

WIRE-TO-BOARD APPLICATIONS								BOARD-TO-BOARD APPLICATIONS					
COMPONENTS				ACCESSORIES				CONNECTORS*					
HOUSINGS†		WIRE SIZE	INS DIA	CONTACT		KEYING PLUGS		LOCKING PLUGS		90° SOLDER TINES		180° SOLDER TINES	
W/MTG EARS†	W/O MTG EARS†			LP	STRIP	SINGLE LATCH	DOUBLE LATCH	SINGLE CIRCUIT	DOUBLE CIRCUIT	W/MTG EARS	W/O MTG EARS	W/MTG EARS	W/O MTG EARS
640137	640136	30 to 24	.040 to .057	--	640020	640180	480600	640170	350555	640141	640134	640140	640133
	480651*	24 to 18	.100 Max	350011	61668 350194								

\*AVAILABLE IN 6 THROUGH 24 POSITIONS (Depending on Dash Number).  
 \*AVAILABLE IN 2 THROUGH 24 POSITIONS (Depending on Dash Number).  
 \*FOR TWO SIDED BOARDS (12 Positions Only).  
 ■ ENLARGED FOR CLARITY.

Fig. 1

**1. INTRODUCTION**

This instruction sheet (IS) covers AMP Bifurcated Leaf Contact Connectors designed for printed circuit (pc) board applications. See Figure 1 for listing of connectors, components, and accessories.

Read this material thoroughly before selecting or assembling any components.

**NOTE** All dimensions on this sheet are in inches.

**2. DESCRIPTION**

A connector is composed of a housing and contacts. They are available with preloaded 90° and 180° solder tines for board-to-board applications, and as individual components consisting of a housing and crimp-type contacts for wire-to-board applications.

The connectors will accept pc boards of .062 ± .0075 thickness (including pc pads). Single-sided connec-

tors have contact centerline spacing of .156 in. and double-sided connectors have contact centerline spacing on .188 in. The total number of contact positions range from 2 to 24. See Figure 1.

Housings have been designed with and without mounting ears for 90° and 180° mounting to a panel or pc board. Each features a contact locking lance cavity, contact barriers, and a closed-end pc board (card entry) slot. The crimp-type contact housings have numbers identifying each cavity on the back, and solder tine housings have pc board standoffs molded on the bottom. The different base numbers indicate variations in the housing materials and the dash numbers reflect the quantity of contact positions in the housing. All housings have a temperature rating of -55° to +85°C and a maximum current/voltage rating of 250 Vac at 6 amperes. See Figure 1.

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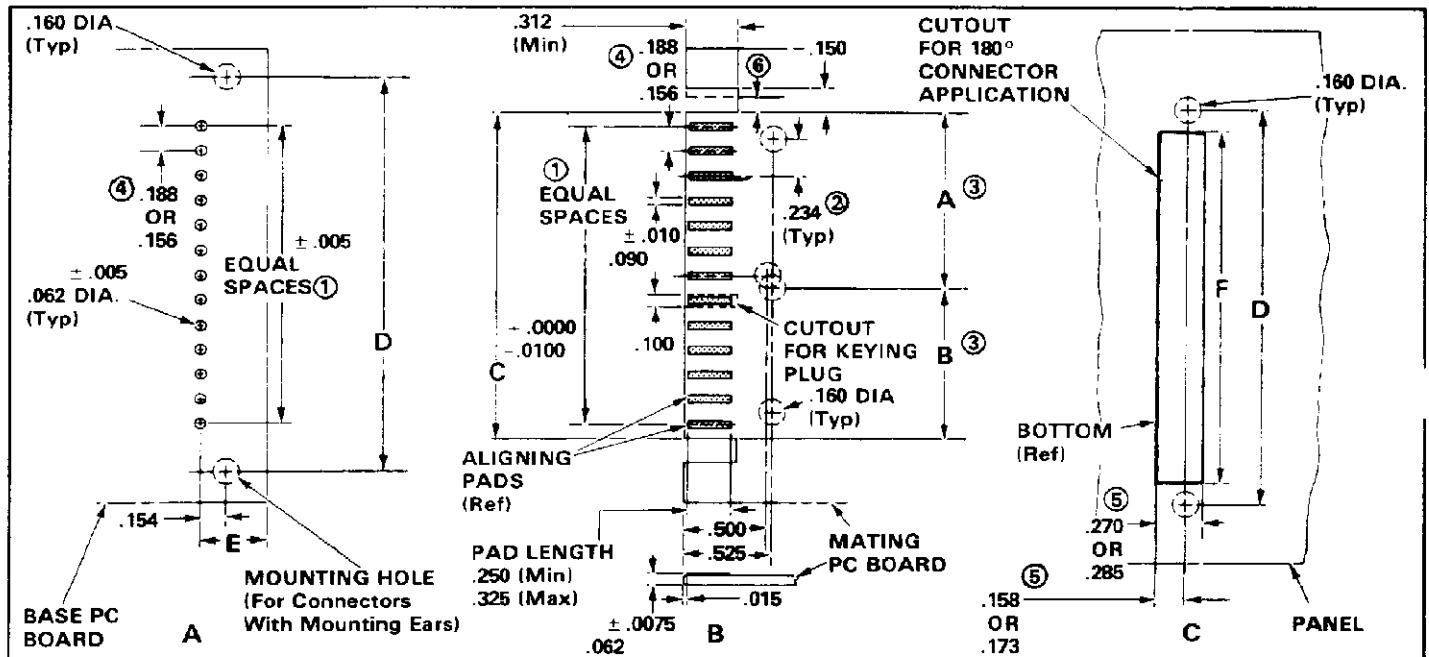
Contact design features include two bifurcated spring members, a locking lance, and stabilizers along the sides. The solder tine contacts are available for 90° and 180° pc board applications, and the crimp-type contacts are available to accept a wire range of 18 to 30 AWG with an insulation diameter to .100 in. See Figure 1.

Accessories include two styles of on-contact keying plugs which provide polarization for a connector, and two styles of locking plugs which are used to secure the mating pc board. The keying plugs with a single locking latch locks inside the housing and those with double locking latches lock over the back of the housing.

3. INSTALLATION

A. Connectors with Solder Tines

1. Determine position of pc boards — if pc boards are to be parallel to each other, a connector with 90° solder tines will be needed, and if pc boards are to be 90° to each other, a connector with 180° solder tines will be needed.
2. Make a hole layout on the base pc board using the dimensions shown in Figure 2, A.
3. Make a pad layout on the mating pc board using the dimensions shown in Figure 2, B.
4. Insert the solder tines into the pc board until the standoffs bottom on the board.



TOTAL CIRCUIT POSITIONS	ACTIVE CIRCUITS		DIMENSIONS						
	ONE PLUG	TWO PLUGS	DOUBLE CIRCUIT LOCKING PLUGS		MTG HOLES	180° CONT.	90° CONT.	CUT-OUT	
			A	B					C
2	---	---	---	---	---	.766	.204	.406	500
3	---	---	---	---	---	.922			656
4	---	---	---	---	---	1.078			812
5	---	---	---	---	---	1.235			969
6	---	---	---	---	---	1.391			1,125
7	5		.635	.479	1.114	1.547			1,281
8	6		.635	.635	1.270	1.703			1,437
9	7		.792	.635	1.427	1.860			1,594
10	8		.792	.791	1.583	2.016			1,750
11	9	↓	.948	.791	1.739	2.172			1,906
12	10	8	.948	.947	1.895	2.328			2,062
13	11	9	1.105	.947	2.052	2.485			2,219
14	12	10	1.105	1.103	2.208	2.641			2,375
15	13	11	1.261	1.103	2.364	2.797			2,531
16	14	12	1.261	1.260	2.520	2.953			2,687
17	15	13	1.417	1.260	2.677	3.110			2,844
18	16	14	1.417	1.416	2.833	3.266			3,000
19	17	15	1.573	1.416	2.989	3.422			3,156
20	18	16	1.573	1.572	3.145	3.578			3,312
21	19	17	1.730	1.572	3.302	3.735			3,469
22	20	18	1.730	1.728	3.458	3.891			3,625
23	21	19	1.886	1.728	3.614	4.047			3,781
24	22	20	1.886	1.884	3.770	4.203			3,937

NOTES

- ① Total number of contact solder tines, minus one (1), times contact centerline spacing (.156 or .188).
- ② Two holes for two double-circuit locking plugs. When this application is used, four (two at each end) aligning circuit pad locations will NOT be active.
- ③ One hole for a single-circuit locking plug. When this application is used, two aligning circuit pads will NOT be active.
- ④ Use .156 for single-sided connectors and .188 for double-sided connectors.
- ⑤ Dimension .158 for housings with base part number of 350350 and dimension .173 for housings with base part number of 640137.
- ⑥ Cutout for polarized housing which has a thinner end on left side (side with highest numbered cavity). Use dimension .076 to .086 in. when polarization is desired, otherwise, use .150 dimension for slots at both ends.

Fig. 2

5. Make sure the standoffs remain against the pc board and solder the tines to the pc board using hand or wave soldering techniques.
6. Clean the soldered assembly with a solvent that will NOT affect plastic materials.
7. If applicable, secure connector to pc board with screws, bolts and nuts, rivets or other suitable hardware.

#### B. Connectors with Crimp-Type Contacts

Determine whether the connector is to be used for a free-hanging or panel-mounted application. Then determine the wire size and number of contact positions required for your application.

1. Refer to the chart in Figure 1 and select the proper housing and contacts. If the connector is to be panel mounted, make a layout on the panel using the dimensions in Figure 2,C.
2. Crimp the contacts according to the instructions packaged with the crimping tool.

#### NOTE

*Terminate loose-piece contacts with AMP Hand Crimping Tool 90123-2 (IS 7123) and strip contacts with one of the various AMP terminating machines (consult your local AMP representative for the machine that will best suit your needs).*

3. Align terminated contact with back of contact cavity so the bifurcated leaf members will be toward the board slot. See Figure 1.

4. Insert contact straight into the housing until bottomed, then pull back lightly on wire to be sure the contact is locked in place.

#### 4. CONTACT EXTRACTION (Figure 3)

The contact locking lance can be released through the front of the housing and the contact removed from the back of the housing with the use of AMP Extraction Tool 457241-1. Proceed as follows:

1. Align the lance release tip with the applicable locking lance slot in the front of the housing.
2. Insert the tip straight into the slot until bottomed and, holding the tool in this position, depress the handle to start the contact out the back of the housing.
3. Remove the tool from the front of the housing and pull the contact out the back of the housing.

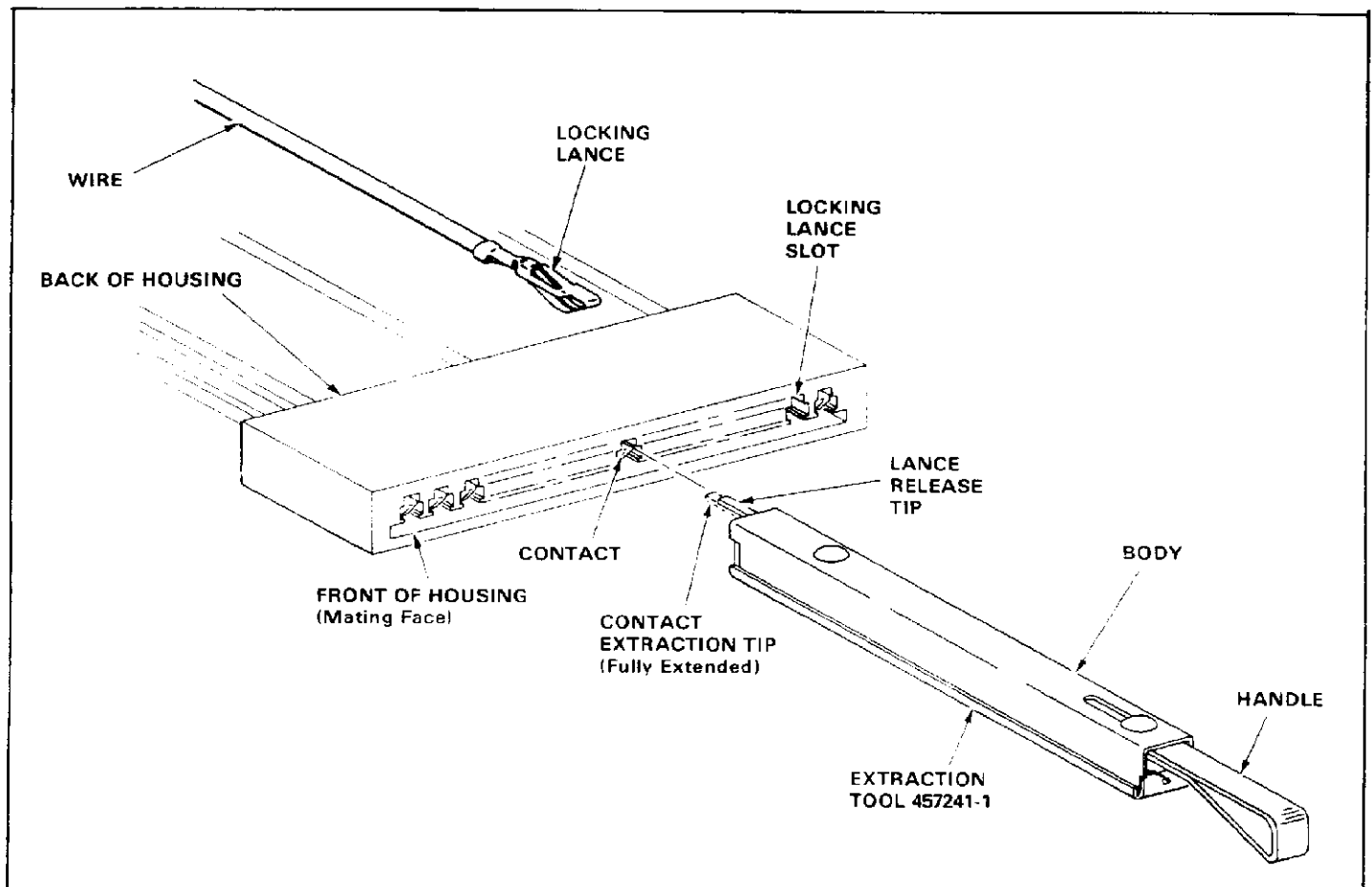


Fig. 3

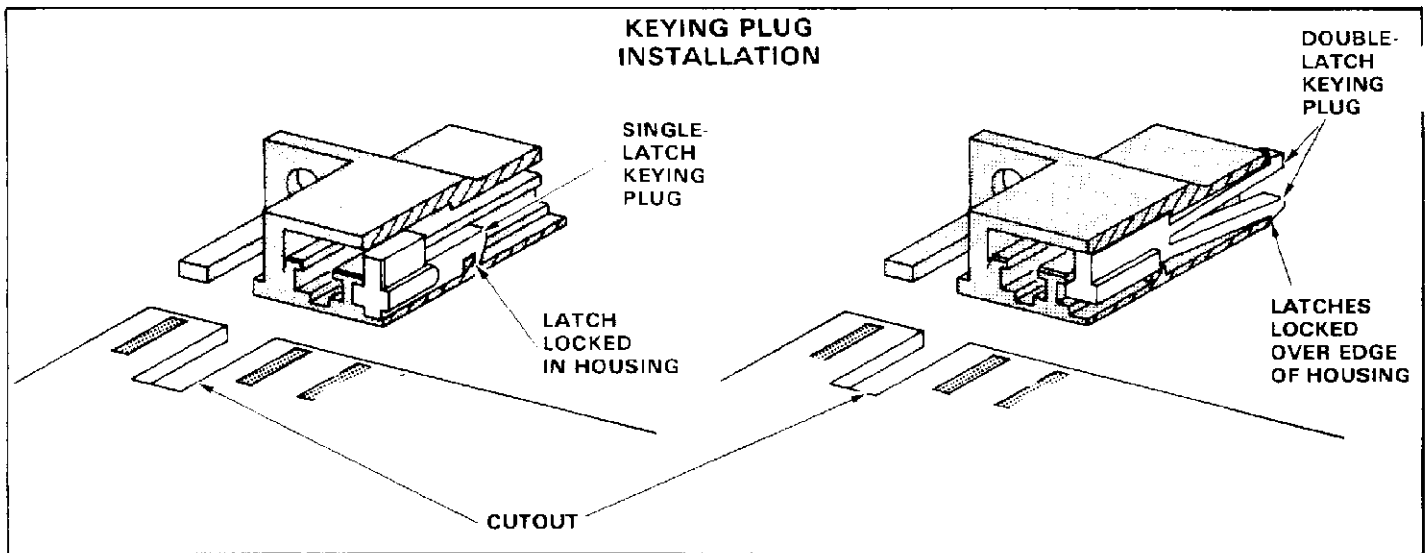


Fig. 4

5. INSTALLING ACCESSORIES

A. Keying Plugs

The cavity into which the plug is to be installed must be empty.

1. Select the keying plug best suited for your application. See Figure 1.
2. Align the keying plug with the front of the cavity — the locking tabs must be turned toward the outside of the housing.
3. Insert the keying plug straight into the cavity until bottomed, then pull back lightly to be sure the plug is locked in position. See Figure 4.
4. Make a hole in the mating pc board to correspond with the locking plug hole dimensions in Figure 2,B.

B. Locking Plugs

The cavity into which the locking plugs are to be inserted must be empty. The double locking plug requires two empty cavities and the single locking plug requires only one cavity.

1. Select the type of locking plug required for your application from Figure 1.
2. Align the locking plug with the front of the front of the cavity.
3. Insert the locking plug into the cavity until it bottoms, then pull back lightly to be sure the plug is locked in position. See Figure 5.

**NOTE**

*When mating, make sure the locking plug engages the tab hole in the pc board.*

Locking plugs and keying plugs can be removed with a small blunt-tipped tool by depressing the locking latch (or latches) at the back of the housing.

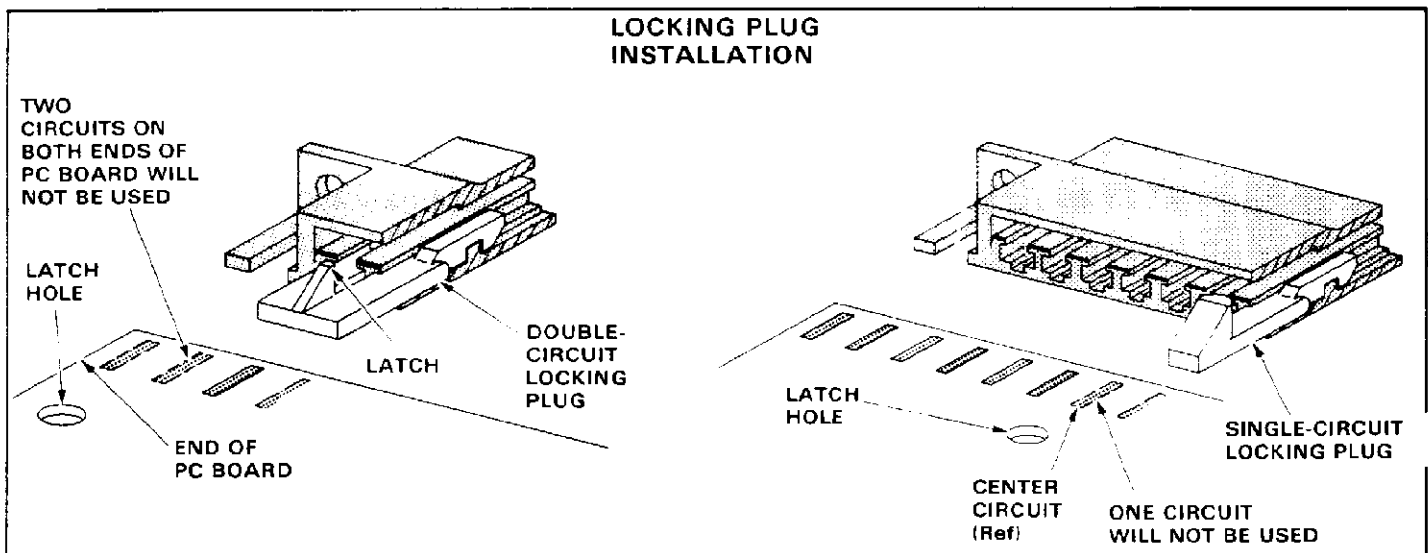


Fig. 5