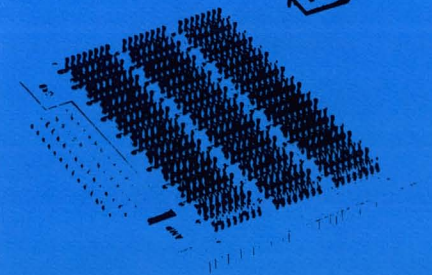
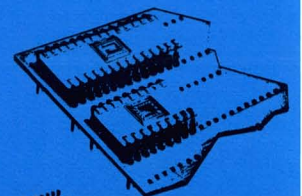
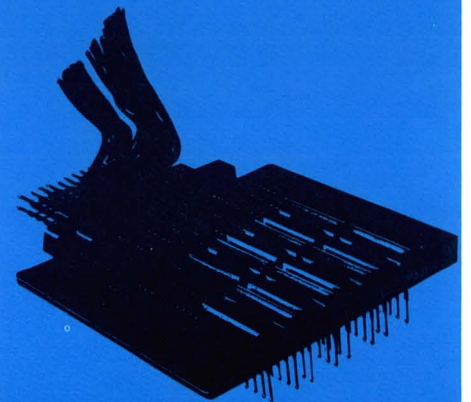


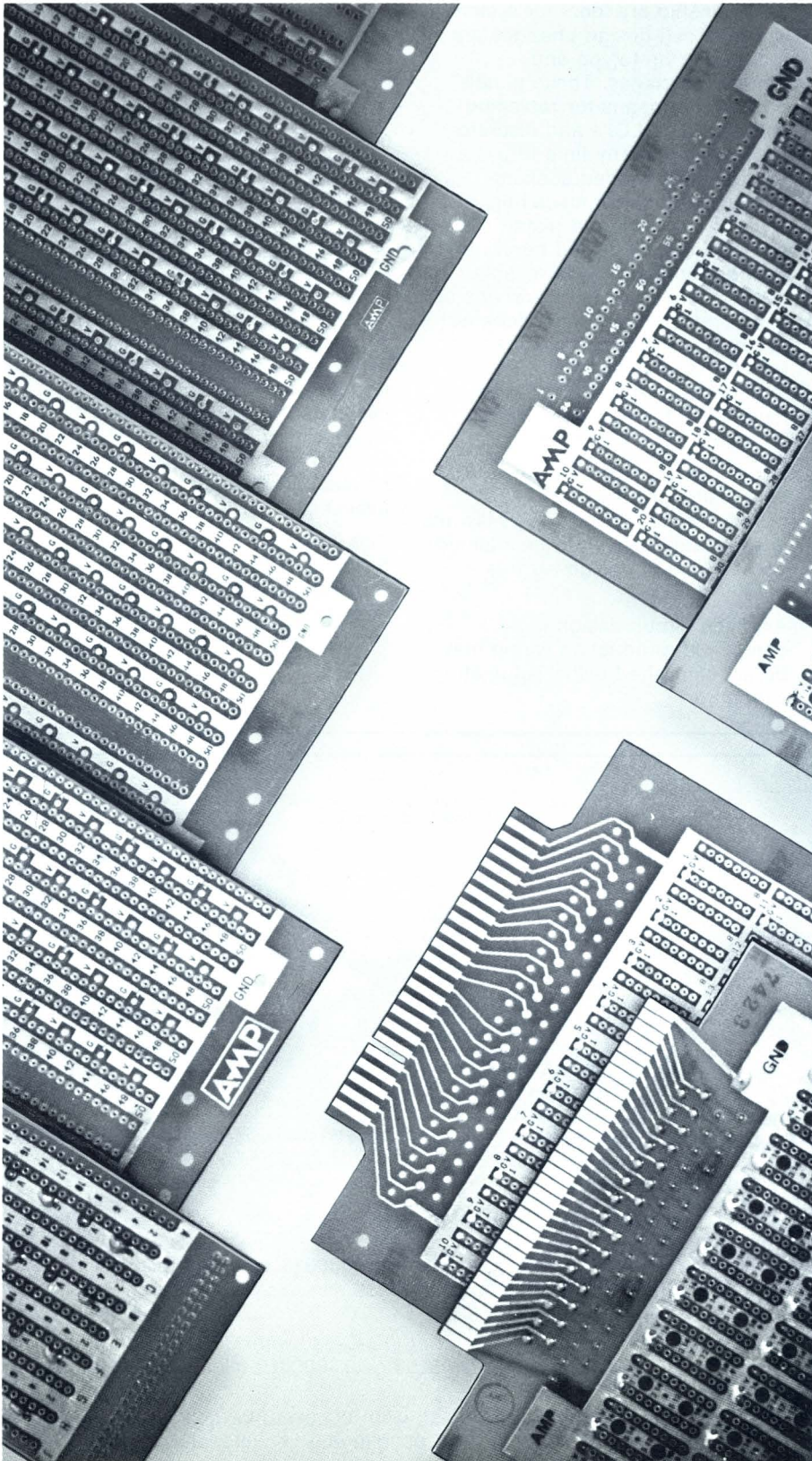
AMP offers both standard and custom designed panels, prewired or unwired, for the widest range of IC packaging requirements. This section describes the types of panels available and the interconnecting devices used to meet specific circuit applications. A selection of products is also available for in-plant panel fabrication.

Standard IC panels ..... 15-3  
Panels and components featuring action pin ..... 15-9  
AMP ECONOMATE Panels and Components

## PRINTED CIRCUIT PANELS AND COMPONENTS







## AMP Standard IC Panels

### Features

- Greater circuit design flexibility
- IC's and discrete components replaced or changed readily
- Closed entry, spring loaded sockets provide excellent retention and electrical continuity
- Machined posted contacts permit speedy interconnections using wrap-type termination
- Space saving thru compact design
- Materials meet MIL Specifications
- Withstands severe shock and vibration
- Choice of takeoff connections

Note: All dimensions in inches

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

## Packaging Panels for Integrated Circuits

### Standard IC Panels

AMP Dual-In-Line Packaging Panels of quality materials and workmanship are ideal for systems where circuit design changes are required in prototype and production stages. These panels provide the means for replacing and changing I.C.'s and discrete components at any time thru the use of spring loaded sockets. Closed entry screw machined sockets made of gold plated brass and having gold plated beryllium copper springs provide reliable contact thru repeated insertions of components. Interconnections with the posted sockets are made quickly using wrap type terminations. This method also lends itself to fast and easy changes of backplane wiring.

In using these standard IC panels long waits for design and production of revised circuit layouts is eliminated. Quality is maintained and chance of design error is greatly reduced.

After the circuit design is completed, production wiring may be accomplished using automatic wrapping.

These panels are designed to conserve as much valuable space as possible. They may be mounted vertically or horizontally depending on function and configuration of components.

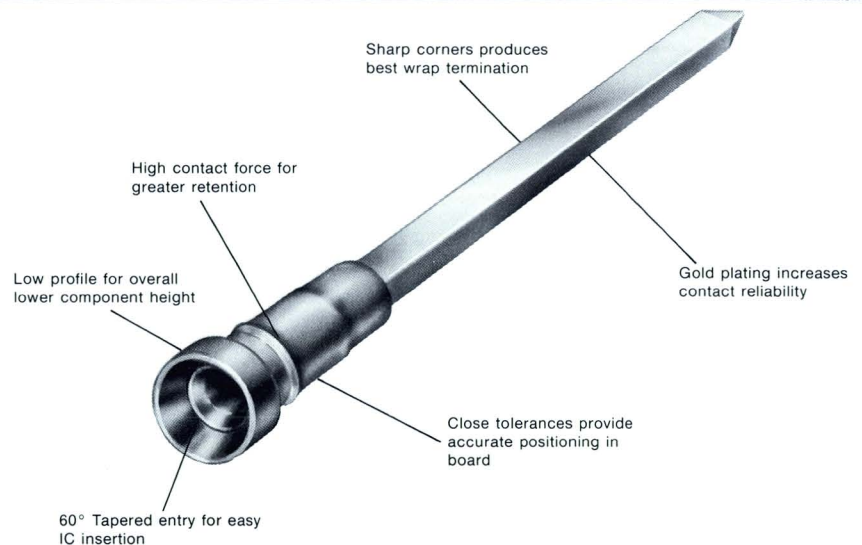
Having a panel with a board on one plane and the capability of point-to-point wiring with posts for three levels of wrap-type terminations speeds and simplifies changes during production. This helps reduce the overall cost of the end product.

Finished product costs can be more accurately computed when variables such as circuit changes and downtime are virtually eliminated through the use of standard panels. This is possible because of the fixed cost of the panels and the "off the shelf" availability.

The standard panel concept is further enhanced by in-the-field repairability. Complete printed circuit cards are not needed to repair equipment in the field.

### Precision Machined Socket

### Material

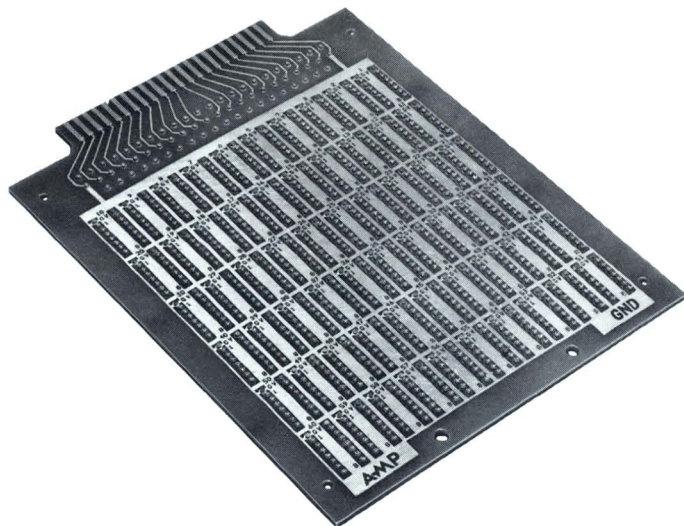


**Socket Body** —Brass per QQ-B-626 with .000010 min. gold plate per MIL-G-45204 over .000050 min. nickel plate per QQ-N-290.

**Socket Spring**—Beryllium copper per QQ-C-530 with .000030 min. gold plate per MIL-G-45204 over .000050 min. nickel plate per QQ-N-290.

**Feed-to-Post** —Brass per QQ-B-626 with .000010 min. gold plate per MIL-G-45204 over .000050 min. nickel plate per QQ-N-290.

DIP  
IC Panel  
Assemblies



**Material:**

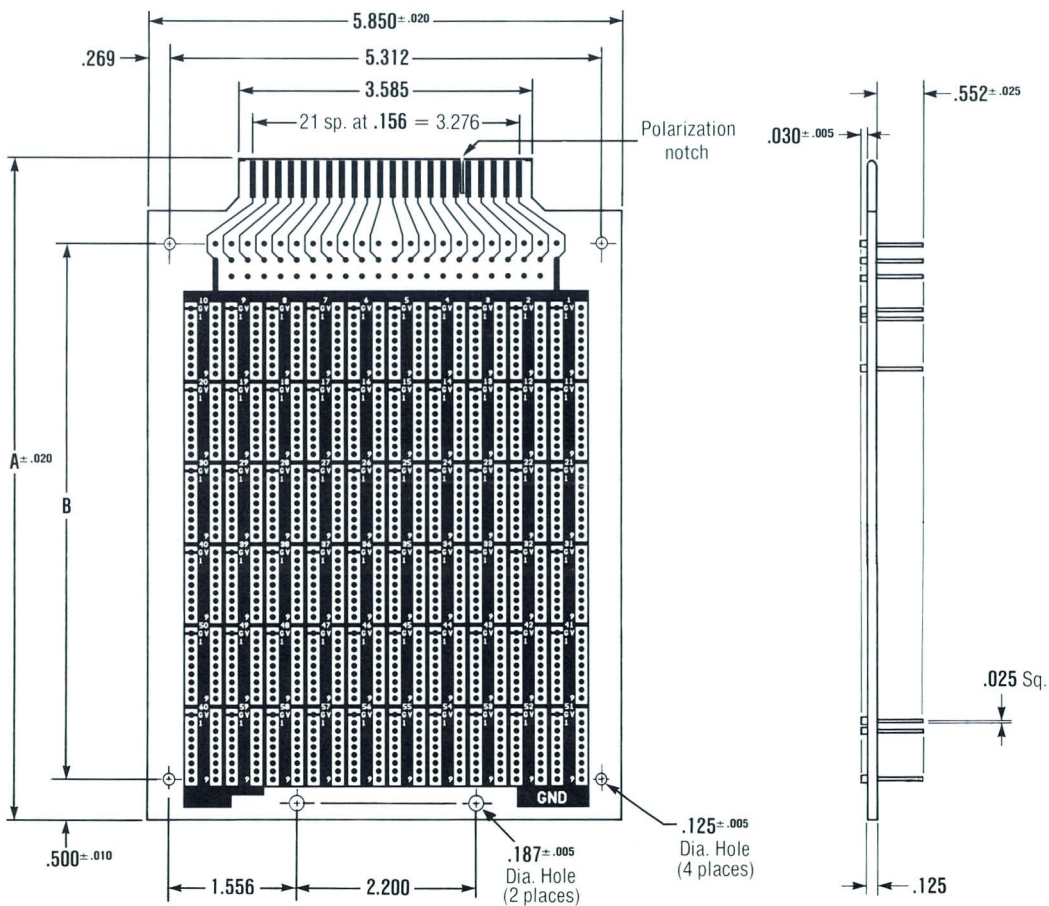
Printed Wiring Board . . . . .125 FR-4 glass epoxy, 2 oz. copper clad, 2 sides, fused tin-lead plating except connector fingers which have .000050 min. gold plate per MIL-G-45204 over .000200 min. nickel plate per QQ-N-290.

Socket Body . . . . . Brass with gold over nickel plate.

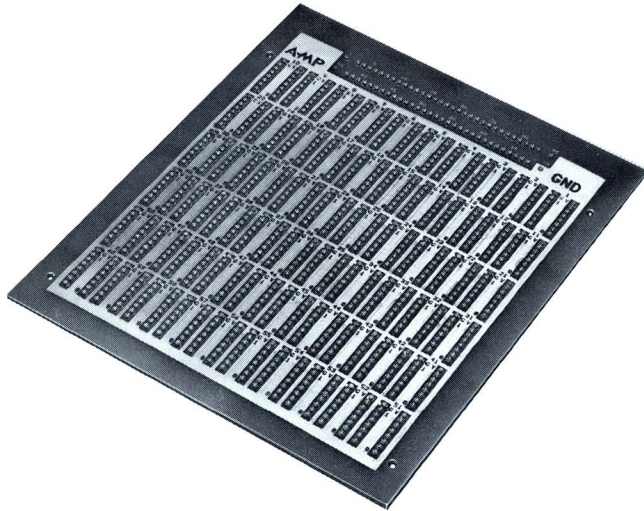
Socket Spring . . . . . Beryllium copper with gold over nickel plate.

Feed-to-Post . . . . . Brass with gold over nickel plate.

No. of IC Leads	No. of DIP Positions	Dimensions		Part Number
		A	B	
14	60	7.500	6.000	117397-1
	30	4.800	3.300	117397-2
16	60	8.100	6.600	117397-3
	30	5.100	3.600	117397-4



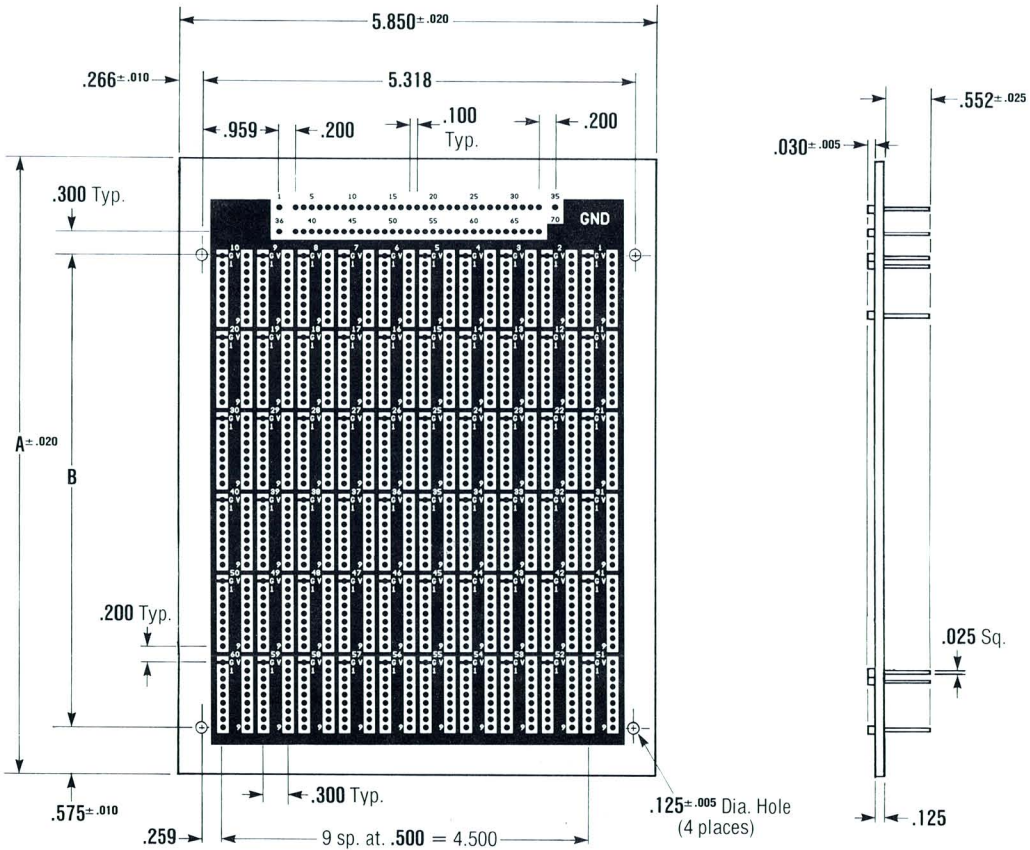
## DIP IC Panel Assemblies



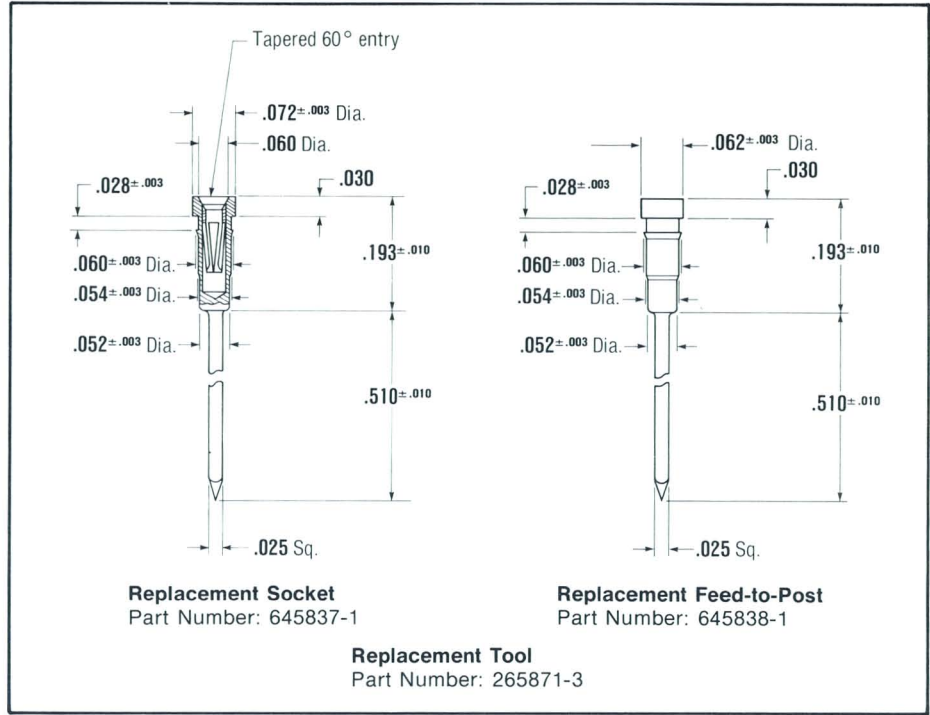
**Material:**

- Printed Wiring Board . . . . .125 FR-4 glass epoxy, 2 oz. copper clad, 2 sides, fused tin-lead plating.
- Socket Body . . . . . Brass with gold over nickel plate.
- Socket Spring . . . . . Beryllium copper with gold over nickel plate.
- Feed-to-Post . . . . . Brass with gold over nickel plate.

No. of IC Leads	No. of DIP Positions	Dimensions		Part Number
		A	B	
14	60	7.000	5.200	117396-1
	30	5.200	2.500	117396-2
16	60	7.600	5.800	117396-3
	30	4.600	2.800	117396-4

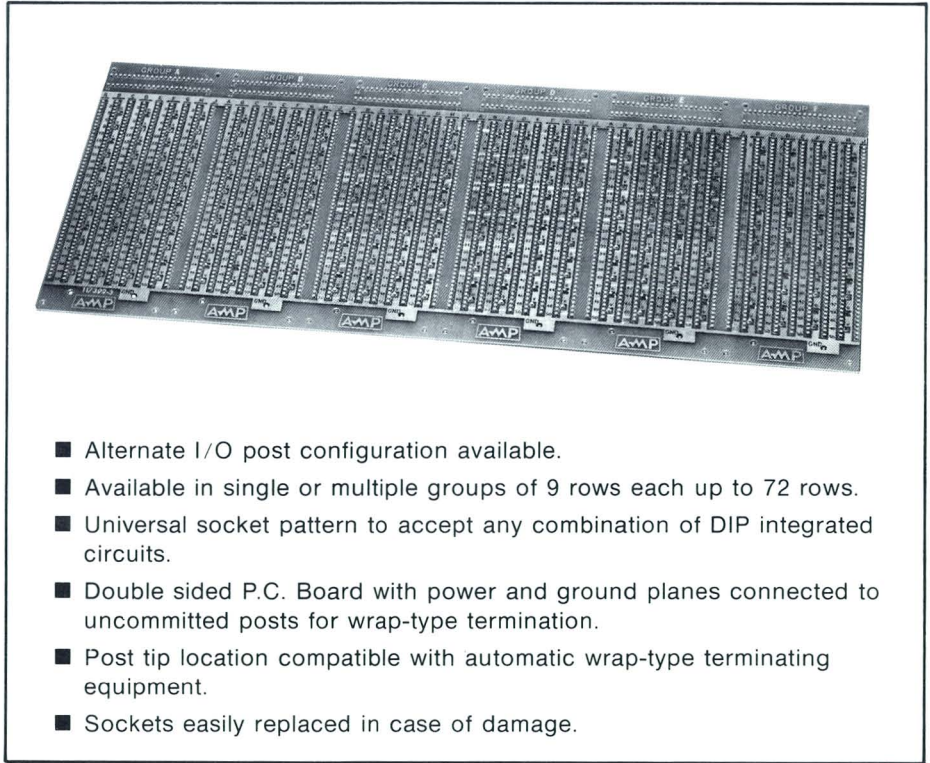


Replacement  
Socket and  
Feed-to-Post

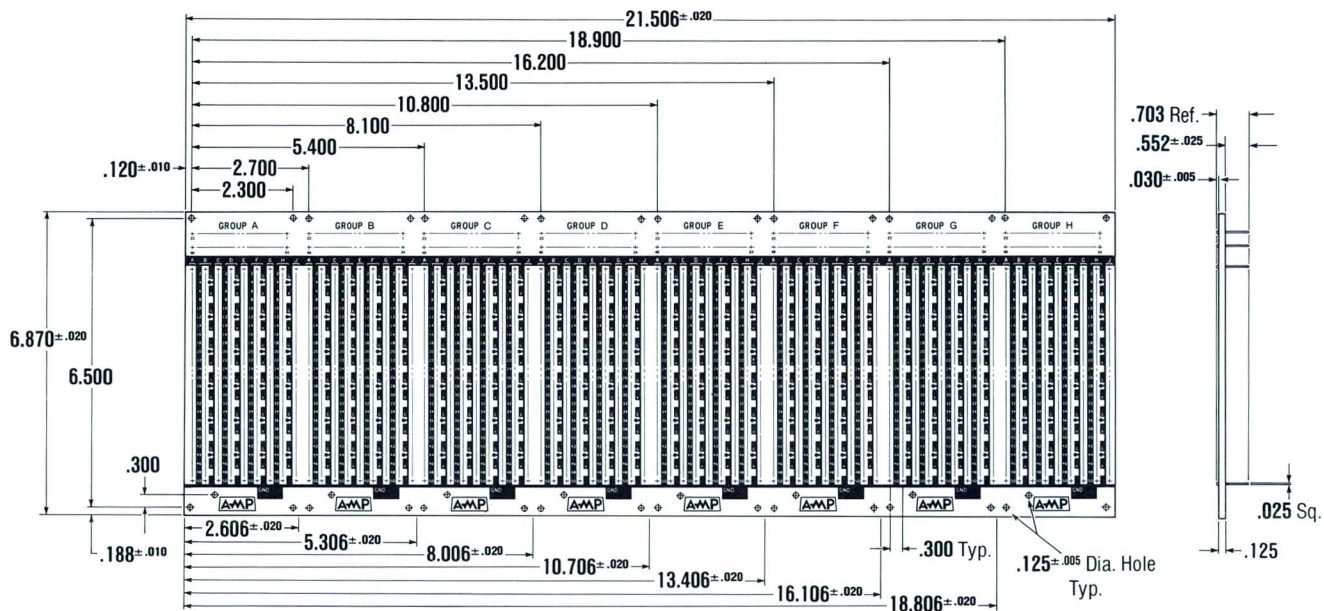


Universal  
IC Panel  
Assembly

Features



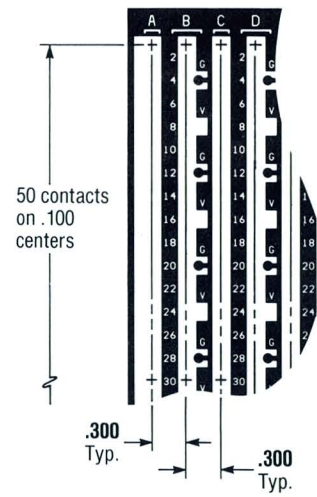
## Universal IC Panel Assembly



**Material:**

- Printed Wiring Board . . . . . 125 FR-4 glass epoxy, 2 oz. copper clad, 2 sides fused tin-lead plating.
- Socket Body . . . . . Brass with gold over nickel plate.
- Socket Spring . . . . . Beryllium copper with gold over nickel plate.
- Feed-to-Post . . . . . Brass with gold over nickel plate.

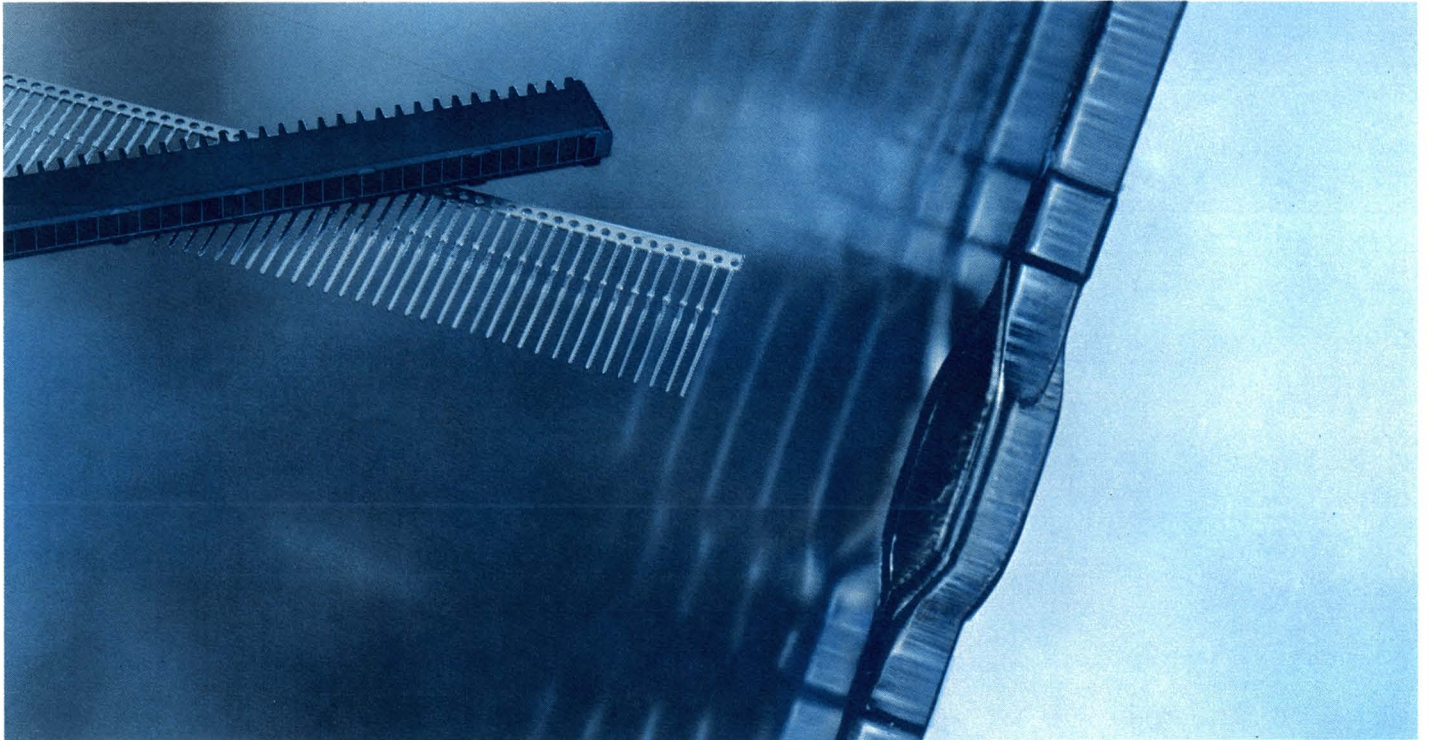
No. of Groups	No. of Rows	Part Number
1	9	117392-8
2	18	117392-7
3	27	117392-6
4	36	117392-5
5	45	117392-4
6	54	117392-3
7	63	117392-2
8	72	117392-1



Power and ground planes connected to uncommitted posts for wrap-type termination.



## AMP ECONOMATE Panels and Components Featuring Action Pin



## AMP ECONOMATE Panels and Components Featuring Action Pin

### General Information

AMP ECONOMATE Panels are designed and manufactured to your specifications. Basically these panels consist of two elements; first, the printed circuit board—either two-sided or multilayer with plated through holes; the second element is AMP's unique contact with action pin design for positive retention in the printed circuit board. When inserted into the plated through hole, the action pin section of the contact reacts as the two spring members compress in opposite directions. The memory of the spring members exert sufficient force against the plated through hole to produce a gas tight interface. To prevent the possibility of rupture or tearing of the plated through hole the action pin is designed with rounded corners for a smooth, even entry into the board. In applications where hostile environmental conditions exist, the printed circuit board, with tin/lead plating, can be fused after the action pin contacts are inserted into the plated through hole. This delayed fusing enhances stability and electrical continuity under these conditions.

The action pin design is incorporated in a variety of panel components including bifurcated leaf card edge contacts, SEM/NAFI style blade and receptacle contacts and .025" sq. I/O posts.

Depending on your requirements, AMP will assemble ECONOMATE Panels in sizes up to 22" x 28" using printed boards from .093" to .160" thick.

For customers having internal panel

fabrication capabilities AMP will supply the action pin components and tooling to meet your application. For example, if you require a large quantity of back plane panels, action pin contacts are available in strip form, for high speed machine insertion. Contact strips are available in a wide range of lengths or can be supplied on reels and cut to lengths as required. Rates up to 10,000 insertions per hour can be obtained using a variety of AMP Insertion equipment. For prototype and limited production simple manual tooling can be provided.

Regardless of your application requirement, the AMP team of sales, field and staff engineers is available to help you establish design parameters, solve hardware problems, prepare wiring programs—all to assure that you achieve the maximum accuracy and efficiency in your back plane packaging.

To provide a complete connection package AMP has available various connectors to mate with the .025" sq. post. Specifications of these connectors are documented in the following catalogs:

Flexible Flat Cable Connectors  
73-151

AMP Latch Connectors 73-177

AMPMODU Interconnection System  
73-142

AMPMODU Locking Clip Connectors  
73-209

Commercial Interconnection System  
73-108

Tandem Spring Receptacle and Shunt  
Assembly 74-252

Note: All dimensions in inches

Specifications subject to change. Consult  
AMP Incorporated for latest design  
specifications.

**AMP ECONOMATE I  
Characteristics**

**Electrical:**

Contact Resistance—8 milliohms, max.  
Continuous Current Rating—3 amperes  
Insulation Resistance—2,000 megohms, min.

**Physical:**

Insertion Force—16 oz. per contact pair, max.  
Extraction Force—1 oz. per contact pair, min.  
Contact Retention in Printed Circuit Board—7 lbs., min.  
Operating Temperature— -65°C to +125°C

AMP Specification 108-26001

**AMP ECONOMATE II  
Characteristics**

**Electrical:**

Contact resistance—8 milliohms, max.  
Continuous Current Rating—3 amperes  
Insulation Resistance—25,000 megohms, min.

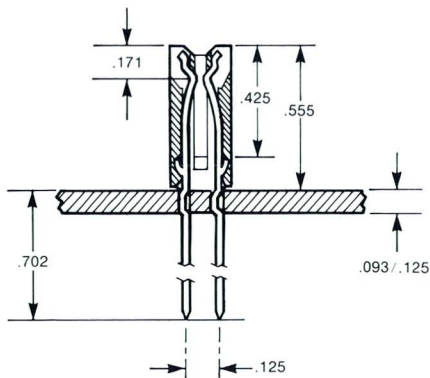
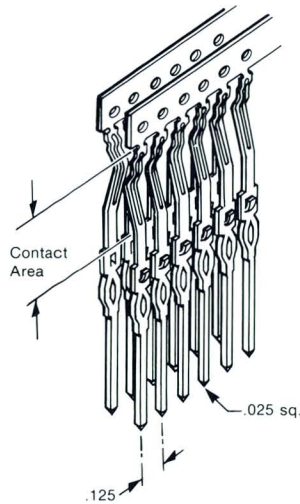
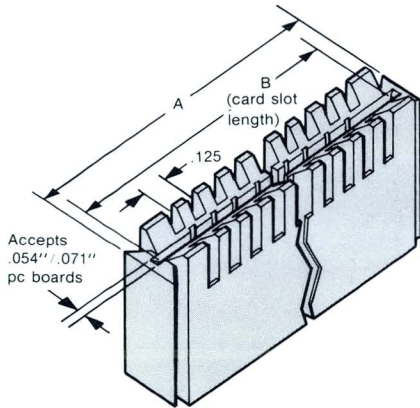
**Physical:**

Insertion Force—10 oz. per contact, max.  
Extraction Force—2 oz. per contact, min.  
Temperature— -55°C to +105°C

AMP Specification 108-26002 Engineering Test Report GPR-575-100

## AMP ECONOMATE I Printed Circuit Connectors

### .125 x .125 Post Centerline Spacing



Inter Contact Keying Plug  
Part Number: 117646-1

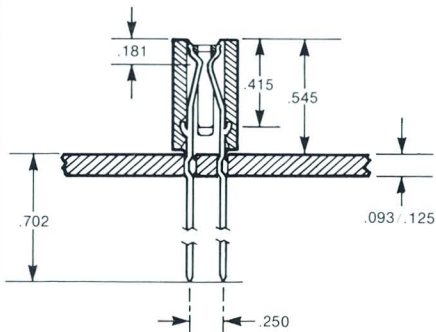
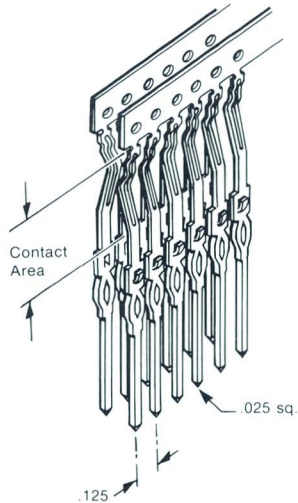
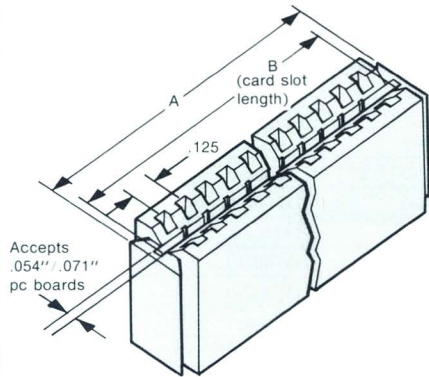
Recommended Hole Size:  
Non plated thru hole—.040<sup>±.001</sup>  
Plated thru hole—.039<sup>±.003</sup>

**Material:**  
Housing—Glass filled Nylon, Black  
Contact—CDA Copper Alloy 725  
Finish: Contact area—Gold plate per MIL-G-45204 (see table for thicknesses) over nickel plate per QQ-N-290 .000100 min. thk.

Remainder of contact—Gold plate per MIL-G-45204 .000005 min. thk. over nickel plate per QQ-N-290 .000100 min. thk.

No. of Dual Positions	Housing		Contact Strips (2 strips required per housing)		
	A	B	Part Number	.000015 Gold in contact area	.000030 Gold in contact area
15	2.110	1.980	1-117796-5	1-117799-4	117826-1
16	2.235	2.105	1-117796-8	1-117799-7	117826-2
17	2.360	2.230	1-117796-9	1-117799-8	117826-3
18	2.485	2.355	2-117796-0	1-117799-9	117826-4
19	2.610	2.480	2-117796-1	2-117799-0	117826-5
20	2.735	2.605	1-117796-6	1-117799-5	117826-6
21	2.860	2.730	2-117796-2	2-117799-1	117826-7
22	2.985	2.855	117796-1	117799-5	117826-8
23	3.110	2.980	2-117796-3	2-117799-2	117826-9
24	3.235	3.105	2-117796-4	2-117799-3	1-117826-0
25	3.360	3.230	1-117796-7	1-117799-6	1-117826-1
26	3.485	3.355	2-117796-5	2-117799-4	1-117826-2
27	3.610	3.480	2-117796-6	2-117799-5	1-117826-3
28	3.735	3.605	117796-2	117799-6	1-117826-4
29	3.860	3.730	2-117796-7	2-117799-6	1-117826-5
30	3.985	3.855	117796-3	117799-3	1-117826-6
31	4.110	3.980	117796-4	117799-4	1-117826-7
32	4.235	4.105	117796-5	117799-7	1-117826-8
33	4.360	4.230	2-117796-8	2-117799-7	1-117826-9
34	4.485	4.355	2-117796-9	2-117799-8	2-117826-0
35	4.610	4.480	117796-6	117799-8	2-117826-1
36	4.735	4.605	4-117796-7	117799-1	2-117826-2
37	4.860	4.730	3-117796-0	2-117799-9	2-117826-3
38	4.985	4.855	3-117796-1	3-117799-0	2-117826-4
39	5.110	4.980	3-117796-2	3-117799-1	2-117826-5
40	5.235	5.105	117796-8	117799-9	2-117826-6
41	5.360	5.230	3-117796-3	3-117799-2	2-117826-7
42	5.485	5.355	3-117796-4	3-117799-3	2-117826-8
43	5.610	5.480	117796-9	1-117799-0	2-117826-9
44	5.735	5.605	1-117796-0	1-117799-1	3-117826-0
45	5.860	5.730	1-117796-4	3-117799-4	3-117826-1
46	5.985	5.855	3-117796-5	3-117799-5	3-117826-2
47	6.110	5.980	3-117796-6	3-117799-6	3-117826-3
48	6.235	6.105	3-117796-7	3-117799-7	3-117826-4
49	6.360	6.230	3-117796-8	3-117799-8	3-117826-5
50	6.485	6.355	1-117796-1	117799-2	3-117826-6
51	6.610	6.480	1-117796-3	1-117799-3	3-117826-7
52	6.735	6.605	3-117796-9	3-117799-9	3-117826-8
53	6.860	6.730	4-117796-0	4-117799-0	3-117826-9
54	6.985	6.855	4-117796-1	4-117799-1	4-117826-0
55	7.110	7.980	4-117796-2	4-117799-2	4-117826-1
56	7.235	7.105	4-117796-3	4-117799-3	4-117826-2
57	7.360	7.230	4-117796-4	4-117799-4	4-117826-3
58	7.485	7.355	4-117796-5	4-117799-5	4-117826-4
59	7.610	7.480	4-117796-6	4-117799-6	4-117826-5
60	7.735	7.605	1-117796-2	1-117799-2	4-117826-6
Contacts in strip form—35,000 per reel				117793-2	117793-5

**.125 x .250 Post  
Centerline Spacing**



Inter Contact Keying Plug  
Part Number: 117646-1

Recommended Hole Size:  
Non plated thru hole—.040<sup>+001</sup>  
Plated thru hole—.039<sup>+004</sup>/<sub>003</sub>

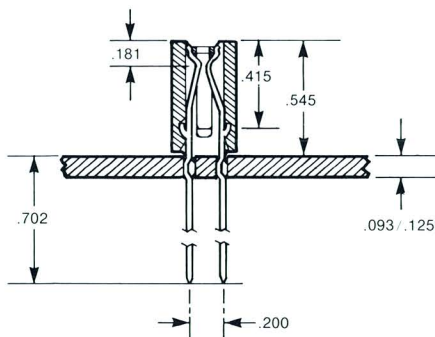
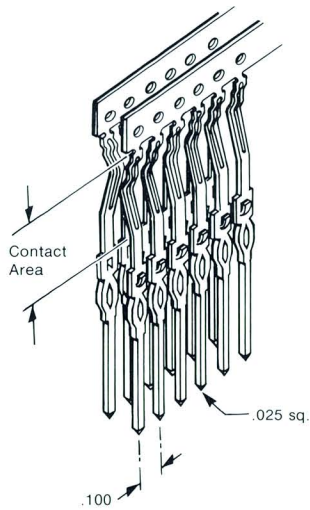
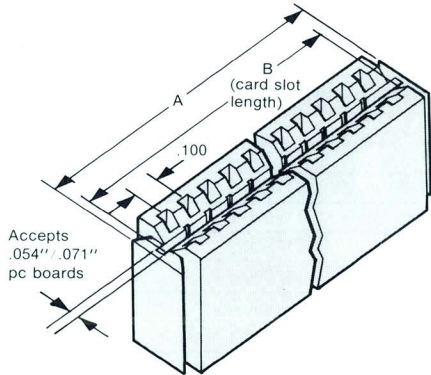
**Material:**  
Housing—Glass filled Nylon, Black  
Contact—CDA Copper Alloy 725  
Finish: Contact area—Gold plate per MIL-G-45204 (see table for thicknesses) over nickel plate per QQ-N-290 .000100 min. thk.

Remainder of contact—Gold plate per MIL-G-45204 .000005 min. thk. over nickel plate per QQ-N-290 .000100 min. thk.

No. of Dual Positions	Housing		Contact Strips (2 Strips required per housing)		
	A	B	Part Number	.000015 Gold in contact area	.000030 Gold in contact area
15	2.110	2.000	1-117797-3	1-117800-4	117827-1
16	2.235	2.125	1-117797-4	1-117800-5	117827-2
17	2.360	2.250	1-117797-5	1-117800-6	117827-3
18	2.485	2.375	1-117797-6	1-117800-3	117827-4
19	2.610	2.500	1-117797-7	1-117800-7	117827-5
20	2.735	2.625	1-117797-8	1-117800-8	117827-6
21	2.860	2.750	1-117797-9	1-117800-9	117827-7
22	2.985	2.875	117797-1	117800-5	117827-8
23	3.110	3.000	2-117797-0	2-117800-0	117827-9
24	3.235	3.125	2-117797-1	2-117800-1	1-117827-0
25	3.360	3.250	2-117797-2	2-117800-2	1-117827-1
26	3.485	3.375	2-117797-3	2-117800-3	1-117827-2
27	3.610	3.500	2-117797-4	2-117800-4	1-117827-3
28	3.735	3.625	117797-2	117800-6	1-117827-4
29	3.860	3.750	2-117797-5	2-117800-5	1-117827-5
30	3.985	3.875	117797-3	117800-3	1-117827-6
31	4.110	4.000	117797-4	117800-4	1-117827-7
32	4.235	4.125	1-117797-2	117800-7	1-117827-8
33	4.360	4.250	2-117797-6	2-117800-6	1-117827-9
34	4.485	4.375	2-117797-7	2-117800-7	2-117827-0
35	4.610	4.500	117797-5	117800-1	2-117827-1
36	4.735	4.625	117797-6	117800-8	2-117827-2
37	4.860	4.750	2-117797-8	2-117800-8	2-117827-3
38	4.985	4.875	2-117797-9	2-117800-9	2-117827-4
39	5.110	5.000	3-117797-0	3-117800-0	2-117827-5
40	5.235	5.125	117797-7	117800-9	2-117827-6
41	5.360	5.250	3-117797-1	3-117800-1	2-117827-7
42	5.485	5.375	3-117797-2	3-117800-2	2-117827-8
43	5.610	5.500	117797-8	1-117800-0	2-117827-9
44	5.735	5.625	117797-9	1-117800-1	3-117827-0
45	5.860	5.750	3-117797-3	3-117800-3	3-117827-1
46	5.985	5.875	3-117797-4	3-117800-4	3-117827-2
47	6.110	6.000	3-117797-5	3-117800-5	3-117827-3
48	6.235	6.125	3-117797-6	3-117800-6	3-117827-4
49	6.360	6.250	3-117797-7	3-117800-7	3-117827-5
50	6.485	6.375	1-117797-0	117800-2	3-117827-6
51	6.610	6.500	3-117797-8	3-117800-8	3-117827-7
52	6.735	6.625	3-117797-9	3-117800-9	3-117827-8
53	6.860	6.750	4-117797-0	4-117800-0	3-117827-9
54	6.985	6.875	4-117797-1	4-117800-1	4-117827-0
55	7.110	7.000	4-117797-2	4-117800-2	4-117827-1
56	7.235	7.125	4-117797-3	4-117800-3	4-117827-2
57	7.360	7.250	4-117797-4	4-117800-4	4-117827-3
58	7.485	7.375	4-117797-5	4-117800-5	4-117827-4
59	7.610	7.500	4-117797-6	4-117800-6	4-117827-5
60	7.735	7.625	1-117797-1	1-117800-2	4-117827-6
Contact in strip form—35,000 per reel				117794-2	117794-5

## AMP ECONOMATE I Printed Circuit Connectors

### .100 x .200 Post Centerline Spacing



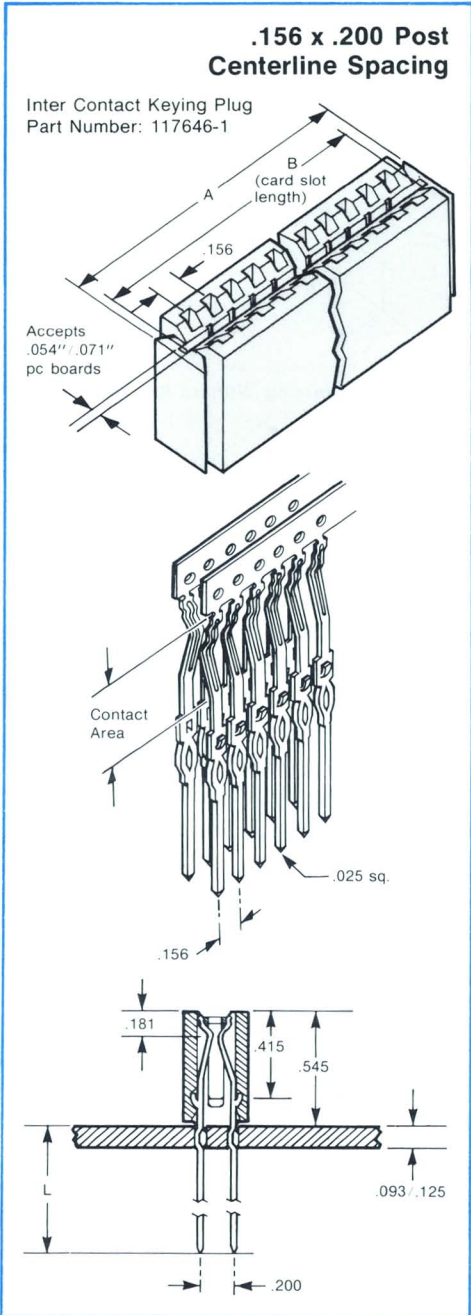
Inter Contact Keying Plug  
Part Number: 117646-1

Recommended Hole Size:  
Non plated thru hole — .040<sup>+ .001</sup>  
Plated thru hole — .039<sup>+ .004</sup>

**Material:**  
Housing—Glass filled Nylon, Black  
Contact—CDA Copper Alloy 725  
Finish: Contact area—Gold plate per MIL-G-45204 (see table for thicknesses) over nickel plate per QQ-N-290 .000100 min. thk.

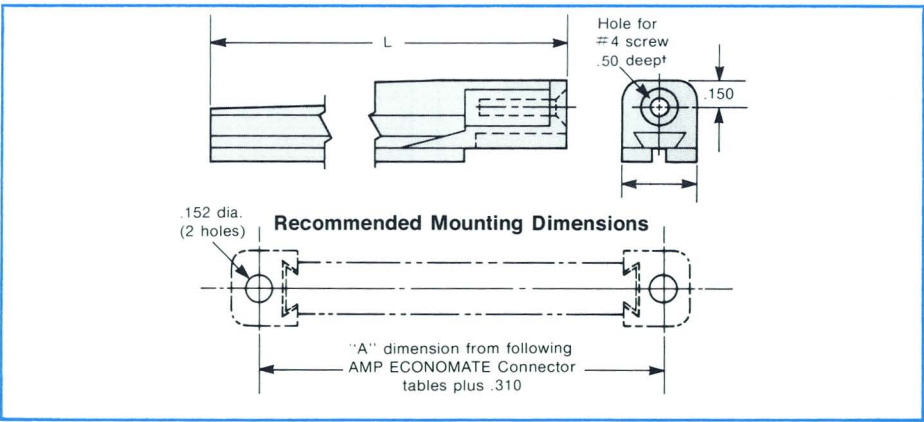
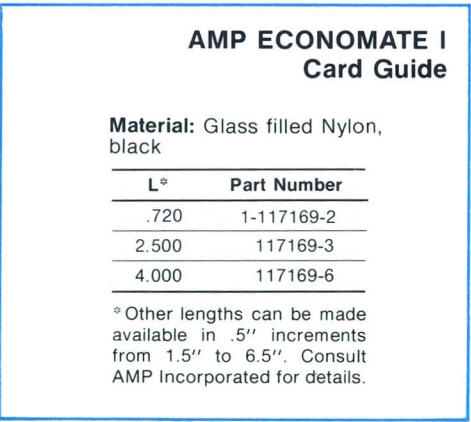
Remainder of contact—Gold plate per MIL-G-45204 .000005 min. thk. over nickel plate per QQ-N-290 .000100 min. thk.

No. of Dual Positions	Housing		Contact Strips (2 strips required per housing)		
	A	B	Part Number	.000015 Gold in contact area	.000030 Gold in contact area
15	1.734	1.604	1-117798-6	1-117802-5	117828-1
16	1.834	1.704	1-117798-7	1-117802-6	117828-2
17	1.934	1.804	1-117798-8	1-117802-7	117828-3
18	2.034	1.904	1-117798-9	1-117802-8	117828-4
19	2.134	2.004	2-117798-0	1-117802-9	117828-5
20	2.234	2.104	1-117798-3	1-117802-3	117828-6
21	2.334	2.204	2-117798-1	2-117802-0	117828-7
22	2.434	2.304	117798-1	117802-5	117828-8
23	2.534	2.404	2-117798-2	2-117802-1	117828-9
24	2.634	2.504	2-117798-3	2-117802-2	1-117828-0
25	2.734	2.604	1-117798-4	1-117802-4	1-117828-1
26	2.834	2.704	2-117798-4	2-117802-3	1-117828-2
27	2.934	2.804	2-117798-5	2-117802-4	1-117828-3
28	3.034	2.904	117798-2	117802-6	1-117828-4
29	3.134	3.004	2-117798-6	2-117802-5	1-117828-5
30	3.234	3.104	117798-3	117802-2	1-117828-6
31	3.334	3-240	117798-4	117802-4	1-117828-7
32	3.434	3.304	117798-5	117802-7	1-117828-8
33	3.534	3.404	2-117798-7	2-117802-6	1-117828-9
34	3.634	3.504	2-117798-8	2-117802-7	2-117828-0
35	3.734	3.604	117798-6	117802-3	2-117828-1
36	3.834	3.704	117798-7	117802-8	2-117828-2
37	3.934	3.804	2-117798-9	2-117802-8	2-117828-3
38	4.034	3.904	3-117798-0	2-117802-9	2-117828-4
39	4.134	4.004	3-117798-1	3-117802-0	2-117828-5
40	4.234	4.104	117798-8	117802-9	2-117828-6
41	4.334	4.204	3-117798-2	3-117802-1	2-117828-7
42	4.434	4.304	3-117798-3	3-117802-2	2-117828-8
43	4.534	4.404	117798-9	1-117802-0	2-117828-9
44	4.634	4.504	1-117798-0	1-117802-1	3-117828-0
45	4.734	4.604	3-117798-4	3-117802-3	3-117828-1
46	4.834	4.704	3-117798-5	3-117802-4	3-117828-2
47	4.934	4.840	3-117798-6	3-117802-5	3-117828-3
48	5.034	4.904	3-117798-7	3-117802-6	3-117828-4
49	5.134	5.004	3-117798-8	3-117802-7	3-117828-5
50	5.234	5.104	1-117798-1	117802-1	3-117828-6
51	5.334	5.204	3-117798-9	3-117802-8	3-117828-7
52	5.434	5.304	4-117798-0	3-117802-9	3-117828-8
53	5.534	5.404	4-117798-1	4-117802-0	3-117828-9
54	5.634	5.504	4-117798-2	4-117802-1	4-117828-0
55	5.734	5.604	4-117798-3	4-117802-2	4-117828-1
56	5.834	5.704	4-117798-4	4-117802-3	4-117828-2
57	5.934	5.804	4-117798-5	4-117802-4	4-117828-3
58	6.034	5.904	4-117798-6	4-117802-5	4-117828-4
59	6.134	6.004	4-117798-7	4-117802-6	4-117828-5
60	6.234	6.104	1-117798-2	1-117802-2	4-117828-6
Contacts in strip form—40,000 per reel				117798-2	117798-3

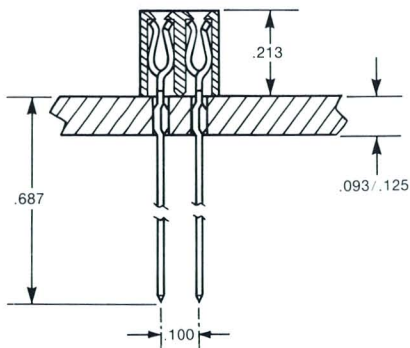


**Material:**  
Housing—Glass filled Nylon, Black  
Contact—CDA Copper Alloy 725  
Finish: Contact area—Gold plate per MIL-G-45204 (see table for thicknesses) over nickel plate per QQ-N-290 .000100 min. thk.  
Remainder of contact—Gold plate per MIL-G-45204 .000005 min. thk. over nickel plate per QQ-N-290 .000100 min. thk.  
Recommended Hole Size:  
Non plated thru hole—.040<sup>+ .001</sup>  
Plated thru hole—.039<sup>+ .004</sup>

No. of Dual Positions	Contact Strips (2 strips required per housing)						
	Housing			.000015 Gold in contact area		.000030 Gold in contact area	
	A	B	Part Number	L (Post length) .475	L (Post length) .702	L (Post length) .475	L (Post length) .702
15	2.626	2.496	117296-6	117290-9	117291-9	117834-1	117835-1
16	2.782	2.652	117296-7	1-117290-0	1-117291-0	117834-2	117835-2
17	2.938	2.808	117296-8	1-117290-1	1-117291-1	117834-3	117835-3
18	3.094	2.964	117296-9	1-117290-2	1-117291-2	117834-4	117835-4
19	3.250	3.120	1-117296-0	1-117290-3	1-117291-3	117834-5	117835-5
20	3.406	3.276	1-117296-1	1-117290-4	1-117291-4	117834-6	117835-6
21	3.562	3.432	1-117296-2	1-117290-5	1-117291-5	117834-7	117835-7
22	3.718	3.588	117296-4	117290-1	117291-4	117834-8	117835-8
23	3.874	3.744	1-117296-3	1-117290-6	1-117291-6	117834-9	117835-9
24	4.030	3.900	1-117296-4	1-117290-7	1-117291-7	1-117834-0	1-117835-0
25	4.186	4.056	1-117296-5	1-117290-8	1-117291-8	1-117834-1	1-117835-1
26	4.342	4.212	1-117296-6	1-117290-9	1-117291-9	1-117834-2	1-117835-2
27	4.498	4.368	1-117296-7	2-117290-0	2-117291-0	1-117834-3	1-117835-3
28	4.654	4.524	117296-5	117290-8	117291-5	1-117834-4	1-117835-4
29	4.810	4.680	1-117296-8	2-117290-1	2-117291-1	1-117834-5	1-117835-5
30	4.966	4.836	1-117296-9	117290-2	117291-6	1-117834-6	1-117835-6
31	5.122	4.992	2-117296-0	2-117290-2	2-117291-2	1-117834-7	1-117835-7
32	5.278	5.148	2-117296-1	2-117290-3	2-117291-3	1-117834-8	1-117835-8
33	5.434	5.304	2-117296-2	2-117290-4	2-117291-4	1-117834-9	1-117835-9
34	5.590	5.460	2-117296-3	2-117290-5	2-117291-5	2-117834-0	2-117835-0
35	5.746	5.616	2-117296-4	117290-3	117291-7	2-117834-1	2-117835-1
36	5.902	5.772	117296-2	117290-4	117291-2	2-117834-2	2-117835-2
37	6.058	5.928	2-117296-5	2-117290-6	2-117291-6	2-117834-3	2-117835-3
38	6.214	6.084	2-117296-6	2-117290-7	2-117291-7	2-117834-4	2-117835-4
39	6.370	6.240	2-117296-7	2-117290-8	2-117291-8	2-117834-5	2-117835-5
40	6.526	6.396	117296-3	117290-7	117291-3	2-117834-6	2-117835-6
41	6.682	6.552	2-117296-8	2-117290-9	2-117291-9	2-117834-7	2-117835-7
42	6.838	6.708	2-117296-9	3-117290-0	3-117291-0	2-117834-8	2-117835-8
43	6.994	6.864	117296-1	117290-5	117291-1	2-117834-9	2-117835-9
Contacts in strip form—15,000 per reel				117285-2	117285-5	117285-7	117285-8



### Receptacle Housing



### Keying Bushings



Style 1  
Part No. 117142-1

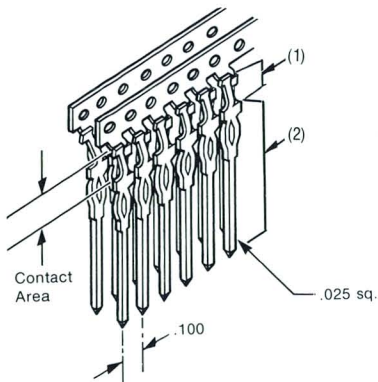


Style 2  
Part No. 117142-2



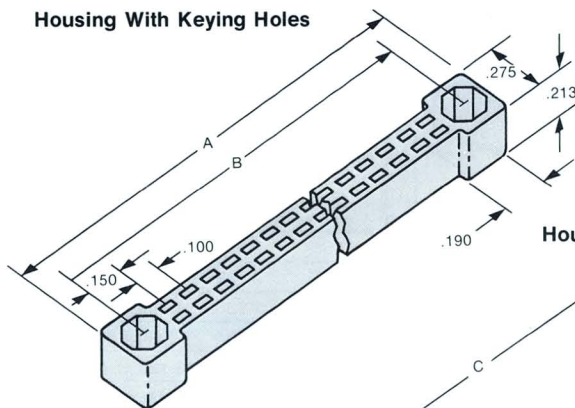
Style 3  
Part No. 117142-3

### Receptacle Contact

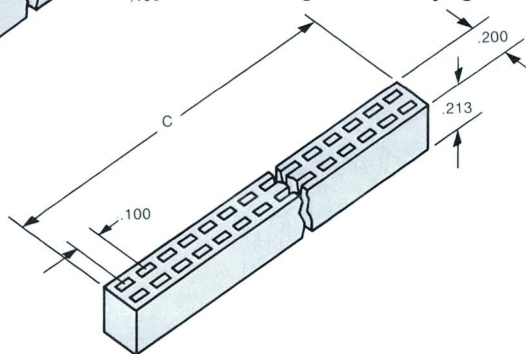


Recommended Hole Size:  
Non plated thru hole— $.040 \pm .001$   
Plated thru hole— $.039 \pm .004$

### Housing With Keying Holes



### Housing Without Keying Holes



**Material:**  
Glass filled nylon, black

No. of Dual Positions	Housing With Keying Holes		Housing Without Keying Holes	
	A	B	C	Part Number
20	2.420	2.200	2.000	1-116975-2
25	2.920	2.700	—	—
28	3.220	3.000	—	—
30	3.420	3.200	3.000	1-116975-3
35	3.920	3.700	3.500	1-116975-8
40	4.420	4.200	4.000	1-116975-4
50	5.420	5.200	5.000	1-116975-5
55	5.920	5.700	5.500	1-116975-7

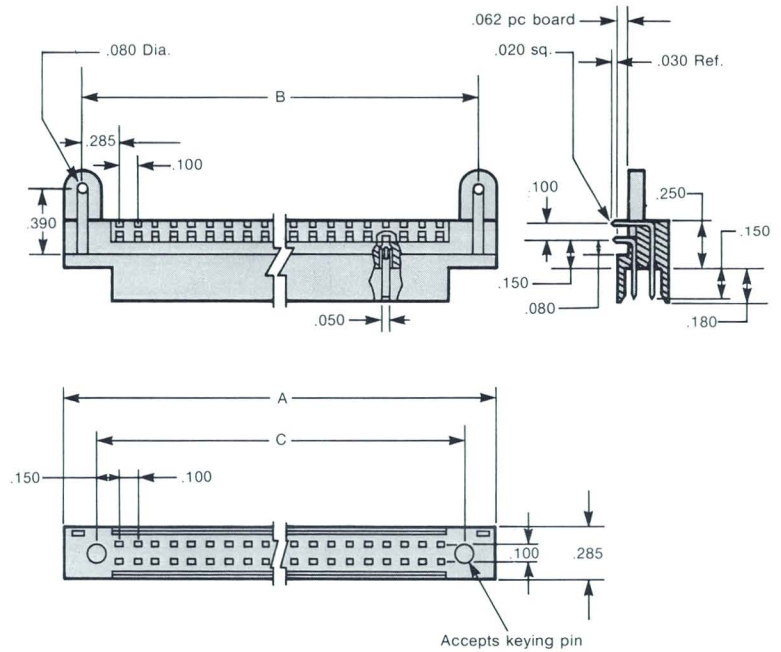
**Material:**  
Beryllium copper per QQ-C-533  
Finish—Gold plate per MIL-G-45204 over nickel plate per QQ-N-290 (see table for plating thicknesses)

No. of Contacts Per Strip*	Part Numbers		
	(1) .000030 min. gold plate over .000100 min. nickel plate (2) .000005 min. gold plate over .000100 min. nickel plate	(1) .000050 min. gold plate over .000100 min. nickel plate (2) .000005 min. gold plate over .000100 min. nickel plate	(1,2) .000050 min. gold plate over .000100 min. nickel plate
20	117819-2	117768-2	117770-1
25	1-117819-1	1-117768-1	1-117770-2
28	1-117819-0	1-117768-0	1-117770-0
30	117819-3	117768-3	117770-3
35	117819-9	117768-9	117770-9
40	117819-4	117768-4	117770-4
50	117819-5	117768-5	117770-5
55	117819-7	117768-7	117770-7
50,000 per reel	117599-2	117599-3	117599-4

\* 2 strips required per housing



Blade Housing  
Assembly

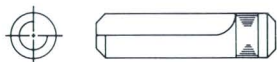


**Material:**

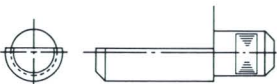
Housing—Glass filled nylon, black  
Contact—Phosphor bronze per QQ-B-750  
Finish: Contact area—Gold plate per MIL-G-45204 (see table for plating thicknesses) over nickel plate per

QQ-N-290 .000100 min. thk.  
Remainder of contact—Gold plate per MIL-G-45204 .000005 min. thk. over nickel plate per QQ-N-290 .000100 min. thk.

**Keying Pins**



Style 1  
Part No. 117141-1



Style 2  
Part No. 117140-1



Style 3  
Part No. 117139-1

No. of Dual Positions	Dimensions			Part Numbers	
	A	B	C	.000030 Gold plate, contact area	.000050 Gold plate, contact area
20	2.784	2.470	2.200	117096-1	117096-8
25	3.284	2.970	2.700	1-117096-9	2-117096-0
30	3.784	3.470	3.200	117096-2	117096-9
40	4.784	4.470	4.200	117096-4	1-117096-1
50	5.784	5.470	5.200	117096-5	1-117096-2
55	6.284	5.970	5.700	117096-3	1-117096-0

## AMP ECONOMATE Feed-Thru Posts

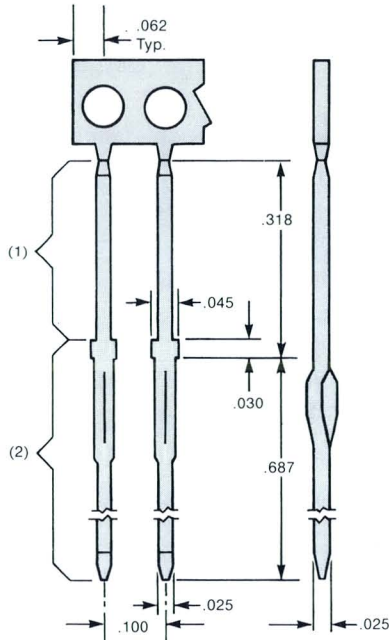
**Material:** Brass per MIL-C-50

**Finish:**

(1) Gold plate per MIL-G-45204 .000030 min. thk. over nickel plate per QQ-N-290 .000100 min. thk.

(2) Gold plate per MIL-G-45204 .000005 min. thk. over nickel plate per QQ-N-290 .000100 min. thk.

### .100 Centerline Spacing

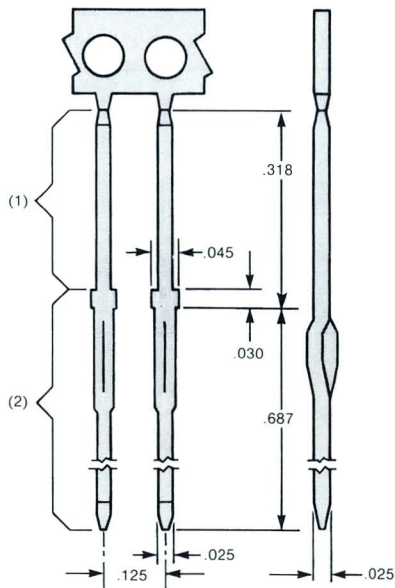


50,000 per reel  
Part Number:  
117249-7

### .100 Centerline Spacing Post Strips

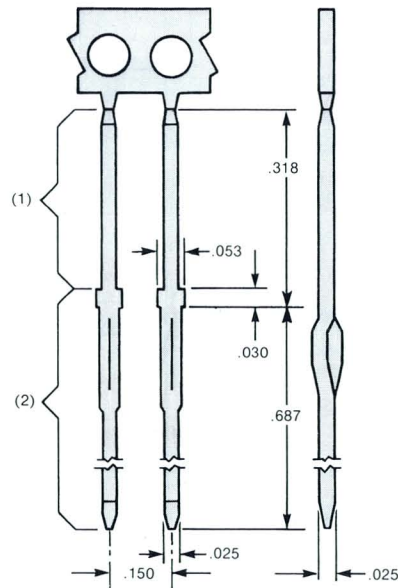
No. of Posts Per Strip	Part Number	No. of Posts Per Strip	Part Number	No. of Posts Per Strip	Part Number
7	117820-2	25	2-117820-0	43	3-117820-8
8	117820-3	26	2-117820-1	44	3-117820-9
9	117820-4	27	2-117820-2	45	4-117820-0
10	117820-5	28	2-117820-3	46	4-117820-1
11	117820-6	29	2-117820-4	47	4-117820-2
12	117820-7	30	2-117820-5	48	4-117820-3
13	117820-8	31	2-117820-6	49	4-117820-4
14	117820-9	32	2-117820-7	50	4-117820-5
15	1-117820-0	33	2-117820-8	51	4-117820-6
16	1-117820-1	34	2-117820-9	52	4-117820-7
17	1-117820-2	35	3-117820-0	53	4-117820-8
18	1-117820-3	36	3-117820-1	54	4-117820-9
19	1-117820-4	37	3-117820-2	55	5-117820-0
20	1-117820-5	38	3-117820-3	56	5-117820-1
21	1-117820-6	39	3-117820-4	57	5-117820-2
22	1-117820-7	40	3-117820-5	58	5-117820-3
23	1-117820-8	41	3-117820-6	59	5-117820-4
24	1-117820-9	42	3-117820-7	60	5-117820-5

### .125 Centerline Spacing



50,000 per reel  
Part Number:  
117272-2

### .150 Centerline Spacing



50,000 per reel  
Part Number:  
117269-2

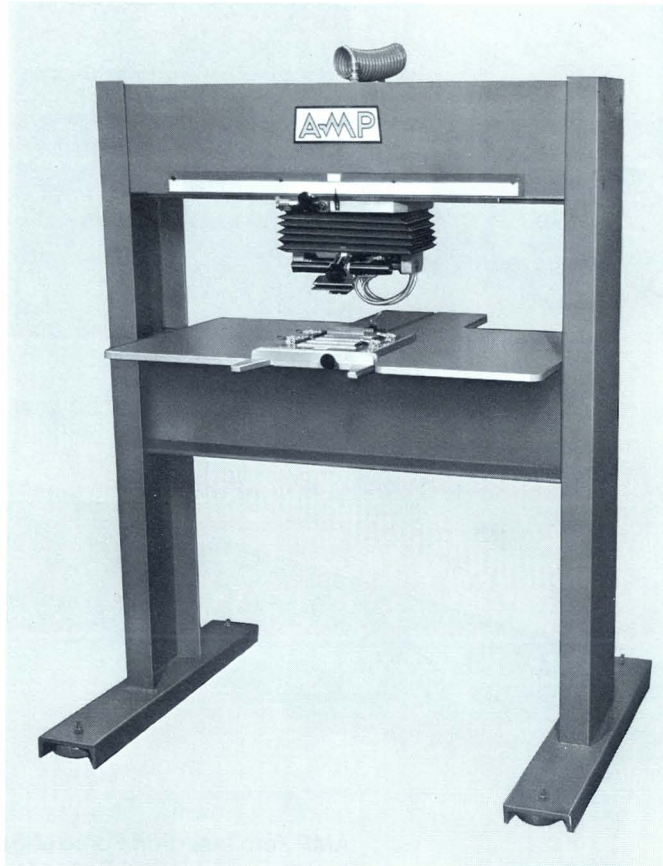
Recommended Hole Size:  
Non plated thru hole—.040<sup>+0.001</sup>  
Plated thru hole—.039<sup>+0.004</sup>/<sub>-0.003</sub>

To accommodate various levels of production the ECONOMATE Comb Applicator is available for manual insertion or machine mounted, semi-automatic insertion.

The comb applicator will accept up to 60 pin contacts in strip form. In operating the semi-automatic press, the operator inserts the pin strips into the comb applicator, the board is indexed into a pre-programmed position; the operator rotates the comb applicator down positioning the pins over the plated through holes. The press is then actuated, once the tips of the pins enter the board holes, sufficient high pressure is exerted to seat the pins. An integral sensing device recognizes the board surface and prevents the possibility of the pins being over or under inserted.

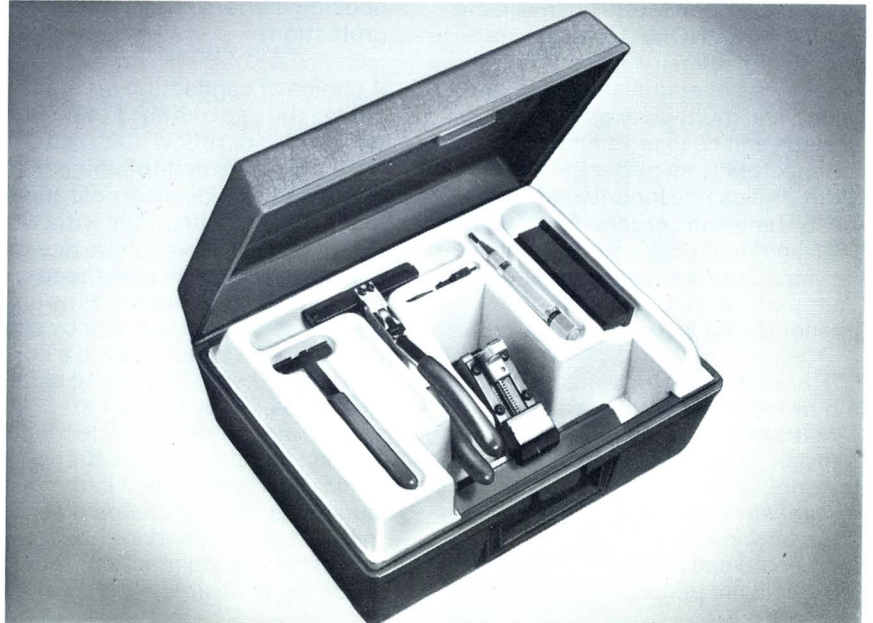
The hand held tool operates on the same principles, except for the automatic board indexing, and board sensing.

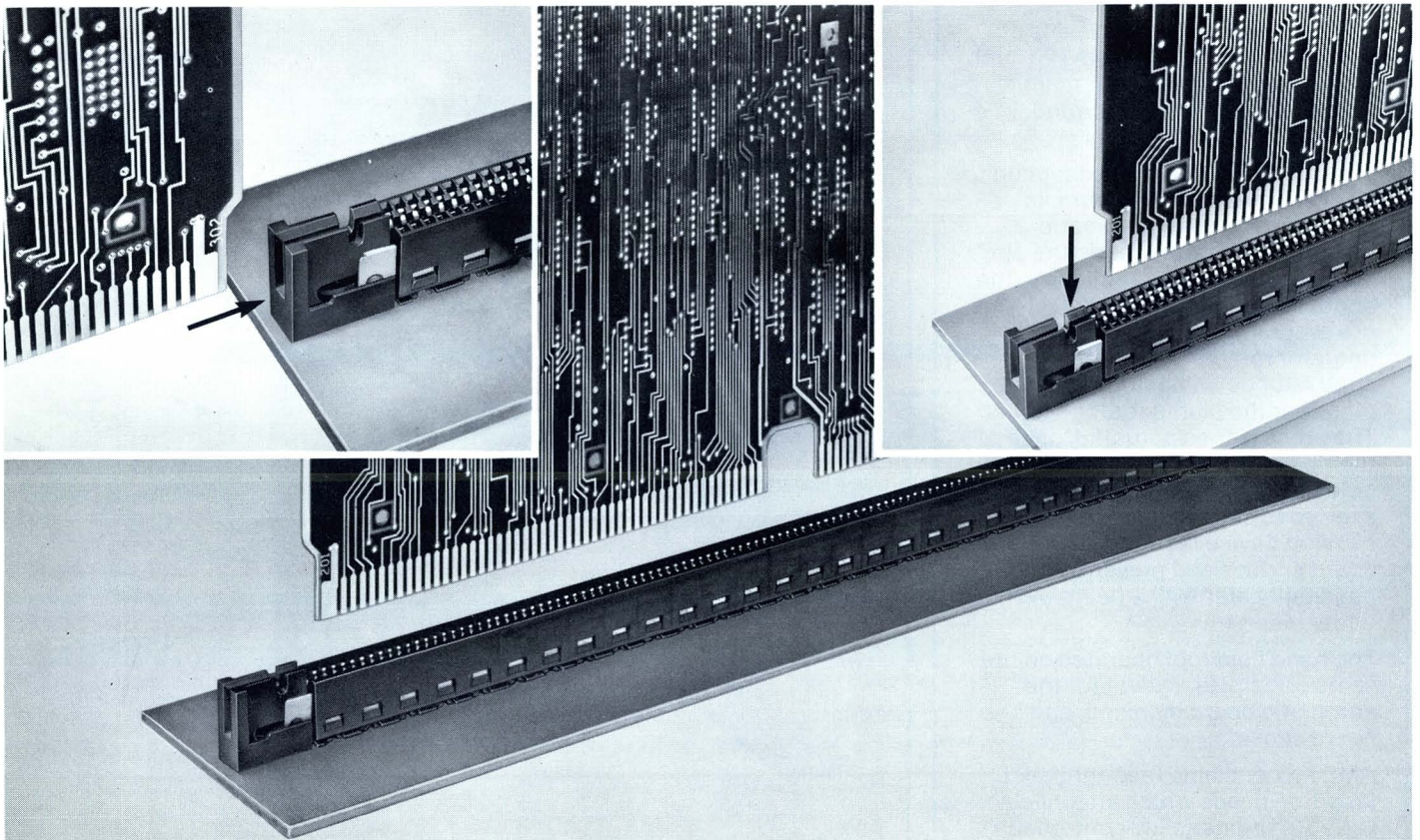
AMP has available feed-thru post insertion heads which attach to a variety of numerically controlled equipment. These heads are ideal for applications requiring individual post insertion in a wide range of circuit patterns with production capabilities up to 6500 insertions per hour.



Semi-Automatic  
Comb Applicator

Manual  
Comb Assembly Kit





AMP Zero Insertion Force (ZIF)  
Printed Circuit Board Connector

AMP's ZIF connectors are available on AMP ECONOMATE panels, providing high density, low cost packaging of single-sided, double-sided and multi-layer pc boards. Boards can be inserted into the connectors from either the top or side, and can be mounted as close as .5" between centers. Each .025" x .025" contact post accepts wrap-type terminations applied by semi-automatic or fully automatic machines, as well as manual tools.

ZIF connectors are available in sizes up to 150 dual contact positions. Their camming mechanism requires only .5" of travel for actuation. During closure, wiping action of the contacts establishes excellent electrical connections between the contacts and board pads. When opened, the contacts are pulled behind internal

housing barriers for complete protection.

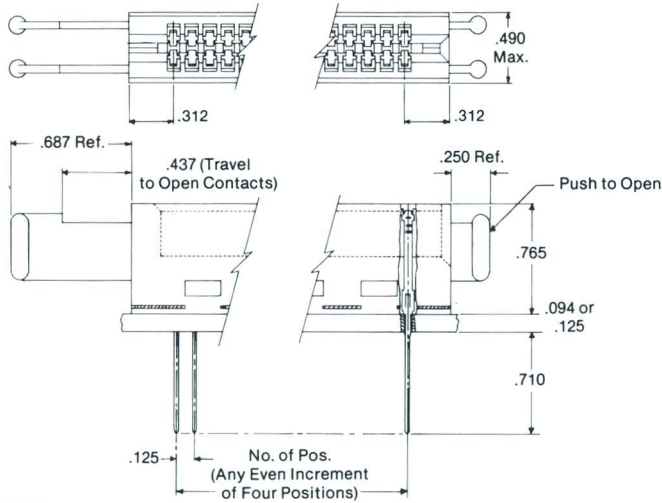
A choice of connection methods includes the use of AMP Action Pins, unsoldered or reflow soldered. The Action Pins are self-retaining in the board and provide electrical and mechanical connections without the use of solder. Their unique design eliminates possible damage to plated-thru holes. Action Pins also may be soldered to a board by simply reflowing the board to form a solder fillet from the tin/lead in the plated-thru holes. Or, by use of Action Pins with advanced select solder deposit on the contacts, a conventional solder fillet is produced in the plated-thru holes. Such methods offer a low cost and dependable means of achieving interconnections where soldering is desired.

### FEATURES

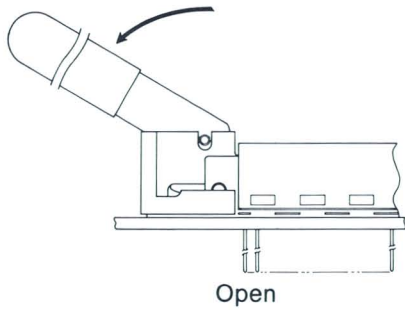
- AMP Action Pin, Action Pin reflow soldered or Action Pin with advanced select solder deposit
- Contacts on .125" x .125" centers
- Keying for positive pc board location
- Top or side entry of pc boards
- Accepts .054" to .071" thick pc boards
- Removable plastic housings
- Fail-safe, normally closed design
- Contacts replaceable from top of connector without removing housing

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

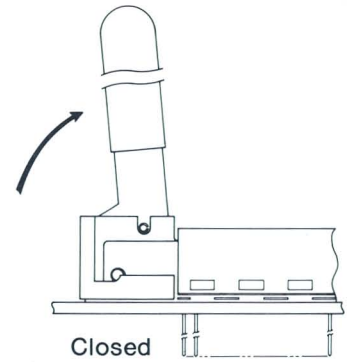
Dimensioning:  
All dimensions in inches unless  
otherwise indicated.



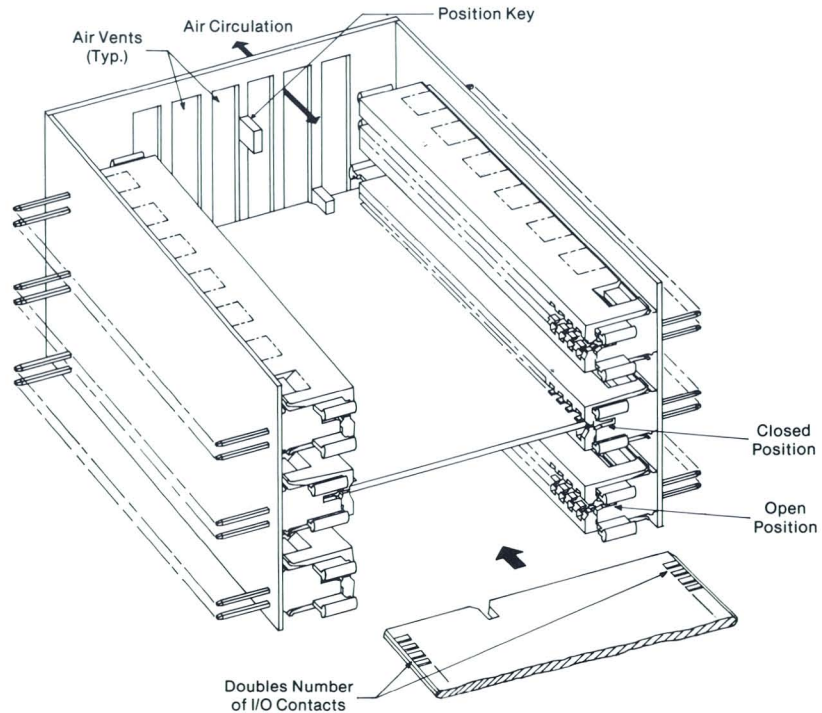
**Materials:**  
Housing — black glass-filled nylon  
Contacts — copper alloy 727, with gold  
or tin plating



Typical Cam Operation, Lever Actuated  
(used only on larger size connectors)



**Typical Application**



Note: For complete information on  
AMP ECONOMATE panels, request AMP  
Data Sheet No. 75-316

