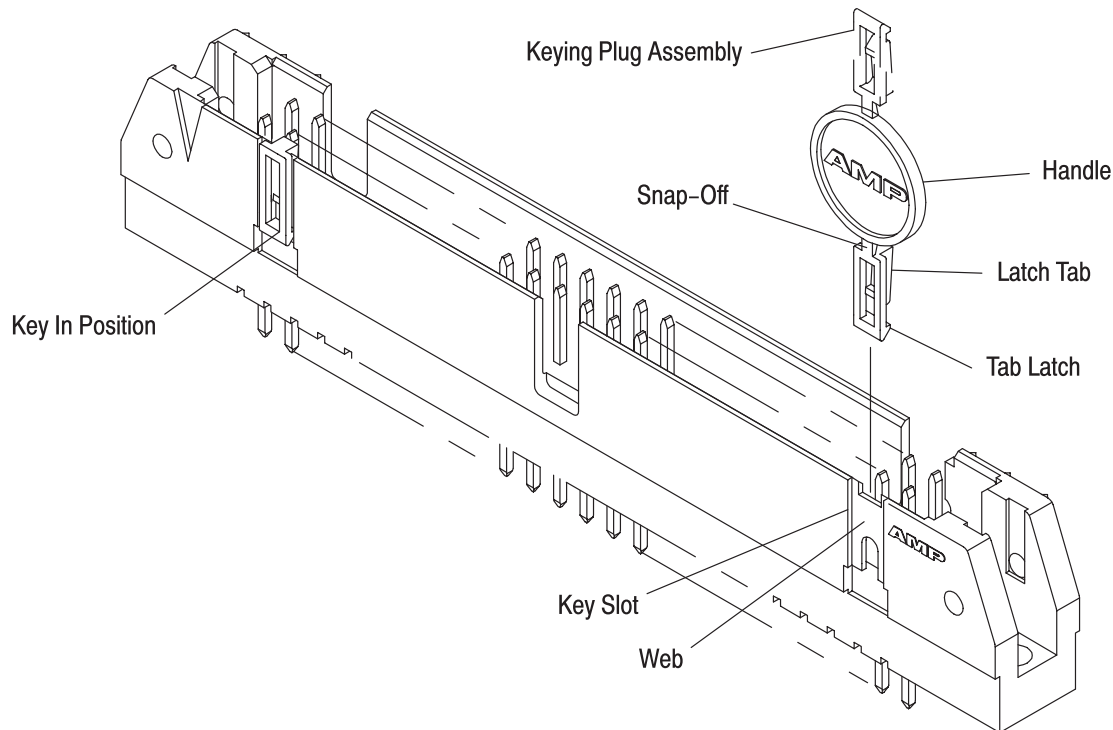


Figure 7

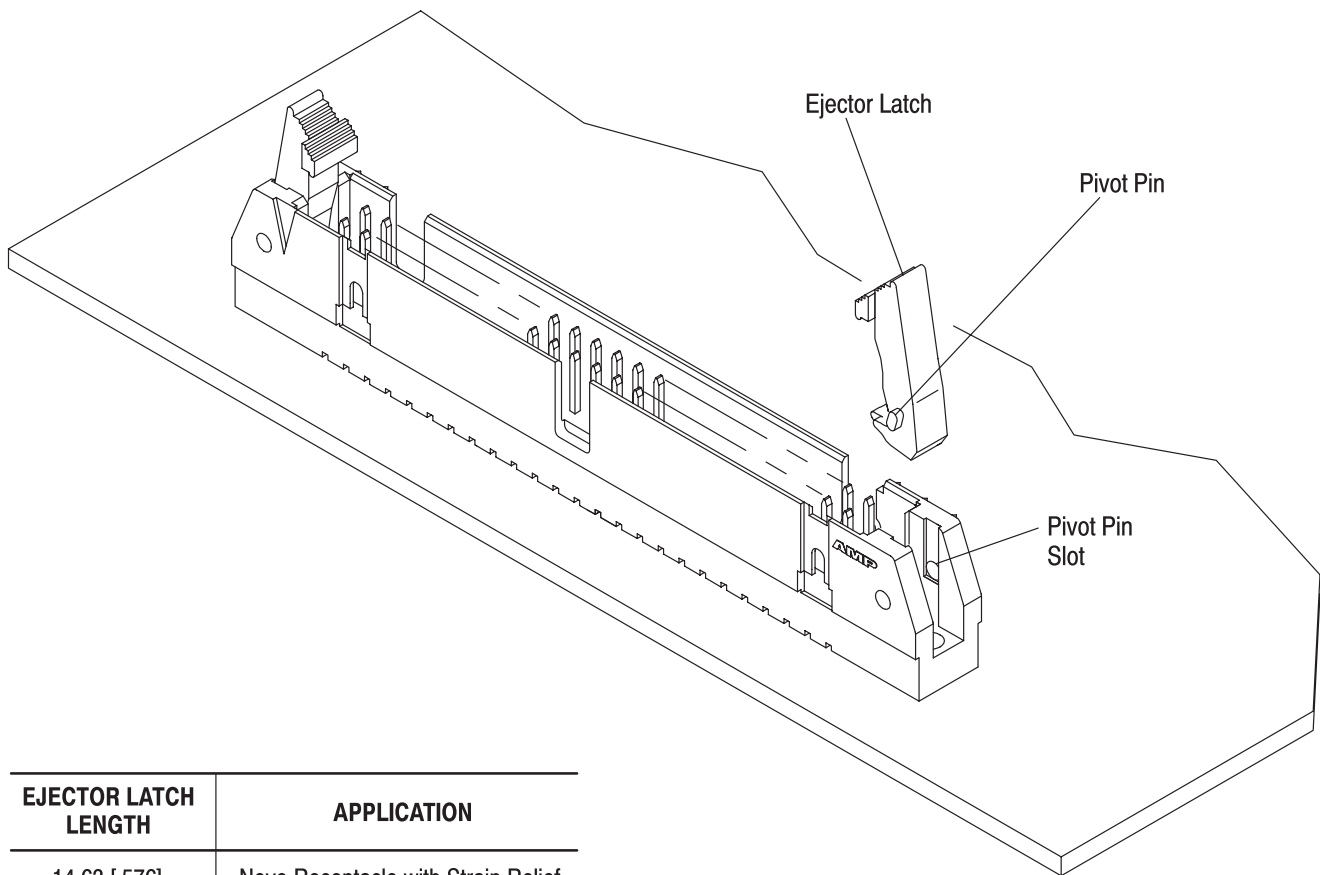
### 3.9. Mounting Hardware

Headers may be secured to the pc board with commercially available 2–56 hardware such as screw, washers, and nuts, self-threading screws, rivets, etc.

### 3.10. Ejector Latch

AMP-LATCH Universal Headers can be used with or without ejector latches. The ejector latches are designed to lock mating connectors together and to ease disengagement of mated connectors. They are available in two lengths to accommodate the different styles of connectors. Latches of one size can be removed and replaced with another size to accommodate a different size connector. Refer to Instruction Sheet 408–6939 for removal procedures.

When installing an ejector latch, the latch pivot pins must be held at a 15° angle and inserted into the cover pin slots until bottomed, then the latch must be rotated until it is perpendicular to the cover. See Figure 8.



EJECTOR LATCH LENGTH	APPLICATION
14.63 [.576]	Novo Receptacle with Strain Relief
10.57 [.416]	Novo Receptacle w/o Strain Relief

Figure 8

### 3.11. Repair/Replacement

Damaged, bent, or deformed contacts or damaged or broken headers must be replaced. Remove the headers from the pc board by providing even pressure such as flat-rock tooling from the underside of the pc board. Rock the header gently back and forth until it becomes free of the pc board and replace it with a new one. See Figure 9.

#### CAUTION



When removing a damaged header from the pc board, be careful not to damage the plated holes.

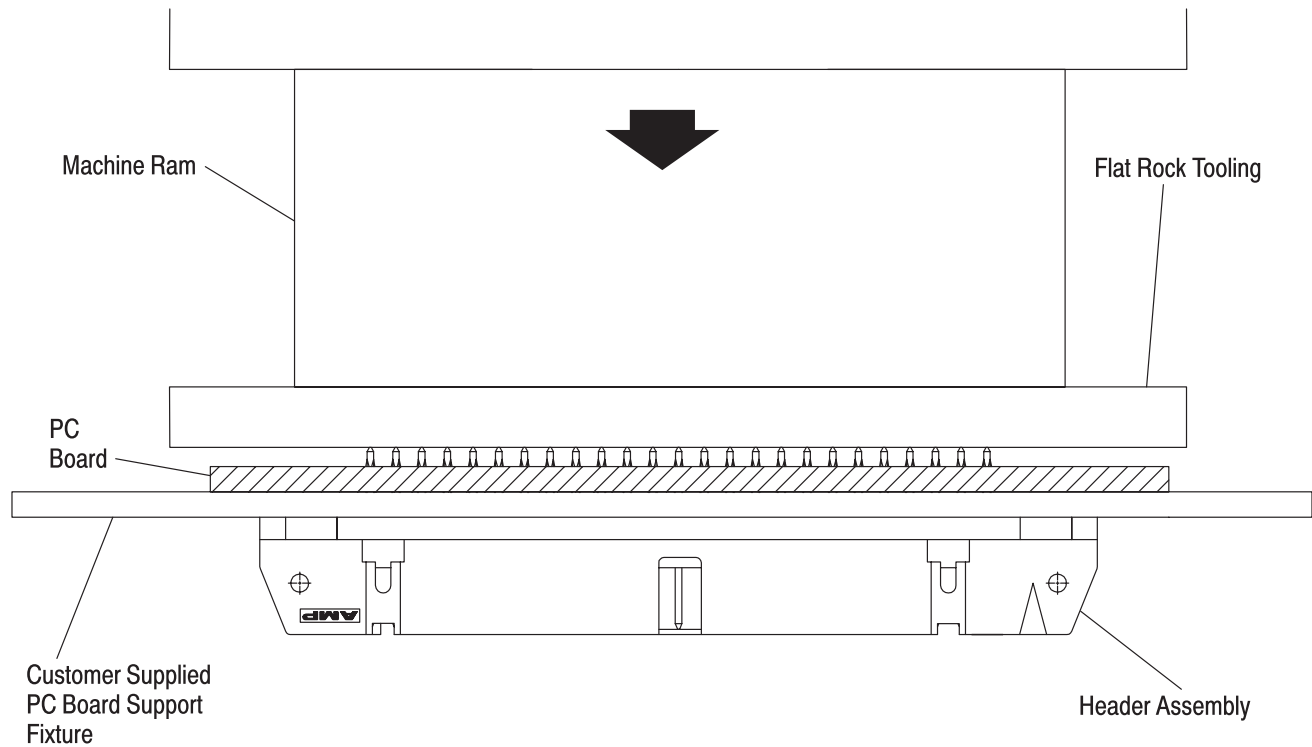


Figure 9

#### 4. QUALIFICATIONS

AMP-LATCH Universal Headers are Listed by Underwriters Laboratories Inc. (UL) under File No. E28476, Certified by CSA International under File No. LR 16455, and tested by Verband Deutscher Elektrotechniker (VDE) under File No. 4751-9000-4009/A2D.

#### 5. TOOLING

##### NOTE



*Tool Engineers have designed machines for a variety of application requirements. For assistance in setting up prototype and production line equipment, contact the Tooling Assistance Center number listed at the bottom of page 1 or your local Tyco Electronics Representative.*

Figure 10 provides tooling information and instructional material related to the AMP-LATCH Universal Headers with ACTION PIN Contacts. For pc board applications where solder is used, no special tooling is required for hand placement of these headers on the pc board, however the following information should be considered.

- **PC Board Support**

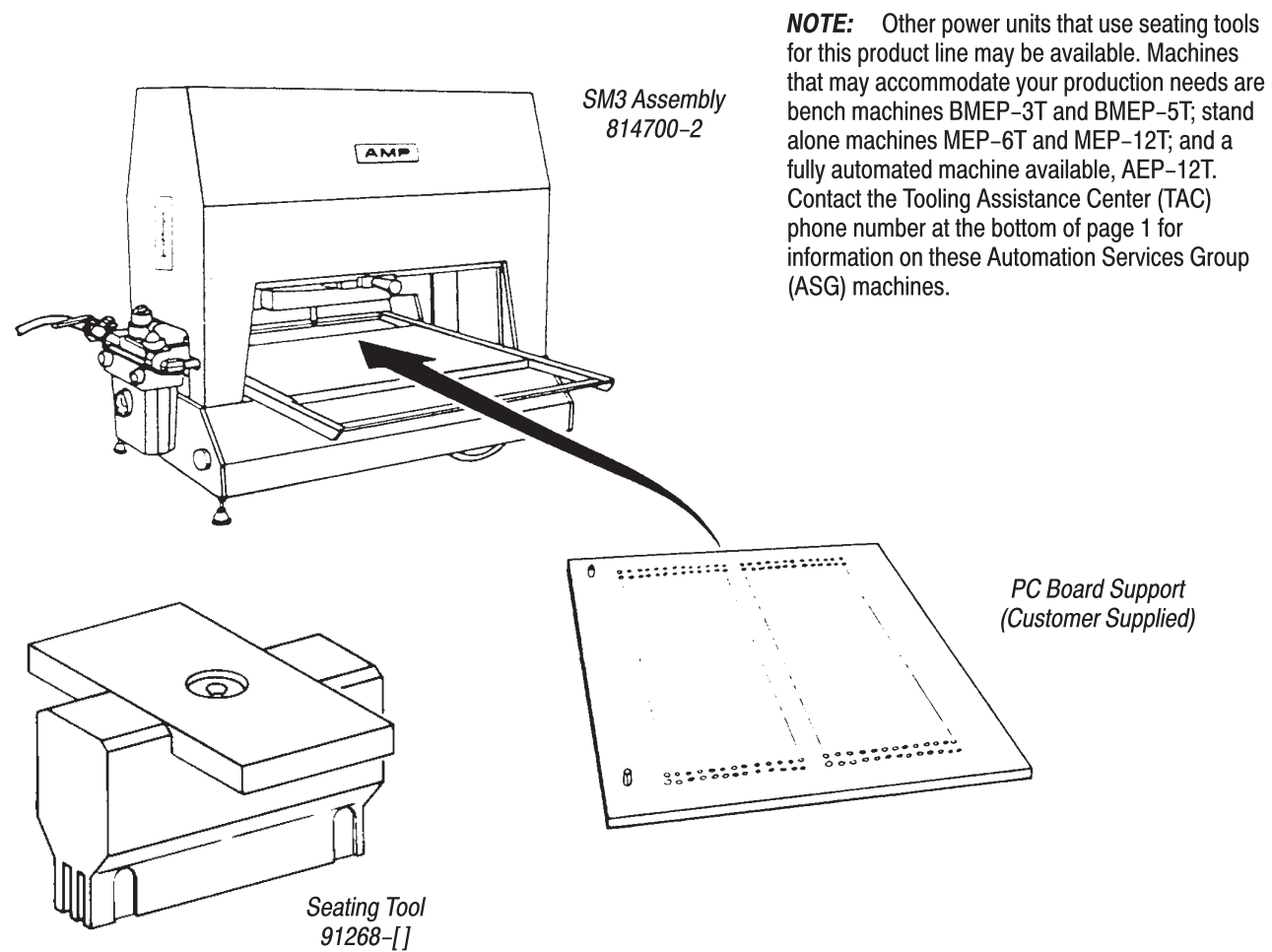
A pc board support should be used to prevent bowing of the pc board during the placement of a header on the board. It should have flat surfaces with holes or a channel wide enough and deep enough to receive the contacts during installation of the header onto the board.

- **Seating Tool**

The seating tool must be used with application tooling for seating headers with ACTION PIN Contacts. During seating, the tool aligns the header to ensure proper insertion into the pc board and prevents damage to the contacts. Each tool is specifically designed for the number of contacts in a header. See Figure 10.

- **Power Units**

Power units are automatic or semi-automatic machines used to assist in the application of a product. A power unit supplies the force to seat the header onto the pc board using seating tools or flat-rock tooling. Refer to Instruction Sheet 408-6926 for commercially available three-ton manual arbor frame assemblies.

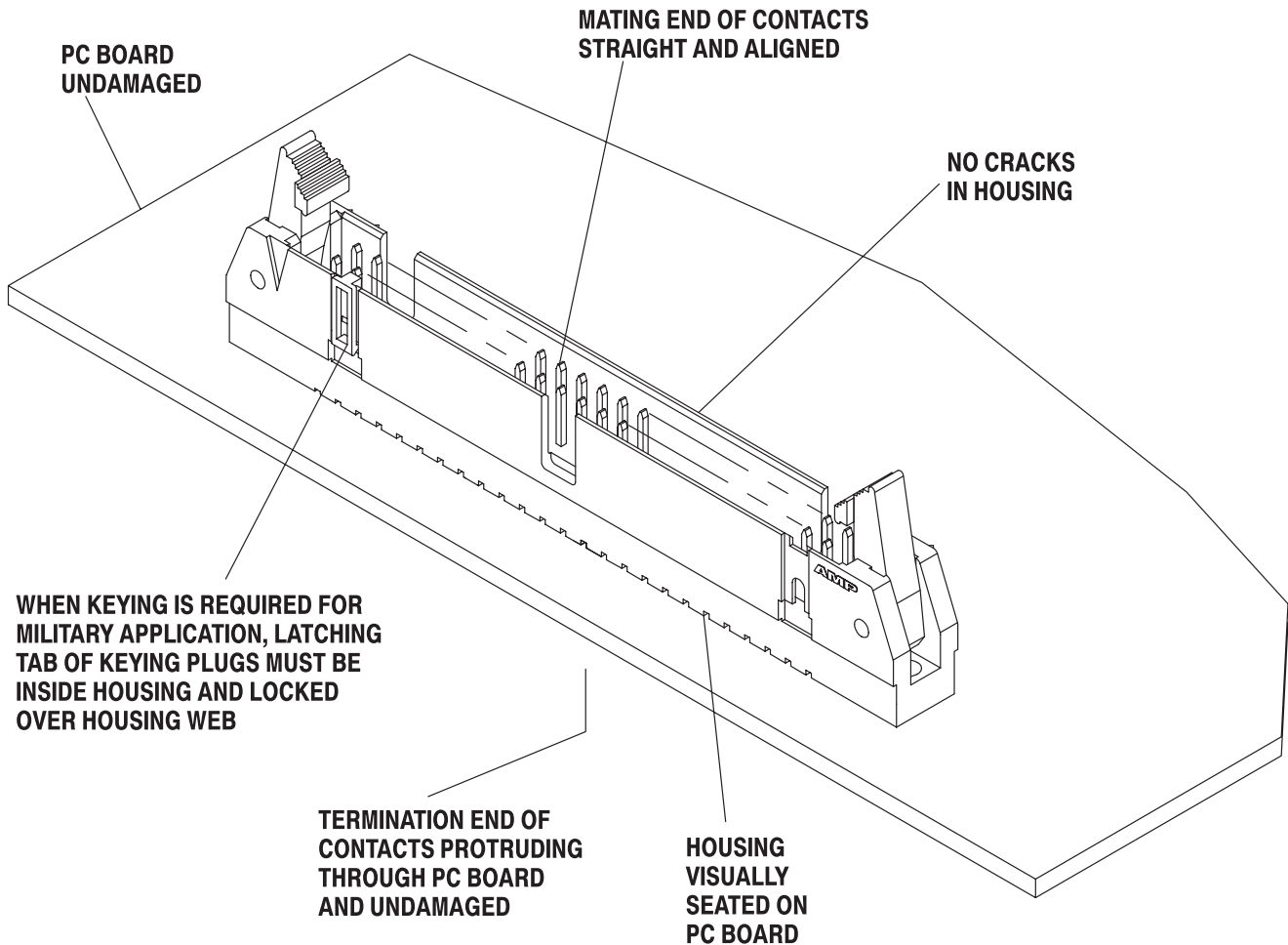


HEADER POSITION	SEATING TOOL (408-6926)	POWER UNIT (DOCUMENT)
10	91268-1	814700-2 (409-5626)
14	91268-2	
16	91268-3	
20	91268-4	
24	91268-5	
26	91268-6	
30	91268-7	
34	91268-8	
40	91268-9	
44	1-91268-0	
50	1-91268-1	
60	1-91268-2	
64	1-91268-3	

Figure 10

## 6. VISUAL AID

Figure 11 shows a typical application of AMP-LATCH Universal Headers with ACTION PIN Contacts. 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 11. VISUAL AID**