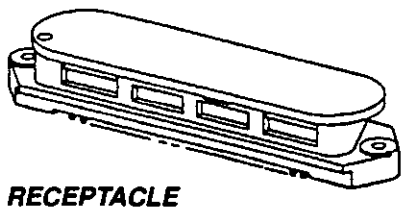
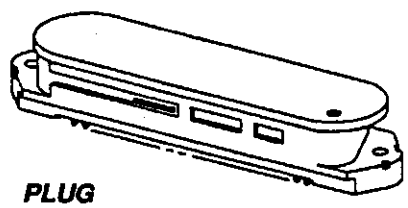
AMP

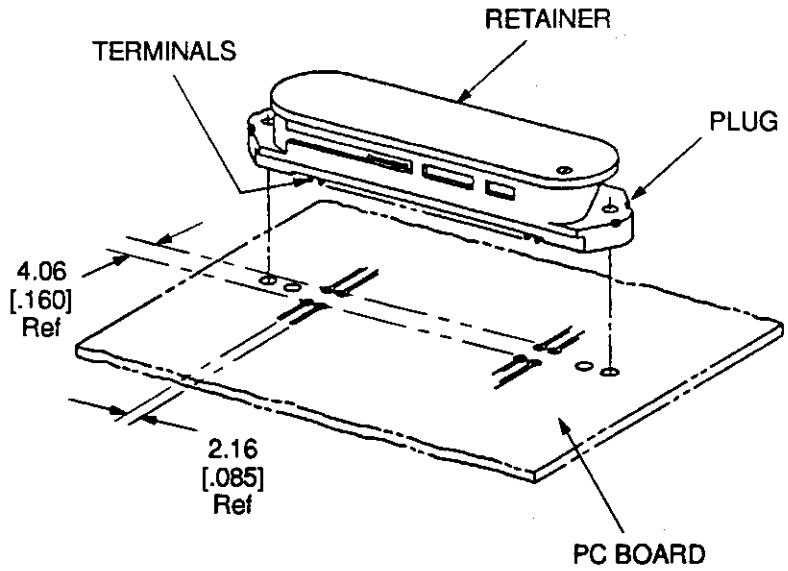
AMP* CHAMP* ACTION PIN* Connectors (Preloaded)



RECEPTACLE



PLUG



CONTACT POSITIONS	PART NUMBER	
	PLUG	RECEPTACLE
14	553444-1 554755-1▲	553443-1
24	553444-2	553443-2 ●
36	553444-3	553443-3
50	553444-4 554758-1▲	553443-4 554753-1▲
64	553444-5 554759-1▲	553443-5 556622-1◆

● For IEEE applications, part number 553609-1 should be used.

▲ Connector contains self-retained terminals.

◆ Shielded, with ground tabs.

Figure 1 92-170

1. INTRODUCTION

This instruction sheet provides descriptive information, printed circuit (pc) board layout dimensions, application tooling recommendations and attaching hardware for CHAMP ACTION PIN Connectors listed in Figure 1.

Read this material before applying assemblies.

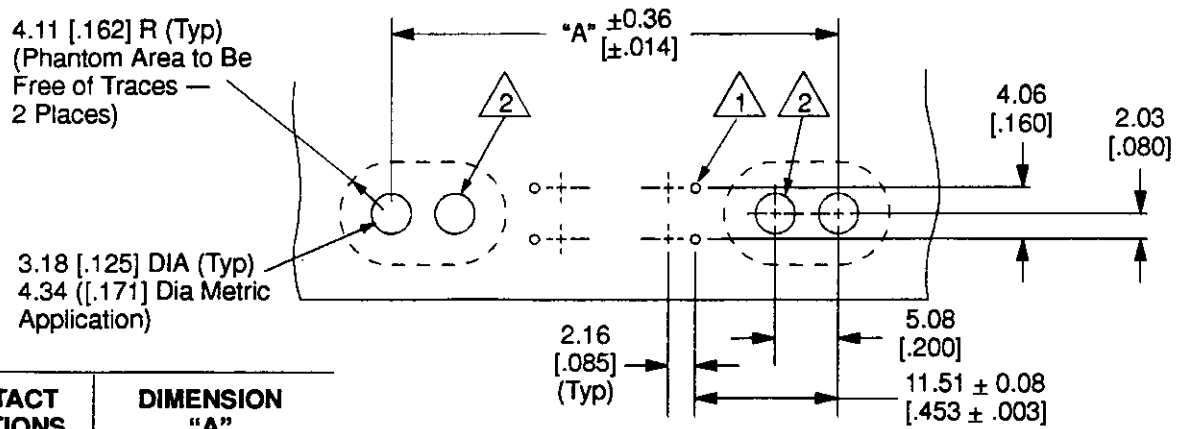
NOTE *All dimensions on this document are in millimeters [with inches in brackets].*

2. DESCRIPTION

The plug and receptacle assemblies are available in 14, 24, 36, 50, and 64 contact positions. The contacts are preloaded into the housings by the manufacturer and held in place by a retainer until the connectors are assembled to a pc board. After assembly, the retainer is removed and discarded.

NOTE *The retainer may be left in place to serve as a dust cover until the connector is mated to another connector.*

CHAMP ACTION PIN contacts feature a rounded pin design, two spring members, and a flat leaf spring. The pin design prevents hole damage and allows a smooth, even entry into the pc board. The spring members compress in opposite directions and exert sufficient force against the pc board to produce a solderless pc board connection. The leaf spring (mating surface) supplies the necessary tension for positive mating. Damaged contacts are replaceable without damaging the pc board and sacrificing mechanical and electrical performance.



CONTACT POSITIONS	DIMENSION "A"
14	35.97 [1.416]
24	46.79 [1.842]
36	59.74 [2.352]
50	74.83 [2.946]
64	89.97 [3.542]

1 PLATED-THRU HOLES — 0.76-0.89 [.030-.035] DIA.
UNPLATED HOLES - 0.81-0.86 [.032-.034] DIA.

2 OPTIONAL 3.18 [.125] DIA. HOLE FOR MOUNTING WITH SELF-TAPPING SCREW

Figure 2 oad

The housings protect the contacts, align the contacts for mating, and provide electrical separation by use of ribs between the contact cavities. Mounting holes are provided for attachment hardware to secure the connector to the pc board and to mount locking hardware. Numbered contact cavity identification is provided at the beginning and the end of each row on the housing mating face. The housings are 94V-0 rated glass-filled polyester material. The receptacle housing has a slot in the center of the mating face, and the plug housing has a bar in the center of the mating face.

3. PRINTED CIRCUIT BOARD LAYOUT

A pc board of 1.57 to 3.18 mm [.062 to .125-inch] thickness is recommended. The pc board may have plated-thru or unplated holes. For plated-thru holes, termination may be accomplished either by press fitting the contacts in the holes, or by both press fitting and then soldering. For unplated holes, the contacts must be soldered after being press fitted.

Refer to Figure 2 for the suggested pc board layout dimensions.

4. NESTING FIXTURE LAYOUT

The nesting fixture provides a foundation for the pc board and protects the contact posts during insertion. The design of the nesting fixture involves two slots to be cut through the fixture. AMP does NOT manufacture or market nesting fixtures. Refer to Figure 3 for the suggested nesting fixture layout dimensions.

5. PANEL MOUNTING LAYOUT

The plug and receptacle connectors may be rear-panel mounted after being assembled onto the pc board. A panel of 1.57 mm [.062-inch] thickness is recommended for standard 4-40 hardware applications, or 1.57 to 2.36 mm [.062 to .093-inch] thickness for metric applications.

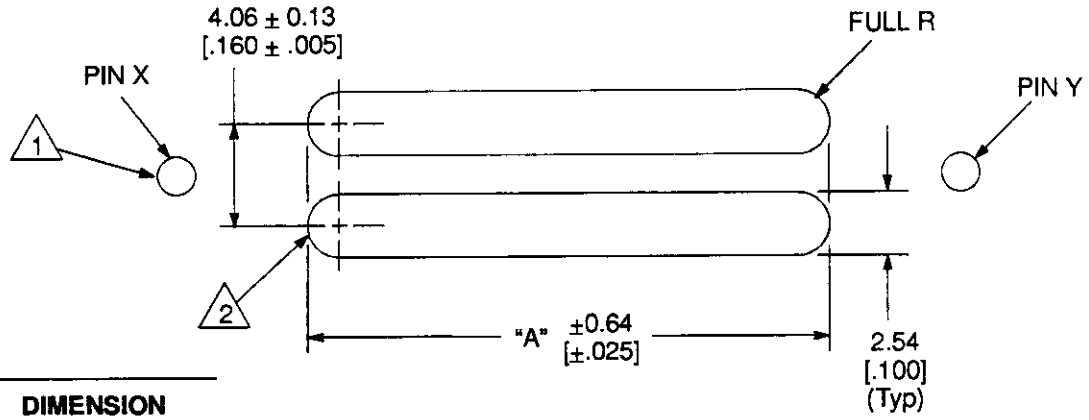
Refer to Figure 4 for the suggested panel mounting layout dimensions.

6. APPLICATION TOOLING

The ACTION PIN connectors do not require precision applicators to assemble them to pc boards. The contacts of the selected connector are aligned with the holes of a pc board backed by a nesting fixture. Then, the connector is pressed into place using any device that will apply sufficient force evenly distributed over the length of the housing. Since the assembly procedure is so simple, the need for precision tooling is eliminated. AMP Incorporated does not market an assembly applicator.

Certain parameters must be considered in the selection of an assembly applicator. The force required to insert the connectors varies slightly with the number of contact positions. Figure 5 presents the maximum force needed to insert the 14-, 24-, 36-, 50- and 64-position connectors.

The clearance required to position the connector and the pc board is a factor as well. Figure 6 presents dimensional guidelines for ACTION PIN connector arbor press
application.

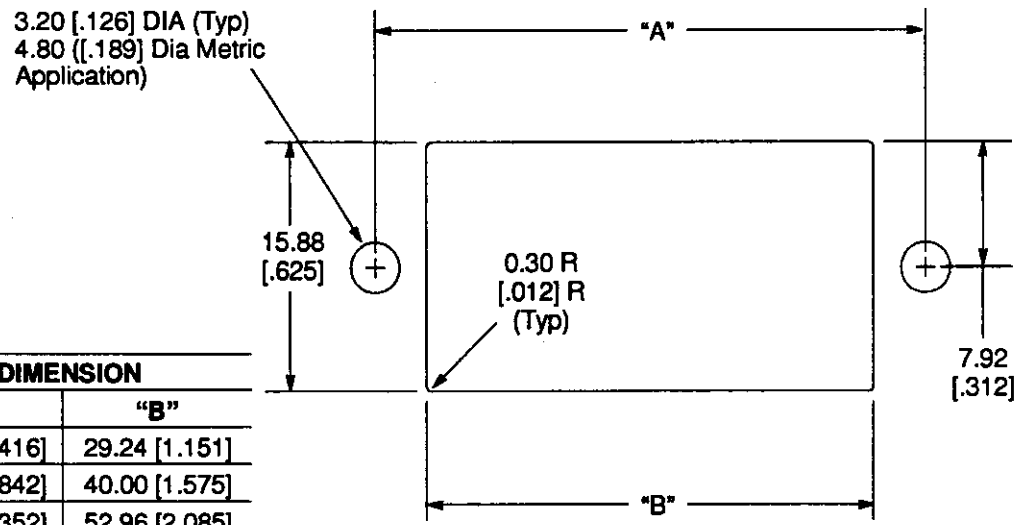


CONTACT POSITIONS	DIMENSION "A"
14	15.88 [0.625]
24	26.67 [1.050]
36	39.62 [1.560]
50	54.74 [2.155]
64	69.85 [2.750]

1 PINS X AND Y LOCATION AND SIZE SHALL BE DETERMINED BY CUSTOMER

2 SLOT DEPTH SHALL BE A MINIMUM OF 6.99 [.275] MINUS CUSTOMER PC BOARD THICKNESS

Figure 3 cad



CONTACT POSITIONS	DIMENSION "A"	DIMENSION "B"
14	35.97 [1.416]	29.24 [1.151]
24	46.79 [1.842]	40.00 [1.575]
36	59.74 [2.352]	52.96 [2.085]
50	74.83 [2.946]	68.58 [2.700]
64	89.97 [3.542]	83.19 [3.275]

Figure 4 cad

When selecting or designing an applicator, keep these parameters in mind.

CONTACT POSITIONS	MAXIMUM FORCE (NEWTON [lbs.])
14	1868 [420]
24	3202 [720]
36	4804 [1080]
50	6672 [1500]
64	8540 [1920]

Figure 5

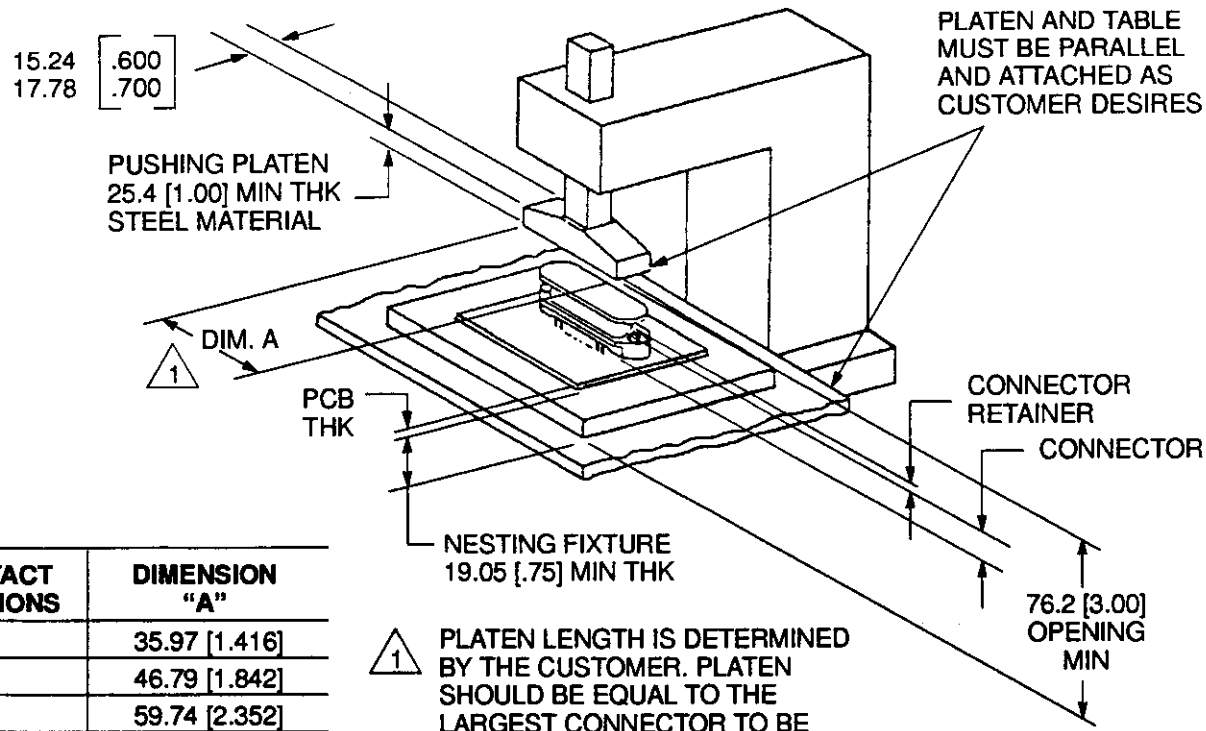
Following are two sources for arbor presses that adequately provide the forces and clearances recommended by AMP Incorporated.

Greenerd Press & Machine Co., Inc.
41 Crown Street
Nashua, NH 03061
(603) 889-4101

or

Dake Corporation
390 Robbins Road
Grand Haven, MI 49417
(616) 842-7110

AMP Incorporated does make various tooling available to perform specific functions of connector removal and repair. Refer to Figure 7 for description of various tooling available and the applicable AMP Instruction Sheet. Refer to the instruction sheet



CONTACT POSITIONS	DIMENSION "A"
14	35.97 [1.416]
24	46.79 [1.842]
36	59.74 [2.352]
50	74.83 [2.946]
64	89.97 [3.542]

1 PLATEN LENGTH IS DETERMINED BY THE CUSTOMER. PLATEN SHOULD BE EQUAL TO THE LARGEST CONNECTOR TO BE USED. SEE TABLE FOR PLATEN LENGTHS.

Figure 6 92-174

packaged with the tooling for specific procedures, general performance, and tooling certification.

TOOLING		INSTRUCTION SHEET
PART NO.	DESCRIPTION	
230529-1	Connector Removal Tool	IS 7996
380392-8	Contact Replacement Tool	IS 7998
230850-1	Contact Push Tip Assembly	IS 7998

Figure 7

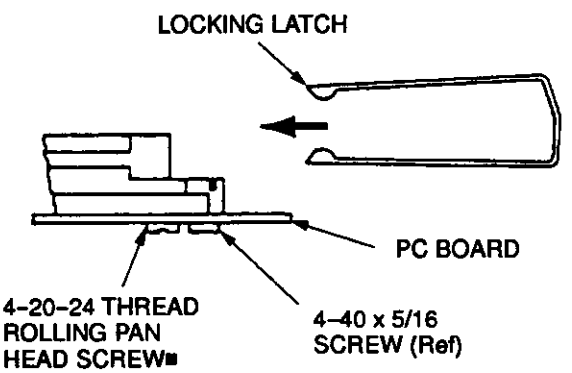
7. ATTACHMENT HARDWARE

CHAMP ACTION PIN locking hardware assemblies are designed to secure mated connectors (CHAMP cable connector to ACTION PIN pc board connector). Secure ACTION PIN connector to pc board using mounting screws indicated in Figure 8. The available locking hardware assemblies and applications are as follows.

A. Locking Latch (Figure 8)

The locking latch is a metal spring device used to lock mated connectors together (14-, 24-, 36-, and 50-position CHAMP-LOK* connector styles only). Pc board connector may be mounted to pc board by self-tapping screws or by 4-40x5/16 screws.

1. Slide locking latch onto plug.
2. Mate the cable connector with the pc board connector. Latch will open and close to lock plug to receptacle.



CONTACT POSITIONS	LOCKING LATCH
36 and 50	552723-1
14 and 24	552723-2

Figure 8 92-175

■ SCREW PART NO. 552820-1 FOR 1.57-2.36 [.062-.093] PC BOARD THICKNESS AND 552820-2 FOR 3.18 [.125] PC BOARD THICKNESS

B. Captive Screws (Figure 9)

Two captive screws are required per assembly.

1. Thread screws into cable connector.
2. Mate connectors and secure by threading screws through cable connector and into pc board connector.

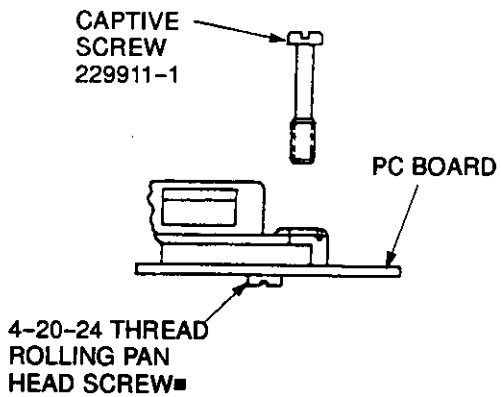


Figure 9 92-176

C. Rear-Panel-Mount Screw-Lock Kit (Figure 10)

This kit includes two threaded standoffs and two captive screws, and is used for rear-panel-mount applications.

1. Mount pc board connector to rear of panel using the two threaded standoffs.
2. Mate connectors and secure by threading screws through cable connector and into standoffs.

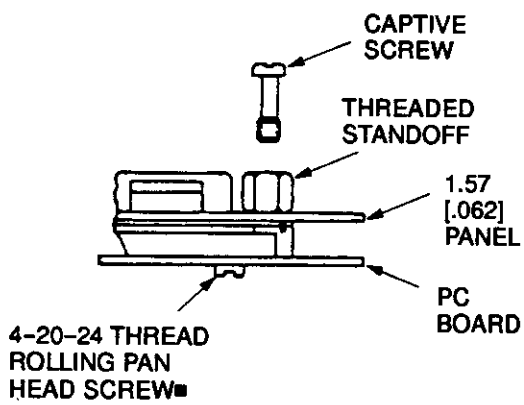


Figure 10 92-177

D. IEEE No. 488-1978 Screw Lock Kit (Figure 11)

This kit includes metric hardware of two threaded inserts and two threaded standoffs. This kit is used for 24-position pc board receptacle connector, 553609-1 only.

1. Install threaded insert through pc board and into connector mounting flange.
2. For rear-panel-mount application, secure connector to pc board and to panel using the two threaded standoffs (kit part number 552862-2).

For pc board-mount application, secure connector to pc board using the two threaded standoffs (kit part number 552862-1).

3. Mate connectors and secure by threading screws in cable connector into standoffs on pc board connector.

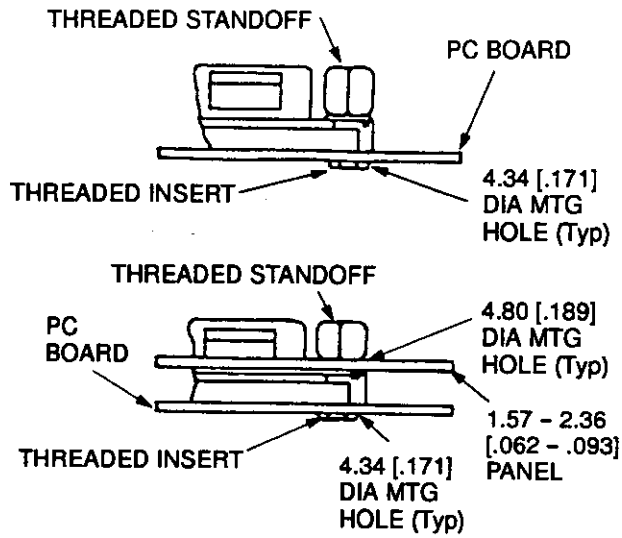


Figure 11 92-178

E. Bail-Lock Kit (Figure 12)

This kit includes two screws, two lockwashers, and two bail clips. The kit is used when a plug cable connector (with open end slotted flanges) is to mate with a receptacle pc board connector.

1. Make sure bail clips are turned outboard on mounting flanges of receptacle connector. Assemble with screws and lockwashers.
2. Mate connectors and press bail into open ends of the flanges until they are secured.

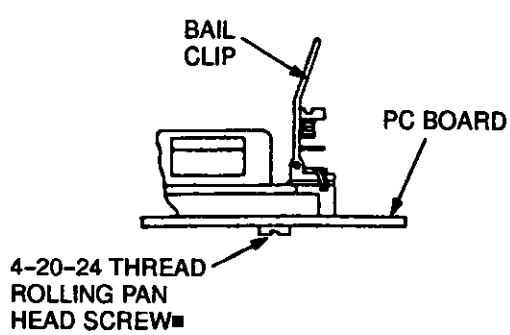


Figure 12 92-179

F. Bent-Bail-Lock Kit (Figure 13)

Includes two screws, two lockwashers, and two bail clips (one 90° bent). This kit is used when a plug cable connector (with open end flanges and a 90° strain-relief cover) is to mate with a receptacle pc board connector.

1. Make sure bail clips are turned outboard on mounting flanges of receptacle connector. Assemble with screws and lockwashers.
2. Mate connectors and press bail into open ends of the flanges until they are secured.

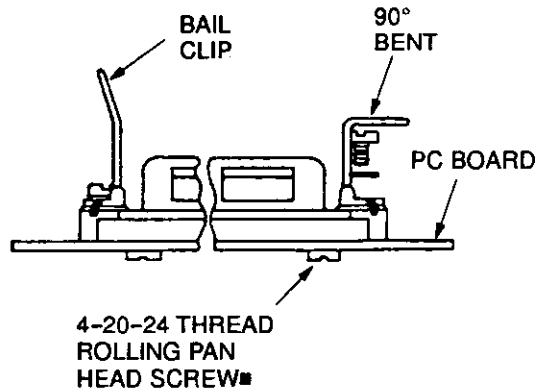


Figure 13 92-180