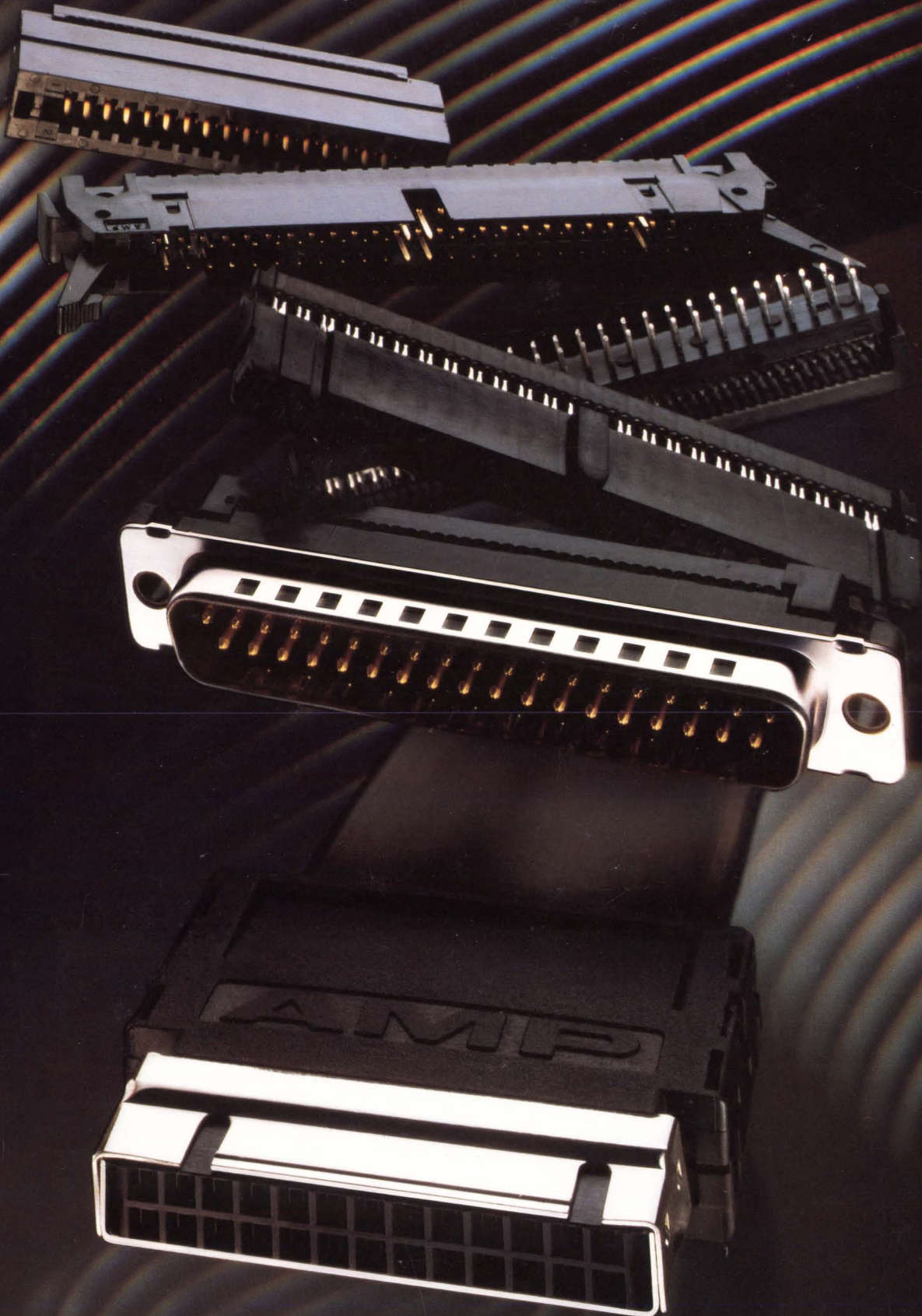


**AMP**

**AMP-LATCH**  
**Ribbon Cable Connector System**

*Catalog 73-177 • Revised 8-86*



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**Dimensioning:**

Dimensions are in inches and millimetres. Values in brackets are metric equivalents unless specified otherwise. Metric symbols used are:

- m (metre)
- mm<sup>2</sup> (square millimetre)
- C (Celsius)
- Kg (Kilogram)

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

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AMP, AMP-LATCH, AMPMODU, ACTION PIN, CHAMP, EUROLATCH, TERMI-FOIL—Trademarks of AMP Incorporated.

**Electrical Characteristics**

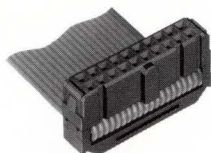
**Contact Current Rating:** 1 Ampere (Continuous)

**Operating Temperature:** -55°C to +105°C

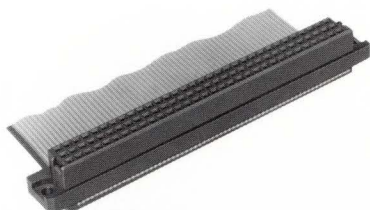
**Dielectric Withstanding Voltage:**

- Receptacles (All) — 500 Volts, RMS
- Card Edge Connectors — 1000 Volts, RMS
- DIP Plugs — 500 Volts, RMS
- Paddle Board Connectors — 500 Volts, RMS
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- Ejection Style Pin Headers (All) — 1000 Volts, RMS
- HDF-20 Low Profile Connectors — 700 Volts, RMS (Min.)
- AMP Ribbon Cable — 2000 Volts, RMS

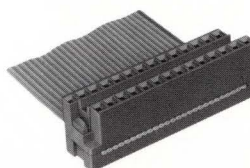
**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.



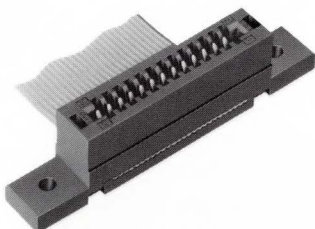
Receptacles, .100 x .100  
[2.54 x 2.54] Centers  
(See pages 4 thru 21.)



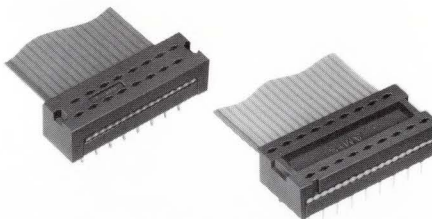
EUROLATCH Receptacles;  
3-Row Housings, 2 Rows Loaded  
(See page 22.)



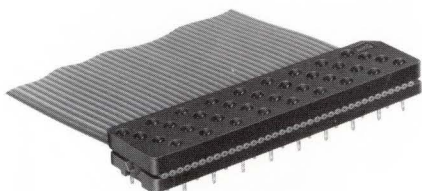
Receptacles, .100 x .200  
[2.54 x 5.08] Centers  
(See page 23.)



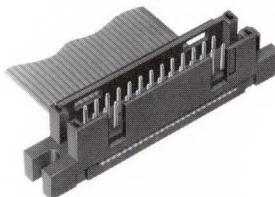
Card Edge Connectors;  
Single and Bifurcated Beam Contacts  
(See pages 24 thru 29.)



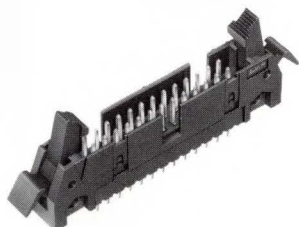
DIP Plugs; .100 [2.54], .300 [7.62]  
and .600 [15.24] Row-to-Row Spacing  
(See pages 30 thru 33.)



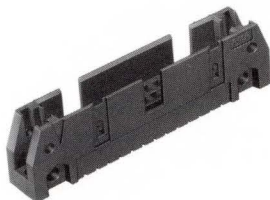
Paddle Board Connectors  
(See pages 34 thru 39.)



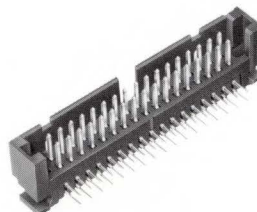
Pin Connectors  
(See pages 40 thru 45.)



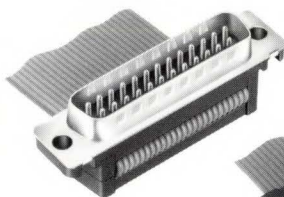
Pin Headers; Universal (shown)  
and Military (See pages 48 thru 53,  
56 thru 59, and 62 thru 65.)



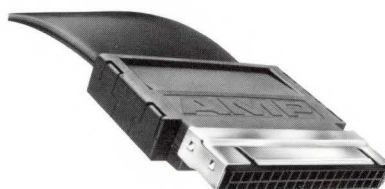
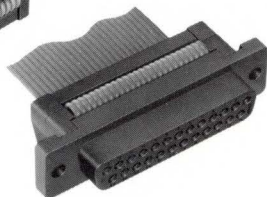
Pinless Headers  
(See pages 54 and 55.)



Low Profile Pin Headers  
(See pages 60 and 61.)




HDF-20 Low Profile Connectors  
(See pages 66 thru 69.)




Shielded Connectors and Shielding  
Hardware (See pages 74 thru 82.)

## Features

- Connectors Recognized  under the Component Program of Underwriters Laboratories Inc. File No. E28476

- Cable Recognized  under the Component Program of Underwriters Laboratories Inc. (See pages 84 thru 94.)

- Connectors CSA Certified, File No. LR46568 

- No cable stripping; simultaneous termination of all conductors.

- One-step termination with AMP application tooling.

- Terminates varying thicknesses of flat, woven, shielded (properly prepared) and other ribbon cable with conductors on .050 [1.27] centers as well as discrete wires.

- Terminates conductor sizes 30 AWG [0.05 mm<sup>2</sup>] solid, 28 AWG [0.08-0.09 mm<sup>2</sup>] solid and stranded, and 26 AWG [0.12-0.15 mm<sup>2</sup>] solid and stranded.

- Self-registration of wires—compatible product and tooling designs eliminate registration problems.

- Connectors packaged in kits.

- Wide selection of sizes in all configurations.

- Positive, uniform latching of contacts and housing with cover eliminates cover warpage.

- Easy, visual inspection of terminations during assembly; electrical probing capability after assembly.

- All polymeric parts manufactured from a UL Recognized 94V-0 rated material.

- Receptacles with recessed covers provide positive locking feature for ejection style pin headers with latches.

- Pinless headers press-fit onto .025 [0.64] sq. posts preinstalled in pc board—no mounting hardware required.

- Shielded connectors provide RFI/EMI protection.

**Receptacles, Military Polarized\***  
**.100 x .100 [2.54 x 2.54] Centers**

Contacts mate with .025 [0.64] sq. or round pins with .323 [8.21] max. and .230 [5.84] min. lengths.

**Housing Assembly with Recessed Cover (Preassembled) and Strain Relief**

**Material and Finish:**

**Housing, Cover & Strain Relief** — Black Thermo-plastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, duplex plated (See chart, page 5.)

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Connectors:**

Pin Connectors — pages 40 thru 43

Bulkhead Pin Connectors — pages 44 & 45

**Mateable Pin Headers:**

Universal — pages 48 thru 53 & 56 thru 59

Low Profile — pages 60 & 61

Military — pages 62 thru 65

**Mateable Pinless Headers** — pages 54 & 55

**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

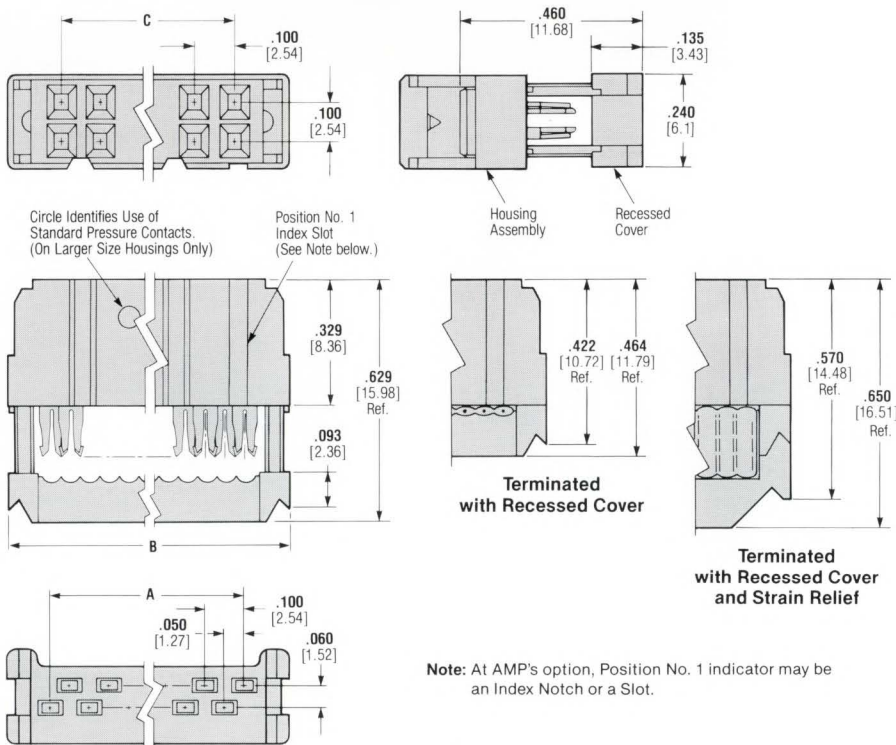
**Accessories:**

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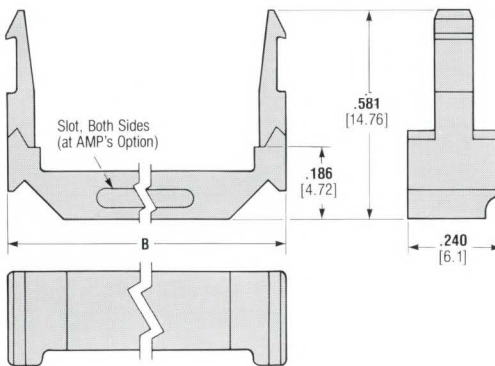
Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



**Housing Assembly and Recessed Cover**  
 (Shown Preassembled for Right-Hand Cable Orientation. See Note 2, page 5.)



**Strain Relief**

\*These receptacles can be used in applications requiring non-polarization, as well as military polarization.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions			Contact Plating	Strain Relief Part No.	Receptacle Kit No. (Preassembled)	
	A	B	C			With Strain Relief	Without Strain Relief
10	<b>.450</b> 11.43	<b>.680</b> 17.27	<b>.400</b> 10.16	Duplex <sup>1</sup>	499252-5	499497-1	746184-1
				Duplex <sup>2</sup>	499252-5	499495-1	746182-1
14	<b>.650</b> 16.51	<b>.880</b> 22.35	<b>.600</b> 15.24	Duplex <sup>1</sup>	499252-9	499497-2	746184-2
				Duplex <sup>2</sup>	499252-9	499495-2	746182-2
16	<b>.750</b> 19.05	<b>.980</b> 24.89	<b>.700</b> 17.78	Duplex <sup>1</sup>	499252-8	499497-3	746184-3
				Duplex <sup>2</sup>	499252-8	499495-3	746182-3
20	<b>.950</b> 24.13	<b>1.180</b> 29.97	<b>.900</b> 22.86	Duplex <sup>1</sup>	499252-2	499497-4	746184-4
				Duplex <sup>2</sup>	499252-2	499495-4	746182-4
24	<b>1.150</b> 29.21	<b>1.380</b> 35.05	<b>1.100</b> 27.94	Duplex <sup>1</sup>	1-499252-0	499497-6	746184-6
				Duplex <sup>2</sup>	1-499252-0	499495-6	746182-6
26	<b>1.250</b> 31.75	<b>1.480</b> 37.59	<b>1.200</b> 30.48	Duplex <sup>1</sup>	499252-3	499497-7	746184-7
				Duplex <sup>2</sup>	499252-3	499495-7	746182-7
30	<b>1.450</b> 36.83	<b>1.680</b> 42.67	<b>1.400</b> 35.56	Duplex <sup>1</sup>	1-499252-2	499498-8	746185-8
				Duplex <sup>2</sup>	1-499252-2	499496-8	746183-8
34	<b>1.650</b> 41.91	<b>1.880</b> 47.75	<b>1.600</b> 40.64	Duplex <sup>1</sup>	499252-6	499498-9	746185-9
				Duplex <sup>2</sup>	499252-6	499496-9	746183-9
40	<b>1.950</b> 49.53	<b>2.180</b> 55.37	<b>1.900</b> 48.26	Duplex <sup>1</sup>	499252-1	1-499498-0	1-746185-0
				Duplex <sup>2</sup>	499252-1	1-499496-0	1-746183-0
50	<b>2.450</b> 62.23	<b>2.680</b> 68.07	<b>2.400</b> 60.96	Duplex <sup>1</sup>	499252-4	1-499498-2	1-746185-2
				Duplex <sup>2</sup>	499252-4	1-499496-2	1-746183-2
60	<b>2.950</b> 74.93	<b>3.180</b> 80.77	<b>2.900</b> 73.66	Duplex <sup>1</sup>	499252-7	1-499498-3	1-746185-3
				Duplex <sup>2</sup>	499252-7	1-499496-3	1-746183-3
64	<b>3.150</b> 80.01	<b>3.380</b> 85.85	<b>3.100</b> 78.74	Duplex <sup>1</sup>	1-499252-3	1-499498-4	1-746185-4
				Duplex <sup>2</sup>	1-499252-3	1-499496-4	1-746183-4

1.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

2.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

**Notes:** 1. These receptacle kits include a housing assembly and recessed cover (preassembled) and are available with or without strain reliefs. Strain reliefs may be purchased separately using the component part nos. listed above. Individual housing assemblies and recessed covers also may be purchased separately, consult AMP Incorporated.

2. Preassembled receptacle kits listed above are for right-hand orientation of cable, as shown on page 4. Receptacle kits preassembled for left-hand cable orientation and kits with closed-end covers are available, consult AMP Incorporated.

**Receptacles, Center and Military Polarized\*  
.100 x .100 [2.54 x 2.54] Centers**

Contacts mate with .025 [0.64] sq. or round pins with .323 [8.21] max. and .230 [5.84] min. lengths.

**Housing Assembly with Recessed Cover (Preassembled) and Strain Relief**

**Material and Finish:**

**Housing, Cover & Strain Relief** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, duplex plated (See chart, page 7.)

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Connectors:**

Pin Connectors — pages 40 thru 43

**Mateable Pin Headers:**

Universal — pages 48 thru 53 & 56 thru 59

Low Profile — pages 60 & 61

**Mateable Pinless Headers** — pages 54 & 55

**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

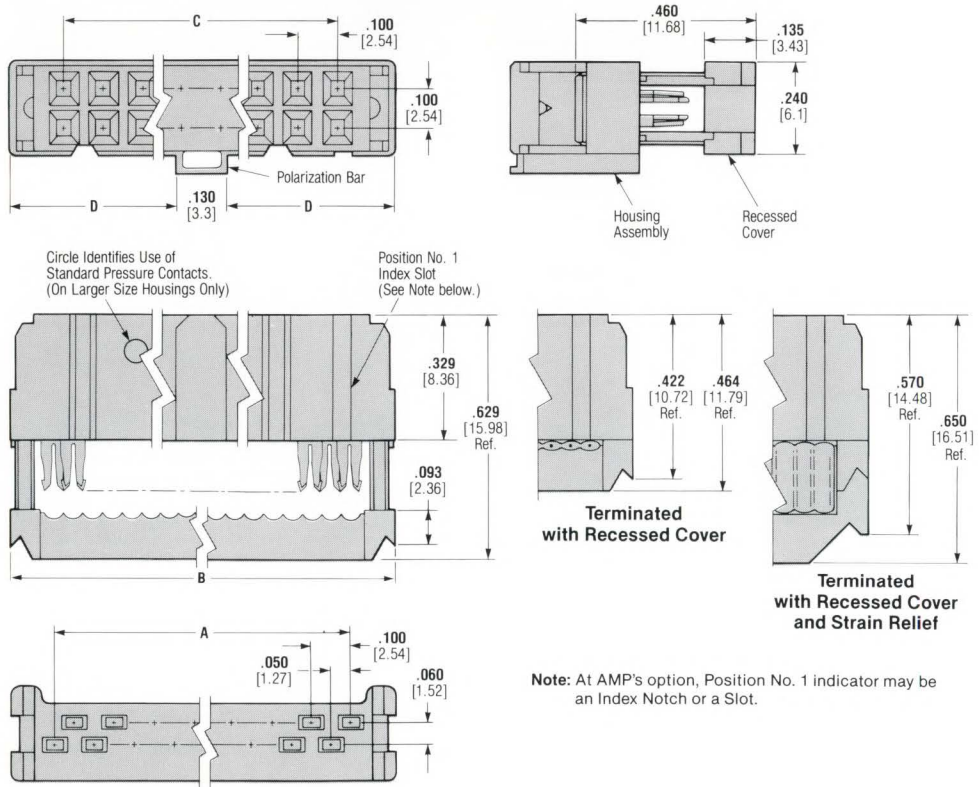
**Accessories:**

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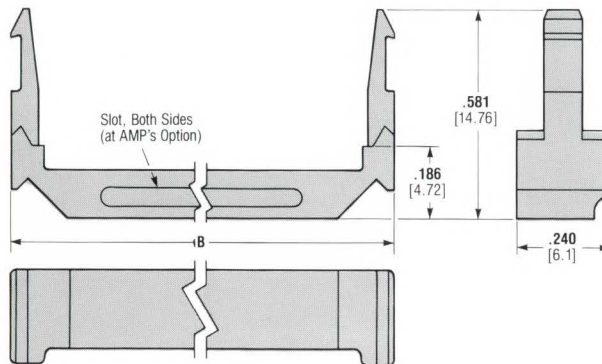
Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



**Housing Assembly and Recessed Cover  
(Shown Preassembled for Right-Hand Cable Orientation. See Note 2, page 7.)**



**Strain Relief**

\*These receptacles must be used in applications requiring center polarization.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions				Contact Plating	Strain Relief Part No.	Receptacle Kit No. (Preassembled)	
	A	B	C	D			With Strain Relief	Without Strain Relief
10	.450	.680	.400	.275	Duplex <sup>1</sup>	499252-5	499507-1	746194-1
	11.43	17.27	10.16	6.99	Duplex <sup>2</sup>	499252-5	499505-1	746192-1
14	.650	.880	.600	.375	Duplex <sup>1</sup>	499252-9	499507-2	746194-2
	16.51	22.35	15.24	9.53	Duplex <sup>2</sup>	499252-9	499505-2	746192-2
16	.750	.980	.700	.425	Duplex <sup>1</sup>	499252-8	499507-3	746194-3
	19.05	24.89	17.78	10.8	Duplex <sup>2</sup>	499252-8	499505-3	746192-3
20	.950	1.180	.900	.525	Duplex <sup>1</sup>	499252-2	499507-4	746194-4
	24.13	29.97	22.86	13.34	Duplex <sup>2</sup>	499252-2	499505-4	746192-4
24	1.150	1.380	1.100	.625	Duplex <sup>1</sup>	1-499252-0	499507-6	746194-6
	29.21	35.05	27.94	15.88	Duplex <sup>2</sup>	1-499252-0	499505-6	746192-6
26	1.250	1.480	1.200	.675	Duplex <sup>1</sup>	499252-3	499507-7	746194-7
	31.75	37.59	30.48	17.15	Duplex <sup>2</sup>	499252-3	499505-7	746192-7
30	1.450	1.680	1.400	.775	Duplex <sup>1</sup>	1-499252-2	499508-8	746195-8
	36.83	42.67	35.56	19.69	Duplex <sup>2</sup>	1-499252-2	499506-8	746193-8
34	1.650	1.880	1.600	.875	Duplex <sup>1</sup>	499252-6	499508-9	746195-9
	41.91	47.75	40.64	22.23	Duplex <sup>2</sup>	499252-6	499506-9	746193-9
40	1.950	2.180	1.900	1.025	Duplex <sup>1</sup>	499252-1	1-499508-0	1-746195-0
	49.53	55.37	48.26	26.04	Duplex <sup>2</sup>	499252-1	1-499506-0	1-746193-0
50	2.450	2.680	2.400	1.275	Duplex <sup>1</sup>	499252-4	1-499508-2	1-746195-2
	62.23	68.07	60.96	32.39	Duplex <sup>2</sup>	499252-4	1-499506-2	1-746193-2
60	2.950	3.180	2.900	1.525	Duplex <sup>1</sup>	499252-7	1-499508-3	1-746195-3
	74.93	80.77	73.66	38.74	Duplex <sup>2</sup>	499252-7	1-499506-3	1-746193-3
64	3.150	3.380	3.100	1.625	Duplex <sup>1</sup>	1-499252-3	1-499508-4	1-746195-4
	80.01	85.85	78.74	41.28	Duplex <sup>2</sup>	1-499252-3	1-499506-4	1-746193-4

<sup>1</sup>.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>2</sup>.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

**Notes:** 1. These receptacle kits include a housing assembly and recessed cover (preassembled) and are available with or without strain reliefs. Strain reliefs may be purchased separately using the component part nos. listed above. Individual housing assemblies and recessed covers also may be purchased separately, consult AMP Incorporated.

2. Preassembled receptacle kits listed above are for right-hand orientation of cable, as shown on page 6. Receptacle kits preassembled for left-hand cable orientation and kits with closed-end covers are available, consult AMP Incorporated.

**Receptacles, Dual Polarized**  
**.100 x .100 [2.54 x 2.54] Centers**

Contacts mate with .025  
 [0.64] sq. or round pins  
 with .323 [8.21] max. and  
 .230 [5.84] min. lengths.

**Housing Assembly with Recessed Cover (Preassembled) and Strain Relief**

**Material and Finish:**

**Housing, Cover & Strain Relief** — Black Thermo-plastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, duplex plated  
 (See chart, page 9.)

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Connectors:**

Pin Connectors — pages 40 thru 43

**Mateable Pin Headers:**

Universal — pages 48 thru 53

**Mateable Pinless Headers** —

pages 54 & 55

**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

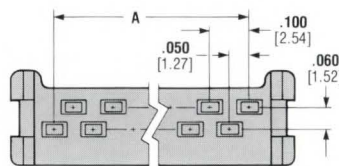
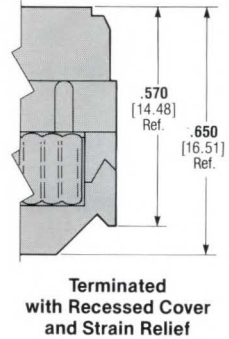
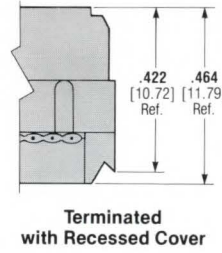
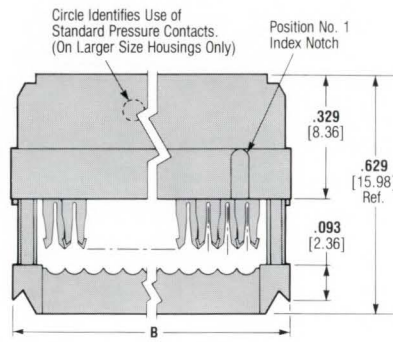
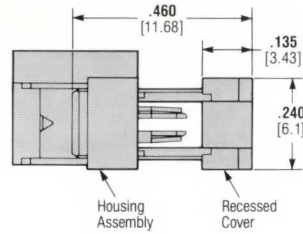
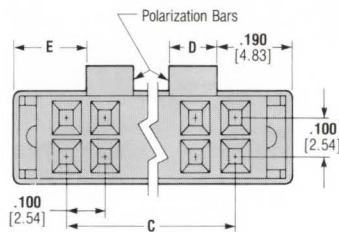
**Accessories:**

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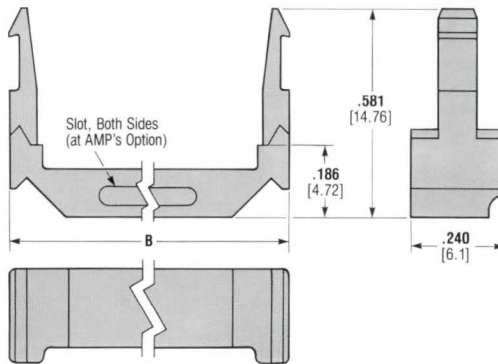
Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



**Housing Assembly and Recessed Cover**  
 (Shown Preassembled for Right-Hand Cable Orientation. See Note 2, page 9.)



**Strain Relief**



**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions					Contact Plating	Strain Relief Part No.	Receptacle Kit No. (Preassembled)	
	A	B	C	D	E			With Strain Relief	Without Strain Relief
10	.450	.680	.400	.140	—	Duplex <sup>1</sup>	499252-5	499501-1	746188-1
	11.43	17.27	10.16	3.56		Duplex <sup>2</sup>	499252-5	499499-1	746186-1
14	.650	.880	.600	.140	.190	Duplex <sup>1</sup>	499252-9	499501-2	746188-2
	16.51	22.35	15.24	3.56	4.83	Duplex <sup>2</sup>	499252-9	499499-2	746186-2
16	.750	.980	.700	.140	.190	Duplex <sup>1</sup>	499252-8	499501-3	746188-3
	19.05	24.89	17.78	3.56	4.83	Duplex <sup>2</sup>	499252-8	499499-3	746186-3
20	.950	1.180	.900	.140	.190	Duplex <sup>1</sup>	499252-2	499501-4	746188-4
	24.13	29.97	22.86	3.56	4.83	Duplex <sup>2</sup>	499252-2	499499-4	746186-4
24	1.150	1.380	1.100	.140	.190	Duplex <sup>1</sup>	1-499252-0	499501-6	746188-6
	29.21	35.05	27.94	3.56	4.83	Duplex <sup>2</sup>	1-499252-0	499499-6	746186-6
26	1.250	1.480	1.200	.140	.190	Duplex <sup>1</sup>	499252-3	499501-7	746188-7
	31.75	37.59	30.48	3.56	4.83	Duplex <sup>2</sup>	499252-3	499499-7	746186-7
30	1.450	1.680	1.400	.140	.190	Duplex <sup>1</sup>	1-499252-2	499502-8	746189-8
	36.83	42.67	35.56	3.56	4.83	Duplex <sup>2</sup>	1-499252-2	499500-8	746187-8
34	1.650	1.880	1.600	.140	.190	Duplex <sup>1</sup>	499252-6	499502-9	746189-9
	41.91	47.75	40.64	3.56	4.83	Duplex <sup>2</sup>	499252-6	499500-9	746187-9
40	1.950	2.180	1.900	.140	.190	Duplex <sup>1</sup>	499252-1	1-499502-0	1-746189-0
	49.53	55.37	48.26	3.56	4.83	Duplex <sup>2</sup>	499252-1	1-499500-0	1-746187-0
50	2.450	2.680	2.400	.140	.190	Duplex <sup>1</sup>	499252-4	1-499502-2	1-746189-2
	62.23	68.07	60.96	3.56	4.83	Duplex <sup>2</sup>	499252-4	1-499500-2	1-746187-2
60	2.950	3.180	2.900	.140	.190	Duplex <sup>1</sup>	499252-7	1-499502-3	1-746189-3
	74.93	80.77	73.66	3.56	4.83	Duplex <sup>2</sup>	499252-7	1-499500-3	1-746187-3
64	3.150	3.380	3.100	.140	.190	Duplex <sup>1</sup>	1-499252-3	1-499502-4	1-746189-4
	80.01	85.85	78.74	3.56	4.83	Duplex <sup>2</sup>	1-499252-3	1-499500-4	1-746187-4

1.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

2.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

**Notes:** 1. These receptacle kits include a housing assembly and recessed cover (preassembled) and are available with or without strain reliefs. Strain reliefs may be purchased separately using the component part nos. listed above. Individual housing assemblies and recessed covers also may be purchased separately, consult AMP Incorporated.

2. Preassembled receptacle kits listed above are for right-hand orientation of cable, as shown on page 8. Receptacle kits preassembled for left-hand cable orientation and kits with closed-end covers are available, consult AMP Incorporated.

**Novo Receptacles, Military Polarized\***  
**.100 x .100 [2.54 x 2.54] Centers**

Contacts mate with .025  
 [0.64] sq. or round pins  
 with .245 [6.22] max. and  
 .195 [4.95] min. lengths.

**Housing Assembly with Recessed Cover (Preassembled) and Strain Relief**

**Material and Finish:**

**Housing, Cover & Strain Relief** — Black Thermo-plastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, tin or duplex plated (See chart, page 11.)

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Connectors:**

Pin Connectors —

pages 40 thru 43

Bulkhead Pin Connectors — pages 44 & 45

**Mateable Pin Headers:**

Universal — pages 48 thru 53 & 56 thru 59

Low Profile — pages 60 & 61

Military — pages 62 thru 65

**Mateable Pinless Headers** — pages 54 & 55

**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

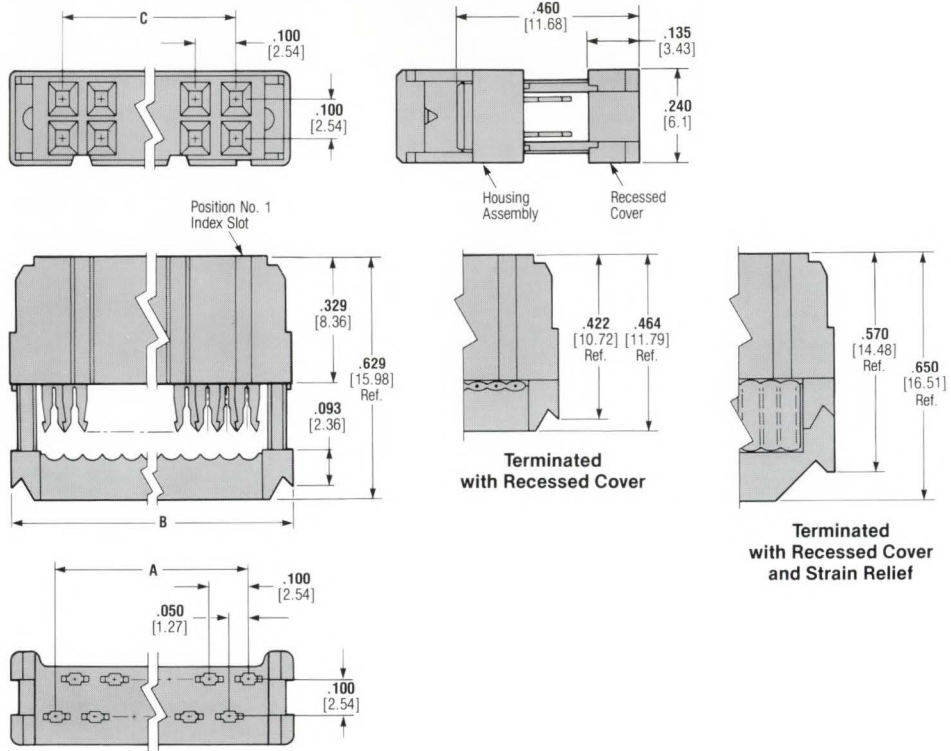
**Accessories:**

Pull Tab — page 95

Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



**Housing Assembly and Recessed Cover**  
 (Shown Preassembled for Right-Hand Cable Orientation. See Note 2, page 11.)

\*These receptacles can be used in applications requiring non-polarization, as well as military polarization.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions			Contact Plating	Strain Relief Part No.	Receptacle Kit No. (Preassembled)	
	A	B	C			With Strain Relief	Without Strain Relief
10	.450 11.43	.680 17.27	.400 10.16	Duplex <sup>1</sup>	499252-5	499662-1	499997-1
				Duplex <sup>2</sup>	499252-5	746085-1	746290-1
				Tin <sup>3</sup>	499252-5	499982-1	746291-1
14	.650 16.51	.880 22.35	.600 15.24	Duplex <sup>1</sup>	499252-9	499662-2	499997-2
				Duplex <sup>2</sup>	499252-9	746085-2	746290-2
				Tin <sup>3</sup>	499252-9	499982-2	746291-2
16	.750 19.05	.980 24.89	.700 17.78	Duplex <sup>1</sup>	499252-8	499662-3	499997-3
				Duplex <sup>2</sup>	499252-8	746085-3	746290-3
				Tin <sup>3</sup>	499252-8	499982-3	746291-3
20	.950 24.13	1.180 29.97	.900 22.86	Duplex <sup>1</sup>	499252-2	499662-4	499997-4
				Duplex <sup>2</sup>	499252-2	746085-4	746290-4
				Tin <sup>3</sup>	499252-2	499982-4	746291-4
24	1.150 29.21	1.380 35.05	1.100 27.94	Duplex <sup>1</sup>	1-499252-0	499662-5	499997-5
				Duplex <sup>2</sup>	1-499252-0	746085-5	746290-5
				Tin <sup>3</sup>	1-499252-0	499982-5	746291-5
26	1.250 31.75	1.480 37.59	1.200 30.48	Duplex <sup>1</sup>	499252-3	499662-6	499997-6
				Duplex <sup>2</sup>	499252-3	746085-6	746290-6
				Tin <sup>3</sup>	499252-3	499982-6	746291-6
30	1.450 36.83	1.680 42.67	1.400 35.56	Duplex <sup>1</sup>	1-499252-2	499662-7	499997-7
				Duplex <sup>2</sup>	1-499252-2	746085-7	746290-7
				Tin <sup>3</sup>	1-499252-2	499982-7	746291-7
34	1.650 41.91	1.880 47.75	1.600 40.64	Duplex <sup>1</sup>	499252-6	499662-8	499997-8
				Duplex <sup>2</sup>	499252-6	746085-8	746290-8
				Tin <sup>3</sup>	499252-6	499982-8	746291-8
40	1.950 49.53	2.180 55.37	1.900 48.26	Duplex <sup>1</sup>	499252-1	499662-9	499997-9
				Duplex <sup>2</sup>	499252-1	746085-9	746290-9
				Tin <sup>3</sup>	499252-1	499982-9	746291-9
50	2.450 62.23	2.680 68.07	2.400 60.96	Duplex <sup>1</sup>	499252-4	1-499662-0	1-499997-0
				Duplex <sup>2</sup>	499252-4	1-746085-0	1-746290-0
				Tin <sup>3</sup>	499252-4	1-499982-0	1-746291-0
60	2.950 74.93	3.180 80.77	2.900 73.66	Duplex <sup>1</sup>	499252-7	1-499662-1	1-499997-1
				Duplex <sup>2</sup>	499252-7	1-746085-1	1-746290-1
				Tin <sup>3</sup>	499252-7	1-499982-1	1-746291-1
64	3.150 80.01	3.380 85.85	3.100 78.74	Duplex <sup>1</sup>	1-499252-3	1-499662-2	1-499997-2
				Duplex <sup>2</sup>	1-499252-3	1-746085-2	1-746290-2
				Tin <sup>3</sup>	1-499252-3	1-499982-2	1-746291-2

1. .000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
 2. .000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
 3. .000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Notes:** 1. These receptacle kits include a housing assembly and recessed cover (preassembled) and are available with or without strain reliefs. Strain reliefs may be purchased separately using the component part nos. listed above.  
 2. Preassembled receptacle kits listed above are for right-hand orientation of cable, as shown on page 10. Receptacle kits preassembled for left-hand cable orientation and kits with closed-end covers are available, consult AMP Incorporated.

Receptacles

**Novo Receptacles, Military Polarized**  
**.100 x .100 [2.54 x 2.54] Centers**  
**(MIL-C-83503 Qualified)**

Contacts mate with .025  
 [0.64] sq. or round pins  
 with .245 [6.22] max. and  
 .195 [4.95] min. lengths.

**QPL APPROVED**  
**MIL-C-83503**

**Housing Assembly with Recessed Cover (Preassembled) and Strain Relief**

**Material and Finish:**

**Housing, Cover & Strain Relief** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, duplex plated  
 .000050 [0.00127] gold on post/pin mating end, .000180 [0.00457] min. bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Connectors:**

- Pin Connectors — pages 40 thru 43
- Bulkhead Pin Connectors — pages 44 & 45

**Mateable Pin Headers:**

- Low Profile — pages 60 & 61
- Military — pages 62 thru 65

**Mateable Pinless Headers**

- (Use without Latches) — pages 54 & 55

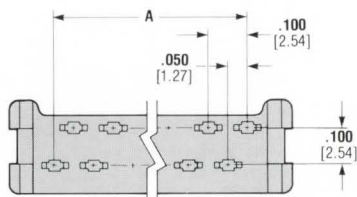
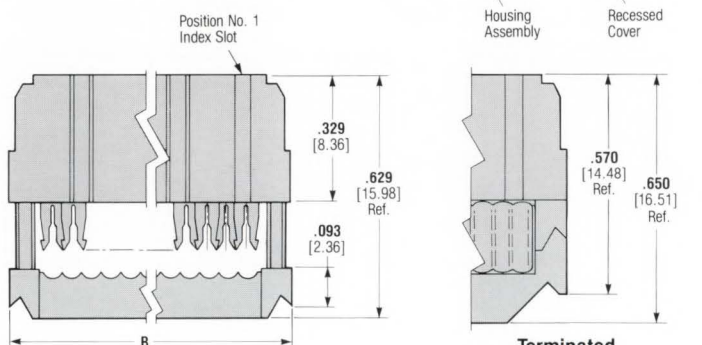
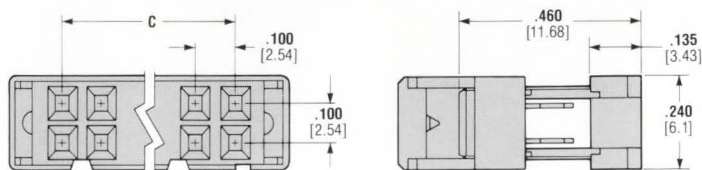
**Ribbon Cable** (QPL Approved per MIL-C-49055) — page 87

**Accessories:**

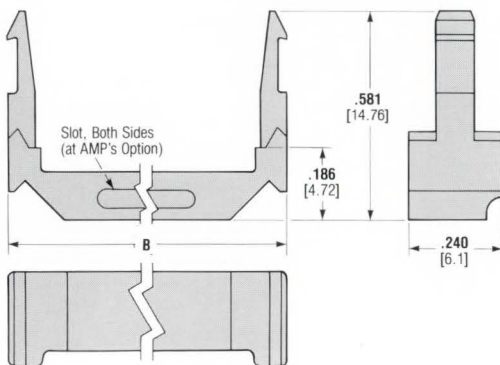
- Pull Tab — page 95
- Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



**Housing Assembly and Recessed Cover**  
 (Shown Preassembled for Right-Hand Cable Orientation.)



**Strain Relief**

**Dimensioning:**  
 Dimensions are in inches and millimetres.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions			Receptacle Kit No. (Preassembled)	
	A	B	C	Military Part No. (M83503/)	AMP Part No.
10	.450 11.43	.680 17.27	.400 10.16	7-01	499485-1
14	.650 16.51	.880 22.35	.600 15.24	7-02	499485-2
16	.750 19.05	.980 24.89	.700 17.78	7-03	499485-3
20	.950 24.13	1.180 29.97	.900 22.86	7-04	499485-4
24	1.150 29.21	1.380 35.05	1.100 27.94	7-05	499485-5
26	1.250 31.75	1.480 37.59	1.200 30.48	7-06	499485-6
30	1.450 36.83	1.680 42.67	1.400 35.56	7-07	499485-7
34	1.650 41.91	1.880 47.75	1.600 40.64	7-08	499485-8
40	1.950 49.53	2.180 55.37	1.900 48.26	7-09	499485-9
50	2.450 62.23	2.680 68.07	2.400 60.96	7-10	1-499485-0
60	2.950 74.93	3.180 80.77	2.900 73.66	7-11	1-499485-1
64	3.150 80.01	3.380 85.85	3.100 78.74	7-12	1-499485-2

**Note:** These receptacle kits include a housing assembly and recessed cover (preassembled) and a strain relief.

## Novo Receptacles, Center and Military Polarized\* .100 x .100 [2.54 x 2.54] Centers

Contacts mate with .025  
[0.64] sq. or round pins  
with .245 [6.22] max. and  
.195 [4.95] min. lengths.

### Housing Assembly with Recessed Cover (Preassembled) and Strain Relief

#### Material and Finish:

**Housing, Cover & Strain Relief** — Black Thermo-plastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, tin or duplex plated (See chart, page 15.)

#### Reference Information:

**Electrical Characteristics** — page 2

#### Mateable Connectors:

Pin Connectors — pages 40 thru 43

#### Mateable Pin Headers:

Universal — pages 48 thru 53 & 56 thru 59  
Low Profile — pages 60 & 61

**Mateable Pinless Headers** — pages 54 & 55

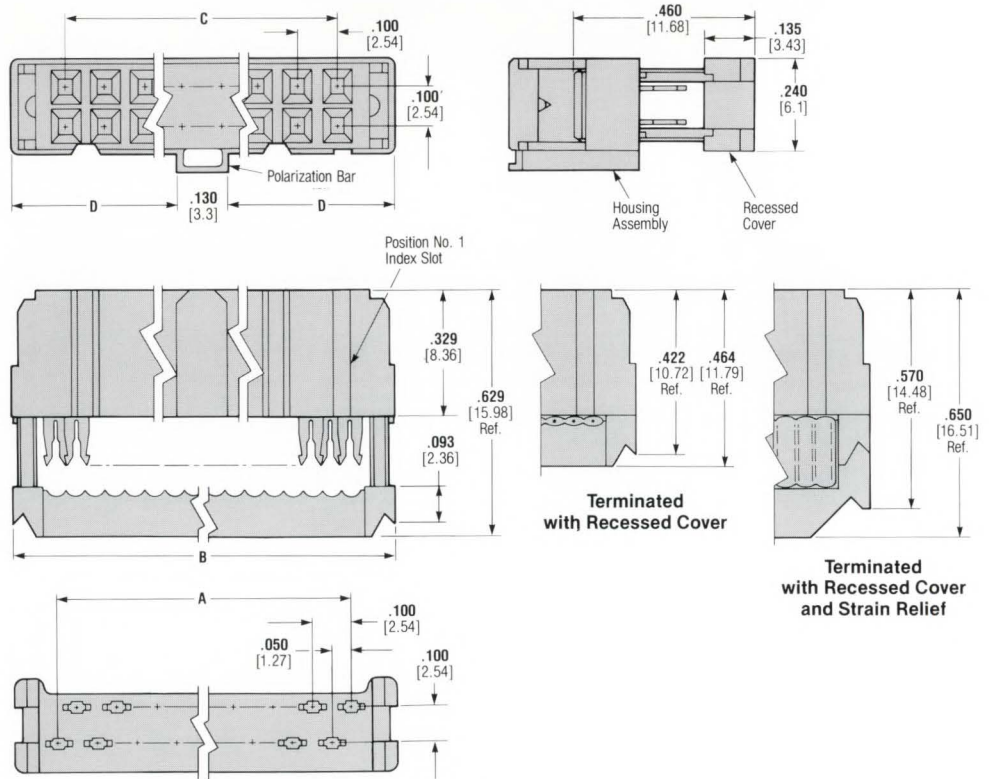
**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

#### Accessories:

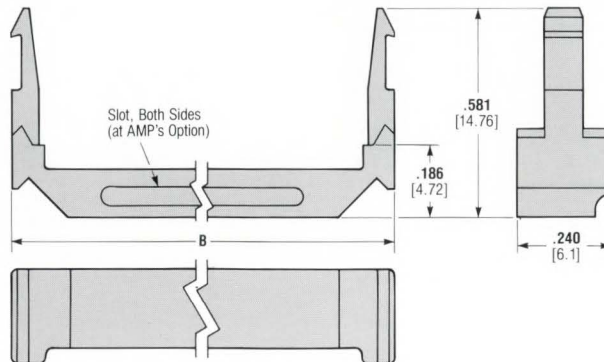
Pull Tab — page 95  
Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



Housing Assembly and Recessed Cover  
(Shown Preassembled for Right-Hand Cable Orientation. See Note 2, page 15.)



Strain Relief

\*These receptacles must be used in applications requiring center polarization.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions				Contact Plating	Strain Relief Part No.	Receptacle Kit No. (Preassembled)	
	A	B	C	D			With Strain Relief	Without Strain Relief
10	.450	.680	.400	.275	Duplex <sup>1</sup>	499252-5	499933-1	746285-1
	11.43	17.27	10.16	6.99	Duplex <sup>2</sup>	499252-5	746094-1	746288-1
					Tin <sup>3</sup>	499252-5	499936-1	746286-1
14	.650	.880	.600	.375	Duplex <sup>1</sup>	499252-9	499933-2	746285-2
	16.51	22.35	15.24	9.53	Duplex <sup>2</sup>	499252-9	746094-2	746288-2
					Tin <sup>3</sup>	499252-9	499936-2	746286-2
16	.750	.980	.700	.425	Duplex <sup>1</sup>	499252-8	499933-3	746285-3
	19.05	24.89	17.78	10.8	Duplex <sup>2</sup>	499252-8	746094-3	746288-3
					Tin <sup>3</sup>	499252-8	499936-3	746286-3
20	.950	1.180	.900	.525	Duplex <sup>1</sup>	499252-2	499933-4	746285-4
	24.13	29.97	22.86	13.34	Duplex <sup>2</sup>	499252-2	746094-4	746288-4
					Tin <sup>3</sup>	499252-2	499936-4	746286-4
24	1.150	1.380	1.100	.625	Duplex <sup>1</sup>	1-499252-0	499933-5	746285-5
	29.21	35.05	27.94	15.88	Duplex <sup>2</sup>	1-499252-0	746094-5	746288-5
					Tin <sup>3</sup>	1-499252-0	499936-5	746286-5
26	1.250	1.480	1.200	.675	Duplex <sup>1</sup>	499252-3	499933-6	746285-6
	31.75	37.59	30.48	17.15	Duplex <sup>2</sup>	499252-3	746094-6	746288-6
					Tin <sup>3</sup>	499252-3	499936-6	746286-6
30	1.450	1.680	1.400	.775	Duplex <sup>1</sup>	1-499252-2	1-499933-3	746285-7
	36.83	42.67	35.56	19.69	Duplex <sup>2</sup>	1-499252-2	746094-7	746288-7
					Tin <sup>3</sup>	1-499252-2	1-499936-3	746286-7
34	1.650	1.880	1.600	.875	Duplex <sup>1</sup>	499252-6	499933-7	746285-8
	41.91	47.75	40.64	22.23	Duplex <sup>2</sup>	499252-6	746094-8	746288-8
					Tin <sup>3</sup>	499252-6	499936-7	746286-8
40	1.950	2.180	1.900	1.025	Duplex <sup>1</sup>	499252-1	499933-8	746285-9
	49.53	55.37	48.26	26.04	Duplex <sup>2</sup>	499252-1	746094-9	746288-9
					Tin <sup>3</sup>	499252-1	499936-8	746286-9
50	2.450	2.680	2.400	1.275	Duplex <sup>1</sup>	499252-4	1-499933-0	1-746285-0
	62.23	68.07	60.96	32.39	Duplex <sup>2</sup>	499252-4	1-746094-0	1-746288-0
					Tin <sup>3</sup>	499252-4	1-499936-0	1-746286-0
60	2.950	3.180	2.900	1.525	Duplex <sup>1</sup>	499252-7	1-499933-1	1-746285-1
	74.93	80.77	73.66	38.74	Duplex <sup>2</sup>	499252-7	1-746094-1	1-746288-1
					Tin <sup>3</sup>	499252-7	1-499936-1	1-746286-1
64	3.150	3.380	3.100	1.625	Duplex <sup>1</sup>	1-499252-3	1-499933-2	1-746285-2
	80.01	85.85	78.74	41.28	Duplex <sup>2</sup>	1-499252-3	1-746094-2	1-746288-2
					Tin <sup>3</sup>	1-499252-3	1-499936-2	1-746286-2

<sup>1</sup> .000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>2</sup> .000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>3</sup> .000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Notes:** 1. These receptacle kits include a housing assembly and recessed cover (preassembled) and are available with or without strain reliefs. Strain reliefs may be purchased separately using the component part nos. listed above.

2. Preassembled receptacle kits listed above are for right-hand orientation of cable, as shown on page 14. Receptacle kits preassembled for left-hand cable orientation and kits with closed-end covers are available, consult AMP Incorporated.

## Novo Receptacles, Dual Polarized .100 x .100 [2.54 x 2.54] Centers

Contacts mate with .025 [0.64] sq. or round pins with .245 [6.22] max. and .195 [4.95] min. lengths.

### Housing Assembly with Recessed Cover (Preassembled) and Strain Relief

#### Material and Finish:

**Housing, Cover & Strain Relief** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, tin or duplex plated (See chart, page 17.)

#### Reference Information:

**Electrical Characteristics** — page 2

#### Mateable Connectors:

Pin Connectors — pages 40 thru 43

#### Mateable Pin Headers:

Universal — pages 48 thru 53

Mateable Pinless Headers — pages 54 & 55

Ribbon Cable — pages 84 thru 86 & 88 thru 90

#### Accessories:

Pull Tab — page 95

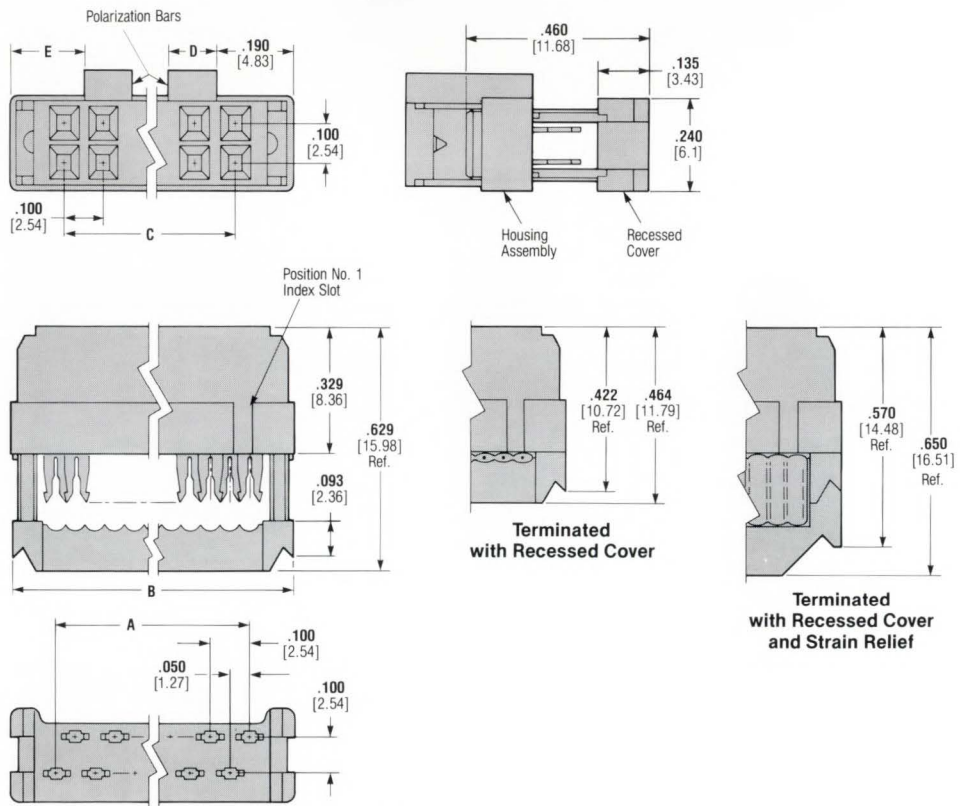
Keying Plug — page 98

#### Application Tooling

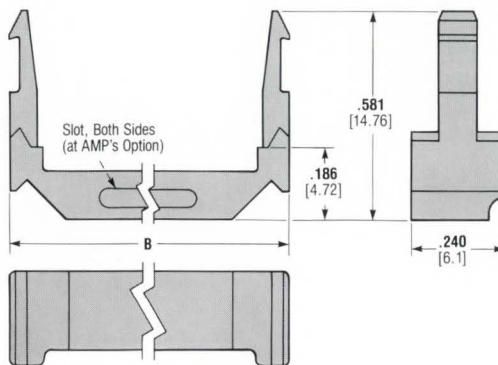
— pages 104 thru 107

#### Technical Documents

— page 109



Housing Assembly and Recessed Cover  
(Shown Preassembled for Right-Hand Cable Orientation. See Note 2, page 17.)



Strain Relief



**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions					Contact Plating	Strain Relief Part No.	Receptacle Kit No. (Preassembled)	
	A	B	C	D	E			With Strain Relief	Without Strain Relief
10	.450	.680	.400	.140	—	Duplex <sup>1</sup>	499252-5	499954-1	746294-1
	11.43	17.27	10.16	3.56		Duplex <sup>2</sup>	499252-5	746091-1	746292-1
						Tin <sup>3</sup>	499252-5	499955-1	746293-1
14	.650	.880	.600	.140	.190	Duplex <sup>1</sup>	499252-9	499954-2	746294-2
	16.51	22.35	15.24	3.56	4.83	Duplex <sup>2</sup>	499252-9	746091-2	746292-2
						Tin <sup>3</sup>	499252-9	499955-2	746293-2
16	.750	.980	.700	.140	.190	Duplex <sup>1</sup>	499252-8	499954-3	746294-3
	19.05	24.89	17.78	3.56	4.83	Duplex <sup>2</sup>	499252-8	746091-3	746292-3
						Tin <sup>3</sup>	499252-8	499955-3	746293-3
20	.950	1.180	.900	.140	.190	Duplex <sup>1</sup>	499252-2	499954-4	746294-4
	24.13	29.97	22.86	3.56	4.83	Duplex <sup>2</sup>	499252-2	746091-4	746292-4
						Tin <sup>3</sup>	499252-2	499955-4	746293-4
24	1.150	1.380	1.100	.140	.190	Duplex <sup>1</sup>	1-499252-0	499954-5	746294-5
	29.21	35.05	27.94	3.56	4.83	Duplex <sup>2</sup>	1-499252-0	746091-5	746292-5
						Tin <sup>3</sup>	1-499252-0	499955-5	746293-5
26	1.250	1.480	1.200	.140	.190	Duplex <sup>1</sup>	499252-3	499954-6	746294-6
	31.75	37.59	30.48	3.56	4.83	Duplex <sup>2</sup>	499252-3	746091-6	746292-6
						Tin <sup>3</sup>	499252-3	499955-6	746293-6
30	1.450	1.680	1.400	.140	.190	Duplex <sup>1</sup>	1-499252-2	1-499954-3	746294-7
	36.83	42.67	35.56	3.56	4.83	Duplex <sup>2</sup>	1-499252-2	746091-7	746292-7
						Tin <sup>3</sup>	1-499252-2	1-499955-3	746293-7
34	1.650	1.880	1.600	.140	.190	Duplex <sup>1</sup>	499252-6	499954-7	746294-8
	41.91	47.75	40.64	3.56	4.83	Duplex <sup>2</sup>	499252-6	746091-8	746292-8
						Tin <sup>3</sup>	499252-6	499955-7	746293-8
40	1.950	2.180	1.900	.140	.190	Duplex <sup>1</sup>	499252-1	499954-8	746294-9
	49.53	55.37	48.26	3.56	4.83	Duplex <sup>2</sup>	499252-1	746091-9	746292-9
						Tin <sup>3</sup>	499252-1	499955-8	746293-9
50	2.450	2.680	2.400	.140	.190	Duplex <sup>1</sup>	499252-4	1-499954-0	1-746294-0
	62.23	68.07	60.96	3.56	4.83	Duplex <sup>2</sup>	499252-4	1-746091-0	1-746292-0
						Tin <sup>3</sup>	499252-4	1-499955-0	1-746293-0
60	2.950	3.180	2.900	.140	.190	Duplex <sup>1</sup>	499252-7	1-499954-1	1-746294-1
	74.93	80.77	73.66	3.56	4.83	Duplex <sup>2</sup>	499252-7	1-746091-1	1-746292-1
						Tin <sup>3</sup>	499252-7	1-499955-1	1-746293-1
64	3.150	3.380	3.100	.140	.190	Duplex <sup>1</sup>	1-499252-3	1-499954-2	1-746294-2
	80.01	85.85	78.74	3.56	4.83	Duplex <sup>2</sup>	1-499252-3	1-746091-2	1-746292-2
						Tin <sup>3</sup>	1-499252-3	1-499955-2	1-746293-2

1.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

2.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

3.000100-.000200 [0.254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Notes:** 1. These receptacle kits include a housing assembly and recessed cover (preassembled) and are available with or without strain reliefs. Strain reliefs may be purchased separately using the component part nos. listed above.

2. Preassembled receptacle kits listed above are for right-hand orientation of cable, as shown on page 16. Receptacle kits preassembled for left-hand cable orientation and kits with closed-end covers are available, consult AMP Incorporated.

**Stackable Novo Receptacles  
with .190 [4.83] Wide Covers  
.100 x .100 [2.54 x 2.54] Centers**

Contacts mate with .025 [0.64] sq. or round pins with .245 [6.22] max. and .195 [4.95] min. lengths.

**Housing Assembly with Cover (Preassembled)**

**Material and Finish:**

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, tin or duplex plated (See chart, page 19.)

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Connectors:**

Pin Connections — pages 40 thru 43

AMP HDI Connectors — AMP Data Sheet 81-655

**Mateable Pin Headers:**

Universal (Use without Latches) — pages 48 thru 53 & 56 thru 59

Low Profile — pages 60 & 61

**Mateable Pinless Headers**

(Use without Latches) — pages 54 & 55

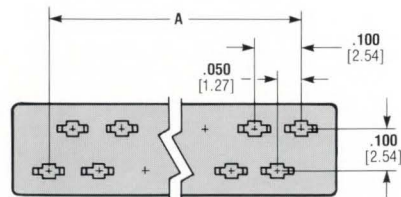
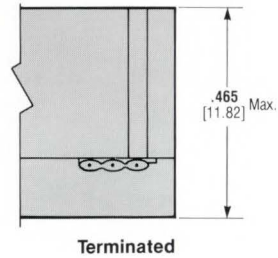
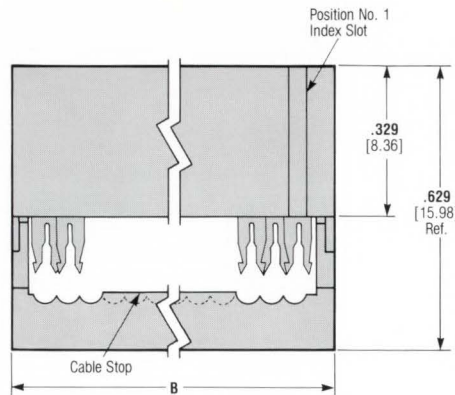
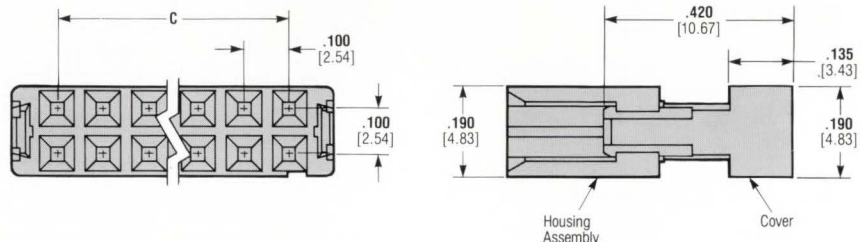
**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

**Accessories:**

Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



**Housing Assembly and Cover  
(Shown Preassembled with Left-Hand Cable Stop. See Note 2, page 19.)**

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions			Contact Plating	Receptacle Kit No. (Preassembled)		
	A	B	C		Without Cable Stop	With Left-Hand Cable Stop	With Right-Hand Cable Stop
10	.450 11.43	.600 15.24	.400 10.16	Duplex <sup>1</sup>	746281-1	746279-1	746634-1
				Duplex <sup>2</sup>	746436-1	746435-1	746635-1
				Tin <sup>3</sup>	746439-1	746438-1	746636-1
14	.650 16.51	.800 20.32	.600 15.24	Duplex <sup>1</sup>	746281-2	746279-2	746634-2
				Duplex <sup>2</sup>	746436-2	746435-2	746635-2
				Tin <sup>3</sup>	746439-2	746438-2	746636-2
16	.750 19.05	.900 22.86	.700 17.78	Duplex <sup>1</sup>	746281-3	746279-3	746634-3
				Duplex <sup>2</sup>	746436-3	746435-3	746635-3
				Tin <sup>3</sup>	746439-3	746438-3	746636-3
20	.950 24.13	1.100 27.94	.900 22.86	Duplex <sup>1</sup>	746281-4	746279-4	746634-4
				Duplex <sup>2</sup>	746436-4	746435-4	746635-4
				Tin <sup>3</sup>	746439-4	746438-4	746636-4
24	1.150 29.21	1.300 33.02	1.100 27.94	Duplex <sup>1</sup>	746281-5	746279-5	746634-5
				Duplex <sup>2</sup>	746436-5	746435-5	746635-5
				Tin <sup>3</sup>	746439-5	746438-5	746636-5
26	1.250 31.75	1.400 35.56	1.200 30.48	Duplex <sup>1</sup>	746281-6	746279-6	746634-6
				Duplex <sup>2</sup>	746436-6	746435-6	746635-6
				Tin <sup>3</sup>	746439-6	746438-6	746636-6
30	1.450 36.83	1.600 40.64	1.400 35.56	Duplex <sup>1</sup>	746281-7	746279-7	746634-7
				Duplex <sup>2</sup>	746436-7	746435-7	746635-7
				Tin <sup>3</sup>	746439-7	746438-7	746636-7
34	1.650 41.91	1.800 45.72	1.600 40.64	Duplex <sup>1</sup>	746281-8	746279-8	746634-8
				Duplex <sup>2</sup>	746436-8	746435-8	746635-8
				Tin <sup>3</sup>	746439-8	746438-8	746636-8
40	1.950 49.53	2.100 53.34	1.900 48.26	Duplex <sup>1</sup>	746281-9	746279-9	746634-9
				Duplex <sup>2</sup>	746436-9	746435-9	746635-9
				Tin <sup>3</sup>	746439-9	746438-9	746636-9
44	2.150 54.61	2.300 58.42	2.100 53.34	Duplex <sup>1</sup>	1-746281-0	1-746279-0	1-746634-0
				Duplex <sup>2</sup>	1-746436-0	1-746435-0	1-746635-0
				Tin <sup>3</sup>	1-746439-0	1-746438-0	1-746636-0
50	2.450 62.23	2.600 66.04	2.400 60.96	Duplex <sup>1</sup>	1-746281-1	1-746279-1	1-746634-1
				Duplex <sup>2</sup>	1-746436-1	1-746435-1	1-746635-1
				Tin <sup>3</sup>	1-746439-1	1-746438-1	1-746636-1
60	2.950 74.93	3.100 78.74	2.900 73.66	Duplex <sup>1</sup>	1-746281-2	1-746279-2	1-746634-2
				Duplex <sup>2</sup>	1-746436-2	1-746435-2	1-746635-2
				Tin <sup>3</sup>	1-746439-2	1-746438-2	1-746636-2
64	3.150 80.01	3.300 83.82	3.100 78.74	Duplex <sup>1</sup>	1-746281-3	1-746279-3	1-746634-3
				Duplex <sup>2</sup>	1-746436-3	1-746435-3	1-746635-3
				Tin <sup>3</sup>	1-746439-3	1-746438-3	1-746636-3

<sup>1</sup>.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>2</sup>.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>3</sup>.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Notes:** 1. These receptacle kits include a housing assembly and cover (preassembled).  
 2. Receptacle kits listed include covers without a cable stop, and covers preassembled with left-hand cable stop (cable stop located on same side as Position No. 1 Index Slot, as shown on page 18) or with right-hand cable stop (cable stop located on opposite side of Position No. 1 Index Slot).

**Stackable Novo Receptacles  
with .240 [6.1] Wide Covers  
.100 x .100 [2.54 x 2.54] Centers**

Contacts mate with .025  
[0.64] sq. or round pins  
with .245 [6.22] max. and  
.195 [4.95] min. lengths.

**Housing Assembly  
with Recessed Cover  
(Preassembled)**

**Material and Finish:**

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, tin or duplex plated (See chart, page 21.)

**Note:** Stackable Novo Receptacles with .240 [6.1] wide covers are used specifically for shielded applications, see pages 74 and 75.

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Pin Connectors (use with Ground Plane Shield Part No. Series 746484):**

- With Slotted Mounting Ears — pages 42 & 43
- Bulkhead — pages 44 & 45

**Mateable Universal Ejection Style Pin Headers:**

- Straight-Thru, 4-Sided (use with Retrofit Shield) — pages 48 thru 51
- Right-Angle, 4-Sided (use with Pc Board Mounted Shield) — pages 52 & 53

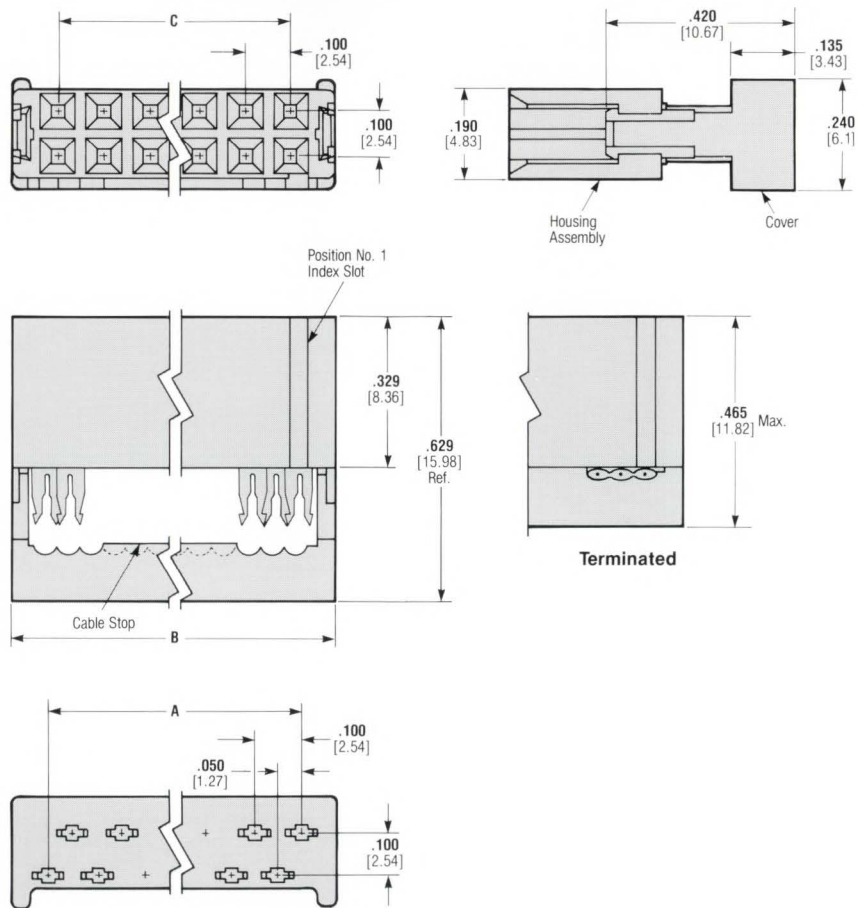
**Ribbon Cable (Shielded/Jacketed)** — pages 91 thru 94

**Accessories**

- Keying Plug — pages 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



**Housing Assembly and Recessed Cover  
(Shown Preassembled with Left-Hand Cable Stop. See Note 2, page 21.)**

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions			Contact Plating	Receptacle Kit No. (Preassembled)	
	A	B	C		With Left-Hand Cable Stop	With Right-Hand Cable Stop
10	.450 11.43	.600 15.24	.400 10.16	Duplex <sup>1</sup>	746411-1	746631-1
				Duplex <sup>2</sup>	746437-1	746632-1
				Tin <sup>3</sup>	746440-1	746633-1
14	.650 16.51	.800 20.32	.600 15.24	Duplex <sup>1</sup>	746411-2	746631-2
				Duplex <sup>2</sup>	746437-2	746632-2
				Tin <sup>3</sup>	746440-2	746633-2
16	.750 19.05	.900 22.86	.700 17.78	Duplex <sup>1</sup>	746411-3	746631-3
				Duplex <sup>2</sup>	746437-3	746632-3
				Tin <sup>3</sup>	746440-3	746633-3
20	.950 24.13	1.100 27.94	.900 22.86	Duplex <sup>1</sup>	746411-4	746631-4
				Duplex <sup>2</sup>	746437-4	746632-4
				Tin <sup>3</sup>	746440-4	746633-4
24	1.150 29.21	1.300 33.02	1.100 27.94	Duplex <sup>1</sup>	746411-5	746631-5
				Duplex <sup>2</sup>	746437-5	746632-5
				Tin <sup>3</sup>	746440-5	746633-5
26	1.250 31.75	1.400 35.56	1.200 30.48	Duplex <sup>1</sup>	746411-6	746631-6
				Duplex <sup>2</sup>	746437-6	746632-6
				Tin <sup>3</sup>	746440-6	746633-6
30	1.450 36.83	1.600 40.64	1.400 35.56	Duplex <sup>1</sup>	746411-7	746631-7
				Duplex <sup>2</sup>	746437-7	746632-7
				Tin <sup>3</sup>	746440-7	746633-7
34	1.650 41.91	1.800 45.72	1.600 40.64	Duplex <sup>1</sup>	746411-8	746631-8
				Duplex <sup>2</sup>	746437-8	746632-8
				Tin <sup>3</sup>	746440-8	746633-8
40	1.950 49.53	2.100 53.34	1.900 48.26	Duplex <sup>1</sup>	746411-9	746631-9
				Duplex <sup>2</sup>	746437-9	746632-9
				Tin <sup>3</sup>	746440-9	746633-9
44	2.150 54.61	2.300 58.42	2.100 53.34	Duplex <sup>1</sup>	1-746411-0	1-746631-0
				Duplex <sup>2</sup>	1-746437-0	1-746632-0
				Tin <sup>3</sup>	1-746440-0	1-746633-0
50	2.450 62.23	2.600 66.04	2.400 60.96	Duplex <sup>1</sup>	1-746411-1	1-746631-1
				Duplex <sup>2</sup>	1-746437-1	1-746632-1
				Tin <sup>3</sup>	1-746440-1	1-746633-1
60	2.950 74.93	3.100 78.74	2.900 73.66	Duplex <sup>1</sup>	1-746411-2	1-746631-2
				Duplex <sup>2</sup>	1-746437-2	1-746632-2
				Tin <sup>3</sup>	1-746440-2	1-746633-2
64	3.150 80.01	3.300 83.82	3.100 78.74	Duplex <sup>1</sup>	1-746411-3	1-746631-3
				Duplex <sup>2</sup>	1-746437-3	1-746632-3
				Tin <sup>3</sup>	1-746440-3	1-746633-3

1.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
 2.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
 3.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

- Notes:** 1. These receptacle kits include a housing assembly and recessed cover (preassembled).  
 2. Receptacle kits listed include recessed covers preassembled with left-hand cable stop (cable stop located on same side as Position No. 1 Index Slot, as shown on page 20) or with right-hand cable stop (cable stop located on opposite side of Position No. 1 Index Slot).  
 3. Stackable Novo Receptacles with .240 [6.1] wide covers are also furnished with shielding hardware, see pages 74 and 75.

## EUROLATCH Receptacles 64-Position (Three-Row Housings, Two Rows Loaded)

**Dimensioning:**  
Dimensions are in millimetres and inches.  
Values in brackets are equivalent  
U.S. Customary Units.

### Housing Assembly with Cover (Preassembled)

#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, duplex plated 0.00076-0.00089 [0.00030-0.00035] gold on post/pin mating end, 0.00254-0.00508 [0.00100-0.00200] bright tin-lead on termination end, with entire contact underplated 0.00127 [0.00050] nickel.

#### Reference Information:

**Electrical Characteristics** — page 2

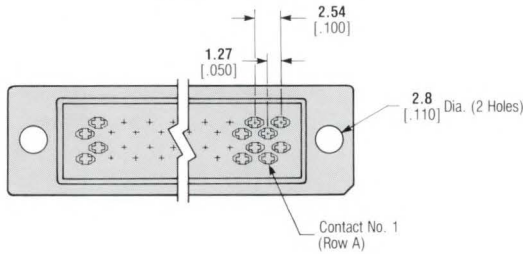
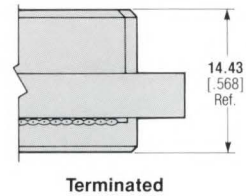
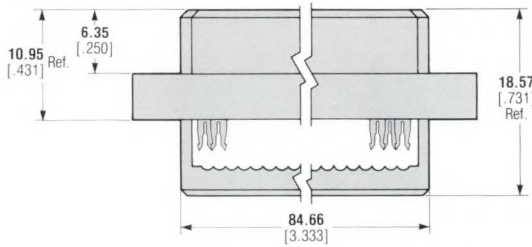
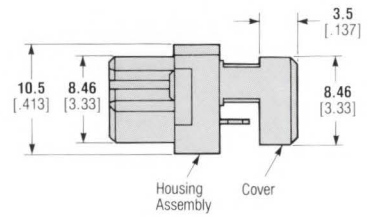
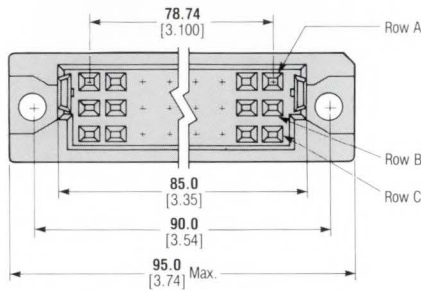
#### Mateable Pin Connectors:

Eurocard Type C and Type R — AMP Data Sheet 80-566

**Ribbon Cable** — pages 84 thru 86 (64-conductor)

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



Contact Rows Loaded	Receptacle Kit No. (Preassembled)
A and C	746603-1
A and B	746603-2
B and C	746603-3

**Note:** These receptacles are compatible with 482.6 [19] rack systems.

## Receptacles .100 x .200 [2.54 x 5.08] Centers

Contacts mate with .025 [0.64] sq. or round pins with .323 [8.21] max. and .230 [5.84] min. lengths.

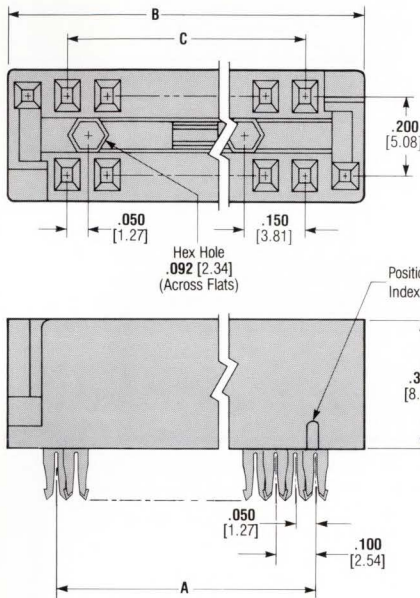
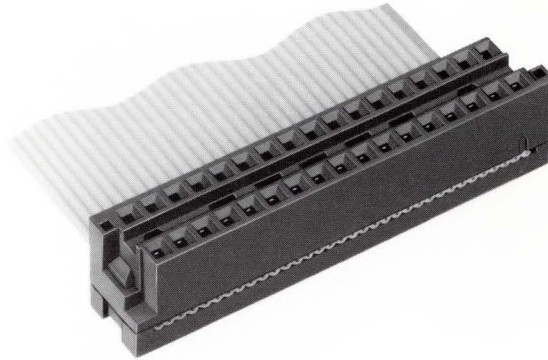
**Dimensioning:**  
Dimensions are in inches and millimetres. Values in brackets are metric equivalents. Chart contains dimensions in inches over millimetres.

### Housing Assembly and Recessed Cover (Unassembled)

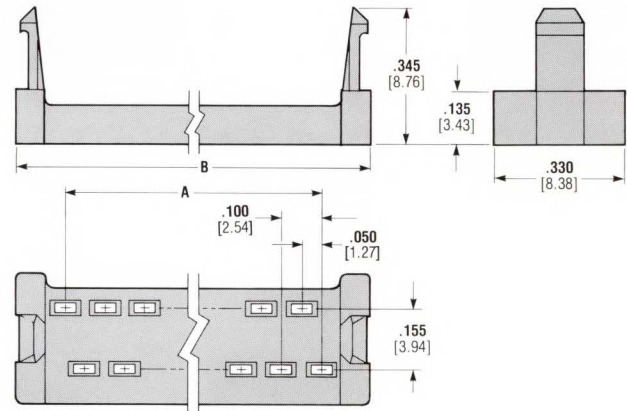
#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, duplex plated (See chart below.)



Housing Assembly



Recessed Cover

#### Reference Information:

**Electrical Characteristics** — page 2

**Ribbon Cable** — pages 84 thru 86

#### Accessories:

Pull Tab — page 95

Polarizer — page 96

Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109

No. of Pos.	Dimensions			Contact Plating	Receptacle Kit No.
	A	B	C		
20	.950	1.180	.900	Duplex <sup>1</sup>	499183-4
	24.13	29.97	22.86	Duplex <sup>2</sup>	88767-4
26	1.250	1.480	1.200	Duplex <sup>1</sup>	499183-6
	31.75	37.59	30.48	Duplex <sup>2</sup>	88767-6
34	1.650	1.880	1.600	Duplex <sup>1</sup>	499181-2
	41.91	47.75	40.64	Duplex <sup>2</sup>	88550-1
40	1.950	2.180	1.900	Duplex <sup>1</sup>	499181-3
	49.53	55.37	48.26	Duplex <sup>2</sup>	88550-2
50	2.450	2.680	2.400	Duplex <sup>1</sup>	499181-4
	62.23	68.07	60.96	Duplex <sup>2</sup>	88550-3
60	2.950	3.180	2.900	Duplex <sup>1</sup>	499181-5
	74.93	80.77	73.66	Duplex <sup>2</sup>	88550-4

<sup>1</sup>.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>2</sup>.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

**Note:** These receptacle kits include a housing assembly and recessed cover (unassembled). Individual housing assemblies and recessed covers may be purchased separately, consult AMP Incorporated.

## Card Edge Connectors without Mounting Ears

### Housing Assembly with Cover (Preassembled)

#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, duplex plated (See chart, page 25.)

#### Reference Information:

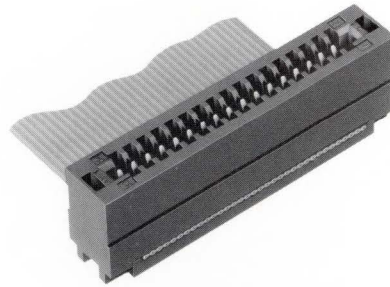
**Electrical Characteristics** — page 2

**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

#### Accessories:

Keying Plugs — page 98  
**Application Tooling** — pages 104 thru 107

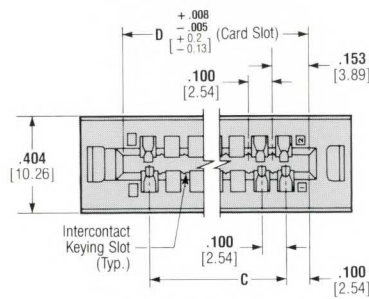
**Technical Documents** — page 109



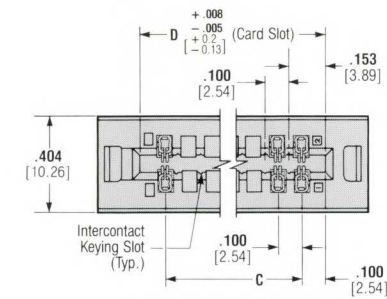
With Single Beam Contacts



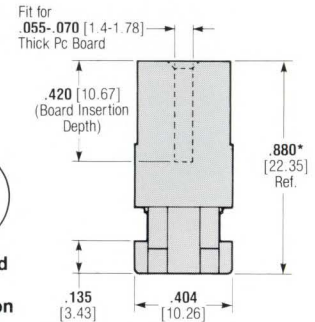
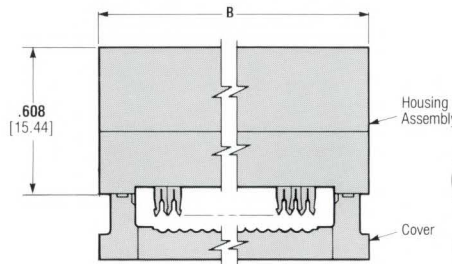
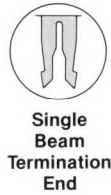
With Bifurcated Beam Contacts



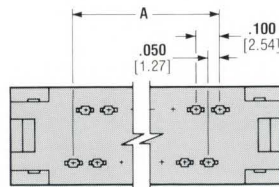
Single Beam Contacts



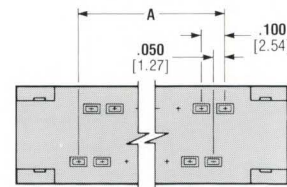
Bifurcated Beam Contacts



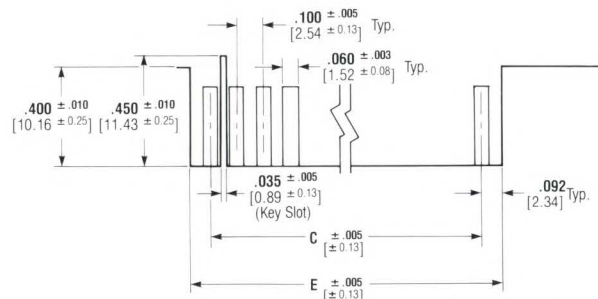
\*Height of connector after termination is .718 [18.24] max. ref.



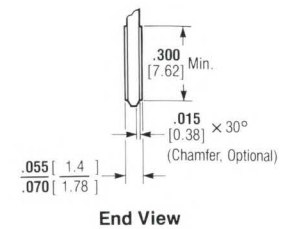
Single Beam Contacts



Bifurcated Beam Contacts



Recommended P.C. Board Layout



End View



**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions					Contact Plating	Connector Kit No. (Preamsembled)	
	A	B	C	D	E		with Single Beam Contacts	with Bifurcated Beam Contacts
10	.450	.960	.400	.607	.584	Duplex <sup>1</sup>	746763-8	499563-8
	11.43	24.38	10.16	15.42	14.83	Duplex <sup>2</sup>	746428-8	499560-8
						Tin <sup>3</sup>	746624-8	—
14	.650	1.160	.600	.807	.784	Duplex <sup>1</sup>	746763-9	499563-9
	16.51	29.46	15.24	20.5	19.91	Duplex <sup>2</sup>	746428-9	499560-9
						Tin <sup>3</sup>	746624-9	—
16	.750	1.260	.700	.907	.884	Duplex <sup>1</sup>	1-746763-0	1-499563-0
	19.05	32	17.78	23.04	22.45	Duplex <sup>2</sup>	1-746428-0	1-499560-0
						Tin <sup>3</sup>	1-746624-0	—
20	.950	1.460	.900	1.107	1.084	Duplex <sup>1</sup>	746763-6	499563-6
	24.13	37.08	22.86	28.12	27.53	Duplex <sup>2</sup>	746428-6	499560-6
						Tin <sup>3</sup>	746624-6	—
26	1.250	1.760	1.200	1.407	1.384	Duplex <sup>1</sup>	746763-5	499563-5
	31.75	44.7	30.48	35.74	35.15	Duplex <sup>2</sup>	746428-5	499560-5
						Tin <sup>3</sup>	746624-5	—
30	1.450	1.960	1.400	1.607	1.584	Duplex <sup>1</sup>	746763-4	499563-4
	36.83	49.78	35.56	40.82	40.23	Duplex <sup>2</sup>	746428-4	499560-4
						Tin <sup>3</sup>	746624-4	—
34	1.650	2.160	1.600	1.807	1.784	Duplex <sup>1</sup>	746763-3	499563-3
	41.91	54.86	40.64	45.9	45.31	Duplex <sup>2</sup>	746428-3	499560-3
						Tin <sup>3</sup>	746624-3	—
40	1.950	2.460	1.900	2.107	2.084	Duplex <sup>1</sup>	746763-2	499563-2
	49.53	62.48	48.26	53.52	52.93	Duplex <sup>2</sup>	746428-2	499560-2
						Tin <sup>3</sup>	746624-2	—
44	2.150	2.660	2.100	2.307	2.284	Duplex <sup>1</sup>	1-746763-2	1-499563-2
	54.61	67.56	53.34	58.6	58.01	Duplex <sup>2</sup>	1-746428-2	1-499560-2
						Tin <sup>3</sup>	1-746624-2	—
50	2.450	2.960	2.400	2.607	2.584	Duplex <sup>1</sup>	746763-1	499563-1
	62.23	75.18	60.96	66.22	65.63	Duplex <sup>2</sup>	746428-1	499560-1
						Tin <sup>3</sup>	746624-1	—
60	2.950	3.460	2.900	3.107	3.084	Duplex <sup>1</sup>	746763-7	499563-7
	74.93	87.88	73.66	78.92	78.33	Duplex <sup>2</sup>	746428-7	499560-7
						Tin <sup>3</sup>	746624-7	—
64	3.150	3.660	3.100	3.307	3.284	Duplex <sup>1</sup>	1-746763-1	1-499563-1
	80.01	92.96	78.74	84	83.41	Duplex <sup>2</sup>	1-746428-1	1-499560-1
						Tin <sup>3</sup>	1-746624-1	—

<sup>1</sup>.000015 [0.00038] gold on pc board mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>2</sup>.000030 [0.00076] gold on pc board mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>3</sup>.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Notes:** 1. These connector kits include a housing assembly and cover (preassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.

2. Molded-in keying plugs are available, consult AMP Incorporated.

**Card Edge Connectors with Round Hole Mounting Ears**

**Housing Assembly with Cover (Preassembled)**

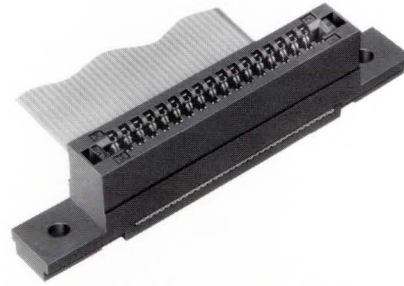
**Material and Finish:**

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

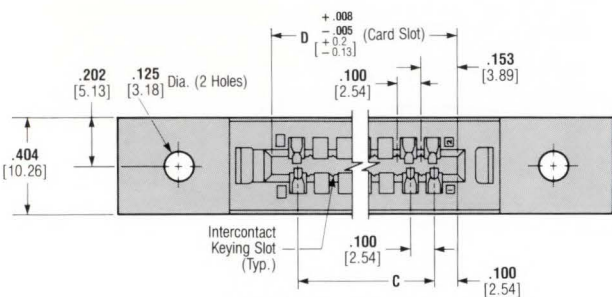
**Contacts** — Phosphor Bronze, duplex plated (See chart, page 27.)



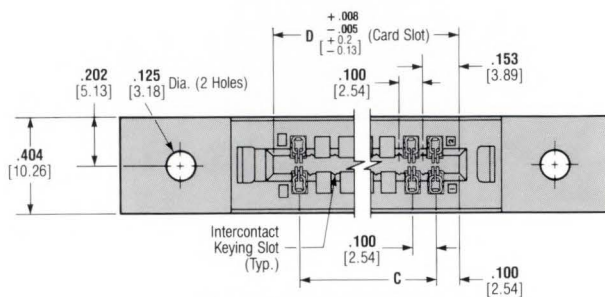
**With Single Beam Contacts**



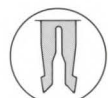
**With Bifurcated Beam Contacts**



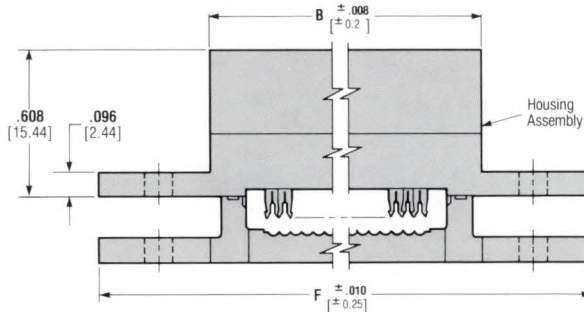
**Single Beam Contacts**



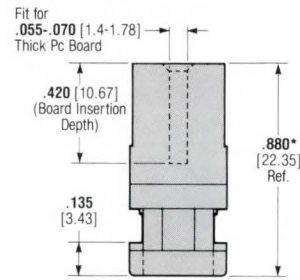
**Bifurcated Beam Contacts**



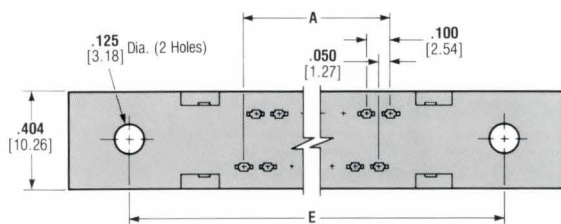
**Single Beam Termination End**



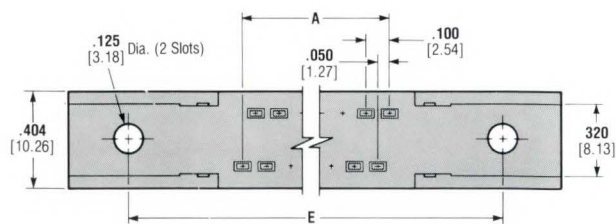
**Bifurcated Beam Termination End**



\*Height of connector after termination is .718 [18.24] max. ref.



**Single Beam Contacts**



**Bifurcated Beam Contacts**

**Reference Information:**

**Electrical Characteristics** — page 2

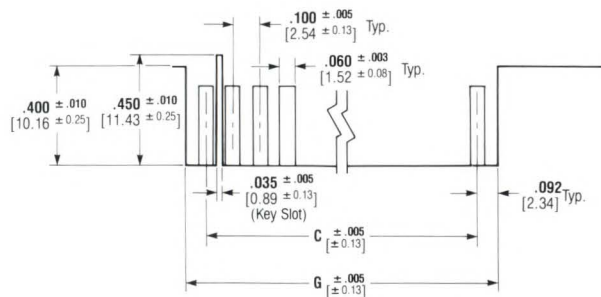
**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

**Accessories:**

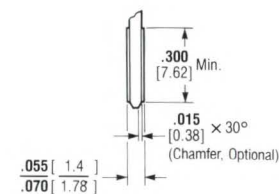
Keying Plugs — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



**Recommended Pc Board Layout**



**End View**

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions							Contact Plating	Connector Kit No. (Preassembled)	
	A	B	C	D	E	F	G		with Single Beam Contacts	with Bifurcated Beam Contacts
10	.450	.960	.400	.607	1.400	1.900	.584	Duplex <sup>1</sup>	746764-8	499562-8
	11.43	24.38	10.16	15.42	35.56	48.26	14.83	Duplex <sup>2</sup>	746426-8	499559-8
								Tin <sup>3</sup>	746622-8	—
14	.650	1.160	.600	.807	1.600	2.100	.784	Duplex <sup>1</sup>	746764-9	499562-9
	16.51	29.46	15.24	20.5	40.64	53.34	19.91	Duplex <sup>2</sup>	746426-9	499559-9
								Tin <sup>3</sup>	746622-9	—
16	.750	1.260	.700	.907	1.700	2.200	.884	Duplex <sup>1</sup>	1-746764-0	1-499562-0
	19.05	32	17.78	23.04	43.18	55.88	22.45	Duplex <sup>2</sup>	1-746426-0	1-499559-0
								Tin <sup>3</sup>	1-746622-0	—
20	.950	1.460	.900	1.107	1.900	2.400	1.084	Duplex <sup>1</sup>	746764-6	499562-6
	24.13	37.08	22.86	28.12	48.26	60.96	27.53	Duplex <sup>2</sup>	746426-6	499559-6
								Tin <sup>3</sup>	746622-6	—
26	1.250	1.760	1.200	1.407	2.200	2.700	1.384	Duplex <sup>1</sup>	746764-5	499562-5
	31.75	44.7	30.48	35.74	55.88	68.58	35.15	Duplex <sup>2</sup>	746426-5	499559-5
								Tin <sup>3</sup>	746622-5	—
30	1.450	1.960	1.400	1.607	2.400	2.900	1.584	Duplex <sup>1</sup>	746764-4	499562-4
	36.83	49.78	35.56	40.82	60.96	73.66	40.23	Duplex <sup>2</sup>	746426-4	499559-4
								Tin <sup>3</sup>	746622-4	—
34	1.650	2.160	1.600	1.807	2.600	3.100	1.784	Duplex <sup>1</sup>	746764-3	499562-3
	41.91	54.86	40.64	45.9	66.04	78.74	45.31	Duplex <sup>2</sup>	746426-3	499559-3
								Tin <sup>3</sup>	746622-3	—
40	1.950	2.460	1.900	2.107	2.900	3.400	2.084	Duplex <sup>1</sup>	746764-2	499562-2
	49.53	62.48	48.26	53.52	73.66	86.36	52.93	Duplex <sup>2</sup>	746426-2	499559-2
								Tin <sup>3</sup>	746622-2	—
44	2.150	2.660	2.100	2.307	3.100	3.600	2.284	Duplex <sup>1</sup>	1-746764-2	1-499562-2
	54.61	67.56	53.34	58.6	78.74	91.44	58.01	Duplex <sup>2</sup>	1-746426-2	1-499559-2
								Tin <sup>3</sup>	1-746622-2	—
50	2.450	2.960	2.400	2.607	3.400	3.900	2.584	Duplex <sup>1</sup>	746764-1	499562-1
	62.23	75.18	60.96	66.22	86.36	99.06	65.63	Duplex <sup>2</sup>	746426-1	499559-1
								Tin <sup>3</sup>	746622-1	—
60	2.950	3.460	2.900	3.107	3.900	4.400	3.084	Duplex <sup>1</sup>	746764-7	499562-7
	74.93	87.88	73.66	78.92	99.06	111.76	78.33	Duplex <sup>2</sup>	746426-7	499559-7
								Tin <sup>3</sup>	746622-7	—
64	3.150	3.660	3.100	3.307	4.100	4.600	3.284	Duplex <sup>1</sup>	1-746764-1	1-499562-1
	80.01	92.96	78.74	84	104.14	116.84	83.41	Duplex <sup>2</sup>	1-746426-1	1-499559-1
								Tin <sup>3</sup>	1-746622-1	—

<sup>1</sup>.000015 [0.00038] gold on pc board mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>2</sup>.000030 [0.00076] gold on pc board mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>3</sup>.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Notes:** 1. These connector kits include a housing assembly and cover (preassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.

2. Molded-in keying plugs are available, consult AMP Incorporated.

**Card Edge Connectors  
with Slotted Mounting Ears**

Card Edge Connectors

**Housing Assembly with Cover (Preassembled)**

**Material and Finish:**

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

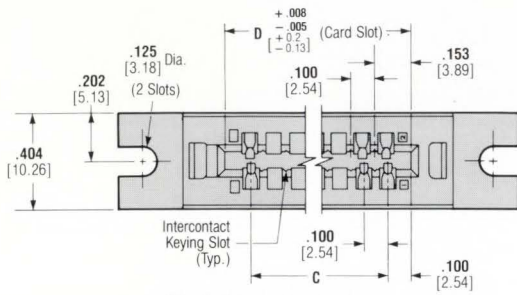
**Contacts** — Phosphor Bronze, duplex plated (See chart, page 29.)



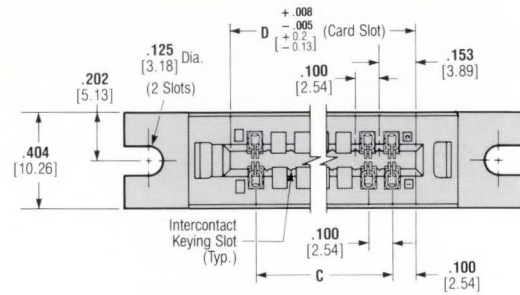
With Single Beam Contacts



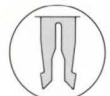
With Bifurcated Beam Contacts



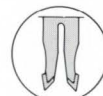
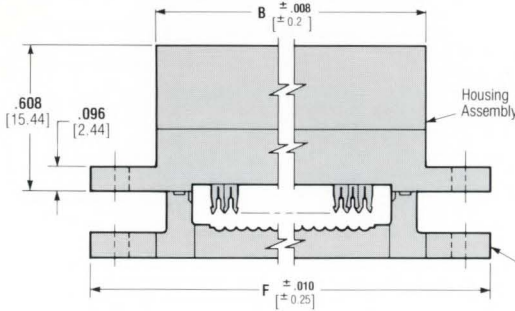
Single Beam Contacts



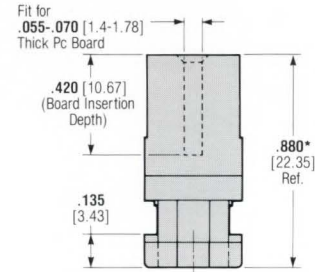
Bifurcated Beam Contacts



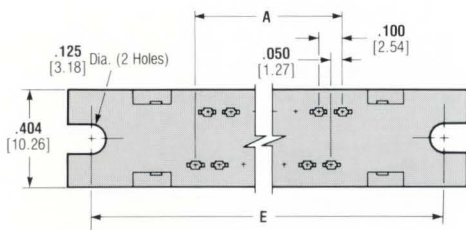
Single Beam Termination End



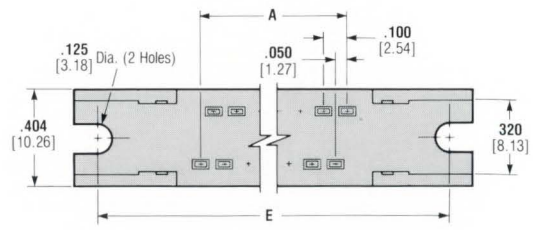
Bifurcated Beam Termination End



\*Height of connector after termination is .718 [18.24] max. ref.



Single Beam Contacts



Bifurcated Beam Contacts

**Reference Information:**

**Electrical Characteristics** — page 2

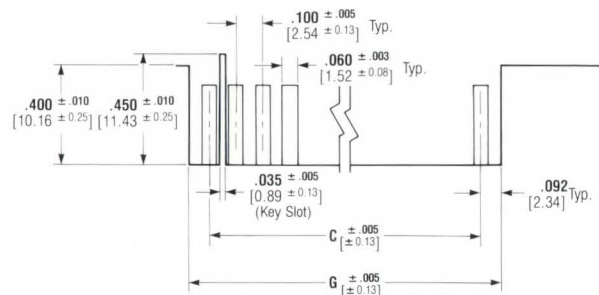
**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

**Accessories:**

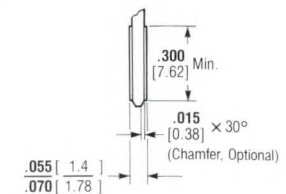
Keying Plugs — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



Recommended Pc Board Layout



End View

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos.	Dimensions							Contact Plating	Connector Kit No. (Preassembled)	
	A	B	C	D	E	F	G		with Single Beam Contacts	with Bifurcated Beam Contacts
10	.450	.960	.400	.607	1.300	1.500	.584	Duplex <sup>1</sup>	746765-8	499564-8
	11.43	24.38	10.16	15.42	33.02	38.1	14.83	Duplex <sup>2</sup>	746427-8	499561-8
								Tin <sup>3</sup>	746623-8	—
14	.650	1.160	.600	.807	1.500	1.700	.784	Duplex <sup>1</sup>	746765-9	499564-9
	16.51	29.46	15.24	20.5	38.1	43.18	19.91	Duplex <sup>2</sup>	746427-9	499561-9
								Tin <sup>3</sup>	746623-9	—
16	.750	1.260	.700	.907	1.600	1.800	.884	Duplex <sup>1</sup>	1-746765-0	1-499564-0
	19.05	32	17.78	23.04	40.64	45.72	22.45	Duplex <sup>2</sup>	1-746427-0	1-499561-0
								Tin <sup>3</sup>	1-746623-0	—
20	.950	1.460	.900	1.107	1.800	2.000	1.084	Duplex <sup>1</sup>	746765-6	499564-6
	24.13	37.08	22.86	28.12	45.72	50.8	27.53	Duplex <sup>2</sup>	746427-6	499561-6
								Tin <sup>3</sup>	746623-6	—
26	1.250	1.760	1.200	1.407	2.100	2.300	1.384	Duplex <sup>1</sup>	746765-5	499564-5
	31.75	44.7	30.48	35.74	53.34	58.42	35.15	Duplex <sup>2</sup>	746427-5	499561-5
								Tin <sup>3</sup>	746623-5	—
30	1.450	1.960	1.400	1.607	2.300	2.500	1.584	Duplex <sup>1</sup>	746765-4	499564-4
	36.83	49.78	35.56	40.82	58.42	63.5	40.23	Duplex <sup>2</sup>	746427-4	499561-4
								Tin <sup>3</sup>	746623-4	—
34	1.650	2.160	1.600	1.807	2.500	2.700	1.784	Duplex <sup>1</sup>	746765-3	499564-3
	41.91	54.86	40.64	45.9	63.5	68.58	45.31	Duplex <sup>2</sup>	746427-3	499561-3
								Tin <sup>3</sup>	746623-3	—
40	1.950	2.460	1.900	2.107	2.800	3.000	2.084	Duplex <sup>1</sup>	746765-2	499564-2
	49.53	62.48	48.26	53.52	71.12	76.2	52.93	Duplex <sup>2</sup>	746427-2	499561-2
								Tin <sup>3</sup>	746623-2	—
44	2.150	2.660	2.100	2.307	3.000	3.200	2.284	Duplex <sup>1</sup>	1-746765-2	1-499564-2
	54.61	67.56	53.34	58.6	76.2	81.28	58.01	Duplex <sup>2</sup>	1-746427-2	1-499561-2
								Tin <sup>3</sup>	1-746623-2	—
50	2.450	2.960	2.400	2.607	3.300	3.500	2.584	Duplex <sup>1</sup>	746765-1	499564-1
	62.23	75.18	60.96	66.22	83.82	88.9	65.63	Duplex <sup>2</sup>	746427-1	499561-1
								Tin <sup>3</sup>	746623-1	—
60	2.950	3.460	2.900	3.107	3.800	4.000	3.084	Duplex <sup>1</sup>	746765-7	499564-7
	74.93	87.88	73.66	78.92	96.52	101.6	78.33	Duplex <sup>2</sup>	746427-7	499561-7
								Tin <sup>3</sup>	746623-7	—
64	3.150	3.660	3.100	3.307	4.000	4.200	3.284	Duplex <sup>1</sup>	1-746765-1	1-499564-1
	80.01	92.96	78.74	84	101.6	106.68	83.41	Duplex <sup>2</sup>	1-746427-1	1-499561-1
								Tin <sup>3</sup>	1-746623-1	—

1.000015 [0.00038] gold on pc board mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

2.000030 [0.00076] gold on pc board mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

3.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

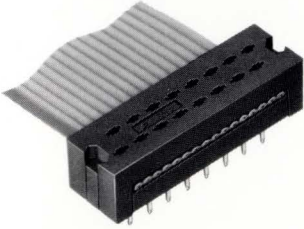
**Notes:** 1. These connector kits include a housing assembly and cover (preassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.

2. Molded-in keying plugs are available, consult AMP Incorporated.

## DIP Plugs .100 x .100 [2.54 x 2.54] Centers

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

### Housing Assembly with Cover (Preassembled)



#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, plated .000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact

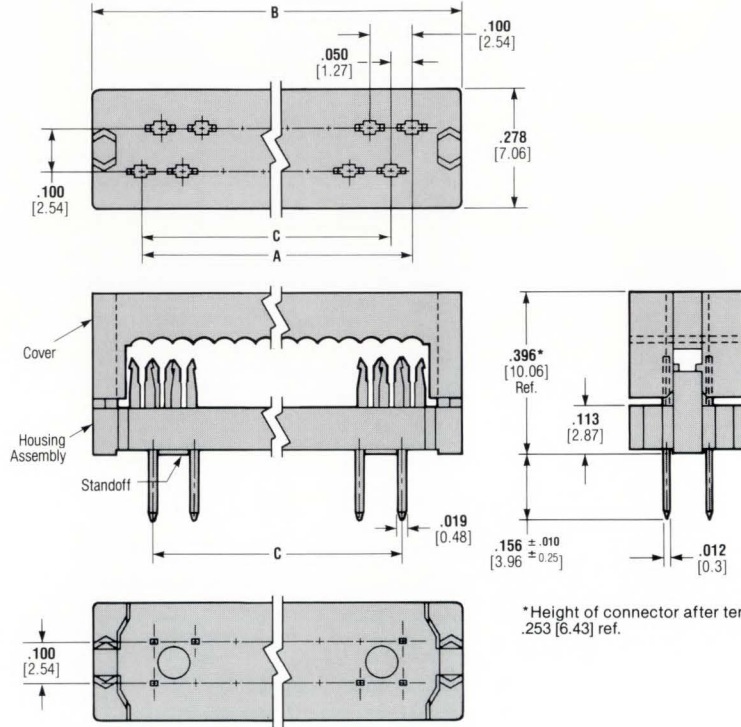
#### Reference Information:

**Electrical Characteristics** — page 2

**Ribbon Cable** — pages 84 thru 86

**Application Tooling** — pages 104 thru 107

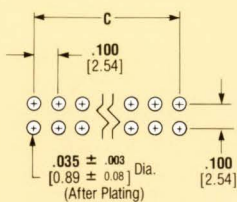
**Technical Documents** — page 109



\*Height of connector after termination is .253 [6.43] ref.

No. of Pos.	Dimensions			Plug Kit No. (Preassembled)
	A	B	C	
10	.450 11.43	.680 17.27	.400 10.16	746610-1
14	.650 16.51	.880 22.35	.600 15.24	746610-2
16	.750 19.05	.980 24.89	.700 17.78	746610-3
20	.950 24.13	1.180 29.97	.900 22.86	746610-4
24	1.150 29.21	1.380 35.05	1.100 27.94	746610-5
26	1.250 31.75	1.480 37.59	1.200 30.48	746610-6
30	1.450 36.83	1.680 42.67	1.400 35.56	746610-7
34	1.650 41.91	1.880 47.75	1.600 40.64	746610-8
40	1.950 49.53	2.180 55.37	1.900 48.26	746610-9
44	2.150 54.61	2.380 60.45	2.100 53.34	1-746610-3
50	2.450 62.23	2.680 68.07	2.400 60.96	1-746610-0
60	2.950 74.93	3.180 80.77	2.900 73.66	1-746610-1
64	3.150 80.01	3.380 85.85	3.100 78.74	1-746610-2

**Note:** All plug kits include a housing assembly and cover (preassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.

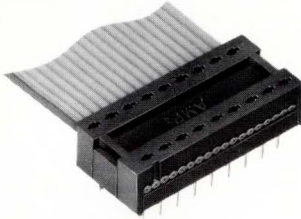


**Recommended Mounting Hole Pattern**  
(for .094-.125 [2.39-3.18] thick pc boards)

## DIP Plugs .100 x .300 [2.54 x 7.62] Centers

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

### Housing Assembly with Cover (Preassembled)



#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, tin or duplex plated (See chart below.)

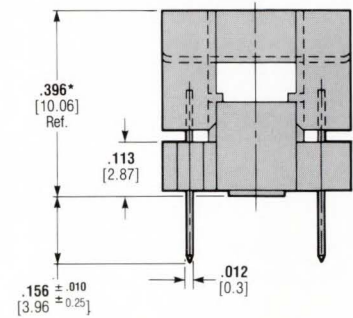
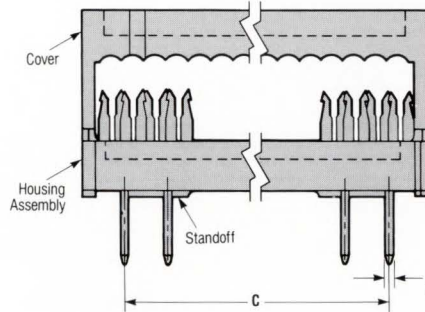
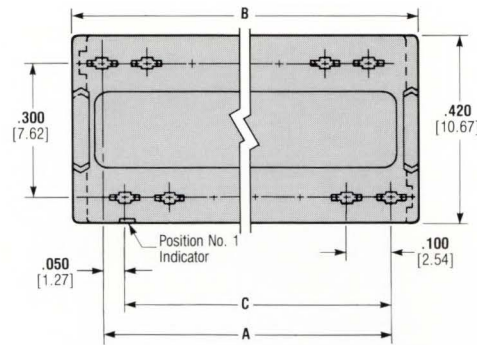
#### Reference Information:

**Electrical Characteristics** — page 2

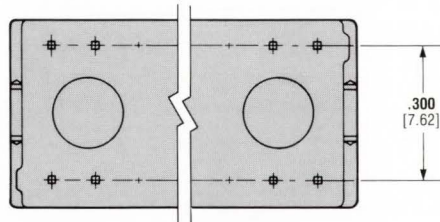
**Ribbon Cable** — pages 84 thru 86

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



\*Height of connector after termination is .253 [6.43] ref.



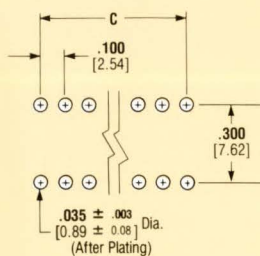
No. of Pos.	Dimensions			Contact Plating	Plug Kit No. (Preassembled)
	A	B	C		
8	.350	.488	.300	Duplex <sup>1</sup>	746612-1
	8.89	12.4	7.62	Duplex <sup>2</sup>	746611-1
				Tin <sup>3</sup>	746613-1
14	.650	.788	.600	Duplex <sup>1</sup>	746612-2
	16.51	20.02	15.24	Duplex <sup>2</sup>	746611-2
				Tin <sup>3</sup>	746613-2
16	.750	.888	.700	Duplex <sup>1</sup>	746612-3
	19.05	22.56	17.78	Duplex <sup>2</sup>	746611-3
				Tin <sup>3</sup>	746613-3
18	.850	.988	.800	Duplex <sup>1</sup>	746612-4
	21.59	25.1	20.32	Duplex <sup>2</sup>	746611-4
				Tin <sup>3</sup>	746613-4
20	.950	1.188	.900	Duplex <sup>1</sup>	746612-5
	24.13	30.18	22.86	Duplex <sup>2</sup>	746611-5
				Tin <sup>3</sup>	746613-5

<sup>1</sup>.000015 [0.00038] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

<sup>2</sup>.000030 [0.00076] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

<sup>3</sup>.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Note:** All plug kits include a housing assembly and cover (preassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.



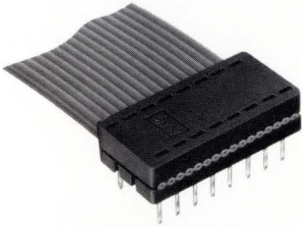
**Recommended Mounting Hole Pattern**  
(for .094-.125 [2.39-3.18] thick pc boards)

## DIP Plugs .100 x .300 [2.54 x 7.62] Centers (MIL-C-83503 Qualified)

**QPL APPROVED  
MIL-C-83503**

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

### Housing Assembly with Cover (Unassembled)



#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, plated .000050 [0.00127] gold over .000050 [0.00127] nickel on entire contact

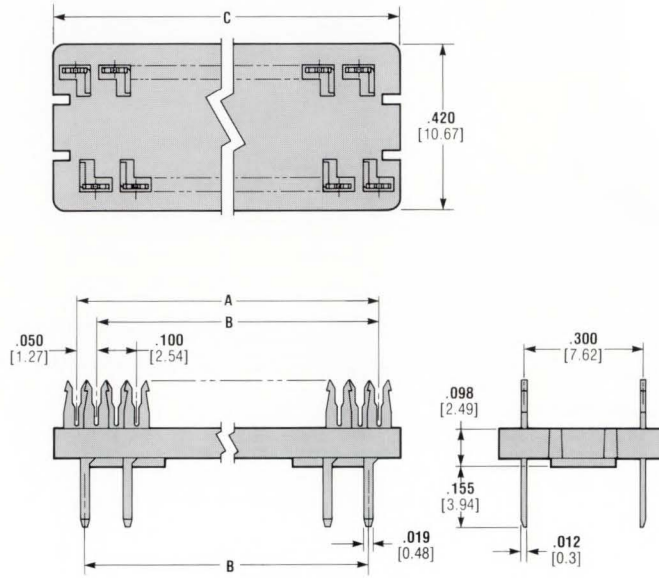
#### Reference Information:

**Electrical Characteristics** — page 2

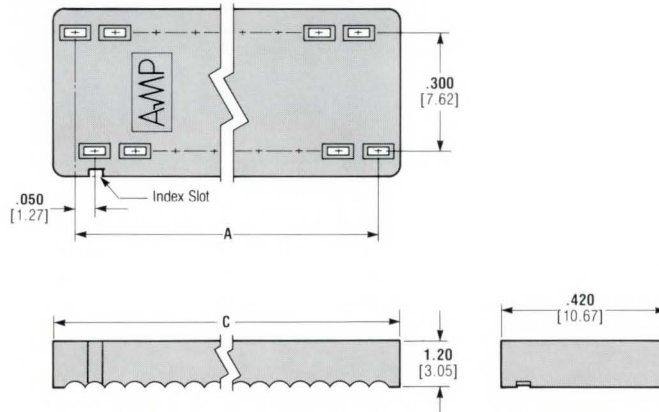
**Ribbon Cable** (QPL Approved per MIL-C-49055) — page 87

**Application Tooling** — pages 104 thru 107

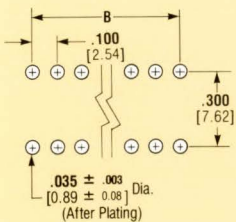
**Technical Documents** — page 109



Housing Assembly



Cover



**Recommended Mounting  
Hole Pattern**  
(for .094-.125 [2.39-3.18]  
thick pc boards)

No. of Pos.	Dimensions			Plug Kit No. (Unassembled)	
	A	B	C	Military Part No. (M83503/)	AMP Part No.
14	.650 16.51	.600 15.24	.750 19.05	6-01	499529-1
16	.750 19.05	.700 17.78	.850 21.59	6-02	499529-2

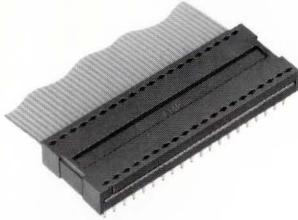
**Note:** All plug kits include a housing assembly and cover (unassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.



## DIP Plugs .100 x .600 [2.54 x 15.24] Centers

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

### Housing Assembly with Cover (Preassembled)



#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, tin or duplex plated (See chart below.)

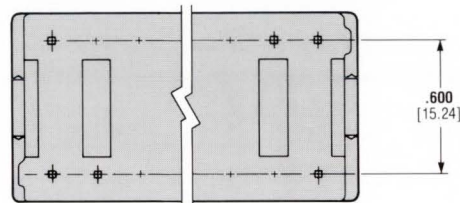
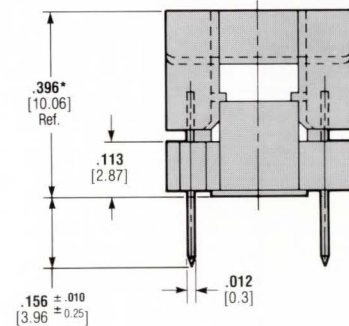
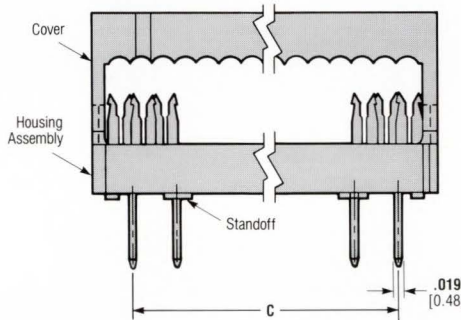
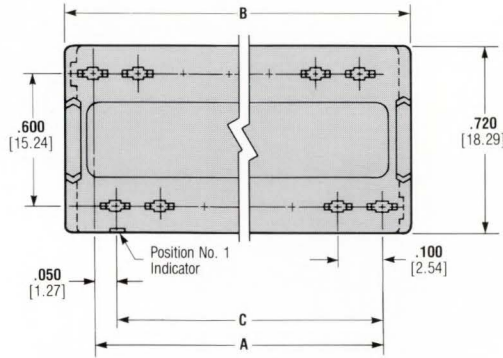
#### Reference Information:

**Electrical Characteristics** — page 2

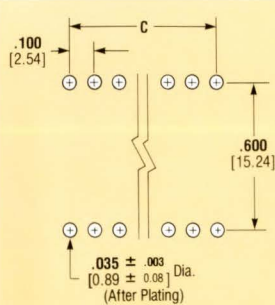
**Ribbon Cable** — pages 84 thru 86

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



\*Height of connector after termination is .253 [6.43] ref.



**Recommended Mounting Hole Pattern**  
(for .094-.125 [2.39-3.18] thick pc boards)

No. of Pos.	Dimensions			Contact Plating	Plug Kit No. (Preassembled)
	A	B	C		
24	1.150	1.288	1.100	Duplex <sup>1</sup>	746615-1
	29.21	32.72	27.94	Duplex <sup>2</sup>	746614-1
				Tin <sup>3</sup>	746616-1
28	1.350	1.488	1.300	Duplex <sup>1</sup>	746615-2
	34.29	37.8	33.02	Duplex <sup>2</sup>	746614-2
				Tin <sup>3</sup>	746616-2
40	1.950	2.088	1.900	Duplex <sup>1</sup>	746615-3
	49.53	53.04	48.26	Duplex <sup>2</sup>	746614-3
				Tin <sup>3</sup>	746616-3

1.000015 [0.00038] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

2.000030 [0.00076] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

3.000100-.000200 [0.00254-0.00508] bright-lead tin over .000050 [0.00127] nickel on entire contact.

**Note:** All plug kits include a housing assembly and cover (preassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.

**Paddle Board Connectors  
"Full Row" Contact Pattern**

**Housing Assembly  
with Cover  
(Unassembled)**

**Material and Finish:**

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, plated .000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact

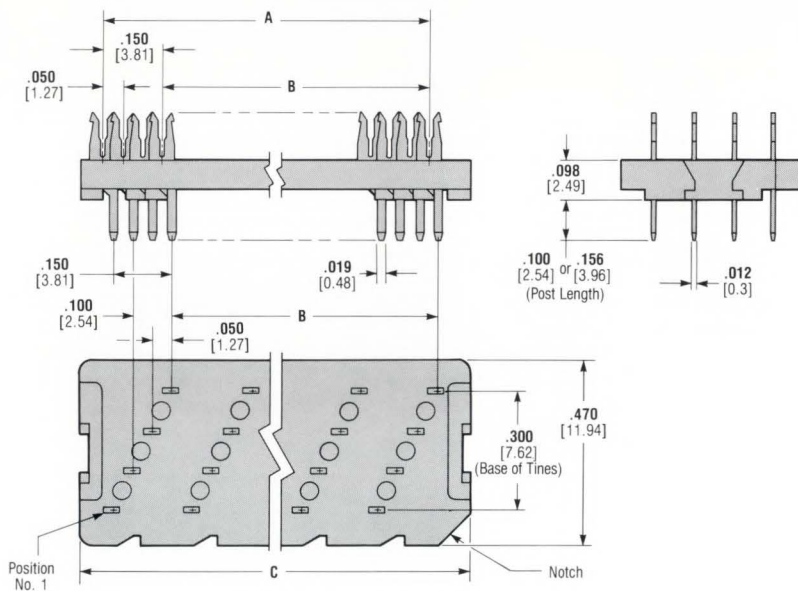
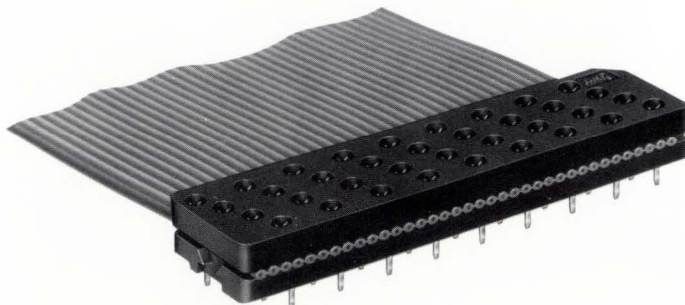
**Reference Information:**

**Electrical Characteristics** — page 2

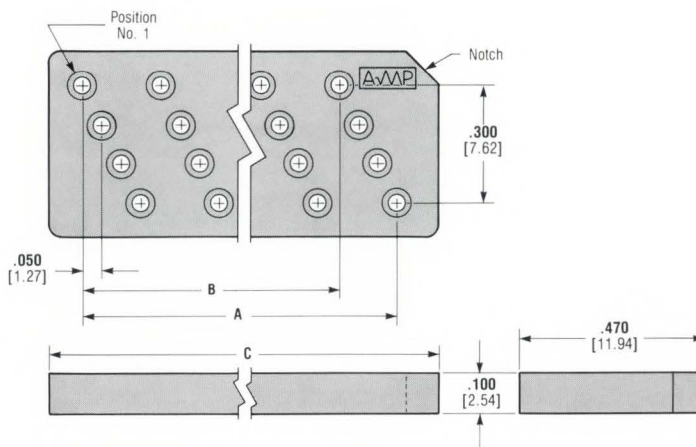
**Ribbon Cable** — pages 84 thru 86

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109

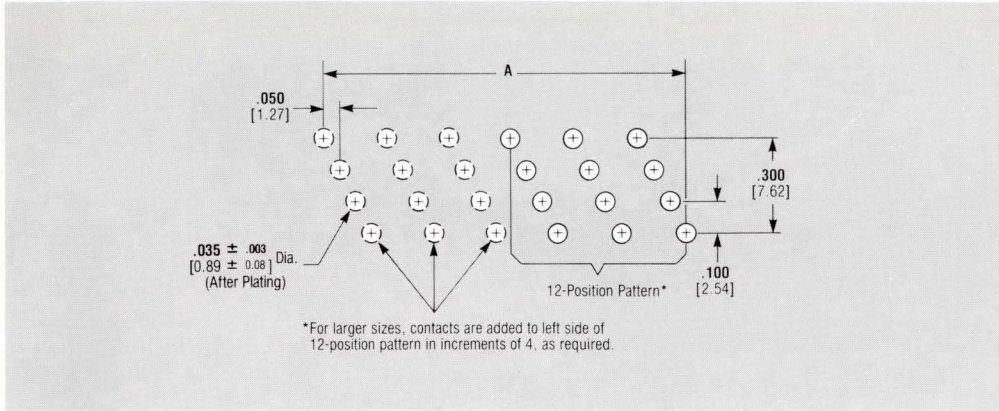


**Housing Assembly**



**Cover**

**Dimensioning:**  
 Dimensions are in inches and millimetres.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.



**Recommended "Full Row" Mounting Hole Pattern,  
 Component Side**  
 (for .062 [1.57] thick pc boards)

No. of Pos.	Dimensions			Connector Kit No. (Unassembled)	
	A	B	C	With .100 [2.54] Post Length	With .156 [3.96] Post Length
12	.550 13.97	.400 10.16	.714 18.14	88213-1	88214-1
16	.750 19.05	.600 15.24	.914 23.22	88213-2	88214-2
20	.950 24.13	.800 20.32	1.114 28.3	88213-3	88214-3
24	1.150 29.21	1.000 25.4	1.314 33.38	88213-4	88214-4
28	1.350 34.29	1.200 30.48	1.514 38.46	88213-5	88214-5
32	1.550 39.37	1.400 35.56	1.714 43.54	88213-6	88214-6
36	1.750 44.45	1.600 40.64	1.914 48.62	88213-7	88214-7
40	1.950 49.53	1.800 45.72	2.114 53.7	88213-8	88214-8
44	2.150 54.61	2.000 50.8	2.314 58.78	88213-9	88214-9
48	2.350 59.69	2.200 55.88	2.514 63.86	1-88213-0	1-88214-0
52	2.550 64.77	2.400 60.96	2.714 68.94	1-88213-1	1-88214-1
56	2.750 69.85	2.600 66.04	2.914 74.02	1-88213-2	1-88214-2
60	2.950 74.93	2.800 71.12	3.114 79.1	1-88213-3	1-88214-3

**Note:** Each connector kit is comprised of a housing assembly and cover (unassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.

## Paddle Board Connectors "Short End" Contact Pattern

### Housing Assembly with Cover (Unassembled)

#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, plated .000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact

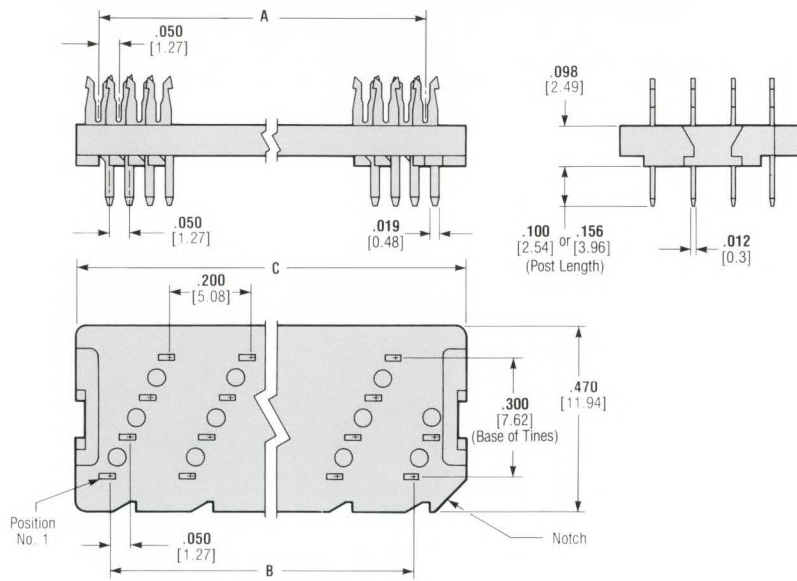
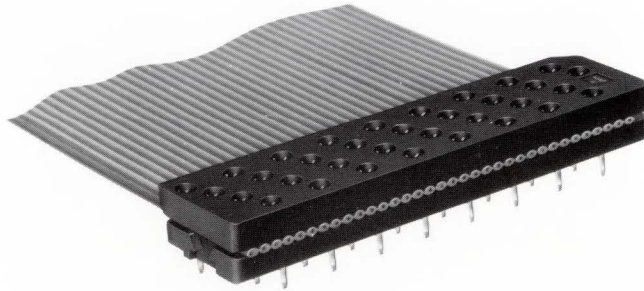
#### Reference Information:

**Electrical Characteristics** — page 2

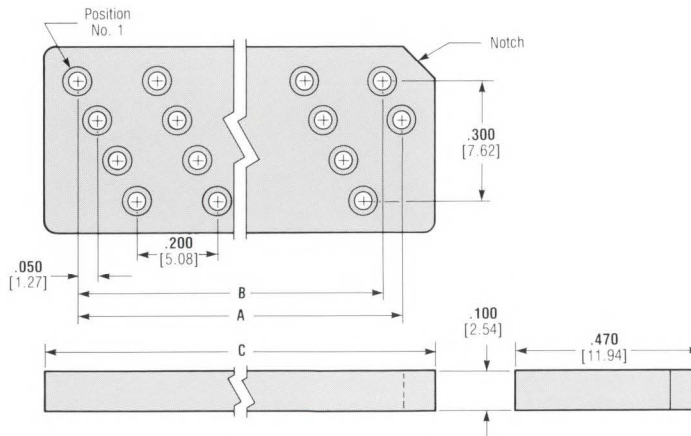
**Ribbon Cable** — pages 84 thru 86

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109

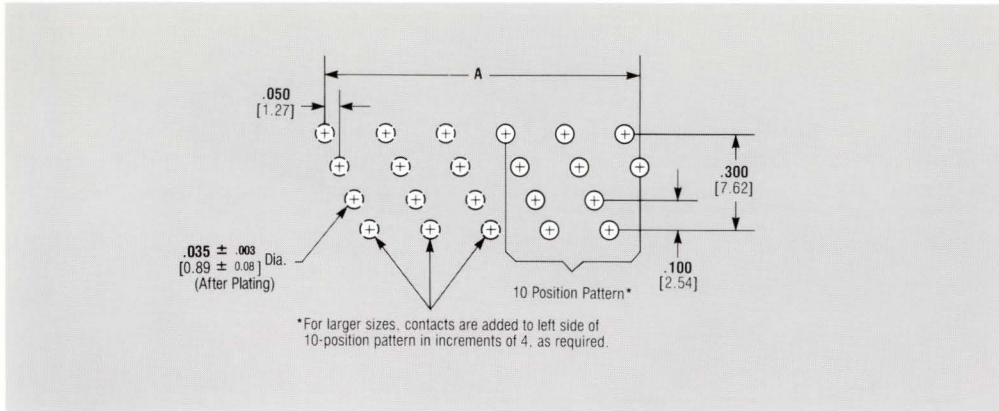


Housing Assembly



Cover

**Dimensioning:**  
 Dimensions are in inches and millimetres.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.



**Recommended "Short End" Mounting Hole Pattern,  
 Component Side**  
 (for .062 [1.57] thick pc boards)

No. of Pos.	Dimensions			Connector Kit No. (Unassembled)	
	A	B	C	With .100 [2.54] Post Length	With .156 [3.96] Post Length
10	.450 11.43	.400 10.16	.614 15.6	88216-1	88217-1
14	.650 16.51	.600 15.24	.814 20.68	88216-2	88217-2
18	.850 21.59	.800 20.32	1.014 25.76	88216-3	88217-3
22	1.050 26.67	1.000 25.4	1.214 30.84	88216-4	88217-4
26	1.250 31.75	1.200 30.48	1.414 35.92	88216-5	88217-5
30	1.450 36.83	1.400 35.56	1.614 41	88216-6	88217-6
34	1.650 41.91	1.600 40.64	1.814 46.08	88216-7	88217-7
38	1.850 46.99	1.800 45.72	2.014 51.16	88216-8	88217-8
42	2.050 52.07	2.000 50.8	2.214 56.24	88216-9	88217-9
46	2.250 57.15	2.200 55.88	2.414 61.32	1-88216-0	1-88217-0
50	2.450 62.23	2.400 60.96	2.614 66.4	1-88216-1	1-88217-1
54	2.650 67.31	2.600 66.04	2.814 71.48	1-88216-2	1-88217-2
58	2.850 72.39	2.800 71.12	3.014 76.56	1-88216-3	1-88217-3

**Note:** Each connector kit is comprised of a housing assembly and cover (unassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.

## Paddle Board Connectors "Special Center" Contact Pattern

### Housing Assembly with Cover (Unassembled)

#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, plated .000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact

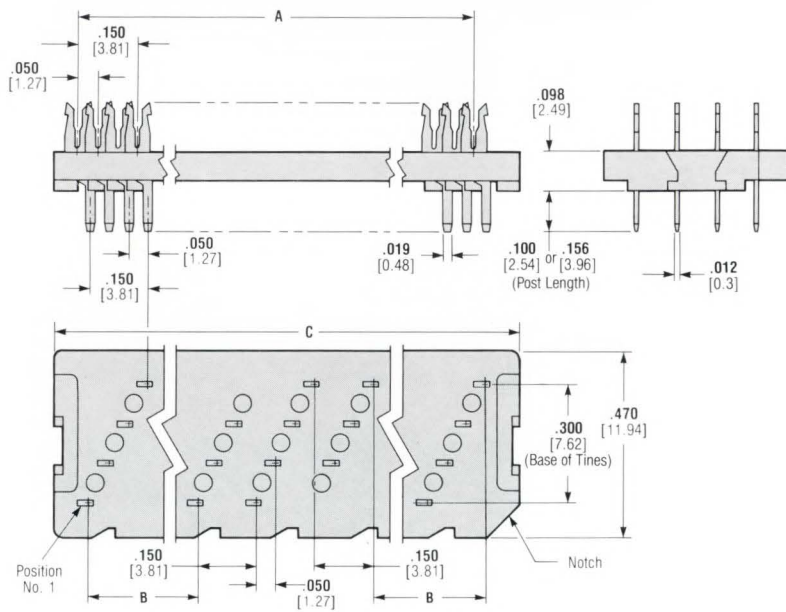
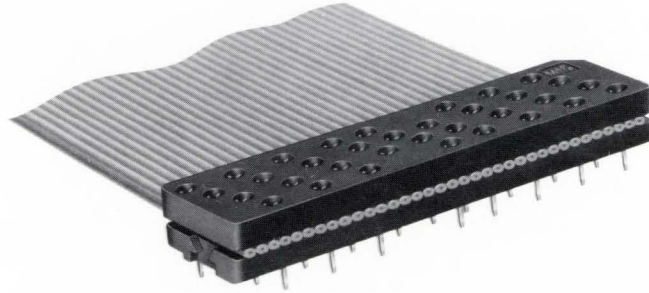
#### Reference Information:

**Electrical Characteristics** — page 2

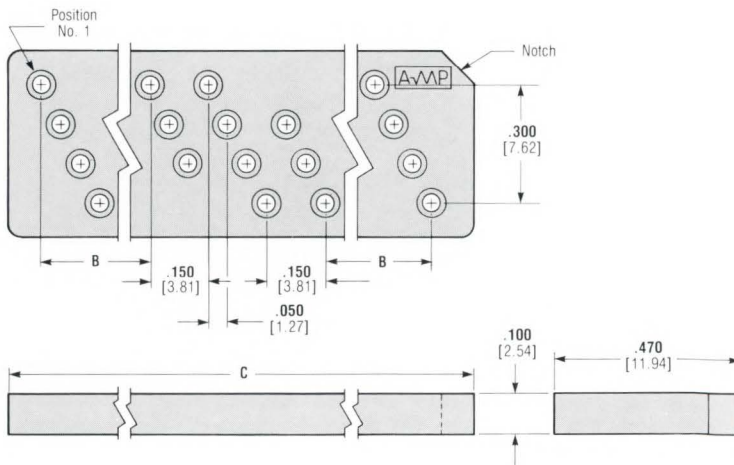
**Ribbon Cable** — pages 84 thru 86

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109

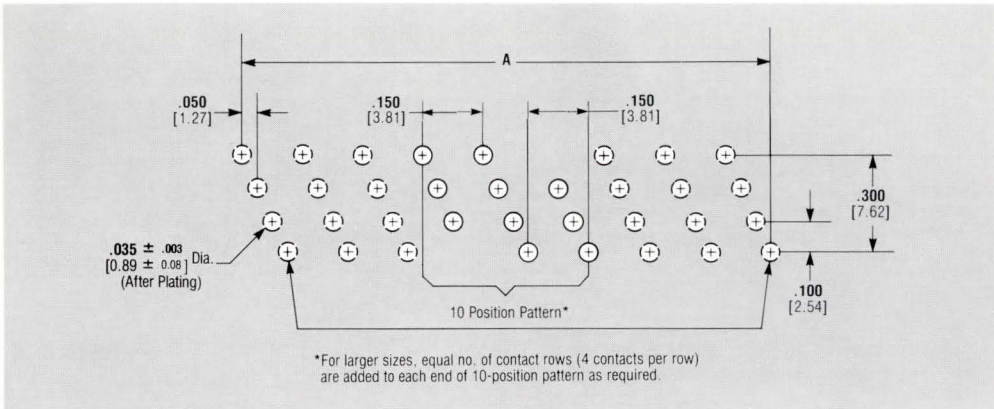


Housing Assembly



Cover

**Dimensioning:**  
 Dimensions are in inches and millimetres.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.



**Recommended "Special Center" Mounting Hole Pattern,  
 Component Side**  
 (for .062 [1.57] thick pc boards)

No. of Pos.	Dimensions			Connector Kit No. (Unassembled)	
	A	B	C	With .100 [2.54] Post Length	With .156 [3.96] Post Length
10	.450 11.43	—	.614 15.6	88219-1	88220-1
26	1.250 31.75	.400 10.16	1.414 35.92	88219-2	88220-2
34	1.650 41.91	.600 15.24	1.814 46.08	88219-3	88220-3
50	2.450 62.23	1.000 25.4	2.614 66.4	88219-4	88220-4

**Note:** Each connector kit is comprised of a housing assembly and cover (unassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.

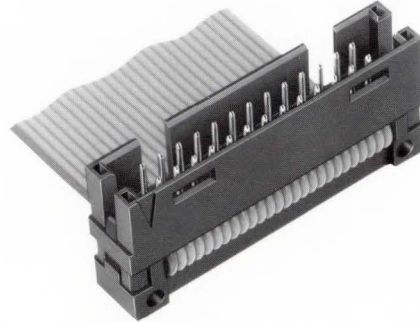
Pin Connectors  
without Mounting Ears

Housing Assembly with Recessed Cover (Preassembled) and Strain Relief

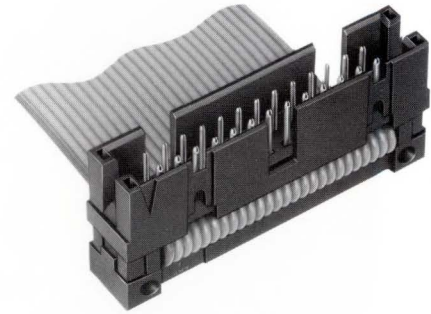
Material and Finish:

Housing, Cover & Strain Relief — Black Thermoplastic, 94V-0 Rated

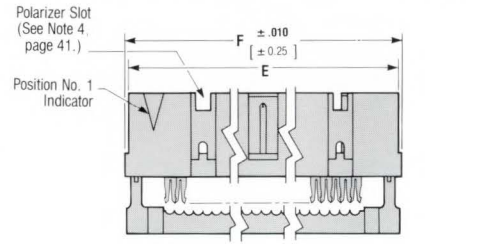
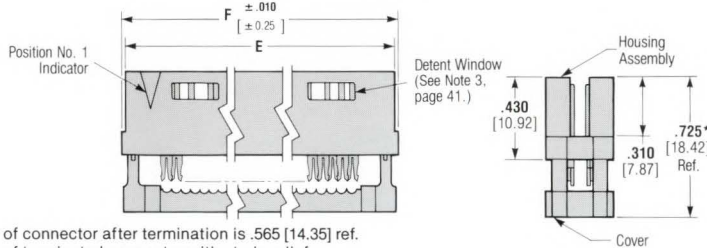
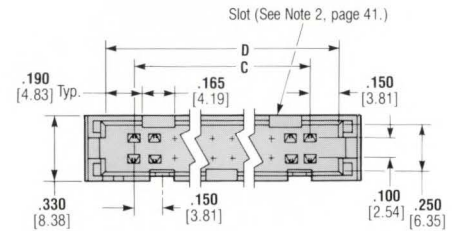
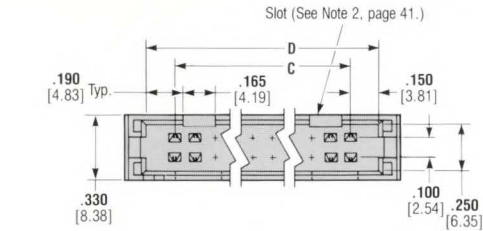
Contacts — Phosphor Bronze, duplex plated (See chart, page 41.)



With Detent Windows

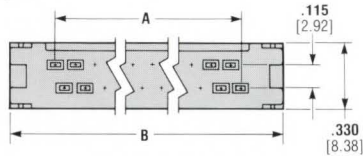


Without Detent Windows

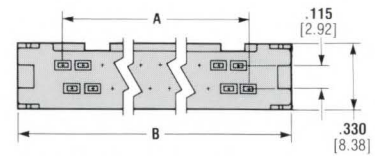


\*Height of connector after termination is .565 [14.35] ref.  
Height of terminated connector with strain relief assembled is .740 [18.8] ref.

Common View

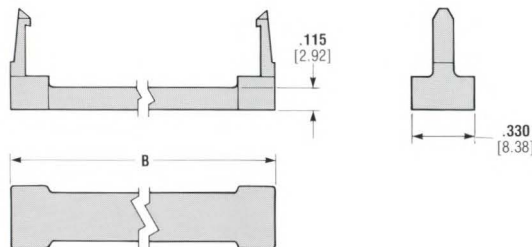


With Detent Windows



Without Detent Windows

Housing Assembly and Recessed Cover  
(Shown Preassembled for Right-Hand Cable Orientation. See Note 5, page 41.)



Strain Relief

Reference Information:

Electrical Characteristics — page 2

Mateable Receptacles — Standard — pages 4 thru 9  
Novo — pages 10 thru 17  
Stackable Novo — pages 18 & 19

Other Mateable Connectors (with Gold Plated Contacts):  
AMPMODU Receptacles — AMP Catalog 78-464  
AMP FFC Connectors — AMP Catalog 73-151

Ribbon Cable — pages 84 thru 86 & 88 thru 90

Accessories — Pull Tab — Page 95  
Snap-In Polarizer — page 97

Application Tooling — pages 104 thru 107

Technical Documents — page 109



**Dimensioning:**  
 Dimensions are in inches and millimetres.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.

No. of Pos	Dimensions						Contact Plating	Strain Relief Part No.	Connector Kit No. (Preassembled)			
	A	B	C	D	E	F			Housing Assembly with Detent Windows		Housing Assembly without Detent Windows	
									with Strain Relief	without Strain Relief	with Strain Relief	without Strain Relief
10	.450 11.43	.892 22.66	.400 10.16	.700 17.78	.872 22.15	.912 23.16	Duplex <sup>1</sup>	746362-1	746498-1	746497-1	746493-1	746492-1
							Duplex <sup>2</sup>	746362-1	746368-1	746367-1	746365-1	746364-1
14	.650 16.51	1.092 27.74	.600 15.24	.900 22.86	1.072 27.23	1.112 28.24	Duplex <sup>1</sup>	746362-2	746498-2	746497-2	746493-2	746492-2
							Duplex <sup>2</sup>	746362-2	746368-2	746367-2	746365-2	746364-2
16	.750 19.05	1.192 30.28	.700 17.78	1.000 25.4	1.172 29.17	1.212 30.78	Duplex <sup>1</sup>	746362-3	746498-3	746497-3	746493-3	746492-3
							Duplex <sup>2</sup>	746362-3	746368-3	746367-3	746365-3	746364-3
20	.950 24.13	1.392 35.36	.900 22.86	1.200 30.48	1.372 34.85	1.412 35.86	Duplex <sup>1</sup>	746362-4	746498-4	746497-4	746493-4	746492-4
							Duplex <sup>2</sup>	746362-4	746368-4	746367-4	746365-4	746364-4
24	1.150 29.21	1.592 40.44	1.100 27.94	1.400 35.56	1.572 39.93	1.612 40.94	Duplex <sup>1</sup>	746362-5	746498-5	746497-5	746493-5	746492-5
							Duplex <sup>2</sup>	746362-5	746368-5	746367-5	746365-5	746364-5
26	1.250 31.75	1.692 42.98	1.200 30.48	1.500 38.1	1.672 42.47	1.712 43.48	Duplex <sup>1</sup>	746362-6	746498-6	746497-6	746493-6	746492-6
							Duplex <sup>2</sup>	746362-6	746368-6	746367-6	746365-6	746364-6
30	1.450 36.83	1.892 48.06	1.400 35.56	1.700 43.18	1.872 47.55	1.912 48.56	Duplex <sup>1</sup>	746362-7	746498-7	746497-7	746493-7	746492-7
							Duplex <sup>2</sup>	746362-7	746368-7	746367-7	746365-7	746364-7
34	1.650 41.91	2.092 53.14	1.600 40.64	1.900 48.26	2.072 52.63	2.112 53.64	Duplex <sup>1</sup>	746362-8	746498-8	746497-8	746493-8	746492-8
							Duplex <sup>2</sup>	746362-8	746368-8	746367-8	746365-8	746364-8
40	1.950 49.53	2.392 60.76	1.900 48.26	2.200 55.88	2.372 60.25	2.412 61.26	Duplex <sup>1</sup>	746362-9	746498-9	746497-9	746493-9	746492-9
							Duplex <sup>2</sup>	746362-9	746368-9	746367-9	746365-9	746364-9
44	2.150 54.61	2.592 65.84	2.100 53.35	2.400 60.96	2.572 65.33	2.612 66.34	Duplex <sup>1</sup>	1-746362-0	1-746498-0	1-746497-0	1-746493-0	1-746492-0
							Duplex <sup>2</sup>	1-746362-0	1-746368-0	1-746367-0	1-746365-0	1-746364-0
50	2.450 62.23	2.892 73.46	2.400 60.96	2.700 68.58	2.872 72.95	2.912 73.96	Duplex <sup>1</sup>	1-746362-1	1-746498-1	1-746497-1	1-746493-1	1-746492-1
							Duplex <sup>2</sup>	1-746362-1	1-746368-1	1-746367-1	1-746365-1	1-746364-1
60	2.950 74.93	3.392 86.16	2.900 73.66	3.200 81.28	3.372 85.65	3.412 86.66	Duplex <sup>1</sup>	1-746362-2	1-746498-2	1-746497-2	1-746493-2	1-746492-2
							Duplex <sup>2</sup>	1-746362-2	1-746368-2	1-746367-2	1-746365-2	1-746364-2
64	3.150 80.01	3.592 91.24	3.100 78.74	3.400 86.36	3.572 90.73	3.612 91.74	Duplex <sup>1</sup>	1-746362-3	1-746498-3	1-746497-3	1-746493-3	1-746492-3
							Duplex <sup>2</sup>	1-746362-3	1-746368-3	1-746367-3	1-746365-3	1-746364-3

1.000015 [0.00038] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.  
 2.000030 [0.00076] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

- Notes:**
1. These connector kits include a housing assembly and recessed cover (preassembled) and are available with or without strain reliefs. Strain reliefs may be purchased separately using the component part nos. listed above. Individual housing assemblies and recessed covers also may be purchased separately, consult AMP Incorporated.
  2. No slot on this end of 10- and 14-positions connectors.
  3. No detent windows on this end of 10-, 14- and 16-position connectors.
  4. No slot for snap-in polarizer on this end of 10- and 14-position connectors.
  5. Preassembled connector kits listed above are for right-hand orientation of cable, as shown on page 40. Connector kits preassembled for left-hand cable orientation are available, consult AMP Incorporated.

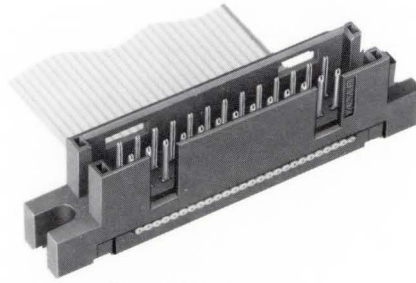
**Pin Connectors  
with Slotted Mounting Ears**

**Housing Assembly  
with Recessed Cover  
(Preassembled)**

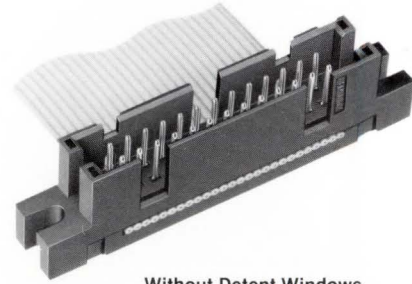
**Material and Finish:**

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

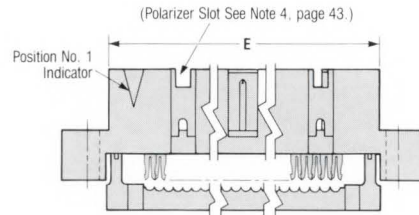
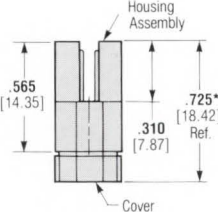
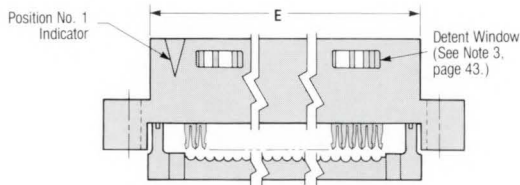
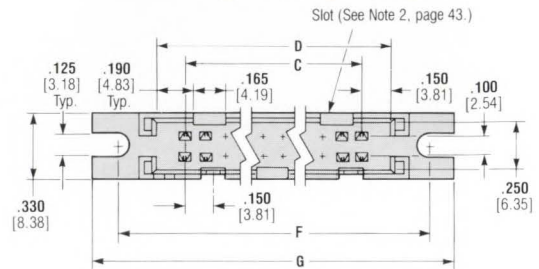
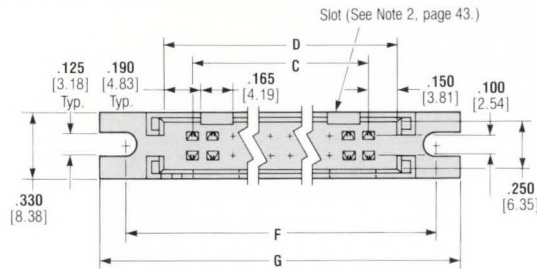
**Contacts** — Phosphor Bronze, duplex plated (See chart, page 43.)



**With Detent Windows**

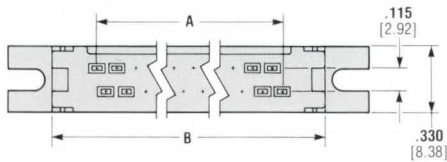


**Without Detent Windows**

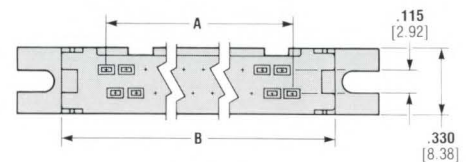


\*Height of connector after termination is .565 [14.35] ref.

**Common View**

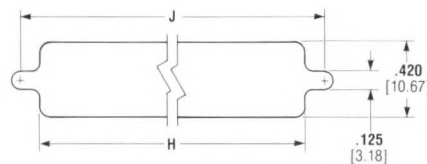


**With Detent Windows**



**Without Detent Windows**

**Housing Assembly and Recessed Cover  
(Shown Preassembled for Right-Hand Cable Orientation. See Note 5, page 43.)**



**Recommended Panel Cutout**

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Receptacles:**

- Standard — pages 4 thru 9
- Novo — pages 10 thru 17
- Stackable Novo — pages 18 thru 21

**Other Mateable Connectors (with Gold Plated Contacts):**

- AMPMODU Receptacles — AMP Catalog 78-464
- AMP FFC Connectors — AMP Catalog 73-151

**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

**Accessories** —

- Pull Tab — page 95
- Snap-In Polarizer — page 97

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109

**Note:** Ground Plane Shields are available for use with Pin Connectors with Slotted Mounting Ears, see page 76.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos	Dimensions										Contact Plating	Connector Kit No. (Preassembled)	
	A	B	C	D	E	F	G	H	J	Housing Assembly with Detent Windows		Housing Assembly without Detent Windows	
10	.450	.892	.400	.700	.872	1.106	1.356	.962	1.282		Duplex <sup>1</sup>	746495-1	746490-1
	11.43	22.66	10.16	17.78	22.15	28.09	34.44	24.43	32.56		Duplex <sup>2</sup>	746370-1	746353-1
14	.650	1.092	.600	.900	1.072	1.306	1.556	1.162	1.482		Duplex <sup>1</sup>	746495-2	746490-2
	16.51	27.74	15.24	22.86	27.23	33.17	39.52	29.51	37.64		Duplex <sup>2</sup>	746370-2	746353-2
16	.750	1.192	.700	1.000	1.172	1.406	1.656	1.262	1.582		Duplex <sup>1</sup>	746495-3	746490-3
	19.05	30.28	17.78	25.4	29.77	35.71	42.06	32.05	40.18		Duplex <sup>2</sup>	746370-3	746353-3
20	.950	1.392	.900	1.200	1.372	1.606	1.856	1.462	1.782		Duplex <sup>1</sup>	746495-4	746490-4
	24.13	35.36	22.86	30.48	34.85	40.79	47.14	37.13	45.26		Duplex <sup>2</sup>	746370-4	746353-4
24	1.150	1.592	1.100	1.400	1.572	1.806	2.056	1.662	1.982		Duplex <sup>1</sup>	746495-5	746490-5
	29.21	40.44	27.94	35.56	39.93	45.87	52.22	42.21	50.34		Duplex <sup>2</sup>	746370-5	746353-5
26	1.250	1.692	1.200	1.500	1.672	1.906	2.156	1.762	2.082		Duplex <sup>1</sup>	746495-6	746490-6
	31.75	42.98	30.48	38.1	42.47	48.41	54.76	44.75	52.88		Duplex <sup>2</sup>	746370-6	746353-6
30	1.450	1.892	1.400	1.700	1.872	2.106	2.356	1.962	2.282		Duplex <sup>1</sup>	746495-7	746490-7
	36.83	48.06	35.56	43.18	47.55	53.49	59.84	49.83	57.96		Duplex <sup>2</sup>	746370-7	746353-7
34	1.650	2.092	1.600	1.900	2.072	2.306	2.556	2.162	2.482		Duplex <sup>1</sup>	746495-8	746490-8
	41.91	53.14	40.64	48.26	52.63	58.57	64.92	54.91	63.04		Duplex <sup>2</sup>	746370-8	746353-8
40	1.950	2.392	1.900	2.200	2.372	2.606	2.856	2.462	2.782		Duplex <sup>1</sup>	746495-9	746490-9
	49.53	60.76	48.26	55.88	60.25	66.19	72.54	62.53	70.66		Duplex <sup>2</sup>	746370-9	746353-9
44	2.150	2.592	2.100	2.400	2.572	2.806	3.056	2.662	2.982		Duplex <sup>1</sup>	1-746495-0	1-746490-0
	54.61	65.84	53.35	60.96	65.33	71.27	77.62	67.61	75.74		Duplex <sup>2</sup>	1-746370-0	1-746353-0
50	2.450	2.892	2.400	2.700	2.872	3.106	3.356	2.962	3.282		Duplex <sup>1</sup>	1-746495-1	1-746490-1
	62.23	73.46	60.96	68.58	72.95	78.89	85.24	75.23	83.36		Duplex <sup>2</sup>	1-746370-1	1-746353-1
60	2.950	3.392	2.900	3.200	3.372	3.606	3.856	3.462	3.782		Duplex <sup>1</sup>	1-746495-2	1-746490-2
	74.93	86.16	73.66	81.28	85.65	91.59	97.94	87.93	96.06		Duplex <sup>2</sup>	1-746370-2	1-746353-2
64	3.150	3.592	3.100	3.400	3.572	3.806	4.056	3.662	3.982		Duplex <sup>1</sup>	1-746495-3	1-746490-3
	80.01	91.24	78.74	86.36	90.73	96.67	103.02	93.01	101.14		Duplex <sup>2</sup>	1-746370-3	1-746353-3

1.000015 [0.00038] gold pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

2.000030 [0.00076] gold pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

**Notes:** 1. The connector kits include a housing assembly and recessed cover (preassembled.). Individual housing assemblies and recessed covers may be purchased separately, consult AMP Incorporated.

2. No slot on this end of 10- and 14-position connectors.

3. No detent windows on this end of 10-, 14- and 16-position connectors.

4. No slot for snap-in polarizer on this end of 10- and 14-position connectors.

5. Preassembled connector kits listed above are for right-hand orientation of cable, as shown on page 42. Connector kits preassembled for left-hand orientation are available, consult AMP Incorporated.

## Bulkhead Pin Connectors

### Housing Assembly with Cover (Preassembled)

#### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Contacts** — Phosphor Bronze, duplex plated .000030 [0.00076] gold on pin end, .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end, with entire contact underplated .000050 [0.00127] nickel.

#### Reference Information:

**Electrical Characteristics** — page 2

**Mateable Receptacles** — Standard — pages 4 thru 9  
Novo — pages 10 thru 17

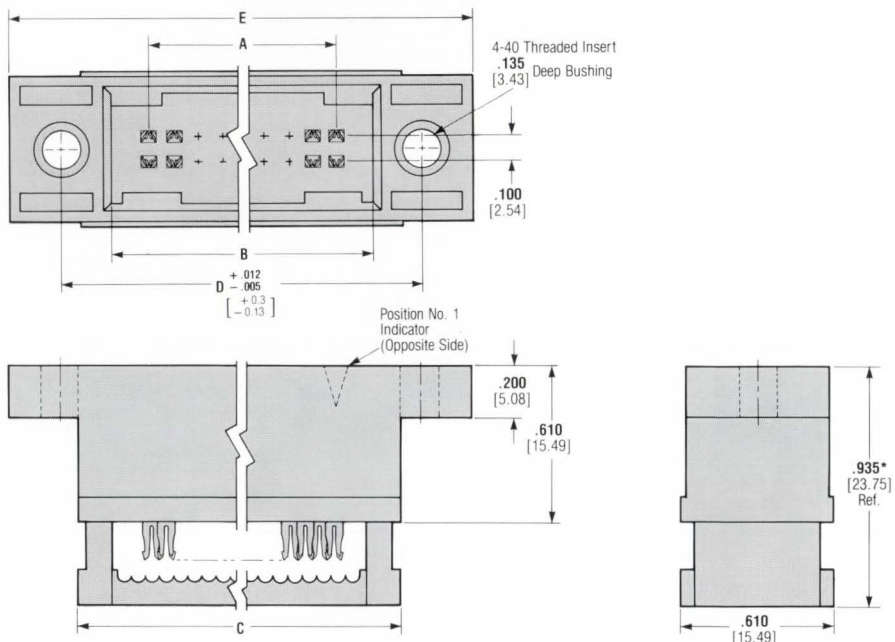
**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

**Application Tooling** — pages 104 thru 107

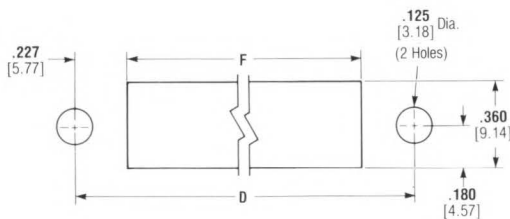
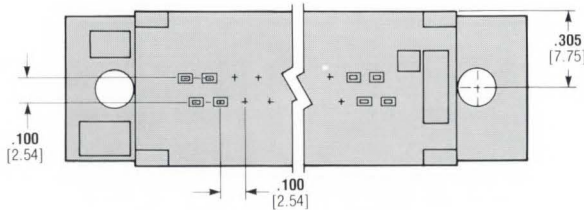
**Technical Documents** — page 109

#### Note:

Ground Plane Shields are available for use with Bulkhead Pin Connectors, see pages 76 and 77.



\*Height of connector after termination is .747 [18.97] ref.



Recommended Panel Cutout

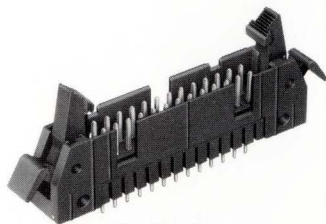
**Dimensioning:**  
 Dimensions are in inches and millimetres.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over  
 millimetres.

No. of Pos.	Dimensions						Connector Kit No. (Preassembled)
	A	B	C	D	E	F	
10	.400 10.16	.705 17.91	.940 23.88	1.104 28.04	1.494 37.95	.650 16.51	499977-1
14	.600 15.24	.905 22.99	1.140 28.96	1.304 33.12	1.694 43.03	.850 21.59	499977-2
16	.700 17.78	1.005 25.53	1.240 31.5	1.404 35.66	1.794 45.57	.950 24.13	499977-3
20	.900 22.86	1.205 30.61	1.440 36.58	1.604 40.74	1.994 50.65	1.150 29.21	499977-4
24	1.100 27.94	1.405 35.69	1.640 41.66	1.804 45.82	2.194 55.73	1.350 34.29	499977-5
26	1.200 30.48	1.505 38.23	1.740 44.2	1.904 48.36	2.294 58.27	1.450 36.83	499977-6
30	1.400 35.56	1.705 43.31	1.940 49.28	2.104 53.44	2.494 63.35	1.650 41.91	499977-7
34	1.600 40.64	1.905 48.39	2.140 54.36	2.304 58.52	2.694 68.43	1.850 46.99	499977-8
40	1.900 48.26	2.205 56.01	2.440 61.98	2.604 66.14	2.994 76.05	2.150 54.61	499977-9
50	2.400 60.96	2.705 68.71	2.940 74.68	3.104 78.84	3.494 88.75	2.650 67.31	1-499977-0
60	2.900 73.66	3.205 81.41	3.440 87.38	3.604 91.54	3.994 101.45	3.150 80.01	1-499977-1
64	3.100 78.74	3.405 86.49	3.640 92.46	3.804 96.62	4.194 106.53	3.350 85.09	1-499977-2

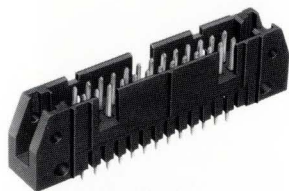
**Notes:** 1. These connector kits include a housing assembly and cover (preassembled). Individual housing assemblies and covers may be purchased separately, consult AMP Incorporated.  
 2. Bulkhead pin connectors are also available with metric threaded inserts, consult AMP Incorporated.

## Universal Ejection Style Pin Headers, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers

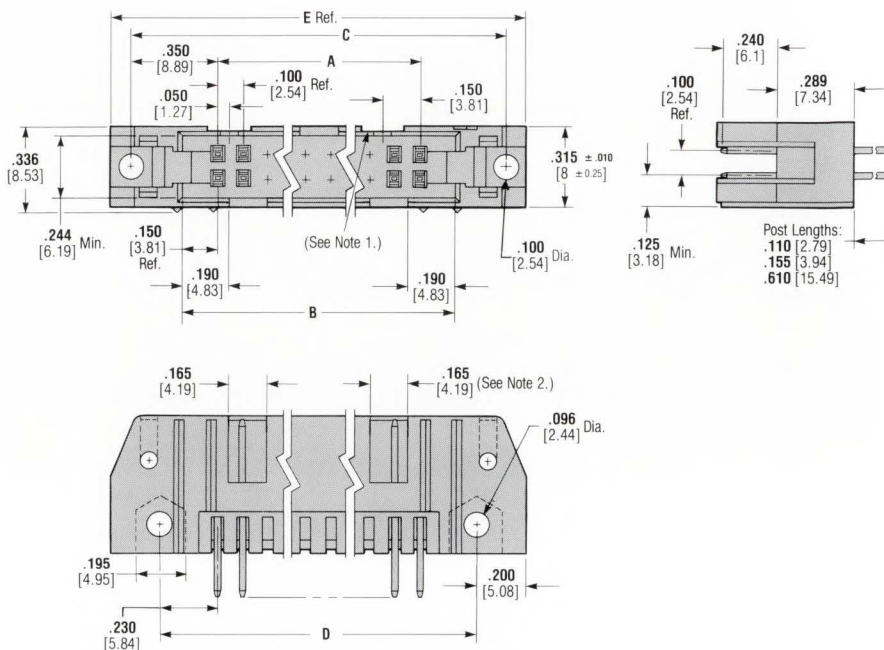
### Straight-Thru, 4 Sided .025 [0.64] Sq. Posts



Pin Header  
with Latches



Pin Header  
without Latches



### Material and Finish:

**Housing & Latches**—Black Thermoplastic, 94V-0 Rated

**Contacts**—Brass or Phosphor Bronze (at AMP's option); tin, gold or duplex plated (See chart, page 49.)

### Reference Information:

**Electrical Characteristics** — page 2

### Mateable Receptacles:

- Standard—pages 4 thru 9
- Novo—pages 10, 11 & 14 thru 17
- Stackable Novo (.190 [4.83] Wide Cover—Use without Latches)—page 18 & 19
- Stackable Novo (.240 [6.1] Wide Cover—Use without Latches, or with Latch Part No. 746469-1 for Shielding)—pages 20 & 21

### Accessories:

Snap-In Polarizer—page 97

**Technical Documents**—page 109

### Note:

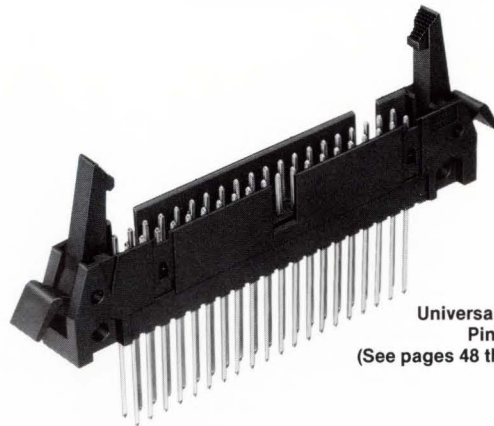
Retrofit Shields are available for use with these pin headers, see page 79.

No. of Pos.	Dimensions				
	A	B	C	D	E
10	.400 10.16	.700 17.78	1.100 27.94	.860 21.84	1.260 32
14	.600 15.24	.900 22.86	1.300 33.02	1.060 26.92	1.460 37.08
16	.700 17.78	1.000 25.4	1.400 35.56	1.160 29.46	1.560 39.62
20	.900 22.86	1.200 30.48	1.600 40.64	1.360 34.54	1.760 44.7
24	1.100 27.94	1.400 35.56	1.800 45.72	1.560 39.62	1.960 49.78
26	1.200 30.48	1.500 38.1	1.900 48.26	1.660 42.16	2.060 52.32
30	1.400 35.56	1.700 43.18	2.100 53.34	1.860 47.24	2.260 57.4
34	1.600 40.64	1.900 48.26	2.300 58.42	2.060 52.32	2.460 62.48
40	1.900 48.26	2.200 55.88	2.600 66.04	2.360 59.94	2.760 70.1
44	2.100 53.34	2.400 60.96	2.800 71.12	2.560 65.02	2.960 75.18
50	2.400 60.96	2.700 68.58	3.100 78.74	2.860 72.64	3.260 82.8
60	2.900 73.66	3.200 81.28	3.600 91.44	3.360 85.34	3.760 95.5
64	3.100 78.74	3.400 86.36	3.800 96.52	3.560 90.42	3.960 100.58

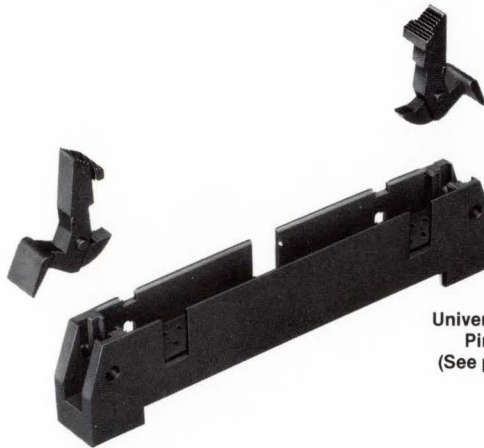
- Notes:**
1. Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.
  2. Pin headers in 10-position size have only one slot for dual polarization, located as shown.
  3. For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.

## Pin Headers and Pinless Headers

Fold out this page for convenient reference of application and use of latches (page 47) with the various pin and pinless headers.



Universal Ejection Style  
Pin Headers  
(See pages 48 thru 53 and 56 thru 59.)



Universal Ejection Style  
Pinless Headers  
(See pages 54 and 55.)



Low Profile Pin Headers  
(See pages 60 and 61.)



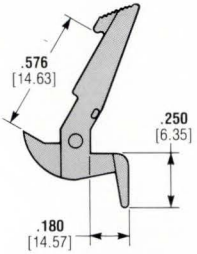
Military Ejection Style  
Pin Headers  
(See pages 62 thru 65.)

**Latches for Ejection Style Pin Headers and Pinless Headers**

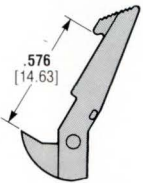
**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.

**Latches**

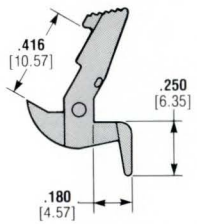
**Material:** Black Thermoplastic,  
94V-0 Rated



**Latch Part No. 102186-1**  
(with Push Tabs, see Fig. 1.)



**Latch Part No. 102320-1**  
(without Push Tabs, see Fig. 2.)



**Latch Part No. 102185-1**  
(with Push Tabs, see Fig. 3.)

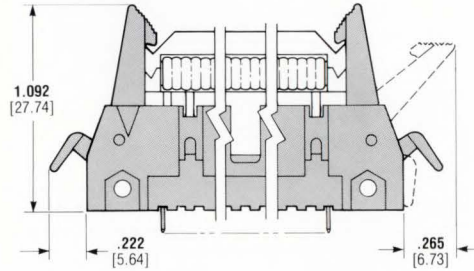


**Latch Part No. 102312-1**  
(without Push Tabs, see Fig. 4.)

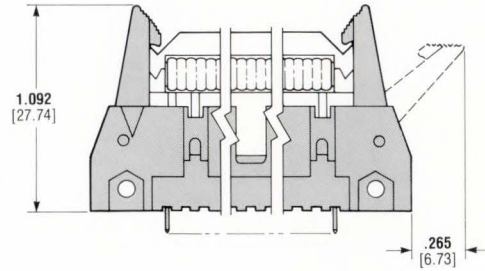


**Latch Part No. 746469-1**  
(without Push Tabs, see Fig. 5.)

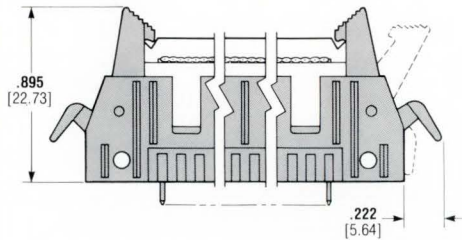
**Latch/Pin Header Applications**



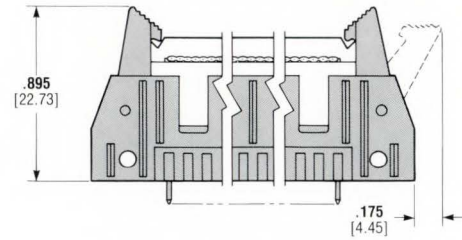
**Fig. 1—Use Latch Part No. 102186-1 for AMP Receptacles with Recessed Cover and Strain Relief.**



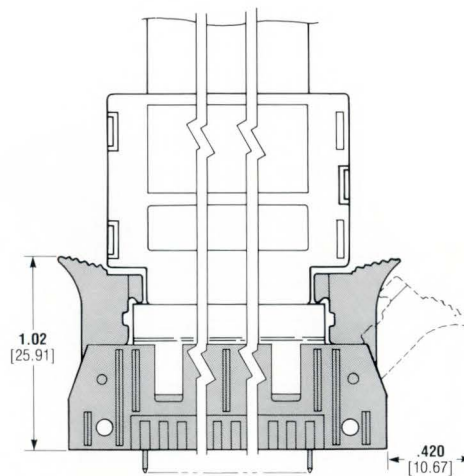
**Fig. 2—Use Latch Part No. 102320-1 for AMP Receptacles with Recessed Cover and Strain Relief.**



**Fig. 3—Use Latch Part No. 102185-1 for AMP Receptacles with Recessed Cover.**



**Fig. 4—Use Latch Part No. 102312-1 for AMP Receptacles with Recessed Cover.**



**Fig. 5—Use Latch Part No. 746469-1 for AMP Shielded Stackable Novo Receptacles with .240 Wide Cover.**



**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Ordering Information

When ordering a pin header or pin header kit, use the chart at the right to determine the 6-digit base no. for the desired post length, contact plating and latch configuration (Kits only). Then, complete the part no. or kit no. by adding the proper prefix and/or suffix no. for the desired pin header size. The prefix/suffix nos. for all available sizes (10 thru 64 positions) are listed below.

No. of Pos.	Add to Part No.	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
30		-7
34		-8
40		-9
44	1-	-3
50	1-	-0
60	1-	-1
64	1-	-2

## Mounting Information

4-24 self-tapping screws and 2-56 bolts and nuts are available for mounting straight-thru pin headers on pc boards. Typical applications and part nos. for ordering this hardware are presented below.

**Note:** 2-56 bolts and nuts may be used to mount pin headers with and without latches. If latches are to be used, the bolts must be positioned in the pin header before the latches are installed.

Post Length	Contact Plating	Pin Header Part No. (without Latches)	Pin Header Kit No. (with Latches)			
			Latches with Push Tabs		Latches without Push Tabs	
			Short Latch 102185-1	Str. Relief Latch 102186-1	Short Latch 102312-1	Str. Relief Latch 102320-1
<b>.110</b> 2.79	Duplex <sup>1</sup>	102153	499894	499904	499910	499922
	Duplex <sup>2</sup>	102154	499365	102324	499160	499206
	Bright Tin <sup>3</sup>	499703	746198	746209	746214	746226
<b>.155</b> 3.94	Duplex <sup>1</sup>	102155	499895	499905	499911	499923
	Duplex <sup>2</sup>	102156	499366	499175	499374	102321
	Bright Tin <sup>3</sup>	499704	746199	746210	746215	746227
<b>.610</b> 15.49	Duplex <sup>1</sup>	499436	—	—	—	—
	Duplex <sup>2</sup>	499437	—	—	—	—
	Bright Tin <sup>3</sup>	499793	746200	746211	746216	746228
	Gold <sup>4</sup>	102157	499896	499906	499912	499924
	Gold <sup>5</sup>	102158	499367	499193	499375	499207

<sup>1</sup>.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

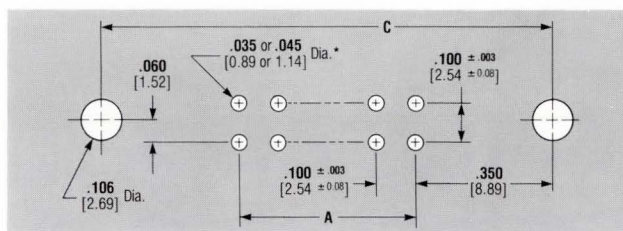
<sup>2</sup>.000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>3</sup>.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

<sup>4</sup>.000015 [0.00038] gold over .000050 [0.00127] nickel on entire contact.

<sup>5</sup>.000030 [0.00076] gold over .000050 [0.00127] nickel on entire contact.

**Note:** For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.



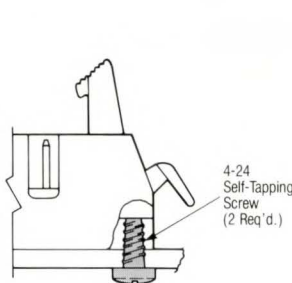
**Recommended Mounting Hole Pattern**

\*.035 [0.89] hole dia. for soldering of posts .110 [2.79] and .155 [3.94] long.

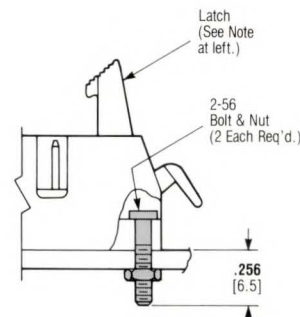
.045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.

Pc board thicknesses are: .062 [1.57] for .110 [2.79] long posts,

.125 [3.18] for .155 [3.94] long posts.



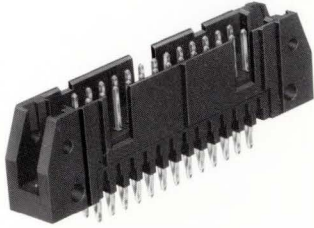
**Pin Header Mounting using 4-24 Self-Tapping Screws:**  
Part No. 19156-1 (for .062 [1.57] Thick Pc Board)  
19156-2 (for .093 [2.36] Thick Pc Board)  
19156-3 (for .125 [3.18] Thick Pc Board)



**Pin Header Mounting with 2-56 Bolts and Nuts:**  
Part No. 746383-1 (Bolt Only)  
Kit No. 102198-1 (Bolt and Nut, 2 Each per Kit)

## Universal Ejection Style Pin Headers with ACTION PIN Contacts, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers

### Straight-Thru, 4 Sided .025 [0.64] Sq. Posts



Pin Header  
without Latches

#### Material and Finish:

**Housing**—Black Thermoplastic,  
94V-0 Rated

**Contacts**—Copper Alloy; tin or  
duplex plated (See chart, page 51.)

#### Reference Information:

**Electrical Characteristics** — page 2

#### Mateable Receptacles:

- Standard—pages 4 thru 9
- Novo—pages 10, 11 & 14 thru 17
- Stackable Novo (.190 [4.83] Wide  
Cover—Use without  
Latches)—pages 18 & 19
- Stackable Novo (.240 [6.1] Wide  
Cover—Use without Latches,  
or with Latch Part No. 746469-1  
for Shielding)—pages 20 & 21

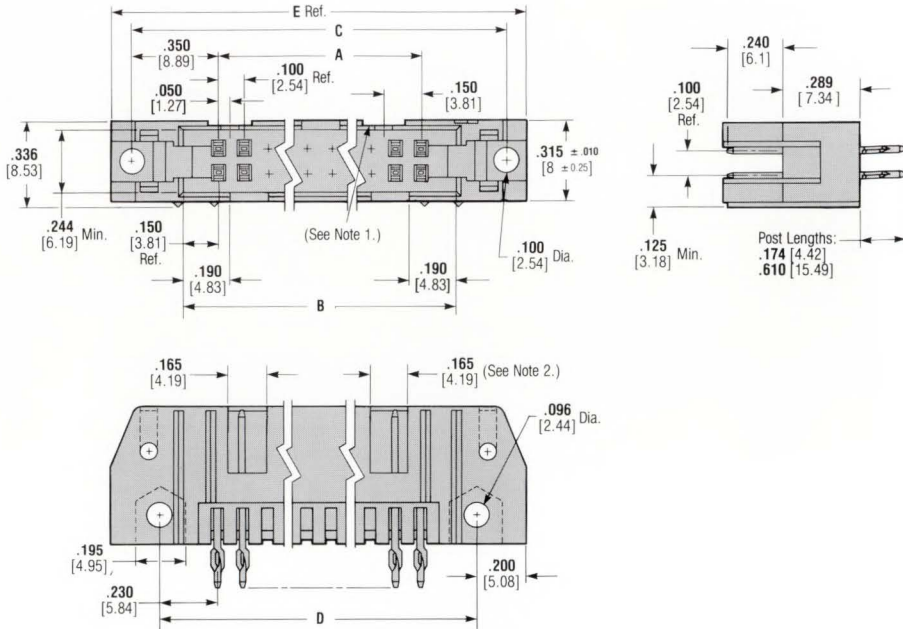
#### Accessories:

Snap-In Polarizer—page 97

**Seating Tools**—page 108

**Technical Documents**—page 109

**Note:** Retrofit Shields are available  
for use with these pin headers, see  
page 79.



No. of Pos.	Dimensions				
	A	B	C	D	E
10	.400 10.16	.700 17.78	1.100 27.94	.860 21.84	1.260 32
14	.600 15.24	.900 22.86	1.300 33.02	1.060 26.92	1.460 37.08
16	.700 17.78	1.000 25.4	1.400 35.56	1.160 29.46	1.560 39.62
20	.900 22.86	1.200 30.48	1.600 40.64	1.360 34.54	1.760 44.7
24	1.100 27.94	1.400 35.56	1.800 45.72	1.560 39.62	1.960 49.78
26	1.200 30.48	1.500 38.1	1.900 48.26	1.660 42.16	2.060 52.32
30	1.400 35.56	1.700 43.18	2.100 53.34	1.860 47.24	2.260 57.4
34	1.600 40.64	1.900 48.26	2.300 58.42	2.060 52.32	2.460 62.48
40	1.900 48.26	2.200 55.88	2.600 66.04	2.360 59.94	2.760 70.1
44	2.100 53.34	2.400 60.96	2.800 71.12	2.560 65.02	2.960 75.18
50	2.400 60.96	2.700 68.58	3.100 78.74	2.860 72.64	3.260 82.8
60	2.900 73.66	3.200 81.28	3.600 91.44	3.360 85.34	3.760 95.5
64	3.100 78.74	3.400 86.36	3.800 96.52	3.560 90.42	3.960 100.58

- Notes:**
1. Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.
  2. Pin headers in 10-position size have only one slot for dual polarization, located as shown.
  3. For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Ordering Information

When ordering a pin header, use the chart at the right to determine the 6-digit base no. for the desired post length and contact plating. Then, complete the part no. by adding the proper prefix and/or suffix no. for the desired pin header size. The prefix/suffix nos. for all available sizes (10 thru 64 positions) are listed below.

No. of Pos.	Add to Part No.	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
30		-7
34		-8
40		-9
44	1-	-3
50	1-	-0
60	1-	-1
64	1-	-2

## Mounting Information

4-24 self-tapping screws and 2-56 bolts and nuts are available for mounting straight-thru pin headers to pc boards. Typical applications and part nos. for ordering this hardware are presented below.

**Insertion/Extraction Tool**  
No. 91241-1 (includes  
Insertion/Extraction Tip  
No. 126961-1,  
Extraction Tip No. 126961-2)

**Note:** 2-56 bolts and nuts may be used to mount pin headers with and without latches. If latches are to be used, the bolts must be positioned in the pin header before the latches are installed.

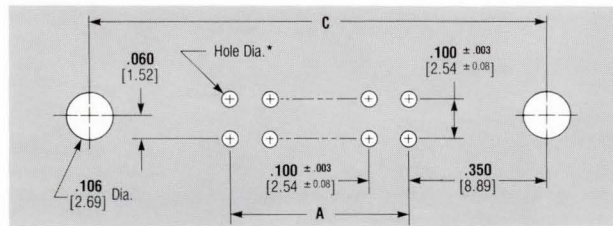
Post Length	Contact Plating	Part Numbers			
		For .093-.125 [2.36-3.18] Thick PC Board		For .062 [1.57] Thick PC Board	
		Pin Header	Replacement Post	Pin Header	Replacement Post
<b>.174</b> 4.42	Duplex <sup>1</sup>	499984	746307-3	—	—
	Duplex <sup>2</sup>	499582	746307-4	111057	111096-1
	Bright Tin <sup>3</sup>	—	—	—	—
<b>.610</b> 15.49	Duplex <sup>1</sup>	499983	746307-1	—	—
	Duplex <sup>2</sup>	499583	746307-2	111086	111096-2
	Bright Tin <sup>3</sup>	—	—	—	—

<sup>1</sup>.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

<sup>2</sup>.000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

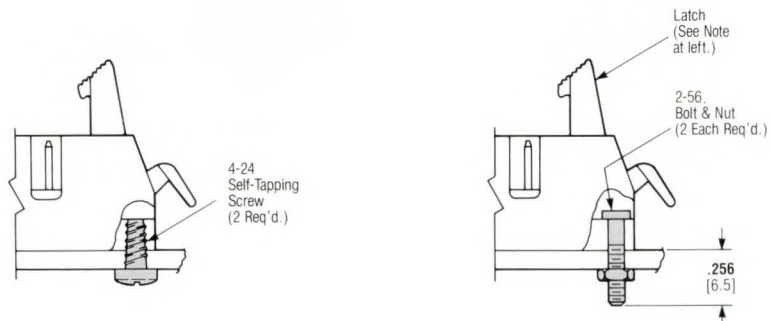
<sup>3</sup>Pin headers with tin plated contacts can be made available, consult AMP Incorporated. Plating is .000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Note:** For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.



### Recommended Mounting Hole Pattern

\*.0453 ± .0010 [1.151 ± 0.254] hole dia. before plating.  
.043/.036 [1.09/0.91] hole dia. after plating.

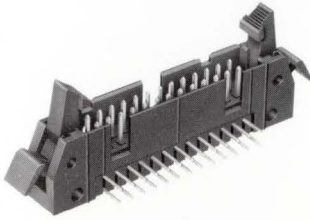


**Pin Header Mounting using 4-24 Self-Tapping Screws:**  
Part No. 19156-2 (for .093 [2.36] Thick Pc Board)  
19156-3 (for .125 [3.18] Thick Pc Board)

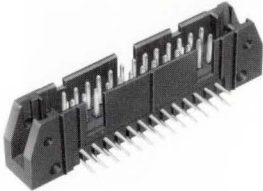
**Pin Header Mounting with 2-56 Bolts and Nuts:**  
Part No. 746383-1 (Bolt Only)  
Kit No. 102198-1 (Bolt and Nut, 2 Each per Kit)

## Universal Ejection Style Pin Headers, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers

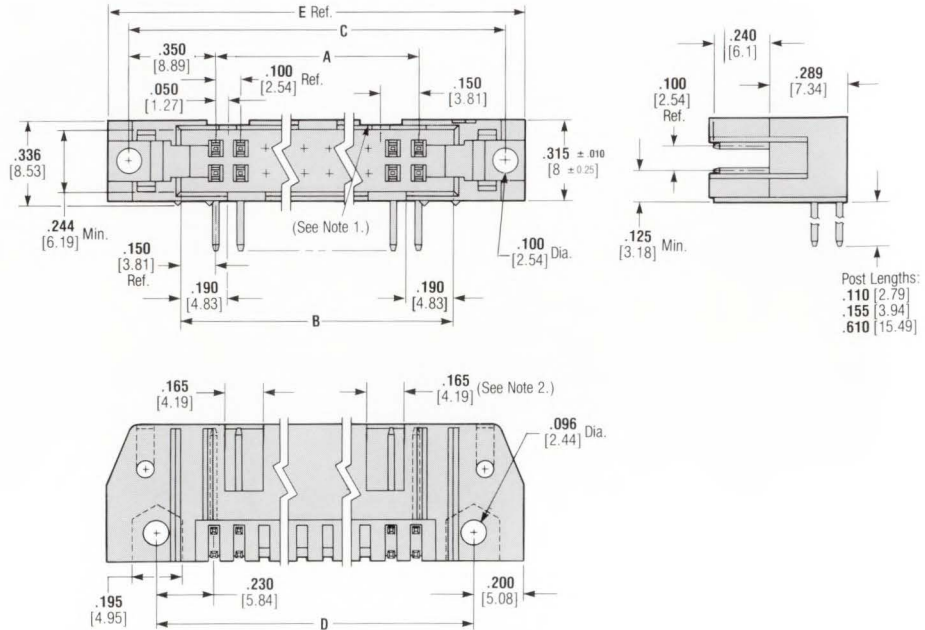
### Right-Angle, 4 Sided .025 [0.64] Sq. Posts



Pin Header  
with Latches



Pin Header  
without Latches



### Material and Finish:

**Housing & Latches**—Black Thermoplastic, 94V-0 Rated

**Contacts**—Phosphor Bronze; tin, gold or duplex plated (See chart, page 53.)

### Reference Information:

**Electrical Characteristics** — page 2

#### Mateable Receptacles:

- Standard—pages 4 thru 9
- Novo—pages 10, 11 & 14 thru 17
- Stackable Novo (.190 [4.83] Wide Cover—Use without Latches)—pages 18 & 19
- Stackable Novo (.240 [6.1] Wide Cover—Use without Latches, or with Latch Part No. 746469-1 for Shielding)—pages 20 & 21

#### Accessories:

Snap-In Polarizer—page 97

**Technical Documents**—page 109

**Note:** Pc Board Mounted Shields and Retrofit Shields are available for use with these pin headers, see pages 78 and 79.

No. of Pos.	Dimensions				
	A	B	C	D	E
10	.400 10.16	.700 17.78	1.100 27.94	.860 21.84	1.260 32
14	.600 15.24	.900 22.86	1.300 33.02	1.060 26.92	1.460 37.08
16	.700 17.78	1.000 25.4	1.400 35.56	1.160 29.46	1.560 39.62
20	.900 22.86	1.200 30.48	1.600 40.64	1.360 34.54	1.760 44.7
24	1.100 27.94	1.400 35.56	1.800 45.72	1.560 39.62	1.960 49.78
26	1.200 30.48	1.500 38.1	1.900 48.26	1.660 42.16	2.060 52.32
30	1.400 35.56	1.700 43.18	2.100 53.34	1.860 47.24	2.260 57.4
34	1.600 40.64	1.900 48.26	2.300 58.42	2.060 52.32	2.460 62.48
40	1.900 48.26	2.200 55.88	2.600 66.04	2.360 59.94	2.760 70.1
44	2.100 53.34	2.400 60.96	2.800 71.12	2.560 65.02	2.960 75.18
50	2.400 60.96	2.700 68.58	3.100 78.74	2.860 72.64	3.260 82.8
60	2.900 73.66	3.200 81.28	3.600 91.44	3.360 85.34	3.760 95.5
64	3.100 78.74	3.400 86.36	3.800 96.52	3.560 90.42	3.960 100.58

- Notes:**
- Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.
  - Pin headers in 10-position size have only one slot for dual polarization, located as shown.
  - For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Ordering Information

When ordering a pin header or pin header kit, use the chart at the right to determine the 6-digit base no. for the desired post length, contact plating and latch configuration (Kits only). Then, complete the part no. or kit no. by adding the proper prefix and/or suffix no. for the desired pin header size. The prefix/suffix nos. for all available sizes (10 thru 64 positions) are listed below.

No. of Pos.	Add to Part No.	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
30		-7
34		-8
40		-9
44	1-	-3
50	1-	-0
60	1-	-1
64	1-	-2

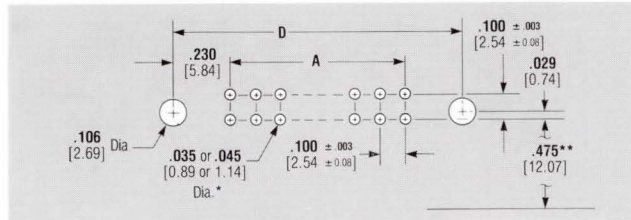
## Mounting Information

No mounting hardware is supplied by AMP.

Post Length	Contact Plating	Pin Header Part No. (without Latches)	Pin Header Kit No. (with Latches)			
			Latches with Push Tabs		Latches without Push Tabs	
			Short Latch 102185-1	Str. Relief Latch 102186-1	Short Latch 102312-1	Str. Relief Latch 102320-1
<b>.110</b> 2.79	Duplex <sup>1</sup>	102159	499897	499907	499913	499786
	Duplex <sup>2</sup>	102160	499368	102346	499345	499141
	Bright Tin <sup>3</sup>	499705	746201	499928	746217	746229
<b>.155</b> 3.94	Duplex <sup>1</sup>	102161	499898	499908	499914	499925
	Duplex <sup>2</sup>	102162	499369	499373	499376	102322
	Bright Tin <sup>3</sup>	499706	746202	746212	746218	746230
<b>.610</b> 15.49	Duplex <sup>1</sup>	499438	—	746409	—	—
	Duplex <sup>2</sup>	499439	—	—	—	—
	Bright Tin <sup>3</sup>	499794	746203	746213	746219	746231
	Gold <sup>4</sup>	102163	499899	499909	499915	499926
	Gold <sup>5</sup>	102164	499370	499194	499377	499208

- 1.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.
- 2.000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.
- 3.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.
- 4.000015 [0.00038] gold over .000050 [0.00127] nickel on entire contact.
- 5.000030 [0.00076] gold over .000050 [0.00127] nickel on entire contact.

**Note:** For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.

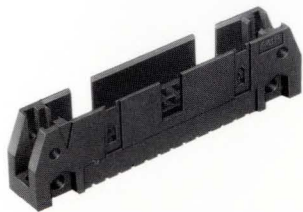


**Recommended Mounting Hole Pattern**

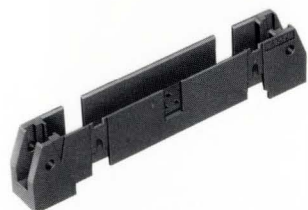
- \*.035 [0.89] hole dia. for soldering of posts .110 [2.79] and .155 [3.94] long.
- .045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.
- \*\*Maximum distance from edge of pc board for daisy chain application.
- Pc board thicknesses are: .062 [1.57] for .110 [2.79] long posts,
- .125 [3.18] for .155 [3.94] long posts.

**Universal Ejection Style Pinless Headers,  
Military, Center and Dual Polarized  
.100 x .100 [2.54 x 2.54] Centers**

**Straight-Thru, 4 Sided  
.025 [0.64] Sq. Posts  
(without latches)**



**Pinless Header  
without Standoffs**



**Pinless Header  
with Standoffs**

**Material:**

Black Thermoplastic, 94V-0 Rated

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable Receptacles:**

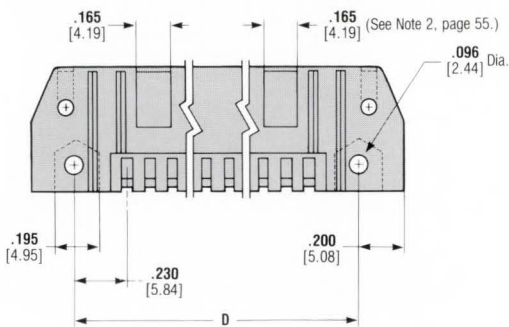
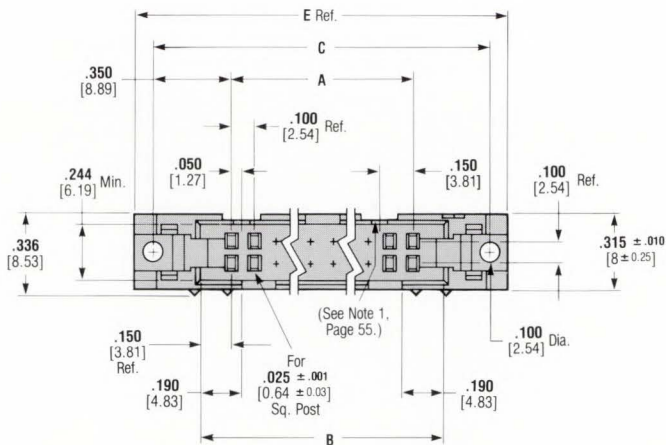
- Standard—pages 4 thru 9
- Novo—pages 10, 11 & 14 thru 17
- Stackable Novo (.190 [4.83] Wide Cover—Use without Latches)—pages 18 & 19
- Stackable Novo (.240 [6.1] Wide Cover—Use without Latches, or with Latch Part No. 746469-1 for Shielding)—pages 20 & 21

**Accessories:**

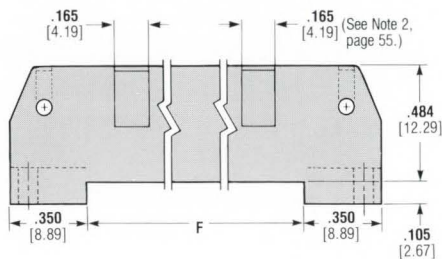
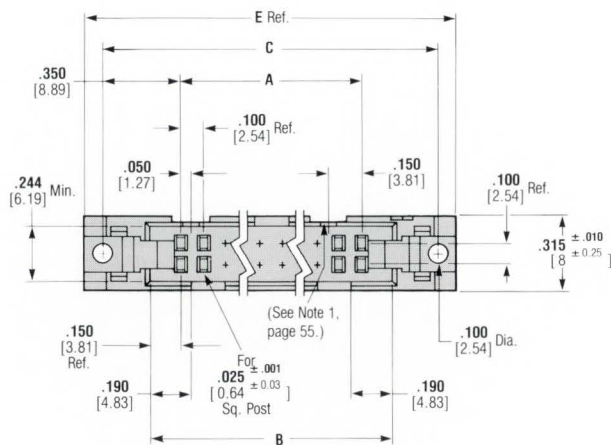
Snap-In Polarizer—page 97

**Technical Documents**—page 109

**Note:** Retrofit Shields are available for use with pinless headers without standoff, see page 79.



**Without Standoffs**



**With Standoffs  
(For 1-High Wrap-Type Termination)**

**Dimensioning:**  
Dimensions are in inches and millimetres unless specified otherwise. Values in brackets are metric equivalents. Chart contains dimensions in inches over millimetres.

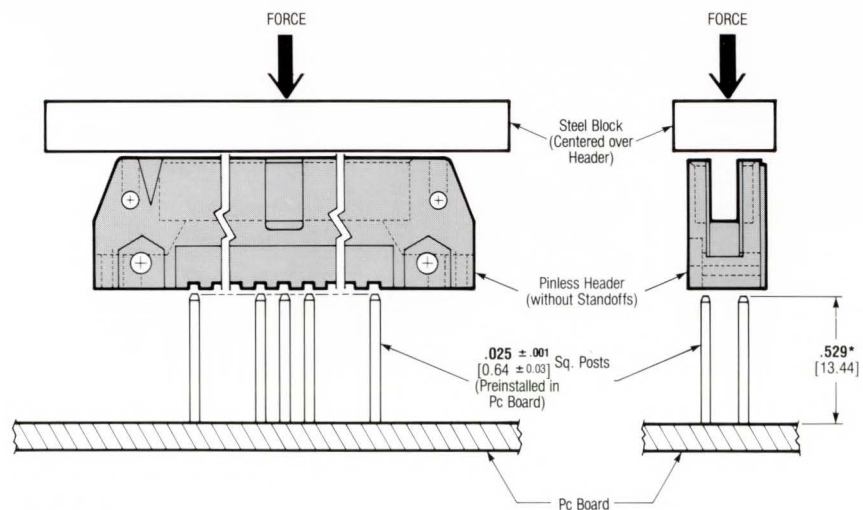
No. of Pos.	Dimensions						Pinless Header Part No. (without Latches)	
	A	B	C	D	E	F	Without Standoffs	With Standoffs
	10	.400 10.16	.700 17.78	1.100 27.94	.860 21.84	1.260 32	.560 14.22	499726-1
12	.500 12.7	.800 20.32	1.200 30.48	—	1.360 34.54	.660 16.76	—	1-746487-4
14	.600 15.24	.900 22.86	1.300 33.02	1.060 26.92	1.460 37.08	.760 19.3	499726-2	746487-2
16	.700 17.78	1.000 25.4	1.400 35.56	1.160 29.46	1.560 39.62	.860 21.84	499726-3	746487-3
20	.900 22.86	1.200 30.48	1.600 40.64	1.360 34.54	1.760 44.7	1.060 26.92	499726-4	746487-4
24	1.100 27.94	1.400 35.56	1.800 45.72	1.560 39.62	1.960 49.78	1.260 32	499726-5	746487-5
26	1.200 30.48	1.500 38.1	1.900 48.26	1.660 42.16	2.060 52.32	1.360 34.54	499726-6	746487-6
30	1.400 35.56	1.700 43.18	2.100 53.34	1.860 47.24	2.260 57.4	1.560 39.62	499726-7	746487-7
34	1.600 40.64	1.900 48.26	2.300 58.42	2.060 52.32	2.460 62.48	1.760 44.7	499726-8	746487-8
40	1.900 48.26	2.200 55.88	2.600 66.04	2.360 59.94	2.760 70.1	2.060 52.32	499726-9	746487-9
44	2.100 53.34	2.400 60.96	2.800 71.12	2.560 65.02	2.960 75.18	2.260 57.4	1-499726-3	1-746487-3
50	2.400 60.96	2.700 68.58	3.100 78.74	2.860 72.64	3.260 82.8	2.560 65.02	1-499726-0	1-746487-0
60	2.900 73.66	3.200 81.28	3.600 91.44	3.360 85.34	3.760 95.5	3.060 77.72	1-499726-1	1-746487-1
64	3.100 78.74	3.400 86.36	3.800 96.52	3.560 90.42	3.960 100.58	3.260 82.8	1-499726-2	1-746487-2

- Notes:**
- Pinless headers in the following sizes have only one slot for snap-in polarizer (military polarization), located as shown.  
10- and 14-position (without standoffs)  
10-, 12- and 14-position (with standoffs)
  - Pinless headers in the following sizes have only one slot for dual polarization, located as shown.  
10-position (without standoffs)  
10- and 12-position (with standoffs)
  - Pinless headers with other retention features and standoff heights are available, consult AMP Incorporated.
  - For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.

## Insertion of Pinless Headers

### Insertion Instructions:

- Place pinless header over preinstalled posts so that post tips start into header cavities.
- With bottom of pc board supported, place steel block over header. Steel block must be wider and longer than header so that it covers all four sides of the header. However, for headers with latches preassembled, the steel block must not interfere with the latches.
- Apply an even, centered force on steel block until header bottoms on pc board. If posts are longer than .545 [13.84], they may be forced against the steel block before the header is fully seated. In this situation, extreme caution must be taken so that posts are not damaged or pushed out of the pc board.



\*Post height is .565 [14.35] for pinless headers with standoffs.

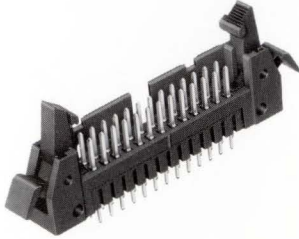
**Insertion Force:** 60 lb. [267 N] max.

**Retention Force:** 20 lb. [89 N] min. (Headers without standoffs)  
30 lb. [133 N] min. (Headers with standoffs)

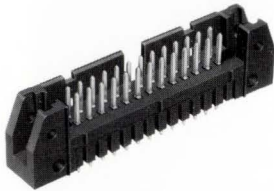
**AMP recommends the use of a typical manual frame assembly for insertion of pinless headers. The frame assembly and steel block are not supplied by AMP.**

## Universal Ejection Style Pin Headers, Center and Military Polarized .100 x .100 [2.54 x 2.54] Centers

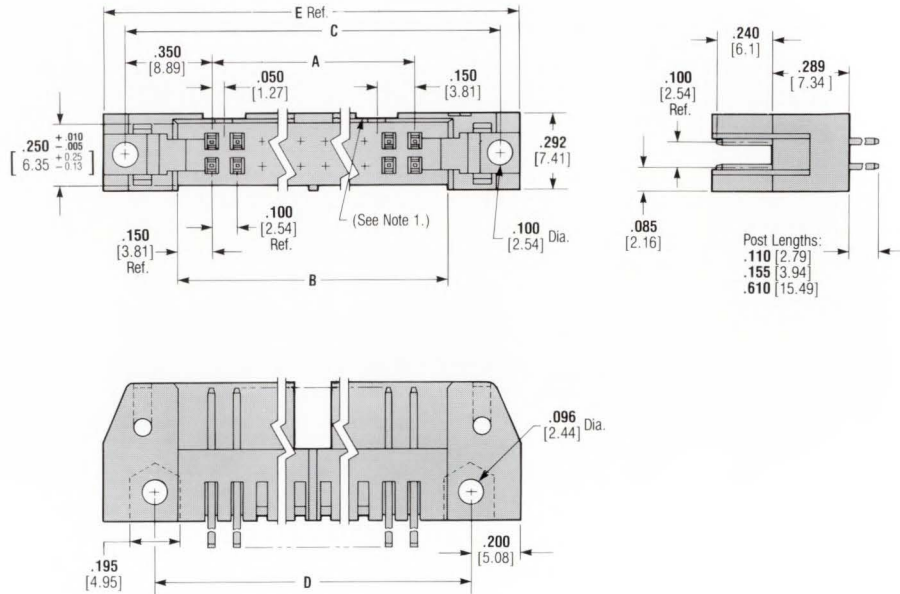
### Straight-Thru, 3 Sided .025 [0.64] Sq. Posts



Pin Header  
with Latches



Pin Header  
without Latches



### Material and Finish:

**Housing & Latches**—Black Thermoplastic, 94V-0 Rated

**Contacts**—Brass or Phosphor Bronze (at AMP's option); tin or duplex plated (See chart, page 57.)

### Reference Information:

**Electrical Characteristics** — page 2

#### Mateable Receptacles:

- Standard—pages 4 thru 7
- Novo—pages 10, 11, & 14 thru 15
- Stackable Novo (.190 [4.83] Wide Cover— Use without Latches) —pages 18 & 19
- Stackable Novo (.240 [6.1] Wide Cover— Use without Latches, or with Latch Part No. 746469-1 for Shielding)—pages 20 & 21

#### Accessories:

Snap-In Polarizer—page 97

**Technical Documents**—page 109

No. of Pos.	Dimensions				
	A	B	C	D	E
10	.400 10.16	.700 17.78	1.100 27.94	.860 21.84	1.260 32
14	.600 15.24	.900 22.86	1.300 33.02	1.060 26.92	1.460 37.08
16	.700 17.78	1.000 25.4	1.400 35.56	1.160 29.46	1.560 39.62
20	.900 22.86	1.200 30.48	1.600 40.64	1.360 34.54	1.760 44.7
24	1.100 27.94	1.400 35.56	1.800 45.72	1.560 39.62	1.960 49.78
26	1.200 30.48	1.500 38.1	1.900 48.26	1.660 42.16	2.060 52.32
30	1.400 35.56	1.700 43.18	2.100 53.34	1.860 47.24	2.260 57.4
34	1.600 40.64	1.900 48.26	2.300 58.42	2.060 52.32	2.460 62.48
40	1.900 48.26	2.200 55.88	2.600 66.04	2.360 59.94	2.760 70.1
44	2.100 53.34	2.400 60.96	2.800 71.12	2.560 65.02	2.960 75.18
50	2.400 60.96	2.700 68.58	3.100 78.74	2.860 72.64	3.260 82.8
60	2.900 73.66	3.200 81.28	3.600 91.44	3.360 85.34	3.760 95.5
64	3.100 78.74	3.400 86.36	3.800 96.52	3.560 90.42	3.960 100.58

- Notes:** 1. Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.  
2. For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.



**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Ordering Information

When ordering a pin header or pin header kit, use the chart at the right to determine the 6-digit base no. for the desired post length, contact plating and latch configuration (Kits only). Then, complete the part no. or kit no. by adding the proper prefix and/or suffix no. for the desired pin header size. The prefix/suffix nos. for all available sizes (10 thru 64 positions) are listed below.

No. of Pos.	Add to Part No.	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
30		-7
34		-8
40		-9
44	1-	-3
50	1-	-0
60	1-	-1
64	1-	-2

## Mounting Information

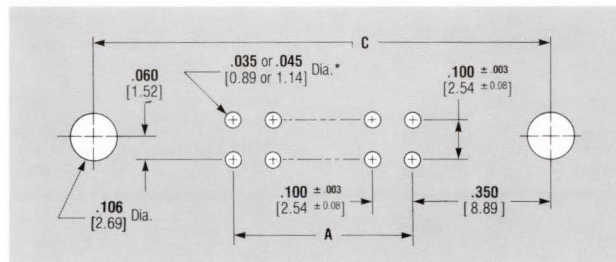
4-24 self-tapping screws and 2-56 bolts and nuts are available for mounting straight-thru pin headers to pc boards. Typical applications and part nos. for ordering this hardware are presented below.

**Note:** 2-56 bolts and nuts may be used to mount pin headers with and without latches. If latches are to be used, the bolts must be positioned in the pin header before the latches are installed.

Post Length	Contact Plating	Pin Header Part No. (without Latches)	Pin Header Kit No. (with Latches)			
			Latches with Push Tabs		Latches without Push Tabs	
			Short Latch 102185-1	Str. Relief Latch 102186-1	Short Latch 102312-1	Str. Relief Latch 102320-1
<b>.110</b> 2.79	Duplex <sup>1</sup>	746098	746104	746116	746122	746134
	Duplex <sup>2</sup>	746140	746146	746158	746164	746176
	Bright Tin <sup>3</sup>	746232	746238	746250	746256	746268
<b>.155</b> 3.94	Duplex <sup>1</sup>	746099	746105	746117	746123	746135
	Duplex <sup>2</sup>	746141	746147	746159	746165	746177
	Bright Tin <sup>3</sup>	746233	746239	746251	746257	746269
<b>.610</b> 15.49	Duplex <sup>1</sup>	746100	746106	746118	746124	746136
	Duplex <sup>2</sup>	746142	746148	746160	746166	746178
	Bright Tin <sup>3</sup>	746234	746240	746252	746258	746270

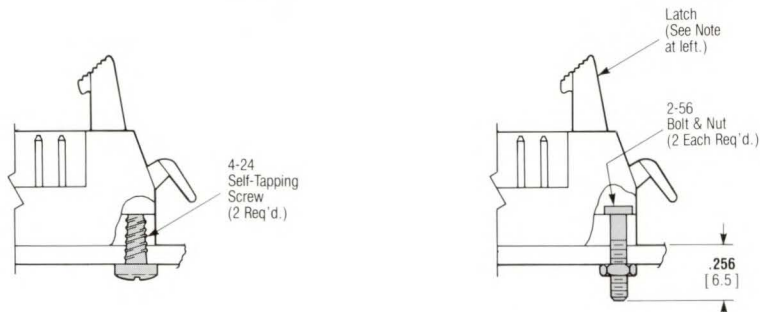
<sup>1</sup>.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>2</sup>.000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>3</sup>.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Note:** For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.



### Recommended Mounting Hole Pattern

\*.035 [0.89] hole dia. for soldering of posts .110 [2.79] and .155 [3.94] long.  
 .045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.  
 Pc board thicknesses are: .062 [1.57] for .110 [2.79] long posts,  
 .125 [3.18] for .155 [3.94] long posts.

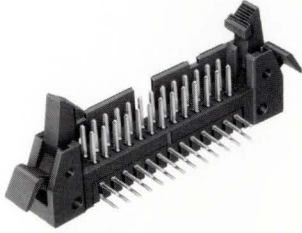


**Pin Header Mounting using 4-24 Self-Tapping Screws:**  
 Part No. 19156-1 (for .062 [1.57] Thick Pc Board)  
 19156-2 (for .093 [2.36] Thick Pc Board)  
 19156-3 (for .125 [3.18] Thick Pc Board)

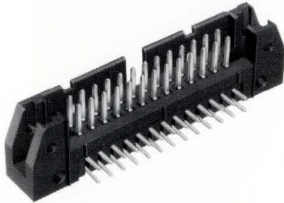
**Pin Header Mounting with 2-56 Bolts and Nuts:**  
 Part No. 746383-1 (Bolt Only)  
 Kit No. 102198-1 (Bolt and Nut, 2 Each per Kit)

## Universal Ejection Style Pin Headers, Center and Military Polarized .100 x .100 [2.54 x 2.54] Centers

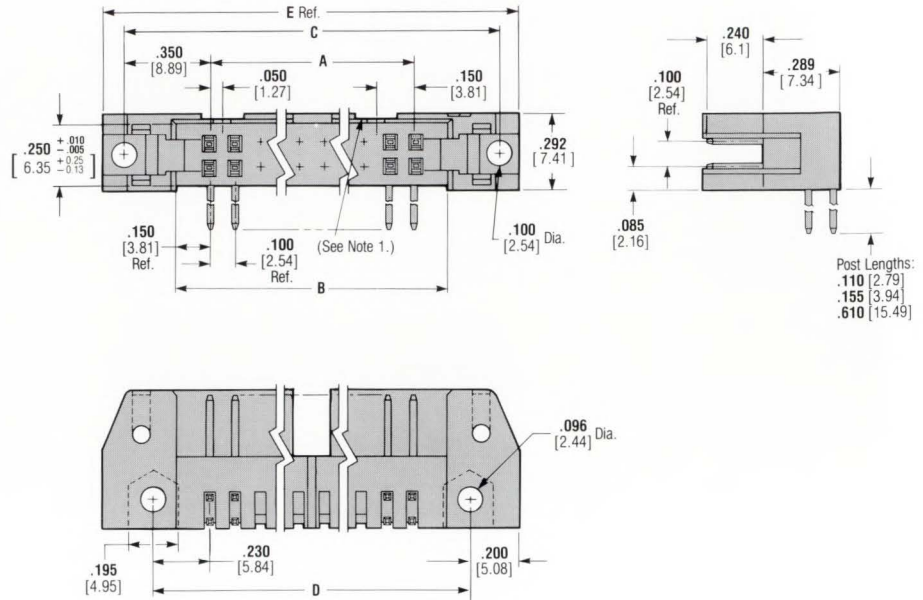
Right-Angle, 3 Sided  
.025 [0.64] Sq. Posts



Pin Header  
with Latches



Pin Header  
without Latches



### Material and Finish:

**Housing & Latches**—Black Thermoplastic, 94V-0 Rated

**Contacts**—Phosphor Bronze; tin or duplex plated (See chart, page 59.)

### Reference Information:

**Electrical Characteristics** — page 2

#### Mateable Receptacles:

- Standard—pages 4 thru 7
- Novo—pages 10, 11, & 14 thru 15
- Stackable Novo (.190 [4.83] Wide Cover—Use without Latches)—pages 18 & 19
- Stackable Novo (.240 [6.1] Wide Cover—Use without Latches, or with Latch Part No. 746469-1 for Shielding)—pages 20 & 21

#### Accessories:

- Snap-In Polarizer—page 97
- Technical Documents—page 109

**Note:** Pc Board Mounted Shields and Retrofit Shields are available for use with these pin headers, see pages 78 and 79.

No. of Pos.	Dimensions				
	A	B	C	D	E
10	.400 10.16	.700 17.78	1.100 27.94	.860 21.84	1.260 32
14	.600 15.24	.900 22.86	1.300 33.02	1.060 26.92	1.460 37.08
16	.700 17.78	1.000 25.4	1.400 35.56	1.160 29.46	1.560 39.62
20	.900 22.86	1.200 30.48	1.600 40.64	1.360 34.54	1.760 44.7
24	1.100 27.94	1.400 35.56	1.800 45.72	1.560 39.62	1.960 49.78
26	1.200 30.48	1.500 38.1	1.900 48.26	1.660 42.16	2.060 52.32
30	1.400 35.56	1.700 43.18	2.100 53.34	1.860 47.24	2.260 57.4
34	1.600 40.64	1.900 48.26	2.300 58.42	2.060 52.32	2.460 62.48
40	1.900 48.26	2.200 55.88	2.600 66.04	2.360 59.94	2.760 70.1
44	2.100 53.34	2.400 60.96	2.800 71.12	2.560 65.02	2.960 75.18
50	2.400 60.96	2.700 68.58	3.100 78.74	2.860 72.64	3.260 82.8
60	2.900 73.66	3.200 81.28	3.600 91.44	3.360 85.34	3.760 95.5
64	3.100 78.74	3.400 86.36	3.800 96.52	3.560 90.42	3.960 100.58

**Notes:** 1. Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.  
2. For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Ordering Information

When ordering a pin header or pin header kit, use the chart at the right to determine the 6-digit base no. for the desired post length, contact plating and latch configuration (Kits only). Then, complete the part no. or kit no. by adding the proper prefix and/or suffix no. for the desired pin header size. The prefix/suffix nos. for all available sizes (10 thru 64 positions) are listed below.

No. of Pos.	Add to Part No.	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
30		-7
34		-8
40		-9
44	1-	-3
50	1-	-0
60	1-	-1
64	1-	-2

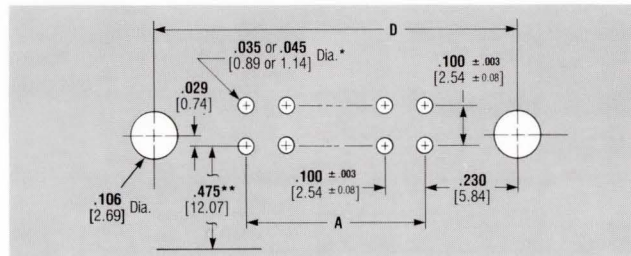
## Mounting Information

No mounting hardware is supplied by AMP.

Post Length	Contact Plating	Pin Header Part No. (without Latches)	Pin Header Kit No. (with Latches)			
			Latches with Push Tabs		Latches without Push Tabs	
			Short Latch 102185-1	Str. Relief Latch 102186-1	Short Latch 102312-1	Str. Relief Latch 102320-1
<b>.110</b> 2.79	Duplex <sup>1</sup>	746101	746107	746119	746125	746137
	Duplex <sup>2</sup>	746143	746149	746161	746167	746179
	Bright Tin <sup>3</sup>	746235	746241	746253	746259	746271
<b>.155</b> 3.94	Duplex <sup>1</sup>	746102	746108	746120	746126	746138
	Duplex <sup>2</sup>	746144	746150	746162	746168	746180
	Bright Tin <sup>3</sup>	746236	746242	746254	746260	746272
<b>.610</b> 15.49	Duplex <sup>1</sup>	746103	746109	746121	746127	746139
	Duplex <sup>2</sup>	746145	746151	746163	746169	746181
	Bright Tin <sup>3</sup>	746237	746243	746255	746261	746273

<sup>1</sup>.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>2</sup>.000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>3</sup>.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Note:** For information regarding latch/pin header applications and for ordering latches separately, refer to page 47.



**Recommended Mounting Hole Pattern**

\*.035 [0.89] hole dia. for soldering of posts .110 [2.79] and .155 [3.94] long.  
 .045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.  
 \*\*Maximum distance from edge of pc board for daisy chain application.  
 Pc board thicknesses are: .062 [1.57] for .110 [2.79] long posts,  
 .125 [3.18] for .155 [3.94] long posts.

## Low Profile Pin Headers, Center and Military Polarized .100 x .100 [2.54 x 2.54] Centers

### Right-Angle, 3 Sided .025 [0.64] Sq. Posts



Pin Header

#### Material and Finish:

**Housing**—Black Thermoplastic, 94V-0 Rated

**Contacts**—Phosphor Bronze; tin, gold or duplex plated (See chart, page 61.)

#### Reference Information:

**Electrical Characteristics** — page 2

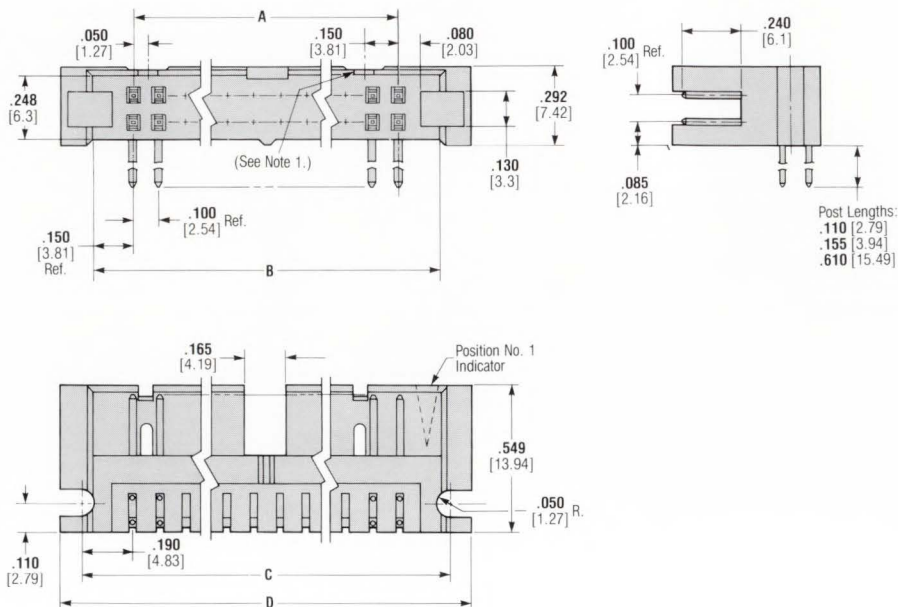
#### Mateable Receptacles:

- Standard—pages 4 thru 7
- Novo—pages 10, 11, 14 & 15
- Stackable Novo (.190 [4.83] Wide Cover)—pages 18 & 19
- Stackable Novo (.240 [6.1] Wide Cover)—pages 20 & 21

#### Accessories:

Snap-In Polarizer—page 97

**Technical Documents**—page 109



No. of Pos.	Dimensions			
	A	B	C	D
10	.400	.700	.780	.950
	10.16	17.78	19.81	24.13
14	.600	.900	.980	1.150
	15.24	22.86	24.89	29.21
16	.700	1.000	1.080	1.250
	17.78	25.4	27.43	31.75
20	.900	1.200	1.280	1.450
	22.86	30.48	32.51	36.83
24	1.100	1.400	1.480	1.650
	27.94	35.56	37.59	41.91
26	1.200	1.500	1.580	1.750
	30.48	38.1	40.13	44.45
30	1.400	1.700	1.780	1.950
	35.56	43.18	45.21	49.53
34	1.600	1.900	1.980	2.150
	40.64	48.26	50.29	54.61
40	1.900	2.200	2.280	2.450
	48.26	55.88	57.91	62.23
44	2.100	2.400	2.480	2.650
	53.34	60.96	62.99	67.31
50	2.400	2.700	2.780	2.950
	60.96	68.58	70.61	74.93
60	2.900	3.200	3.280	3.450
	73.66	81.28	83.31	87.63
64	3.100	3.400	3.480	3.650
	78.74	86.36	88.39	92.71

**Notes:** 1. Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.  
2. These pin headers do not accept latches.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Ordering Information

When ordering a pin header, use the chart at the right to determine the 6-digit base no. for the desired post length and contact plating. Then, complete the part no. by adding the proper prefix and/or suffix no. for the desired pin header size. The prefix/suffix nos. for all available sizes (10 thru 64 positions) are listed below.

No. of Pos.	Add to Part No.	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
30		-7
34		-8
40		-9
44	1-	-3
50	1-	-0
60	1-	-1
64	1-	-2

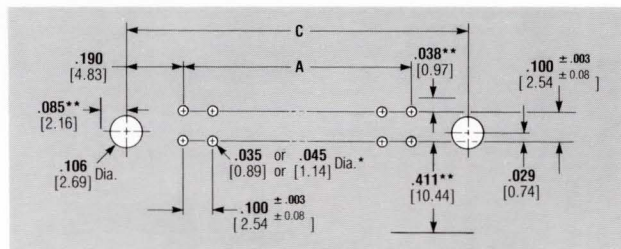
## Mounting Information

No mounting hardware is supplied by AMP.

Post Length	Contact Plating	Pin Header Part No.
.110 2.79	Duplex <sup>1</sup>	746451
	Duplex <sup>2</sup>	746448
	Bright Tin <sup>3</sup>	746454
.155 3.94	Duplex <sup>1</sup>	746452
	Duplex <sup>2</sup>	746449
	Bright Tin <sup>3</sup>	746455
.610 15.49	Duplex <sup>1</sup>	746453
	Duplex <sup>2</sup>	746450
	Bright Tin <sup>3</sup>	746456

<sup>1</sup>.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>2</sup>.000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>3</sup>.000100-.000200 [0.00254-0.00508] bright tin-lead over .000050 [0.00127] nickel on entire contact.

**Note:** Latches cannot be used with Low Profile Pin Headers.



### Recommended Mounting Hole Pattern

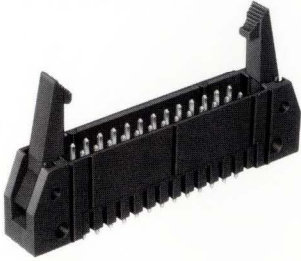
\*.035 [0.89] hole dia. for soldering of posts .110 [2.79] and .155 [3.94] long.  
 \*.045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.

\*\*Distance to outer edge of header housing.  
 Pc board thicknesses are: .062 [1.57] for .110 [2.79] long posts,  
 .125 [3.18] for .155 [3.94] long posts.

**Military Ejection Style Pin Headers  
(MIL-C-83503 Qualified)  
.100 x .100 [2.54 x 2.54] Centers**

**QPL APPROVED  
MIL-C-83503**

**Straight-Thru, 4 Sided  
.025 [0.64] Sq. Posts**



**Material and Finish:**

**Housing & Latches**—Black Thermoplastic, Flame Retardant, 94V-0 Rated

**Contacts**—Brass, duplex plated .000050 [0.00127] gold on mating end, .000100 [0.00254] min. bright tin-lead or matte tin-lead on termination end\*, with entire contact underplated .000050 [0.00127] nickel

\*Bright tin-lead finish on .610 [15.49] long posts. Matte tin-lead finish on .178/.152 [4.57/3.86] and .116/.089 [2.95/2.26] long posts.

**Reference Information:**

**Electrical Characteristics**—page 2

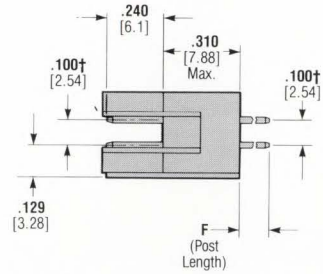
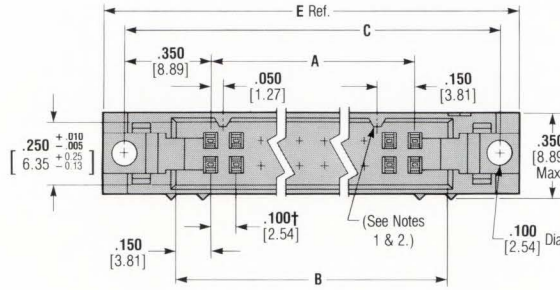
**Mateable Receptacles:**

- Standard—pages 4 & 5
- Novo—pages 12 & 13

**Technical Documents**—page 109

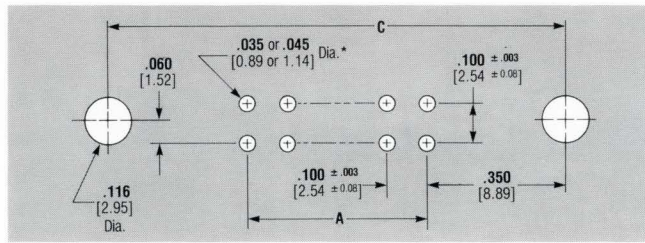
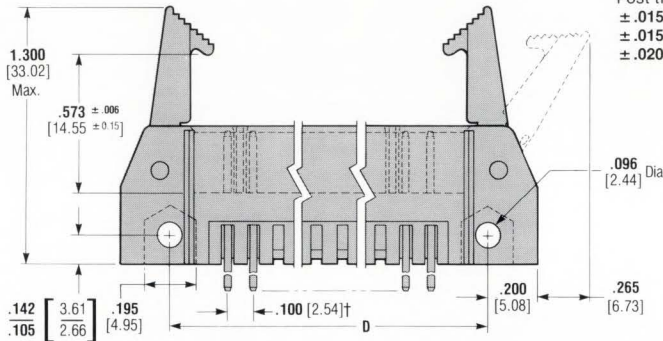
**Mounting Information**

4-24 self-tapping screws are supplied for mounting straight-thru pin headers to pc boards. A typical application using this hardware is presented at the right.



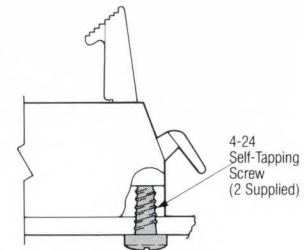
†Post tip tolerance at mating end is  $\pm .012$  [0.3] (all post lengths).

Post tip tolerances at termination end are:  
 $\pm .015$  [0.38]; F = .116/.089 [2.95/2.26],  
 $\pm .015$  [0.38]; F = .178/.152 [4.57/3.86],  
 $\pm .020$  [0.51]; F = .610 [15.49].



**Recommended Mounting Hole Pattern**

\*.035 [0.89] hole dia. for soldering of posts .116/.089 [2.95/2.26] and .178/.152 [4.57/3.86] long.  
.045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.



**Pin Header Mounting using 4-24 Self-Tapping Screws**

No. of Pos.	Dimensions					Pin Header Kit No.					
						F = .116/.089 [2.95/2.26] For .062 [1.57] Pc Board		F = .178/.152 [4.57/3.86] For .125 [3.18] Pc Board		F = .610 [15.49] For Wrap-type Terminations	
	A	B	C	D	E	Military Part No. M83503/	AMP Part No.	Military Part No. M83503/	AMP Part No.	Military Part No. M83503/	AMP Part No.
10	.400 10.16	.690 17.53	1.100 27.94	.860 21.84	1.260 32	25-01	499773-1	25-02	499774-1	25-03	499775-1
14	.600 15.24	.890 22.61	1.300 33.02	1.060 26.92	1.460 37.08	25-04	499773-2	25-05	499774-2	25-06	499775-2
16	.700 17.78	.990 25.15	1.400 35.56	1.160 29.46	1.560 39.62	25-07	499773-3	25-08	499774-3	25-09	499775-3
20	.900 22.86	1.190 30.23	1.600 40.64	1.360 34.54	1.760 44.7	25-10	499773-4	25-11	499774-4	25-12	499775-4
26	1.200 30.48	1.490 37.85	1.900 48.26	1.660 42.16	2.060 52.32	25-13	499773-6	25-14	499774-6	25-15	499775-6
34	1.600 40.64	1.890 48.01	2.300 58.42	2.060 52.32	2.460 62.48	25-16	499773-8	25-17	499774-8	25-18	499775-8
40	1.900 48.26	2.190 55.63	2.600 66.04	2.360 59.94	2.760 70.1	25-19	499773-9	25-20	499774-9	25-21	499775-9
50	2.400 60.96	2.690 68.33	3.100 78.74	2.860 72.64	3.260 82.8	25-22	1-499773-0	25-23	1-499774-0	25-24	1-499775-0
60	2.900 73.66	3.190 81.03	3.600 91.44	3.360 85.34	3.760 95.5	25-25	1-499773-1	25-26	1-499774-1	25-27	1-499775-1
64	3.100 78.74	3.390 86.11	3.800 96.52	3.560 90.42	3.960 100.58	25-28	1-499773-2	25-29	1-499774-2	25-30	1-499775-2

**Notes:** 1. Molded-in polarizing bar.  
2. Pin headers in 10- and 14-position sizes do not have polarizing feature on this end.  
3. All pin headers are supplied with latches, **Part No. 102320-1**, preassembled.

**QPL APPROVED  
MIL-C-83503**

**Right-Angle, 4 Sided  
.025 [0.64] Sq. Posts**



**Material and Finish:**

**Housing & Latches**—Black Thermoplastic, Flame Retardant, 94V-0 Rated

**Contacts**—Phosphor Bronze, duplex plated .000050 [0.00127] gold on mating end, .000100 [0.00254] min. bright tin-lead or matte tin-lead on termination end\*, with entire contact underplated .000050 [0.00127] nickel

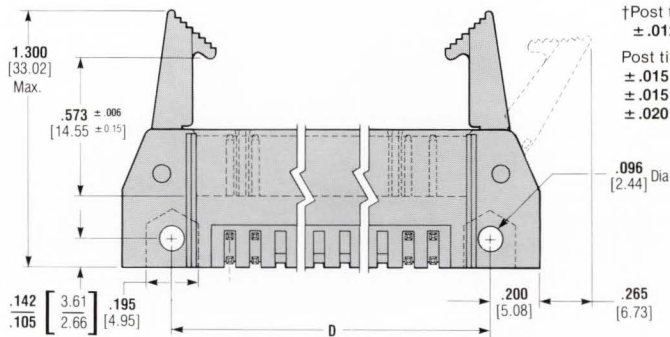
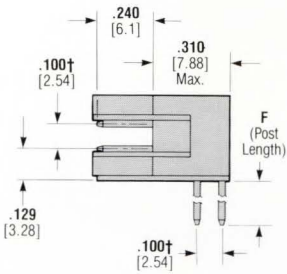
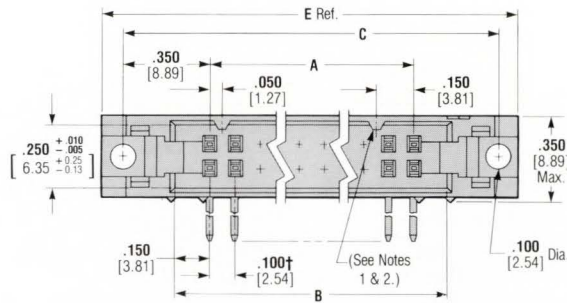
\*Bright tin-lead finish on .610 [15.49] long posts. Matte tin-lead finish on .178/.152 [4.57/3.86] and .116/.089 [2.95/2.26] long posts.

**Reference Information:**

**Electrical Characteristics**—page 2  
**Mateable Receptacles:**  
 Standard—pages 4 & 5  
 Novo—pages 12 & 13  
**Technical Documents**—page 109

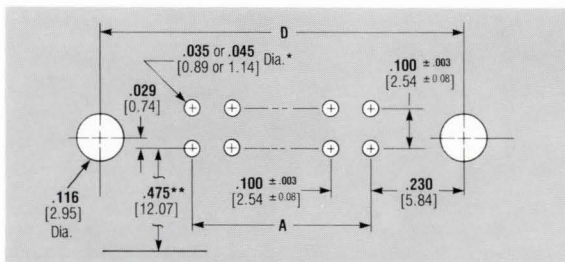
**Mounting Information**

No mounting hardware is supplied by AMP.



†Post tip tolerance at mating end is ±.012 [0.3] (all post lengths).

Post tip tolerances at termination end are:  
 ±.015 [0.38]; F = .116/.089 [2.95/2.26],  
 ±.015 [0.38]; F = .178/.152 [4.57/3.86],  
 ±.020 [0.51]; F = .610 [15.49].



**Recommended Mounting Hole Pattern**

\*.035 [0.89] hole dia. for soldering of posts .116/.089 [2.95/2.26] and .178/.152 [4.57/3.86] long.  
 .045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.

\*\*Maximum distance from edge of pc board for daisy chain application.

No. of Pos.	Dimensions					Pin Header Kit No.					
						F = .116/.089 [2.95/2.26] For .062 [1.57] Pc Board		F = .178/.152 [4.57/3.86] For .125 [3.18] Pc Board		F = .610 [15.49] For Wrap-type Terminations	
	A	B	C	D	E	Military Part No. M83503/	AMP Part No.	Military Part No. M83503/	AMP Part No.	Military Part No. M83503/	AMP Part No.
10	.400 10.16	.690 17.53	1.100 27.94	.860 21.84	1.260 32	24-01	499776-1	24-02	499777-1	24-03	499778-1
14	.600 15.24	.890 22.61	1.300 33.02	1.060 26.92	1.460 37.08	24-04	499776-2	24-05	499777-2	24-06	499778-2
16	.700 17.78	.990 25.15	1.400 35.56	1.160 29.46	1.560 39.62	24-07	499776-3	24-08	499777-3	24-09	499778-3
20	.900 22.86	1.190 30.23	1.600 40.64	1.360 34.54	1.760 44.7	24-10	499776-4	24-11	499777-4	24-12	499778-4
26	1.200 30.48	1.490 37.85	1.900 48.26	1.660 42.16	2.060 52.32	24-13	499776-6	24-14	499777-6	24-15	499778-6
34	1.600 40.64	1.890 48.01	2.300 58.42	2.060 52.32	2.460 62.48	24-16	499776-8	24-17	499777-8	24-18	499778-8
40	1.900 48.26	2.190 55.63	2.600 66.04	2.360 59.94	2.760 70.1	24-19	499776-9	24-20	499777-9	24-21	499778-9
50	2.400 60.96	2.690 68.33	3.100 78.74	2.860 72.64	3.260 82.8	24-22	1-499776-0	24-23	1-499777-0	24-24	1-499778-0
60	2.900 73.66	3.190 81.03	3.600 91.44	3.360 85.34	3.760 95.5	24-25	1-499776-1	24-26	1-499777-1	24-27	1-499778-1
64	3.100 78.74	3.390 86.11	3.800 96.52	3.560 90.42	3.960 100.58	24-28	1-499776-2	24-29	1-499777-2	24-30	1-499778-2

**Notes:** 1. Molded-in polarizing bar.  
 2. Pin headers in 10- and 14-position sizes do not have polarizing feature on this end.  
 3. All pin headers are supplied with latches, Part No. 102320-1, preassembled.

**Military Ejection Style Pin Headers**  
**(MIL-C-83503 Qualified)**  
**.100 x .100 [2.54 x 2.54] Centers**

**QPL APPROVED**  
**MIL-C-83503**

**Straight-Thru, 3 Sided**  
**.025 [0.64] Sq. Posts**



**Material and Finish:**

**Housing & Latches**—Black Thermoplastic, Flame Retardant, 94V-0 Rated

**Contacts**—Brass, duplex plated .000050 [0.00127] gold on mating end, .000100 [0.00254] min. bright tin-lead or matte tin-lead on termination end\*, with entire contact underplated .000050 [0.00127] nickel

\*Bright tin-lead finish on .610 [15.49] long posts. Matte tin-lead finish on .178/.152 [4.57/3.86] and .116/.089 [2.95/2.26] long posts.

**Reference Information:**

**Electrical Characteristics**—page 2

**Mateable Receptacles:**

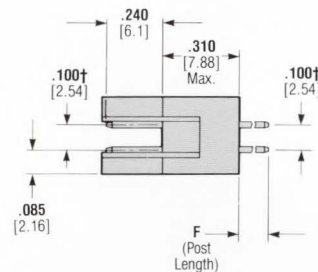
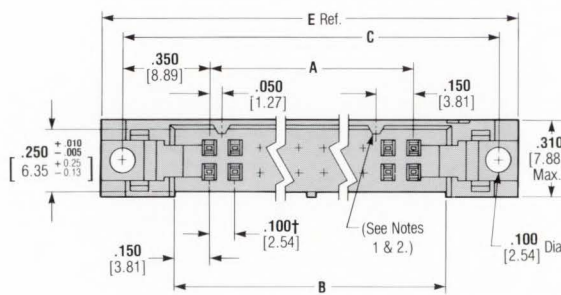
Standard—pages 4 & 5

Novo—pages 12 & 13

**Technical Documents**—page 109

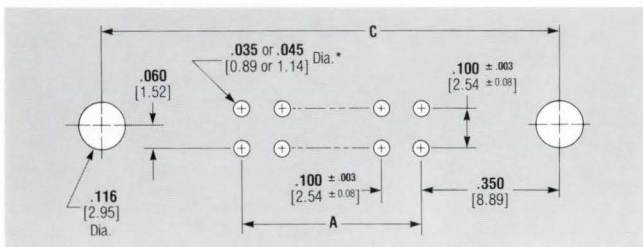
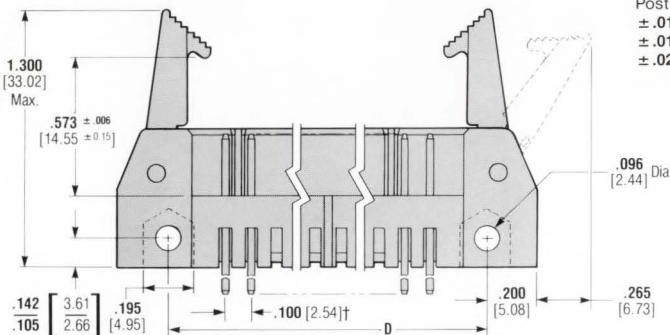
**Mounting Information**

4-24 self-tapping screws are supplied for mounting straight-thru pin headers to pc boards. A typical application using this hardware is presented at the right.



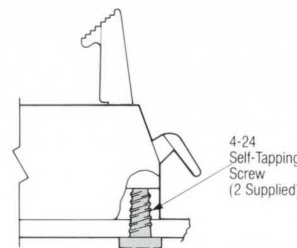
†Post tip tolerance at mating end is ±.012 [0.3] (all post lengths).

Post tip tolerances at termination end are:  
 ±.015 [0.38]; F = .116/.089 [2.95/2.26],  
 ±.015 [0.38]; F = .178/.152 [4.57/3.86],  
 ±.020 [0.51]; F = .610 [15.49].



**Recommended Mounting Hole Pattern**

\*.035 [0.89] hole dia. for soldering of posts .116/.089 [2.95/2.26] and .178/.152 [4.57/3.86] long.  
 .045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.



**Pin Header Mounting**  
**using 4-24 Self-Tapping Screws**

No. of Pos.	Dimensions					Pin Header Kit No.					
	A	B	C	D	E	F = .116/.089 [2.95/2.26] For .062 [1.57] Pc Board		F = .178/.152 [4.57/3.86] For .125 [3.18] Pc Board		F = .610 [15.49] For Wrap-type Terminations	
						Military Part No. M83503/	AMP Part No.	Military Part No. M83503/	AMP Part No.	Military Part No. M83503/	AMP Part No.
10	.400 10.16	.690 17.53	1.100 27.94	.860 21.84	1.260 32	21-01	499486-1	21-02	499490-1	21-03	499487-1
14	.600 15.24	.890 22.61	1.300 33.02	1.060 26.92	1.460 37.08	21-04	499486-2	21-05	499490-2	21-06	499487-2
16	.700 17.78	.990 25.15	1.400 35.56	1.160 29.46	1.560 39.62	21-07	499486-3	21-08	499490-3	21-09	499487-3
20	.900 22.86	1.190 30.23	1.600 40.64	1.360 34.54	1.760 44.7	21-10	499486-4	21-11	499490-4	21-12	499487-4
26	1.200 30.48	1.490 37.85	1.900 48.26	1.660 42.16	2.060 52.32	21-13	499486-6	21-14	499490-6	21-15	499487-6
34	1.600 40.64	1.890 48.01	2.300 58.42	2.060 52.32	2.460 62.48	21-16	499486-8	21-17	499490-8	21-18	499487-8
40	1.900 48.26	2.190 55.63	2.600 66.04	2.360 59.94	2.760 70.1	21-19	499486-9	21-20	499490-9	21-21	499487-9
50	2.400 60.96	2.690 68.33	3.100 78.74	2.860 72.64	3.260 82.8	21-22	1-499486-0	21-23	1-499490-0	21-24	1-499487-0
60	2.900 73.66	3.190 81.03	3.600 91.44	3.360 85.34	3.760 95.5	21-25	1-499486-1	21-26	1-499490-1	21-27	1-499487-1
64	3.100 78.74	3.390 86.11	3.800 96.52	3.560 90.42	3.960 100.58	21-28	1-499486-2	21-29	1-499490-2	21-30	1-499487-2

Notes: 1. Molded-in polarizing bar.  
 2. Pin headers in 10- and 14-position sizes do not have polarizing feature on this end.  
 3. All pin headers are supplied with latches, Part No. 102320-1, preassembled.



**QPL APPROVED  
MIL-C-83503**

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches and millimetres.

**Right-Angle, 3 Sided  
.025 [0.64] Sq. Posts**



**Material and Finish:**

**Housing & Latches**—Black Thermoplastic, Flame Retardant, 94V-0 Rated

**Contacts**—Phosphor Bronze, duplex plated .000050 [0.00127] gold on mating end, .000100 [0.00254] min. bright tin-lead or matte tin-lead on termination end\*, with entire contact underplated .000050 [0.00127] nickel

\*Bright tin-lead finish on .610 [15.49] long posts. Matte tin-lead finish on .178/.152 [4.57/3.86] and .116/.089 [2.95/2.26] long posts.

**Reference Information:**

**Electrical Characteristics**—page 2

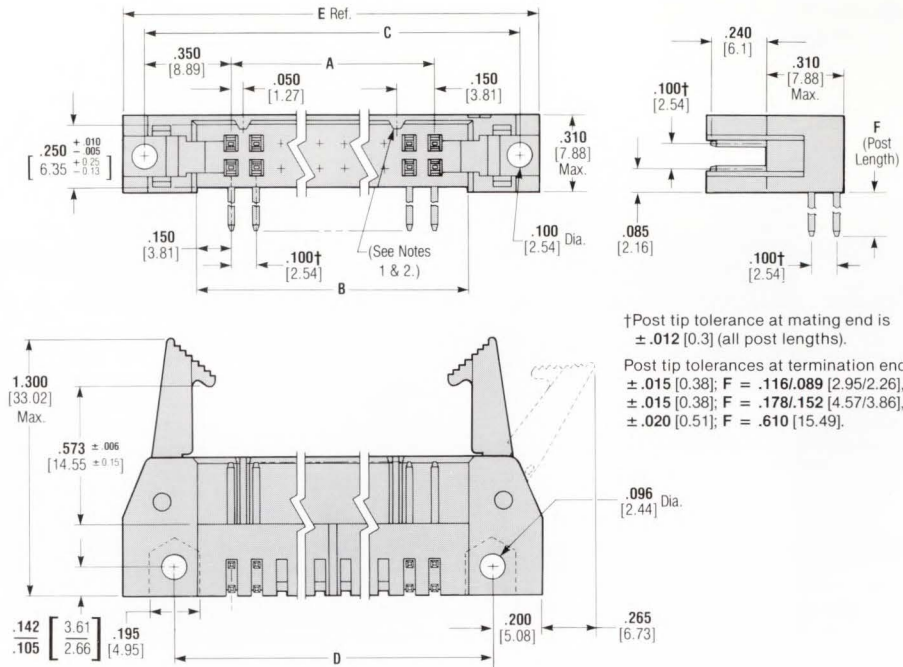
**Mateable Receptacles:**

Standard—pages 4 & 5  
Novo—pages 12 & 13

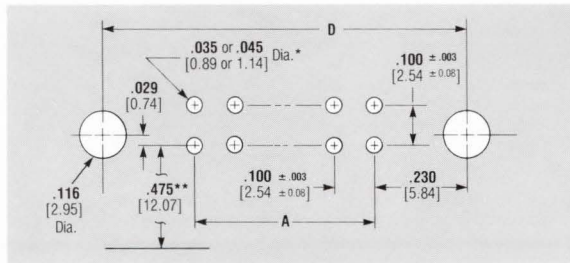
**Technical Documents**—page 109

**Mounting Information**

No mounting hardware is supplied by AMP.



†Post tip tolerance at mating end is ±.012 [0.3] (all post lengths).  
Post tip tolerances at termination end are:  
±.015 [0.38]; F = .116/.089 [2.95/2.26],  
±.015 [0.38]; F = .178/.152 [4.57/3.86],  
±.020 [0.51]; F = .610 [15.49].



**Recommended Mounting Hole Pattern**

\*.035 [0.89] hole dia. for soldering of posts .116/.089 [2.95/2.26] and .178/.152 [4.57/3.86] long.  
.045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.  
\*\*Maximum distance from edge of pc board for daisy chain application.

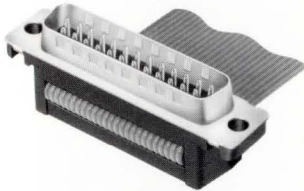
No. of Pos.	Dimensions					Pin Header Kit No.					
	A	B	C	D	E	F = .116/.089 [2.95/2.26] For .062 [1.57] Pc Board		F = .178/.152 [4.57/3.86] For .125 [3.18] Pc Board		F = .610 [15.49] For Wrap-type Terminations	
						Military Part No. M83503/	AMP Part No.	Military Part No. M83503/	AMP Part No.	Military Part No. M83503/	AMP Part No.
10	.400 10.16	.690 17.53	1.100 27.94	.860 21.84	1.260 32	20-01	499488-1	20-02	499491-1	20-03	499489-1
14	.600 15.24	.890 22.61	1.300 33.02	1.060 26.92	1.460 37.08	20-04	499488-2	20-05	499491-2	20-06	499489-2
16	.700 17.78	.990 25.15	1.400 35.56	1.160 29.46	1.560 39.62	20-07	499488-3	20-08	499491-3	20-09	499489-3
20	.900 22.86	1.190 30.23	1.600 40.64	1.360 34.54	1.760 44.7	20-10	499488-4	20-11	499491-4	20-12	499489-4
26	1.200 30.48	1.490 37.85	1.900 48.26	1.660 42.16	2.060 52.32	20-13	499488-6	20-14	499491-6	20-15	499489-6
34	1.600 40.64	1.890 48.01	2.300 58.42	2.060 52.32	2.460 62.48	20-16	499488-8	20-17	499491-8	20-18	499489-8
40	1.900 48.26	2.190 55.63	2.600 66.04	2.360 59.94	2.760 70.1	20-19	499488-9	20-20	499491-9	20-21	499489-9
50	2.400 60.96	2.690 68.33	3.100 78.74	2.860 72.64	3.260 82.8	20-22	1-499488-0	20-23	1-499491-0	20-24	1-499489-0
60	2.900 73.66	3.190 81.03	3.600 91.44	3.360 85.34	3.760 95.5	20-25	1-499488-1	20-26	1-499491-1	20-27	1-499489-1
64	3.100 78.74	3.390 86.11	3.800 96.52	3.560 90.42	3.960 100.58	20-28	1-499488-2	20-29	1-499491-2	20-30	1-499489-2

**Notes:** 1. Molded-in polarizing bar.  
2. Pin headers in 10- and 14-position sizes do not have polarizing feature on this end.  
3. All pin headers are supplied with latches, **Part No. 102320-1**, preassembled.

## HDF-20 Low Profile Metal-Shell Connectors (for Round Conductor Flat Ribbon Cable)

HDF-20 Connectors

### Plug Assemblies (with Grounding Indents)



Housing and Cover are Preassembled; Strain Relief is Separate.

#### Material and Finish:

**Front Shell** — Steel; Tin plated  
**Housing, Cover & Strain Relief** — Black Thermoplastic, 94V-0 Rated

**Threaded Inserts** — Brass; unplated

**Pin Contacts** — Phosphor Bronze; duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

#### Reference Information:

**Electrical Characteristics** — page 2

#### Mateable Receptacles:

HDF-20 Metal-Shell — page 67

**Mating/Panel Mounting** — page 70

**Connector Savers** — page 71

**Plug/Receptacle Adapters** — page 72

**Ribbon Cable** — pages 84 thru 86 & 88 thru 94

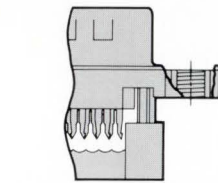
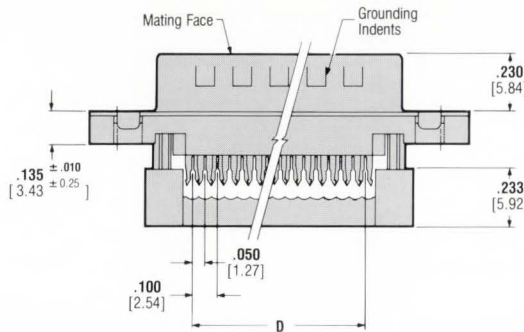
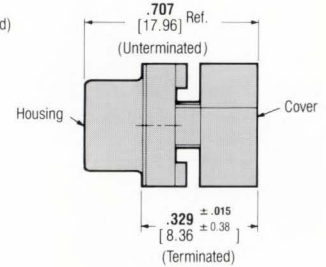
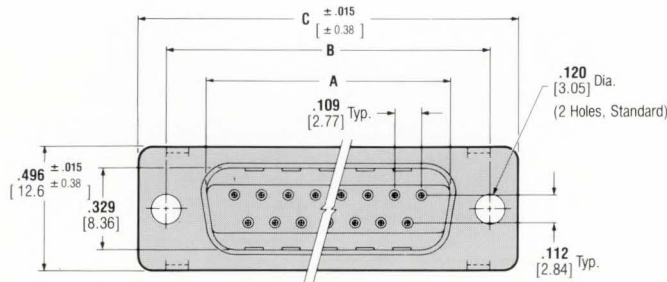
#### Accessories:

Commoning Strip — page 99

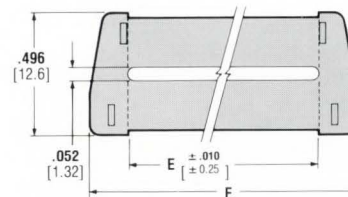
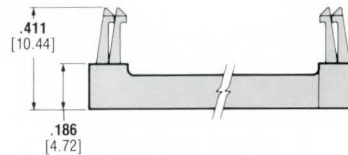
Mating Hardware — pages 100 thru 103

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



With 4-40 Threaded Inserts



Strain Relief

#### Notes:

- Shielded versions of HDF-20 Metal-Shell Connectors are available, see page 81.
- RFI Gaskets are available for use with HDF-20 Metal-Shell Connectors, see page 82.

No. of Contact Pos. (Shell Size)	Dimensions						Strain Relief Part No.	Plug Assembly Part No.			
								Without Strain Relief		With Strain Relief	
								With Standard Mounting Holes	With Threaded Inserts	With Standard Mounting Holes	With Threaded Inserts
9 (1)	.666 16.92	.984 24.99	1.216 30.89	.400 10.16	.480 12.19	.759 19.28	747275-4	747306-4	747043-4	747307-4	747308-4
15 (2)	.994 25.25	1.312 33.32	1.541 39.14	.700 17.78	.780 19.81	1.087 27.61	747275-3	747306-3	747043-3	747307-3	747308-3
25 (3)	1.534 38.96	1.852 47.04	2.090 53.09	1.200 30.48	1.280 32.51	1.623 41.22	747275-2	747306-2	747043-2	747307-2	747308-2
37 (4)	2.183 55.45	2.500 63.5	2.732 69.39	1.800 45.72	1.880 47.75	2.275 57.78	747275-1	747306-1	747043-1	747307-1	747308-1

Note: All plug assemblies are supplied with housing and cover preassembled (shown above). Strain reliefs, when included, are packaged unassembled.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Receptacle Assemblies



Housing and Cover are Preassembled; Strain Relief is Separate.

### Material and Finish:

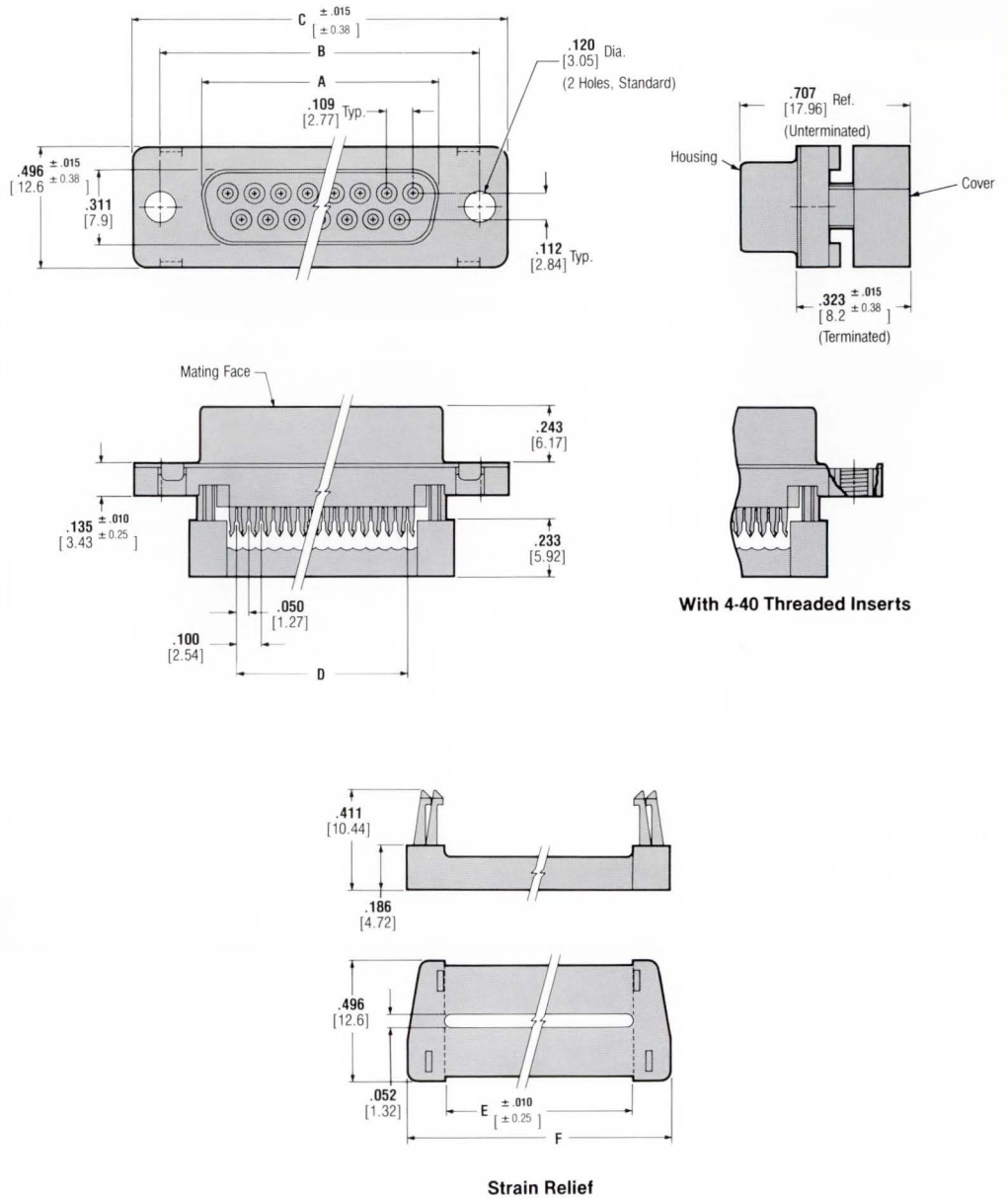
- Front Shell** — Steel; Tin plated
- Housing, Cover & Strain Relief** — Black Thermoplastic, 94V-0 Rated
- Threaded Inserts** — Brass; unplated
- Socket Contacts** — Phosphor Bronze; duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

### Reference Information:

- Electrical Characteristics** — page 2
- Mateable Plugs:**  
HDF-20 Metal-Shell — page 66
- Mating/Panel Mounting** — page 70
- Connector Savers** — page 71
- Plug/Receptacle Adapters** — page 72
- Ribbon Cable** — pages 84 thru 86 & 88 thru 94
- Accessories:**  
Keying Plug — page 99  
Mating Hardware — pages 100 thru 103
- Application Tooling** — pages 104 thru 107
- Technical Documents** — page 109

### Notes:

1. Shielded versions of HDF-20 Metal-Shell Connectors are available, see page 81.
2. RFI Gaskets are available for use with HDF-20 Metal-Shell Connectors, see page 82.



No. of Contact Pos. (Shell Size)	Dimensions						Strain Relief Part No.	Receptacle Assembly Part No.			
								Without Strain Relief		With Strain Relief	
	A	B	C	D	E	F		With Standard Mounting Holes	With Threaded Inserts	With Standard Mounting Holes	With Threaded Inserts
9 (1)	.643 16.33	.984 24.99	1.216 30.89	.400 10.16	.480 12.19	.759 19.28	747275-4	747303-4	747052-4	747304-4	747305-4
15 (2)	.971 24.66	1.312 33.32	1.541 39.14	.700 17.78	.780 19.81	1.087 27.61	747275-3	747303-3	747052-3	747304-3	747305-3
19*	1.140 28.96	1.526 38.76	1.764 44.81	.900 22.86	.980 24.89	1.287 32.69	747275-5	747303-5	747052-5	747304-5	747305-5
25 (3)	1.511 38.38	1.852 47.04	2.090 53.09	1.200 30.48	1.280 32.51	1.623 41.22	747275-2	747303-2	747052-2	747304-2	747305-2
37 (4)	2.159 54.84	2.500 63.5	2.732 69.39	1.800 45.72	1.880 47.75	2.275 57.78	747275-1	747303-1	747052-1	747304-1	747305-1

\*19-position receptacle assemblies are special connectors.

**Note:** All receptacle assemblies are supplied with housing and cover preassembled (shown above). Strain reliefs, when included, are packaged unassembled.

## HDF-20 Low Profile All-Plastic Connectors (for Round Conductor Flat Ribbon Cable)

### Plug Assemblies



Housing and Cover are Preassembled; Strain Relief is Separate.

### Material and Finish:

**Housing, Cover & Strain Relief** — Black Thermoplastic, 94V-0 Rated

**Threaded Inserts** — Brass; unplated

**Pin Contacts** — Phosphor Bronze; duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

### Reference Information:

**Electrical Characteristics** — page 2

**Mateable Receptacles:**

HDF-20 All-Plastic — page 69

**Mating/Panel Mounting** — page 70

**Connector Savers** — page 71

**Plug/Receptacle Adapters** — page 73

**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

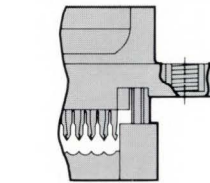
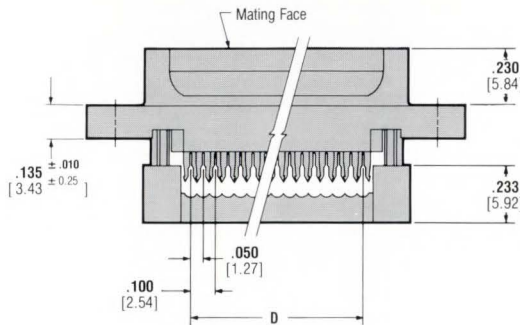
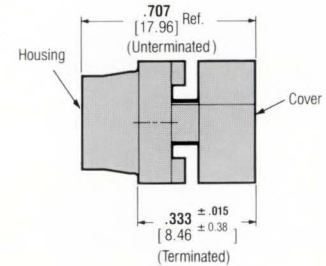
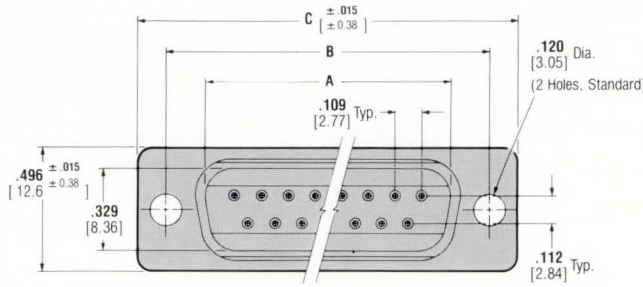
### Accessories:

Commoning Strip — page 99

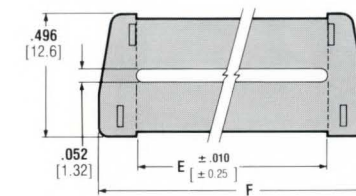
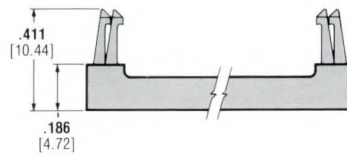
Mating Hardware — pages 100 thru 103

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



With 4-40 Threaded Inserts



Strain Relief

No. of Contact Pos. (Shell Size)	Dimensions						Strain Relief Part No.	Plug Assembly Part No.			
								Without Strain Relief		With Strain Relief	
	A	B	C	D	E	F		With Standard Mounting Holes	With Threaded Inserts	With Standard Mounting Holes	With Threaded Inserts
9 (1)	.666 16.92	.984 24.99	1.216 30.89	.400 10.16	.480 12.19	.759 19.28	747275-4	747321-4	747053-4	747322-4	747323-4
15 (2)	.994 25.25	1.312 33.32	1.541 39.14	.700 17.78	.780 19.81	1.087 27.61	747275-3	747321-3	747053-3	747322-3	747323-3
25 (3)	1.534 38.96	1.852 47.04	2.090 53.09	1.200 30.48	1.280 32.51	1.623 41.22	747275-2	747321-2	747053-2	747322-2	747323-2
37 (4)	2.183 55.45	2.500 63.5	2.732 69.39	1.800 45.72	1.880 47.75	2.275 57.78	747275-1	747321-1	747053-1	747322-1	747323-1

**Note:** All plug assemblies are supplied with housing and cover preassembled (shown above). Strain reliefs, when included, are packaged unassembled.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Receptacle Assemblies



Housing and Cover are Preassembled; Strain Relief is Separate.

### Material and Finish:

**Housing, Cover & Strain Relief** — Black Thermoplastic, 94V-0 Rated

**Threaded Inserts** — Brass; unplated

**Socket Contacts** — Phosphor Bronze; duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

### Reference Information:

**Electrical Characteristics** — page 2  
**Mateable Plugs:**

HDF-20 All-Plastic — page 68

**Mating/Panel Mounting** — page 70

**Connector Savers** — page 71

**Plug/Receptacle Adapters** — page 73

**Ribbon Cable** — pages 84 thru 86 & 88 thru 90

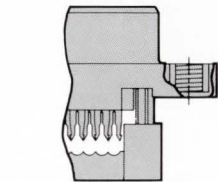
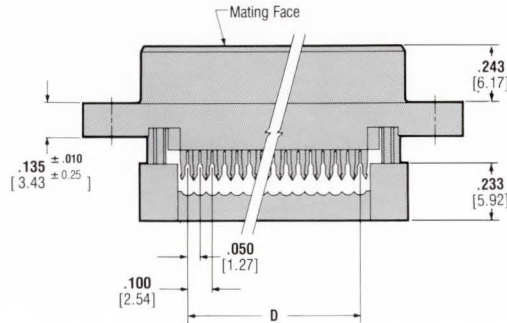
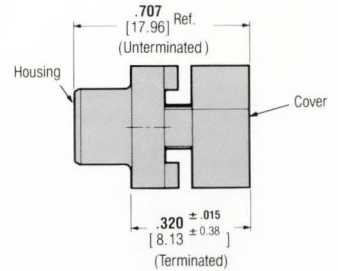
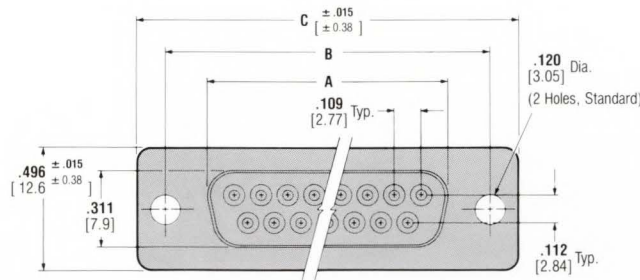
#### Accessories:

Keying Plug — page 99

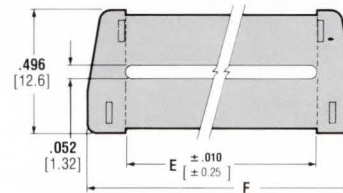
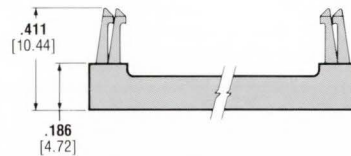
Mating Hardware — pages 100 thru 103

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109



With 4-40 Threaded Inserts



Strain Relief

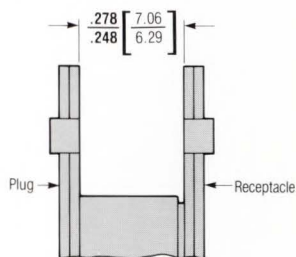
No. of Contact Pos. (Shell Size)	Dimensions						Strain Relief Part No.	Receptacle Assembly Part No.			
								Without Strain Relief		With Strain Relief	
	A	B	C	D	E	F		With Standard Mounting Holes	With Threaded Inserts	With Standard Mounting Holes	With Threaded Inserts
9 (1)	.643 16.33	.984 24.99	1.216 30.89	.400 10.16	.480 12.19	.759 19.28	747275-4	747318-4	747051-4	747319-4	747320-4
15 (2)	.971 24.66	1.312 33.32	1.541 39.14	.700 17.78	.780 19.81	1.087 27.61	747275-3	747318-3	747051-3	747319-3	747320-3
25 (3)	1.511 38.38	1.852 47.04	2.090 53.09	1.200 30.48	1.280 32.51	1.623 41.22	747275-2	747318-2	747051-2	747319-2	747320-2
37 (4)	2.159 54.84	2.500 63.5	2.732 69.39	1.800 45.72	1.880 47.75	2.275 57.78	747275-1	747318-1	747051-1	747319-1	747320-1

**Note:** All receptacle assemblies are supplied with housing and cover preassembled (shown above). Strain reliefs, when included, are packaged unassembled.

## HDF-20 Plug/Receptacle Mating and Panel Mounting Specifications

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

### Plug/Receptacle Mating



The .278/.248 [7.06/6.29] dimension is required to assure full mating of connector halves. This dimension must be taken into consideration when determining the method of mounting, panel thickness, etc.

### Panel Mounting

Plugs and receptacles can be mounted to a panel from either the front or rear, using a variety of accessory hardware. Typical examples are shown below.

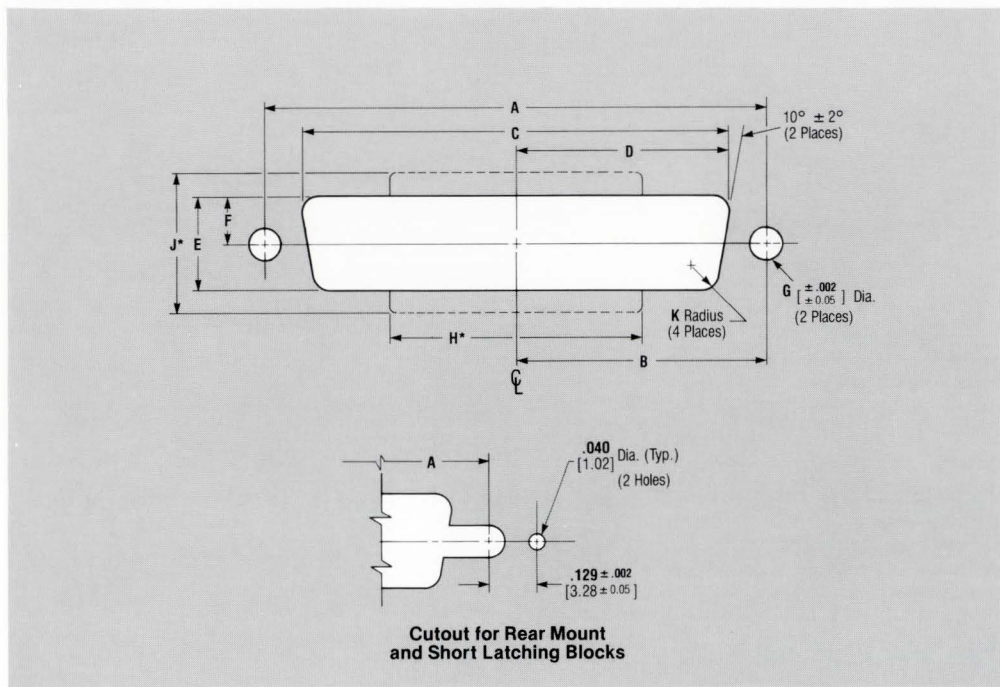


Typical Front-Panel Mounted HDF-20 Plug



Typical Rear-Panel Mounted HDF-20 Receptacle

### Panel Cutouts



Shell Size (No. of Contact Pos.)	Mounting Method		Dimensions									
	Front/Rear Panel	With/Without Floating Bushing	A	B	C	D	E	F	G	H*	J*	K
1 (9)	Front	With			.906 23.01	.453 11.51	.545 13.84	.273 6.93	.088 2.24	.382 9.7	.662 16.81	.083 2.11
		Without	.984 24.99	.492 12.5	.874 22.2	.437 11.1	.513 13.03	.257 6.53	.120 3.05	.350 8.89	.630 16	
	Rear	With			.838 21.29	.419 10.64	.481 12.22	.241 6.12	.088 2.24	.332 8.43	.662 16.81	.132 3.35
		Without			.806 20.45	.403 10.24	.449 11.4	.225 5.72	.120 3.05	.300 7.62	.630 16	
2 (15)	Front	With			1.234 31.34	.617 15.67	.545 13.84	.273 6.93	.088 2.24	.735 18.67	.662 16.81	.083 2.11
		Without	1.312 33.32	.656 16.66	1.202 30.53	.601 15.27	.513 13.03	.257 6.53	.120 3.05	.673 17.09	.630 16	
	Rear	With			1.166 29.62	.583 14.81	.481 12.22	.241 6.12	.088 2.24	.655 16.64	.662 16.81	.132 3.35
		Without			1.134 28.8	.567 14.4	.449 11.4	.225 5.72	.120 3.05	.623 15.82	.630 16	
3 (25)	Front	With			1.775 45.09	.888 22.56	.545 13.84	.273 6.93	.088 2.24	1.247 31.67	.662 16.81	.083 2.11
		Without	1.852 47.04	.926 23.52	1.743 44.27	.872 22.15	.513 13.03	.257 6.53	.120 3.05	1.215 30.86	.630 16	
	Rear	With			1.706 43.33	.853 21.67	.481 12.22	.241 6.12	.088 2.24	1.197 30.4	.662 16.81	.132 3.35
		Without			1.674 42.52	.837 21.26	.449 11.4	.225 5.72	.120 3.05	1.165 29.59	.630 16	
4 (37)	Front	With			2.423 61.17	1.212 30.78	.545 13.84	.273 6.93	.088 2.24	1.895 48.13	.662 16.81	.083 2.11
		Without	2.500 63.5	1.250 31.75	2.391 60.73	1.196 30.38	.513 13.03	.257 6.53	.120 3.05	1.863 47.32	.630 16	
	Rear	With			2.354 59.79	1.177 29.9	.481 12.22	.241 6.12	.088 2.24	1.845 46.86	.662 16.81	.132 3.35
		Without			2.326 59.08	1.163 29.54	.449 11.4	.225 5.72	.120 3.05	1.813 46.05	.630 16	

\*Panel cutout configuration with H and J dimensions provides clearance for mounting connectors with cable clamp assemblies.

## Connector Savers

AMP-LATCH Connector Savers are throw-away HDF-20 adapters designed to save wear of subminiature D connectors that are used in applications requiring a high cycle life, such as test equipment.

### Material and Finish:

**Front Metal Shell** — Steel; Tin plated

**Housing** — Black Thermoplastic, 94V-0 Rated

**Cover** — Black Thermoplastic, 94V-0 Rated; Nickel plated (Metal-Shell Versions), unplated (All-Plastic Versions)

**Hardware** — Steel; Zinc plated

**Contacts** — Phosphor Bronze; duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

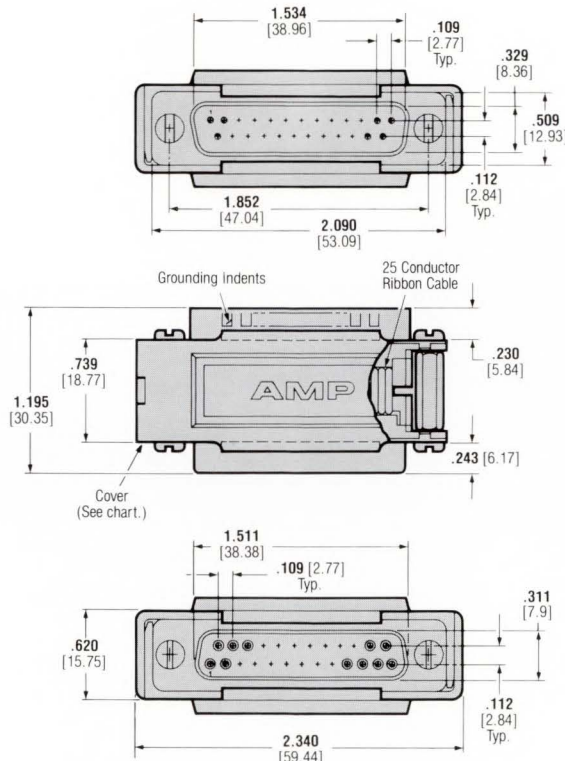
### Reference Information:

**Connectors used with:**  
 HDF-20 Metal-Shell — pages 66 & 67  
 HDF-20 All-Plastic — pages 68 & 69

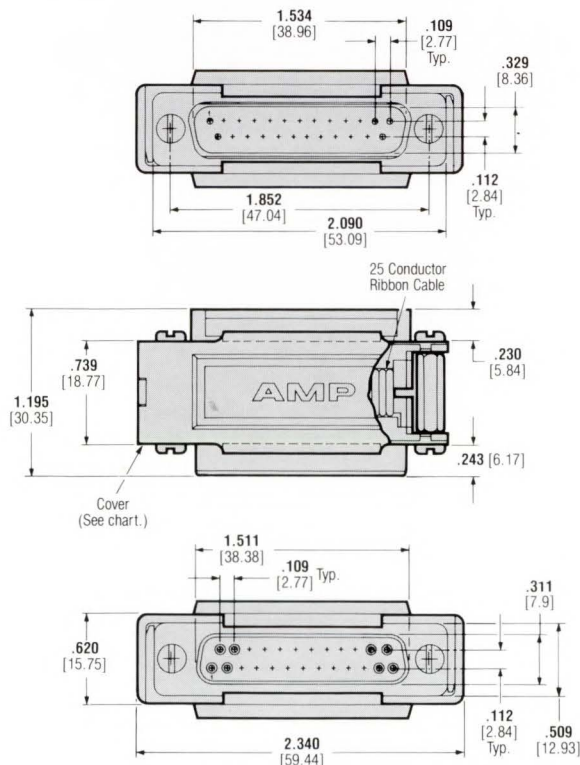
Connector Saver Style	Connector Saver Part No.	
	Without Cover	With Cover
Metal Shell	747123-1	747122-1*
All-Plastic	747121-1	747120-1*

\*Covers are nickel plated for metal-shell versions and unplated for all plastic versions.

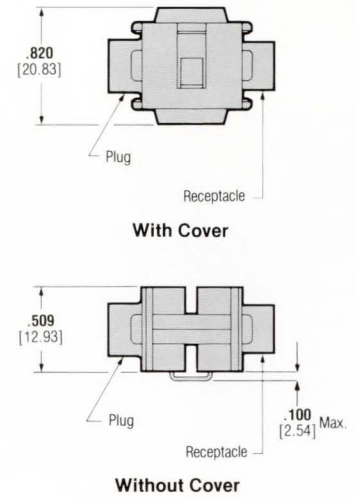
### 25 Positions (Metal-Shell)



### 25 Positions (All-Plastic)



**Dimensioning:**  
 Dimensions are in inches and millimetres.  
 Values in brackets are metric equivalents.



HDF-20 Connectors

## Plug/Receptacle Adapters

### Metal-Shell

AMP-LATCH Plug/Receptacle Adapters provide a quick and easy method of changing the gender of subminiature D plugs and receptacles.

### Material and Finish:

**Front Metal Shell** — Steel; Tin plated

**Housing** — Black Thermoplastic, 94V-0 Rated

**Cover** — Black Thermoplastic, 94V-0 Rated; Nickel plated.

**Hardware** — Steel; Zinc plated

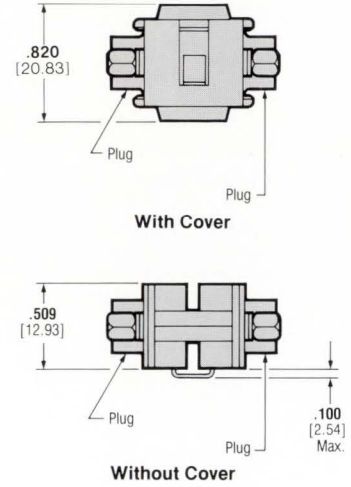
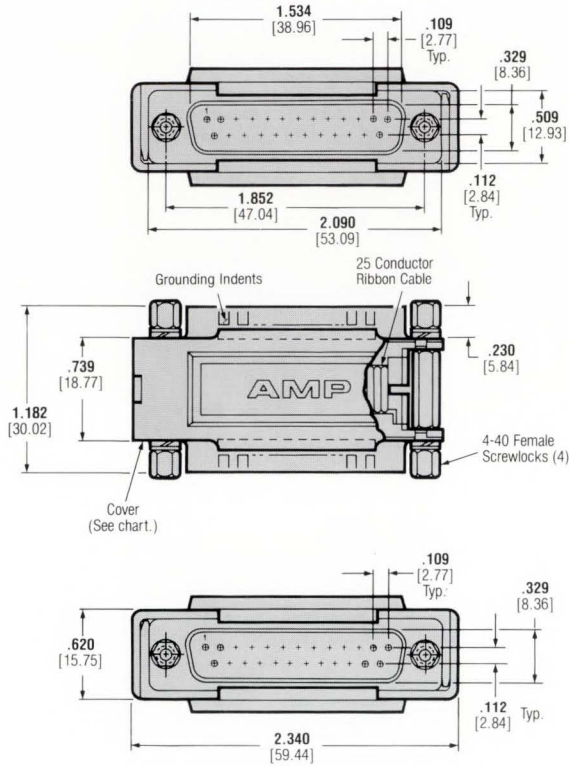
**Contacts** — Phosphor Bronze; duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

### Reference Information:

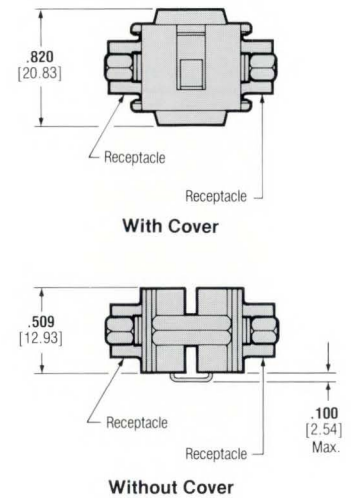
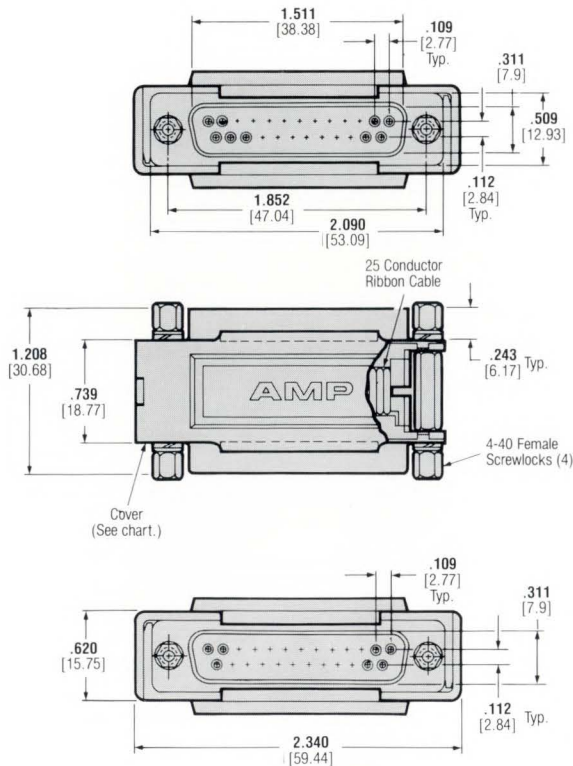
**Connectors used with (Metal-Shell):**  
HDF-20 — pages 66 & 67

Adapter Configuration	Adapter Part No.	
	Without Cover	With Cover
Plug Assembly	747118-1	747117-1
Receptacle Assembly	747114-1	747112-1

### 25 Positions (Plug Assembly)



### 25 Positions (Receptacle Assembly)





**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.

## All-Plastic

### Material and Finish:

**Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Hardware** — Steel; Zinc plated

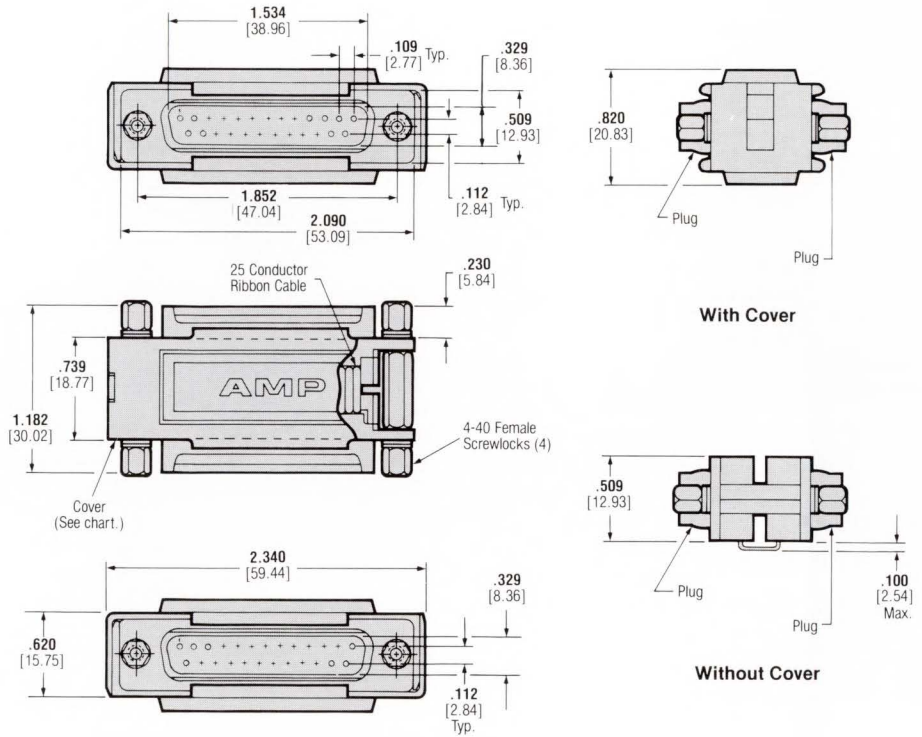
**Contacts** — Phosphor Bronze; duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

### Reference Information:

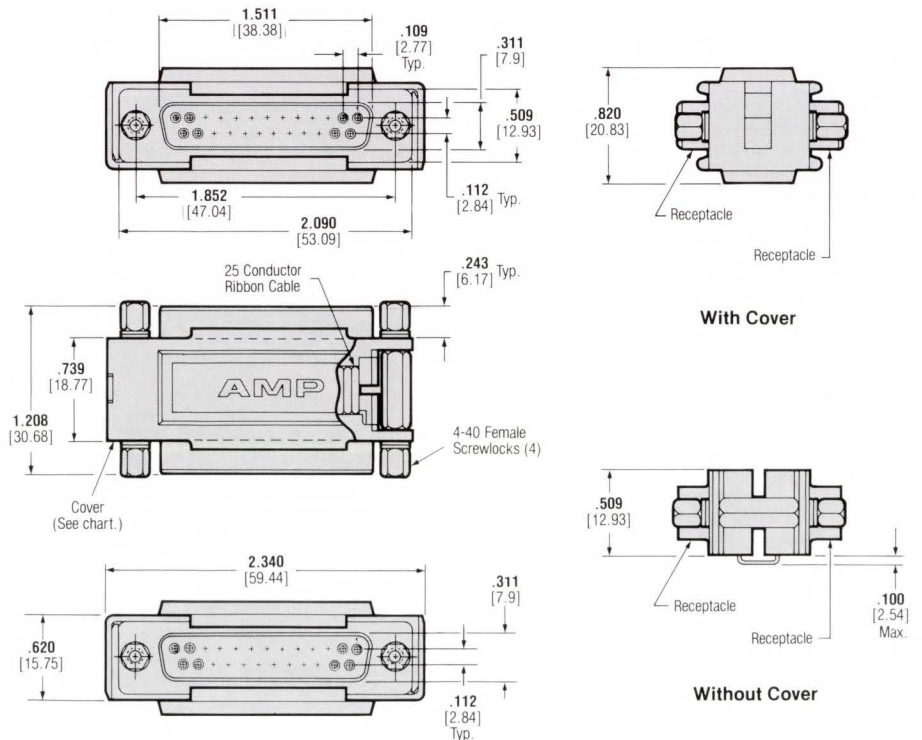
**Connectors used with (All-Plastic):**  
HDF-20 — pages 68 & 69

Adapter Configuration	Adapter Part No.	
	Without Cover	With Cover
Plug Assembly	747116-1	747115-1
Receptacle Assembly	747113-1	747119-1

## 25 Positions (Plug Assembly)



## 25 Positions (Receptacle Assembly)



## Shielded Novo Receptacles .100 x .100 [2.54 x 2.54] Centers

Contacts mate with .025 [0.64] sq. or round pins with .245 [6.22] max. and .195 [4.95] min. lengths.

AMP-LATCH Shielded Novo Receptacle kits provide shielding capabilities for stackable Novo receptacles with .240 [6.1] wide cover (left-hand cable stop). These stackable Novo receptacles mate with AMP pin connectors, bulkhead pin connectors and Universal Ejection Style Pin Headers.

A one-step TERMI-FOIL connector crimp is used for terminating all points around the cable shield. After termination, the strain relief cover halves are simply snapped into place.

### Material and Finish:

**Shields** — Brass, .012 [0.3] thick; pretinned

**Receptacle Housing, Cover & Strain Relief Covers** — Black Thermoplastic, 94V-0 Rated

**Receptacle Contacts** — Phosphor Bronze, duplex plated (See chart, page 75.)

### Reference Information:

**Electrical Characteristics** — page 2  
**Mateable Pin Connectors (use with Ground Plane Shield Part No. Series 746484):**

- Bulkhead — page 76
- With Slotted Mounting Ears — page 76

**Mateable Universal Ejection Style Pin Headers:**

- With Pc Board Mounted Shield — page 78
- With Retrofit Shield — page 79

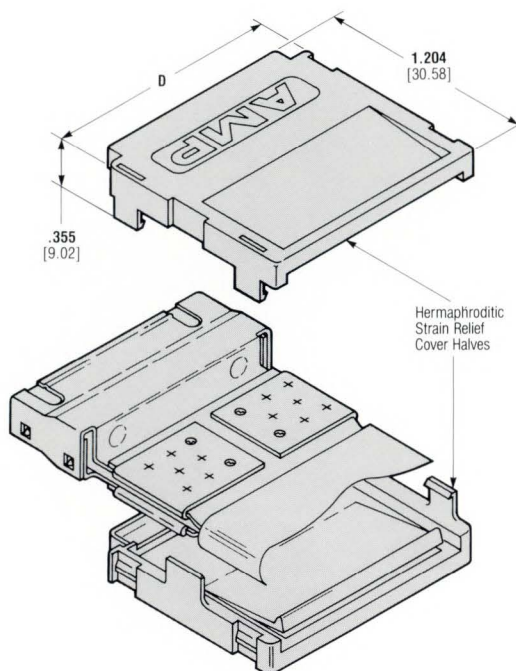
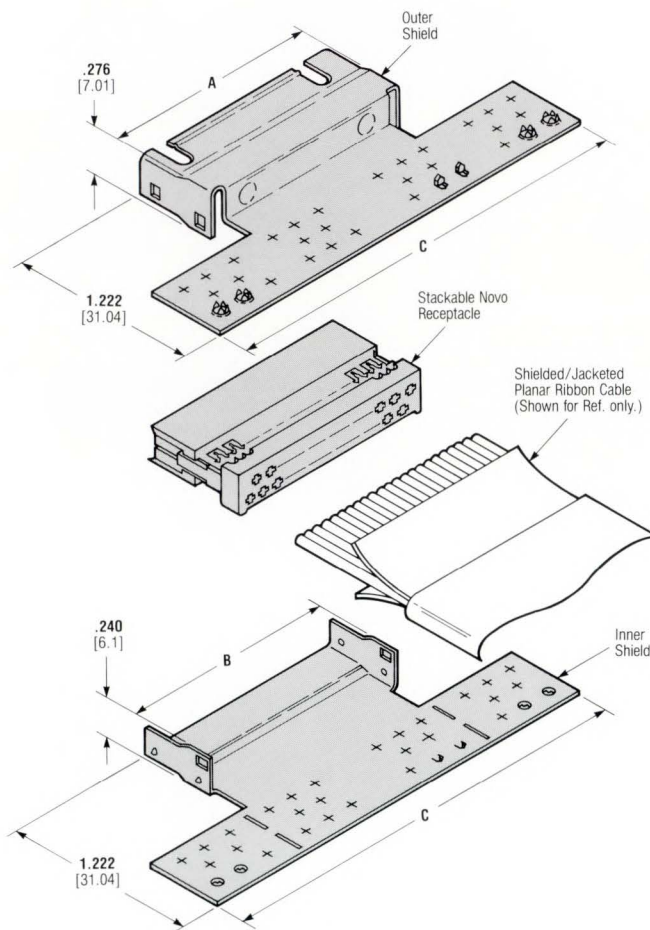
**Ribbon Cable (Shielded/Jacketed)** — pages 91 thru 94

### Accessories:

- Keying Plug — page 98

**Application Tooling** — pages 104 thru 107

**Technical Documents** — page 109

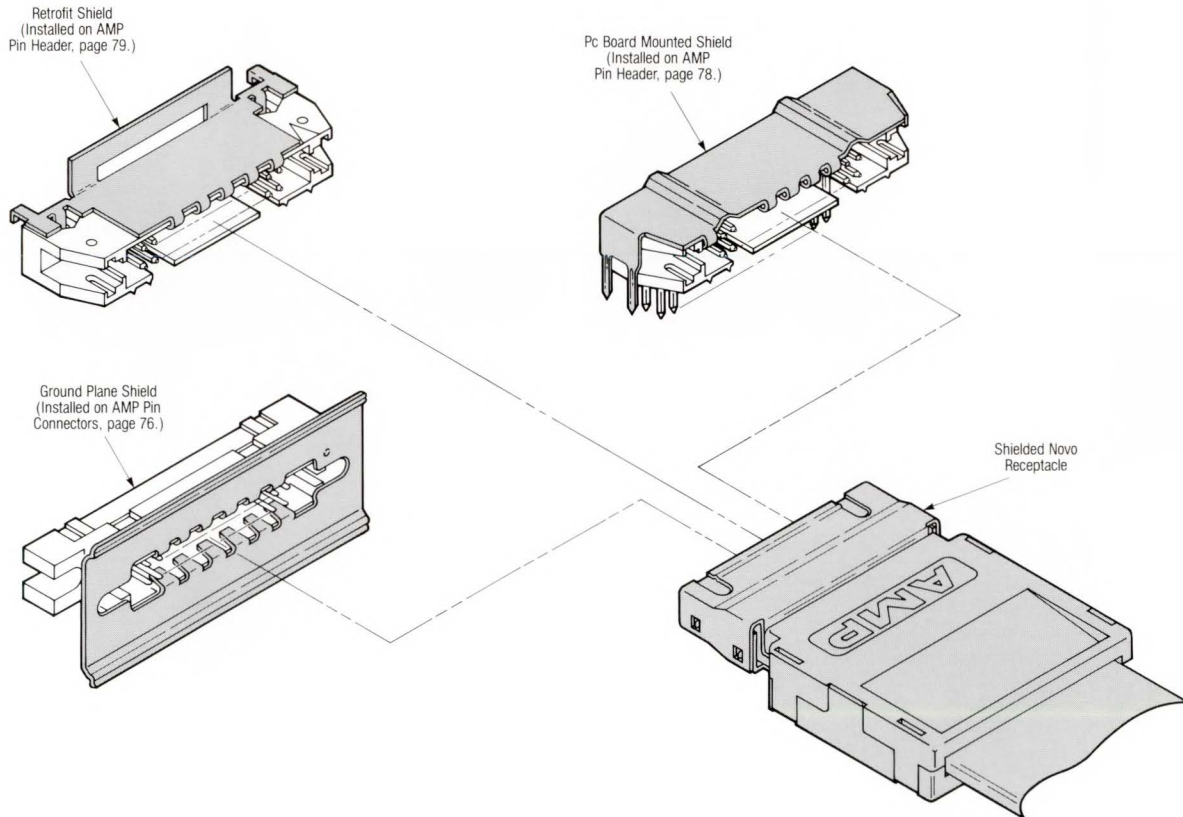


**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

No. of Pos. (Receptacle Size)	Dimensions				Receptacle Contact Plating	Shielded Kit No.*
	A	B	C	D		
20	1.146 29.11	1.115 28.32	2.192 55.68	1.384 35.15	Duplex <sup>1</sup>	746447-8
					Duplex <sup>2</sup>	746483-8
26	1.446 36.73	1.415 35.94	2.792 70.92	1.684 42.77	Duplex <sup>1</sup>	1-746447-2
					Duplex <sup>2</sup>	1-746483-2
34	1.846 46.89	1.815 46.1	3.592 91.24	2.084 52.93	Duplex <sup>1</sup>	1-746447-6
					Duplex <sup>2</sup>	1-746483-6
40	2.146 54.51	2.115 53.72	4.192 106.48	2.384 60.55	Duplex <sup>1</sup>	1-746447-8
					Duplex <sup>2</sup>	1-746483-8
50	2.646 67.21	2.615 66.42	5.192 131.88	2.884 73.25	Duplex <sup>1</sup>	2-746447-2
					Duplex <sup>2</sup>	2-746483-2
60	3.146 79.91	3.115 79.12	6.192 157.28	3.384 85.95	Duplex <sup>1</sup>	2-746447-4
					Duplex <sup>2</sup>	2-746483-4

\*Each part is individually bulk packed for multiple kit orders. Kits are packaged in lots of 25.  
<sup>1</sup>.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.  
<sup>2</sup>.000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

**Notes:** 1. These shielded receptacle kits include a receptacle housing assembly and recessed cover (preassembled), two shields and two strain relief cover halves. Shields and cover halves are packaged unassembled.  
 2. Other sizes of shielded Novo receptacles can be made available, consult AMP Incorporated.



Typical Mateable Shielding Hardware for Shielded Novo Receptacles

## Ground Plane Shields for Bulkhead Pin Connectors and Pin Connectors with Slotted Mounting Ears (to Mate with Shielded Novo Receptacles)

**Dimensioning:**  
Dimensions are in inches and millimetres. Values in brackets are metric equivalents. Chart contains dimensions in inches and millimetres.

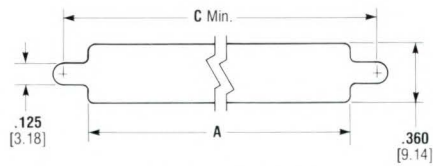
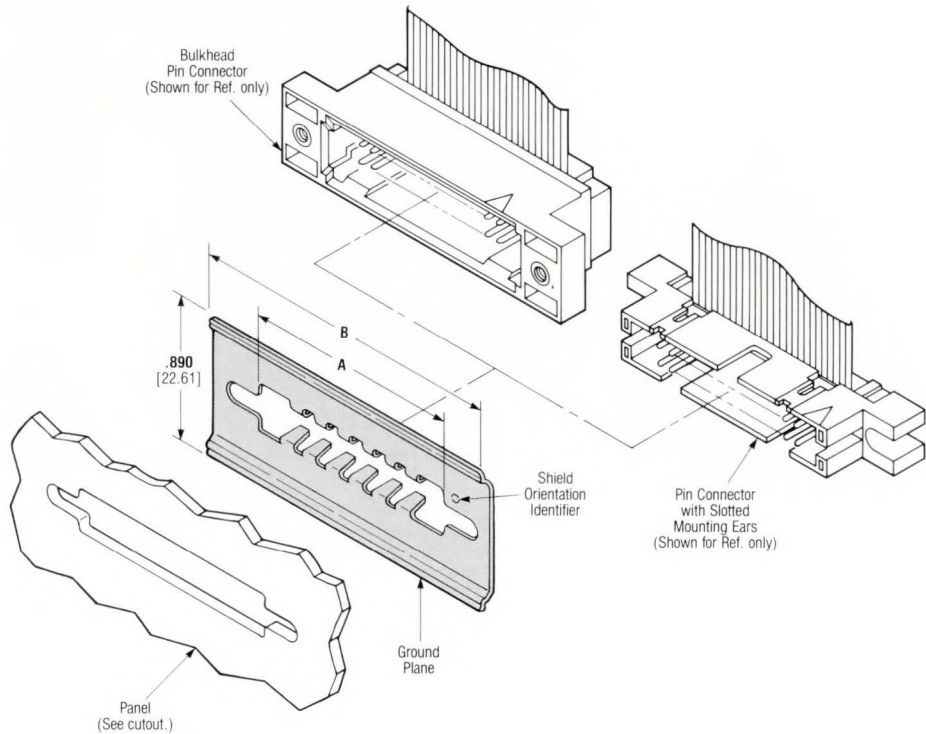
The configuration of these Ground Plane Shields provides an easy means for grounding mated shielded Novo receptacles to a panel. No special mounting hardware is required.

**Material and Finish:**

Brass, .008 [0.2] thick; pretinned

**Reference Information:**

**Pin Connectors used with:**  
Standard (with Slotted Mounting Ears) — pages 42 & 43  
Bulkhead — pages 44 & 45  
**Mateable Shielded Novo Receptacles** — pages 74 & 75  
**Technical Documents** — page 109



**Recommended Panel Cutout**

No. of Pos. (Connector Size)	Dimensions			Ground Plane Shield Part No. *
	A	B	C	
20	1.300 33.02	1.900 48.26	1.600 40.64	746484-4
26	1.600 40.64	2.200 55.88	1.900 48.26	746484-6
34	2.000 50.8	2.600 66.04	2.300 58.42	746484-8
40	2.300 58.42	2.900 73.66	2.600 66.04	746484-9
50	2.800 71.12	3.400 86.36	3.100 78.74	1-746484-1
60	3.300 83.82	3.900 99.06	3.600 91.44	1-746484-2

\*Parts are packaged in lots of 25.  
**Note:** 1. Bulkhead pin connectors and pin connectors with slotted mounting ears must be ordered separately.  
2. Other sizes of ground plane shields can be made available, consult AMP Incorporated.

## Ground Plane Shields for Bulkhead Pin Connectors (to Mate with Shielded AMPMODU MT Receptacles)

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

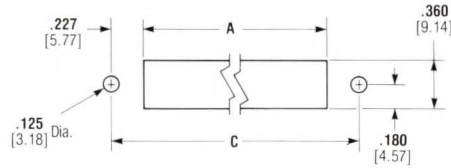
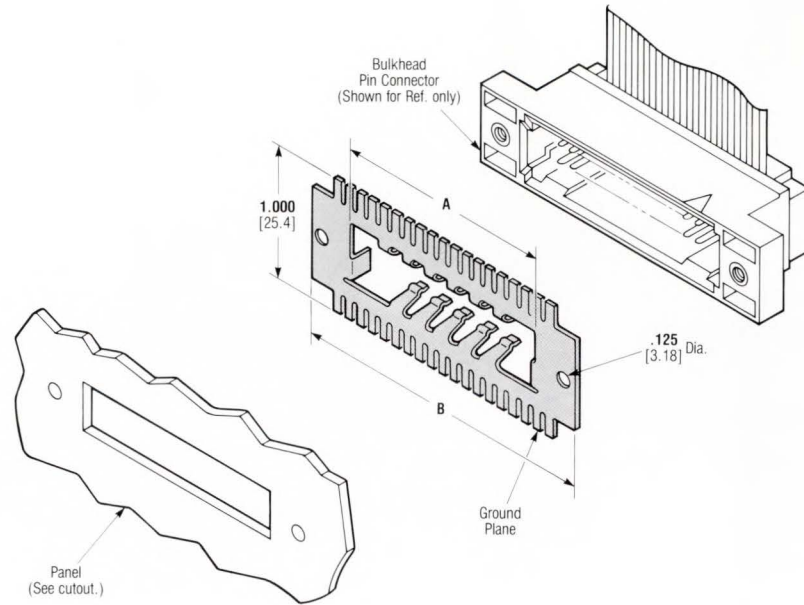
These Ground Plane Shields are specifically designed for grounding mated shielded AMPMODU MT receptacles to a panel. No special mounting hardware is required.

**Material and Finish:**

Copper Alloy, .0125 [0.32] thick;  
pretinned .000030 [0.00076] min.

**Reference Information:**

**Bulkhead Pin Connectors used with** — pages 44 & 45  
**Mateable Shielded AMPMODU MT Receptacles** — AMP Catalog 83-711  
**Technical Documents** — page 109



**Recommended Panel Cutout**

No. of Pos. (Connector Size)	Dimensions			Ground Plane Shield Part No. *
	A	B	C	
10	.650 16.51	1.304 33.12	1.104 28.04	102793-1
16	.950 24.13	1.604 40.74	1.404 35.66	1-102793-0
18	1.050 26.67	1.704 43.28	1.504 38.2	102793-3
20	1.150 29.21	1.804 45.82	1.604 40.74	102793-5
26	1.450 36.83	2.104 53.44	1.904 48.36	102793-6
34	1.850 46.99	2.504 63.6	2.304 58.52	1-102793-1
40	2.150 54.61	2.804 71.22	2.604 66.14	102793-2
50	2.650 67.31	3.304 83.92	3.104 78.84	102793-4
60	3.150 80.01	3.804 96.62	3.604 91.54	102793-7

\*Parts are packaged in lots of 25.

**Note:** Bulkhead pin connectors must be ordered separately.

## Pc Board Mounted Shields for Universal Ejection Style Pin Headers, Right-Angle, 4-Sided

**Dimensioning:**  
Dimensions are in inches and millimetres. Values in brackets are metric equivalents. Chart contains dimensions in inches over millimetres.

Pc Board Mounted Shields are designed to be wave-soldered to the pc board ground plane. They are installed over 4-sided, right-angle pin headers and provide the shielding interface of shielded Novo receptacles when mated with AMP Universal Ejection Style Pin Headers.

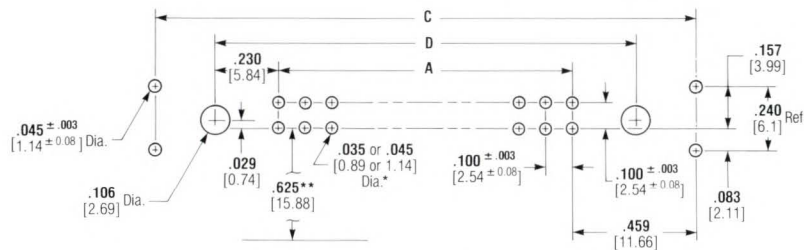
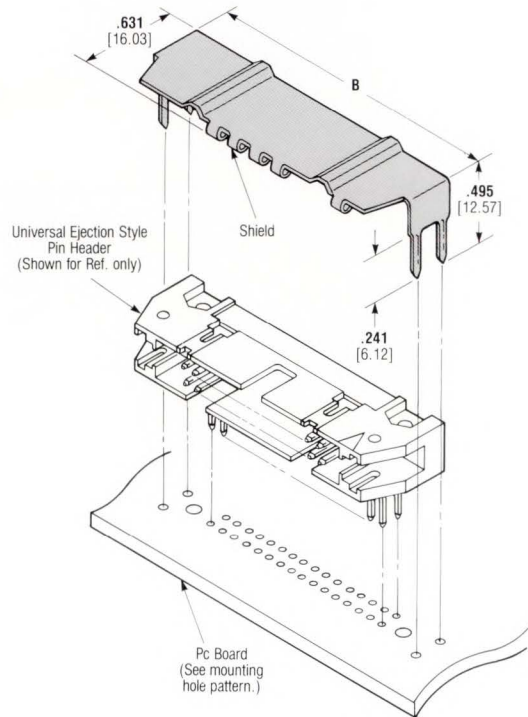
### Material and Finish:

Brass, .008 [0.2] thick; pretinned

### Reference Information:

**Universal Ejection Style Pin Headers used with** (Use with Latch Part No. 746469-1 for shielding) — pages 52 & 53

**Mateable Shielded Novo Receptacles** — pages 74 & 75  
**Technical Documents** — page 109



### Recommended Mounting Hole Pattern

- \*.035 [0.89] hole dia. for soldering of posts .110 [2.79] and .155 [3.94] long.
- .045 [1.14] hole dia. for wrap-type termination of posts .610 [15.49] long.
- \*\*Maximum distance from edge of pc board.

No. of Pos. (Pin Header Size)	Dimensions				Pc Board Mounted Shield Part No.*
	A	B	C	D	
20	.900 22.86	1.810 45.97	1.818 46.18	1.360 34.54	746684-4
26	1.200 30.48	2.110 53.59	2.118 53.8	1.660 42.16	746684-6
34	1.600 40.64	2.510 63.75	2.518 63.96	2.060 52.32	746684-8
40	1.900 48.26	2.810 71.37	2.818 71.58	2.360 59.94	746684-9
50	2.400 60.96	3.310 84.07	3.318 84.28	2.860 72.64	1-746684-1
60	2.900 73.66	3.810 96.77	3.818 96.98	3.360 85.34	1-746684-2

\*Parts are packaged in lots of 25.

- Notes:** 1. Universal ejection style pin headers must be ordered separately.  
2. Other sizes of pc board mounted shields can be made available, consult AMP Incorporated.

## Retrofit Shields for Universal Ejection Style Pin or Pinless Headers, Straight-Thru and Right-Angle, 4-Sided

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over  
millimetres.

Retrofit Shields are simply added to a pin or pinless header, allowing customers to quickly convert an existing unshielded header to a shielded header. They can be used on either AMP Universal Ejection Style Pin or Pinless Headers (Straight-Thru and Right-Angle, 4-Sided).

### Material and Finish:

Brass, .008 [0.2] thick; pretinned

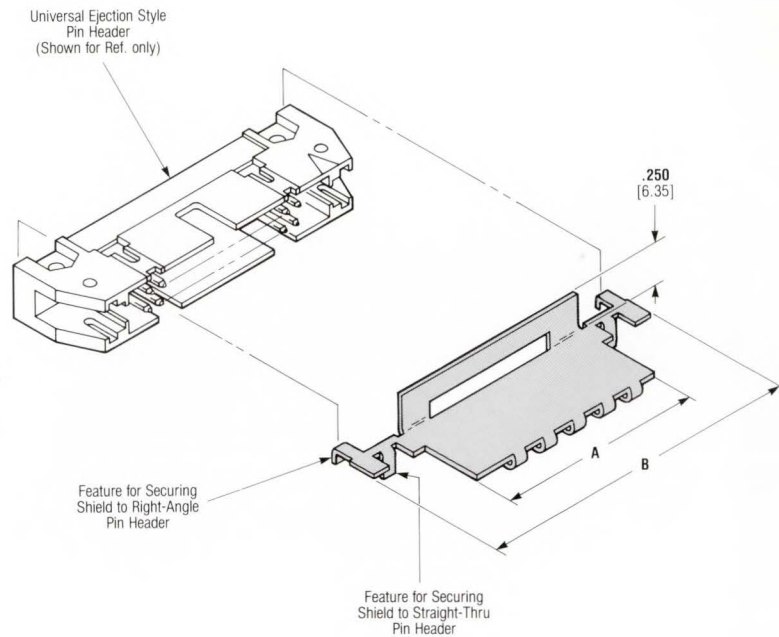
### Reference Information:

**Universal Ejection Style Pin Headers used with** (Use with Latch Part No. 746469-1 for shielding):  
Straight-Thru, 4-Sided — pages 48 thru 51

Right-Angle, 4-Sided — pages 52 & 53

**Universal Ejection Style Pinless Headers used with** — pages 54 & 55

**Mateable Shielded Novo Receptacles** — pages 74 & 75  
**Technical Documents** — page 109



No. of Pos. (Pin Header Size)	Dimensions		Retrofit Shield Part No.*
	A	B	
20	1.000 25.4	1.760 44.7	746431-4
26	1.300 33.02	2.060 52.32	746431-6
34	1.700 43.18	2.460 62.48	746431-8
40	2.000 50.8	2.760 70.1	746431-9
50	2.500 63.5	3.260 82.8	1-746431-1
60	3.000 76.2	3.760 95.5	1-746431-2

\*Parts are packaged in lots of 25.

**Notes:** 1. Universal ejection style pin and pinless headers must be ordered separately.  
2. Other sizes of retrofit shields can be made available, consult AMP Incorporated.

## Shielded Pin Connectors with Slotted Mounting Ears

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

AMP-LATCH Shielded Pin Connector kits provide shielding capabilities for AMP pin connectors with slotted mounting ears. These pin connectors mate with AMP shielded Novo receptacles. Shields can be quickly installed onto the pin connector, requiring no mounting hardware.

### Material and Finish:

**Shields** — Brass, .008 [0.2] thick; pretinned

**Connector Housing & Cover** — Black Thermoplastic, 94V-0 Rated

**Connector Contacts** — Phosphor Bronze, duplex plated (See chart below.)

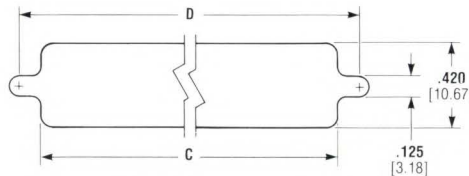
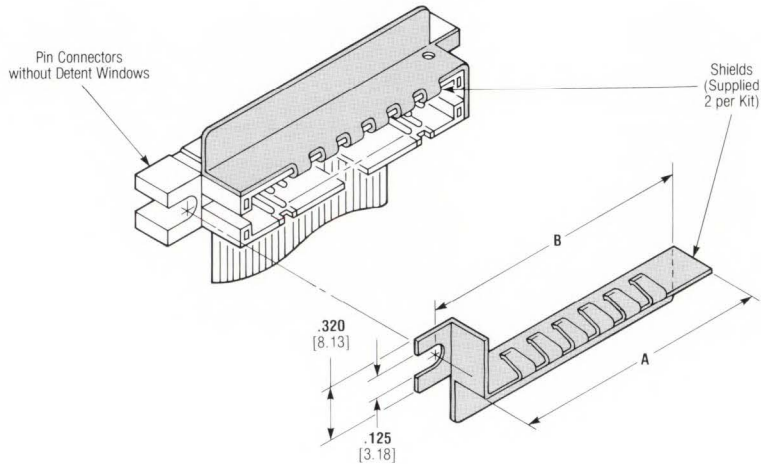
### Reference Information:

**Electrical Characteristics** — page 2

**Mateable Shielded Novo**

**Receptacles** — pages 74 & 75

**Technical Documents** — page 109



Recommended Panel Cutout

No. of Pos. (Connector Size)	Dimensions				Connector Contact Plating	Shielded Kit No. *
	A	B	C	D		
20	1.377	1.461	1.462	1.782	Duplex <sup>1</sup>	746638-8
	34.98	37.11	37.13	45.26	Duplex <sup>2</sup>	746637-8
26	1.677	1.761	1.762	2.082	Duplex <sup>1</sup>	1-746638-2
	42.6	44.73	44.75	52.88	Duplex <sup>2</sup>	1-746637-2
34	2.077	2.161	2.162	2.482	Duplex <sup>1</sup>	1-746638-6
	52.76	54.89	54.91	63.04	Duplex <sup>2</sup>	1-746637-6
40	2.377	2.461	2.462	2.782	Duplex <sup>1</sup>	1-746638-8
	60.38	62.51	62.53	70.66	Duplex <sup>2</sup>	1-746637-8
50	2.877	2.961	2.962	3.282	Duplex <sup>1</sup>	2-746638-2
	73.08	75.21	75.23	83.36	Duplex <sup>2</sup>	2-746637-2
60	3.377	3.461	3.462	3.782	Duplex <sup>1</sup>	2-746638-4
	85.78	87.91	87.93	96.06	Duplex <sup>2</sup>	2-746637-4

\* Each part is individually bulk packed for multiple kit orders. Kits are packaged in lots of 25.

<sup>1</sup>.000015 [0.00038] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

<sup>2</sup>.000030 [0.00076] gold on pin end; .000100-.000200 [0.00254-0.00508] bright tin-lead on cable termination end; entire contact underplated with .000050 [0.00127] nickel.

**Notes:** 1. These shielded pin connector kits include a connector housing assembly and recessed cover (preassembled) and two shields. Shields are packaged unassembled.

2. Other sizes of shielded pin connectors can be made available, consult AMP Incorporated.



**Shielded HDF-20 Connectors,  
25-Position**

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.

Shielded AMP-LATCH HDF-20 connector kits provide terminations for 25-conductor shielded/jacketed planar ribbon cable. The plug and receptacle connectors are intermateable and will maintain shielding capabilities when mated with unshielded metal-shell HDF-20 connectors when RFI gaskets are used.

A one-step TERMI-FOIL connector crimp is used for terminating all points around the cable shield. After termination, strain relief cover halves are simply snapped into place.

**Material and Finish:**

**Shields** — Aluminum Killed Steel, .012 [0.3] thick; plated .000200-.000400 [0.00508-0.01016] bright tin over .000050-.000200 [0.00127-0.00508] copper

**Connector Front Shell** — Steel, tin plated

**Connector Housing, Cover & Strain Relief Covers** — Black Thermoplastic, 94V-0 Rated

**Connector Contacts** — Phosphor Bronze, duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

**Reference Information:**

**Electrical Characteristics** — page 2

**Mateable HDF-20 Metal-Shell**

**Connectors** — pages 66 & 67

**Ribbon Cable (Shielded/Jacketed)**

— pages 91 thru 94

**Accessories:**

Keying Plug (Receptacle only) —

page 99

Commoning Strip (Plug only) —

page 99

Male Screws and Female

Screwlocks — page 100

Locking Post and Slide Latch

Assemblies — page 101

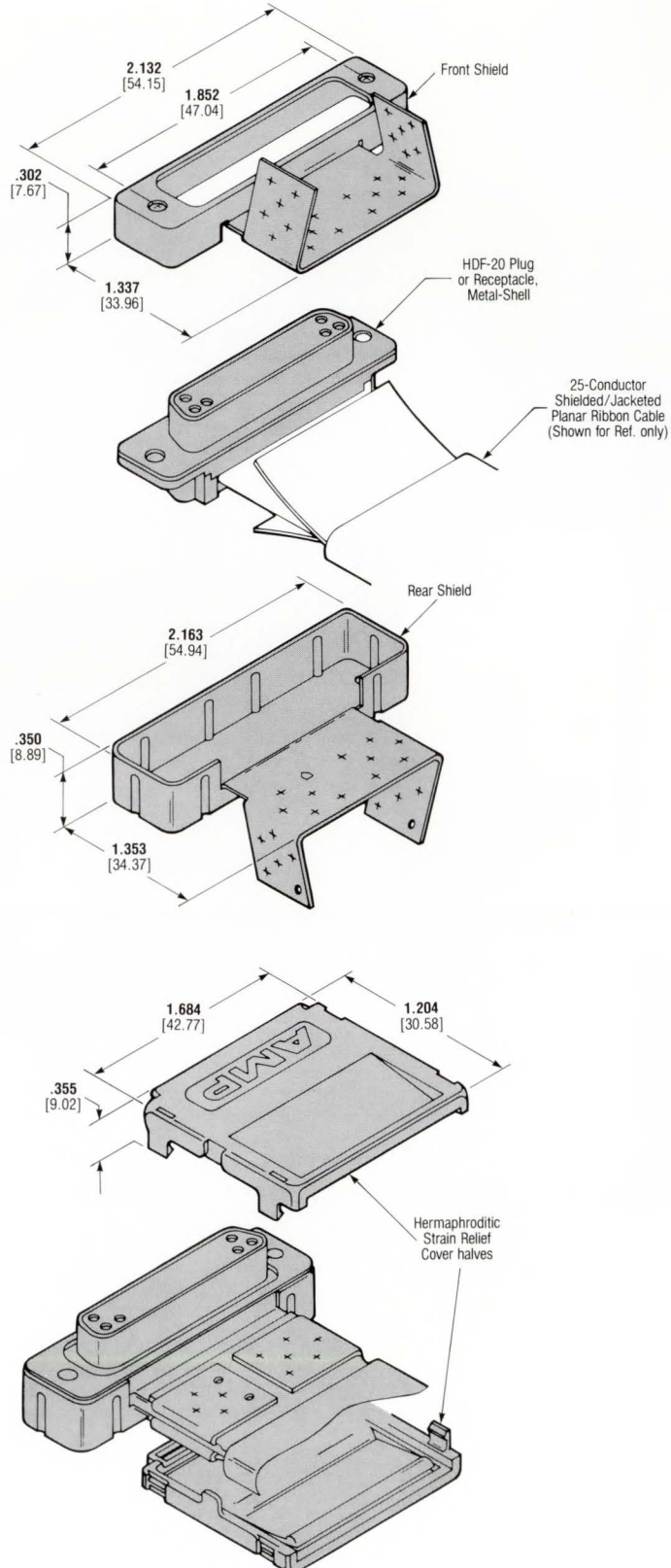
Latching Blocks — pages 102 &

103

**Application Tooling** — pages 104

thru 107

**Technical Documents** — page 109



\*Each part is individually bulk packed for multiple kit orders. Kits are packaged in lots of 25.

**Notes:** 1. These shielded HDF-20 connector kits include a plug or receptacle assembly and cover (preassembled), a front and rear shield and two strain relief cover halves. Shields and cover halves are packaged unassembled.

2. Other sizes of shielded HDF-20 connectors can be made available, consult AMP Incorporated.

Shielded Kit No. *	
With HDF-20 Plug	With HDF-20 Receptacle
746677-2	746678-2

## RFI Gaskets for HDF-20 Connectors

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

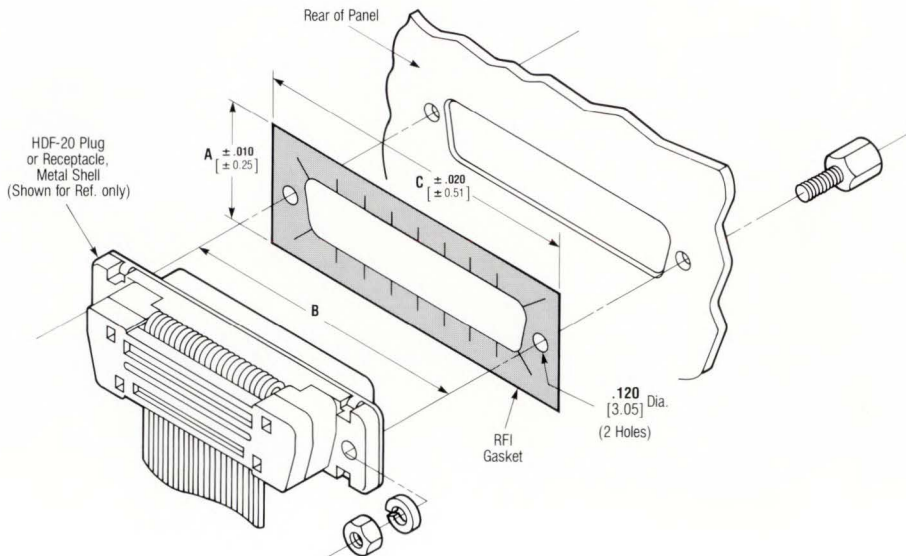
RFI Gaskets serve as a shielding interface for panel mounted HDF-20 plug and receptacle connectors. They are secured between the panel and connector with the connector panel mounting hardware.

### Material and Finish:

Brass, .006 [0.15] thick; bright tin plated

### Reference Information:

HDF-20 Metal-Shell Connectors used with — pages 66 & 67  
Technical Documents — page 109



Shell Size (No. of Contact Pos.)	Dimensions			RFI Gasket Part No.
	A	B	C	
1 (9)	.800 20.32	.984 24.99	1.220 30.99	747024-3
2 (15)	.800 20.32	1.312 33.32	1.550 39.37	747025-3
3 (25)	.800 20.32	1.852 47.04	2.100 53.34	745776-3
4 (37)	.800 20.32	2.500 63.5	2.730 69.34	745777-3
5 (50)	.900 22.86	2.406 61.11	2.640 67.06	747412-3

**Note:** HDF-20 low profile plug and receptacle connectors and panel mounting hardware must be ordered separately.

## AMP Ribbon Cable .050 [1.27] Centers

**Dimensioning:** .  
Dimensions are in inches and millimetres  
unless specified otherwise.  
Values in brackets are metric equivalents.

An integral part of AMP's flat cable termination system is a full line of flat ribbon cable. Several different styles of ribbon cable are available, including: planar, ground plane (fast peel) and shielded/jacketed. The cable is furnished in a wide range of popular sizes and is stored on reels with a 100 ft. [30.48 m] minimum capacity for easy handling. The cable also can be terminated to any preassembled AMP-LATCH connector using AMP application tools featuring one-step mass termination technology. The tooling is presented on pages 104 thru 107.

Ribbon Cable	Conductors	Insulation	Ground Plane	Shield	Jacket	Part No. Series (Page Ref.)*
Planar, UL Style No. 2651	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Standard Gray PVC	—	—	—	499116, 499660, 746799 & 746803 (Page 84)
Planar, UL Style No. 2651	30 AWG [0.05 mm <sup>2</sup> ] Solid	Standard Gray PVC	—	—	—	746395 (Page 85)
Planar, Color Coded, UL Style No. 20029	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Multicolor PVC	—	—	—	746396 (Page 86)
Planar, MIL-C-49055 Approved	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Standard Gray PVC	—	—	—	746579 (Page 87)
Ground Plane (Fast Peel), w/o Drain Wire UL Style No. 2682	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Light Gray PVC	Expanded Copper Mesh	—	—	746397 (Page 88)
Ground Plane (Fast Peel), Single Drain Wire UL Style No. 2682	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Light Gray PVC	Expanded Copper Mesh	—	—	746398 (Page 89)
Ground Plane (Fast Peel), Two Drain Wires UL Style No. 2682	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Light Gray PVC	Expanded Copper Mesh	—	—	746399 (Page 90)
Shield/Jacketed (Internal) UL Style No. 2651	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Standard Gray PVC	—	Expanded Copper Mesh	Black PVC .010 [0.25] Thick	746400 (Page 91)
Shield/Jacketed (External) UL Style No. 2912	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Standard Gray PVC	—	Expanded Copper Mesh	Black PVC .030 [0.76] Thick	746401 (Page 92)
Shield/Jacketed (External) UL Style No. 2912	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Standard Gray PVC	—	Aluminum/Polyester (Folded Edge)	Black PVC .030 [0.76] Thick	746470 (Page 93)
Shield/Jacketed (External) UL Style No. 2912	28 AWG [0.08-0.09 mm <sup>2</sup> ] Stranded	Standard Gray PVC	—	Aluminum/Polyester (Sealed Edge)	Black PVC .030 [0.76] Thick	746471 (Page 94)

\*Complete cable specifications are provided on the referenced pages.

**Planar Ribbon Cable** is constructed of standard gray polyvinylchloride (PVC) insulation and either 30 AWG [0.05 mm<sup>2</sup>] solid or 28 AWG [0.08-0.09 mm<sup>2</sup>] stranded conductors. A MIL-C-49055 approved version and a color coded version with multicolor PVC insulation are also available.

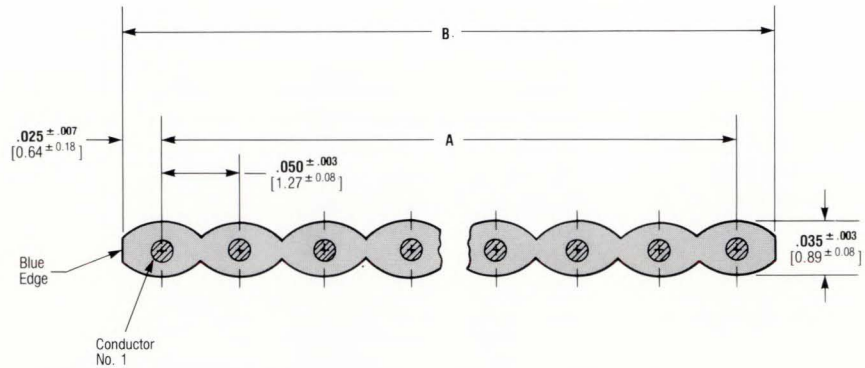
**Ground Plane Ribbon Cable** is similar to standard planar ribbon cable with 28 AWG [0.08-0.09 mm<sup>2</sup>] stranded conductors, except that an expanded copper mesh ground plane is laminated or extruded onto one side of the cable. Drain wires, when present, are located on one or both sides of the cable, but not on the same plane as the signal conductors. The drain wires lay on top of and make electrical contact with the ground plane. The ground plane can be peeled back for termination to AMP-LATCH connectors.

**Shielded/Jacketed Planar Ribbon Cable** is basically standard planar ribbon cable that is loosely wrapped with expanded copper mesh or aluminum foil, then covered with a PVC insulating jacket. The shield minimizes electrostatic discharge problems and reduces radio frequency interference and crosstalk, while the jacket provides for a rugged abrasion resistant cable. The cable is ideally suited for use as an I/O cable and is furnished with a choice of two jacket thicknesses for internal and external applications. Shielded/jacketed planar ribbon cable can be terminated to AMP-LATCH shielded Novo receptacles and shielded HDF-20 connectors. These receptacles and connectors use a TERMI-FOIL connector crimp to provide a reliable termination to the shield at all points around the shield.

## Planar Ribbon Cable

**Dimensioning:**  
 Dimensions are in inches and millimetres unless specified otherwise.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E53793, UL Style No. 2651 IPC-FC-222/19 Approved  
 Flammability Rating — VW-1



**Conductors:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** standard gray PVC, flame retardant; with blue edge on Conductor No. 1 side.  
**Temperature Rating:** -20°C to +105°C  
**Voltage Rating:** 300 volts  
**Insulation Resistance:** 10,000 megohms/10 ft [3.05 m]

**Typical Electrical Values:**

	GND-SIG-GND
Characteristic Impedance	104-106 ohms
Capacitance	13.5 pf/ft
Time Delay	1.44 ns/ft

**Crosstalk (per 9.84 ft [3 m] section):**

	0.5 ns Rise Time	1 ns Rise Time	2 ns Rise Time	5 ns Rise Time
Near End	2.8-3%	2.8-3%	2.8-3%	2.8-3%
Far End	19%	14.5%	9%	4%

No. of Conductors	Dimensions				Reel Part No.			
	A	± Tolerance	B	± Tolerance	100 Ft [30.48 m]		300 Ft [91.44 m]	
					(Conductor No. 1 Marked) Continuous*	Noncontinuous**	(Conductor No. 1 Marked) Continuous*	Noncontinuous**
9	.400 10.16	.010 0.25	.450 11.43	.015 0.38	2-499116-1	746799-1	1-499660-7	746803-1
10	.450 11.43	.010 0.25	.500 12.7	.015 0.38	499116-7	746799-2	499660-2	746803-2
14	.650 16.51	.010 0.25	.700 17.78	.015 0.38	499116-1	746799-3	499660-8	746803-3
15	.700 17.78	.010 0.25	.750 19.05	.015 0.38	2-499116-0	746799-4	1-499660-8	746803-4
16	.750 19.05	.010 0.25	.800 20.32	.015 0.38	499116-2	746799-5	499660-4	746803-5
18	.850 21.59	.010 0.25	.900 22.86	.015 0.38	1-499116-7	746799-6	1-499660-4	746803-6
20	.950 24.13	.010 0.25	1.000 25.4	.015 0.38	499116-3	746799-7	499660-3	746803-7
24	1.150 29.21	.010 0.25	1.200 30.48	.015 0.38	1-499116-1	746799-8	1-499660-1	746803-8
25	1.200 30.48	.010 0.25	1.250 31.75	.015 0.38	1-499116-8	746799-9	1-499660-5	746803-9
26	1.250 31.75	.010 0.25	1.300 33.02	.015 0.38	499116-4	1-746799-0	499660-5	1-746803-0
30	1.450 36.83	.010 0.25	1.500 38.1	.015 0.38	1-499116-2	1-746799-1	1-499660-2	1-746803-1
34	1.650 41.91	.010 0.25	1.700 43.18	.015 0.38	499116-8	1-746799-2	499660-1	1-746803-2
36	1.750 44.45	.015 0.38	1.800 45.72	.020 0.51	1-499116-6	1-746799-3	1-499660-3	1-746803-3
37	1.800 45.82	.015 0.38	1.850 46.99	.020 0.51	1-499116-9	1-746799-4	1-499660-6	1-746803-4
40	1.950 49.53	.015 0.38	2.000 50.8	.020 0.51	499116-5	1-746799-5	499660-6	1-746803-5
44	2.150 54.61	.015 0.38	2.200 55.88	.020 0.51	1-499116-0	—	1-499660-0	—
50	2.450 62.23	.015 0.38	2.500 63.5	.020 0.51	499116-6	1-746799-6	499660-7	1-746803-6
60	2.950 74.93	.015 0.38	3.000 76.2	.020 0.51	499116-9	1-746799-7	499660-9	1-746803-7

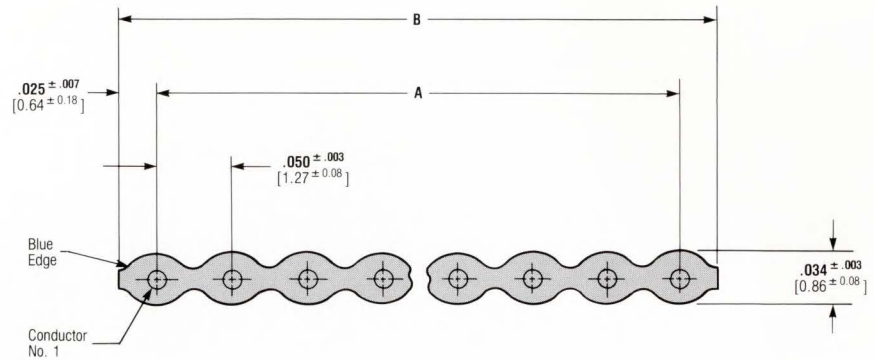
\*Continuous reels are splice-free.

\*\*Noncontinuous reels contain a maximum of one splice per reel with a minimum continuous length of: 20 ft [6.1 m] on 100 ft [30.48 m] reels and 120 ft [36.58 m] on 300 ft [91.44 m] reels.

## Planar Ribbon Cable

**Dimensioning:**  
 Dimensions are in inches and millimetres unless specified otherwise.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 2651  
 Flammability Rating — VW-1



**Conductors:** 30 AWG [0.05 mm<sup>2</sup>] bare copper, solid  
**Insulation:** standard gray PVC, flame retardant; with blue edge on Conductor No. 1 side.  
**Temperature Rating:** + 105°C  
**Voltage Rating:** 300 volts  
**Conductor Resistance:** 113 ohms/1000 ft [304.8 m]

Typical Electrical Values:	GND-SIG-GND
Characteristic Impedance	130 ohms
Capacitance	13 pf/ft
Time Delay	1.4 ns/ft

Crosstalk (per 10 ft [3.05 m] section):	3.5 ns Rise Time	7 ns Rise Time
Near End	10%	10%
Far End	3.5%	3.5%

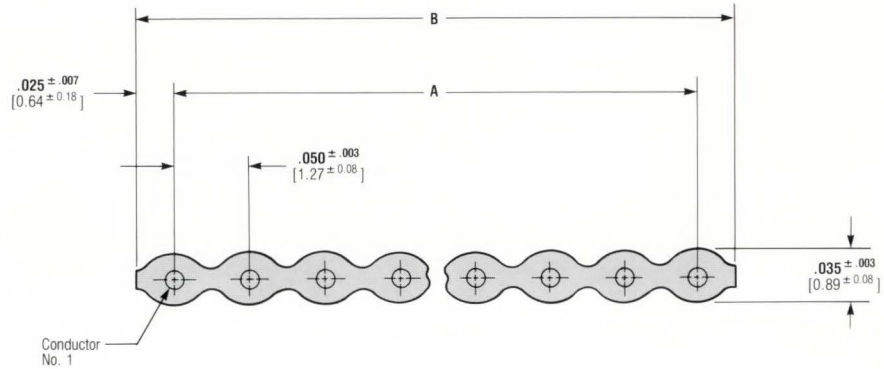
No. of Conductors	Dimensions				Reel Part No.*
	A	± Tolerance	B	± Tolerance	
10	.450 11.43	.007 0.18	.500 12.7	.010 0.25	746395-2
14	.650 16.51	.007 0.18	.700 17.78	.010 0.25	746395-3
16	.750 19.05	.010 0.25	.800 20.32	.015 0.38	746395-5
20	.950 24.13	.010 0.25	1.000 25.4	.015 0.38	746395-6
24	1.150 29.21	.010 0.25	1.200 30.48	.015 0.38	746395-7
25	1.200 30.48	.010 0.25	1.250 31.75	.015 0.38	746395-8
26	1.250 31.75	.010 0.25	1.300 33.02	.015 0.38	746395-9
34	1.650 41.91	.015 0.38	1.700 43.18	.020 0.51	1-746395-0
40	1.950 49.53	.015 0.38	2.000 50.8	.020 0.51	1-746395-2
50	2.450 62.23	.015 0.38	2.500 63.5	.020 0.51	1-746395-3
60	2.950 74.93	.015 0.38	3.000 76.2	.020 0.51	1-746395-4
64	3.150 80.01	.015 0.38	3.200 81.28	.020 0.51	1-746395-5

\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length is 25 ft [7.62 m].

## Planar Ribbon Cable, Color Coded

**Dimensioning:**  
Dimensions are in inches and millimetres unless specified otherwise. Values in brackets are metric equivalents. Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 20029  
Flammability Rating — VW-1



**Conductors:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** multicolor PVC, flame retardant; starting from Conductor No. 1 side, colors are brown, red, orange, yellow, green, blue, violet, gray, white, black (repeating, as necessary).  
**Temperature Rating:** + 105°C  
**Voltage Rating:** 300 volts  
**Conductor Resistance:** 67.5 ohms/1000 ft [304.8 m]

Typical Electrical Values:	GND-SIG-GND	GND-SIG
Characteristic Impedance	105 ohms	160 ohms
Capacitance	14 pf/ft	8 pf/ft
Time Delay	1.4 ns/ft	1.4 ns/ft
<b>Crosstalk (GND-SIG-GND):</b>	<b>3.5 ns/ft Rise Time</b>	<b>7 ns/ft Rise Time</b>
Near End	8.5%	3%
Far End	2%	1%

No. of Conductors	Dimensions				Reel Part No.*
	A	± Tolerance	B	± Tolerance	
9	.400 10.16	.010 0.25	.450 11.43	.010 0.25	746396-1
10	.450 11.43	.010 0.25	.500 12.7	.010 0.25	746396-2
14	.650 16.51	.010 0.25	.700 17.78	.010 0.25	746396-3
16	.750 19.05	.011 0.28	.800 20.32	.015 0.38	746396-5
20	.950 24.13	.015 0.38	1.000 25.4	.015 0.38	746396-6
24	1.150 29.21	.015 0.38	1.200 30.48	.015 0.38	746396-7
25	1.200 30.48	.015 0.38	1.250 31.75	.015 0.38	746396-8
26	1.250 31.75	.015 0.38	1.300 33.02	.015 0.38	746396-9
34	1.650 41.91	.015 0.38	1.700 43.18	.020 0.51	1-746396-0
37	1.800 45.72	.015 0.38	1.850 46.99	.020 0.51	1-746396-1
40	1.950 49.53	.015 0.38	2.000 50.8	.020 0.51	1-746396-2
50	2.450 62.23	.015 0.38	2.500 63.5	.020 0.51	1-746396-3
60	2.950 74.93	.015 0.38	3.000 76.2	.020 0.51	1-746396-4
64	3.150 80.01	.015 0.38	3.200 81.28	.020 0.51	1-746396-5

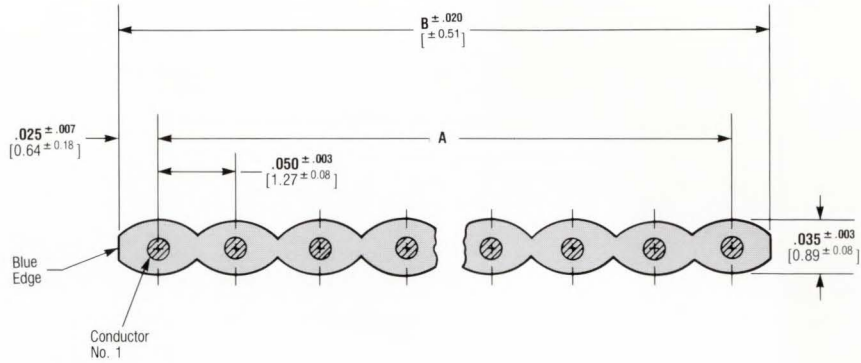
\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length is 25 ft [7.62 m].

**Planar Ribbon Cable  
(MIL-C-49055 Qualified)**

**QPL APPROVED  
MIL-C-49055**

**Dimensioning:**  
Dimensions are in inches and millimetres unless specified otherwise. Values in brackets are metric equivalents. Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E53793, UL Style No. 2651  
Flammability Rating — VW-1



**Conductors:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** standard gray PVC, flame retardant; with blue edge on Conductor No. 1 side.  
**Temperature Rating:** -20°C to +105°C  
**Voltage Rating:** 300 volts  
**Insulation Resistance:** 10,000 megohms/10 ft [3.05 m]

Typical Electrical Values:	GND-SIG-GND
Characteristic Impedance	104-106 ohms
Capacitance	13.5 pF/ft
Time Delay	1.44 ns/ft

Crosstalk (per 9.84 ft [3 m] section):	Rise Time				
	0.5 ns	1 ns	2 ns	5 ns	
Near End	2.8-3%	2.8-3%	2.8-3%	2.8-3%	
Far End	19%	14.5%	9%	4%	

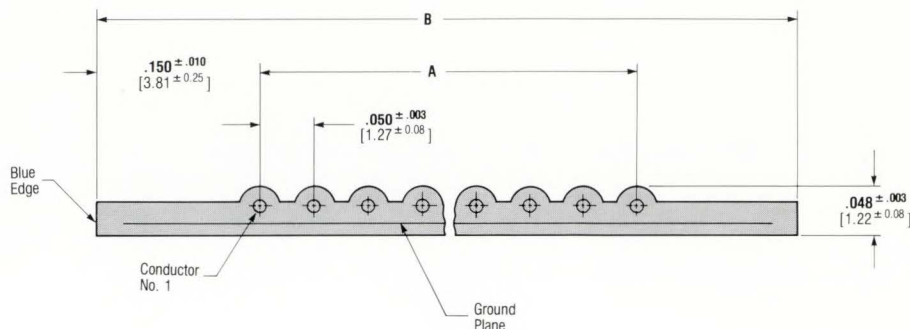
No. of Conductors	Dimensions			Reel Part No.*	
	A	± Tolerance	B	Military Part No. (M49055)	AMP Part No.
9	.400 10.16	.010 0.25	.450 11.43	1-01A	746579-1
10	.450 11.43	.010 0.25	.500 12.7	1-02A	746579-2
14	.650 16.51	.010 0.25	.700 17.78	1-03A	746579-3
15	.700 17.78	.010 0.25	.750 19.05	1-04A	746579-4
16	.750 19.05	.010 0.25	.800 20.32	1-05A	746579-5
20	.950 24.13	.010 0.25	1.000 25.4	1-06A	746579-6
24	1.150 29.21	.010 0.25	1.200 30.48	1-07A	746579-7
25	1.200 30.48	.010 0.25	1.250 31.75	1-08A	746579-8
26	1.250 31.75	.010 0.25	1.300 33.02	1-09A	746579-9
34	1.650 41.91	.010 0.25	1.700 43.18	1-10A	1-746579-0
37	1.800 45.82	.015 0.38	1.850 46.99	1-11A	1-746579-1
40	1.950 49.53	.015 0.38	2.000 50.8	1-12A	1-746579-2
50	2.450 62.23	.015 0.38	2.500 63.5	1-13A	1-746579-3
60	2.950 74.93	.015 0.38	3.000 76.2	1-14A	1-746579-4

\*Reels are 100 ft [30.48 m] splice free

## Ground Plane Ribbon Cable without Drain Wire

**Dimensioning:**  
Dimensions are in inches and millimetres unless specified otherwise.  
Values in brackets are metric equivalents.  
Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 2682  
Flammability Rating — VW-1



**Conductors:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** light gray PVC, flame retardant; with blue edge on Conductor No. 1 side.  
**Ground Plane:** expanded copper mesh, .005 [0.13] thick  
**Temperature Rating:** + 105°C  
**Voltage Rating:** 300 volts  
**Conductor Resistance:** 67.5 ohms/1000 ft [304.8 m]

<b>Typical Electrical Values:</b>		<b>SIG to GND Plane</b>	
Characteristic Impedance	65 ohms		
Capacitance	29 pF/ft		
Time Delay	1.68 ns/ft		
<b>Crosstalk (GND-SIG-GND to GND Plane):</b>		<b>3.5 ns</b>	<b>7 ns</b>
		<b>Rise Time</b>	<b>Rise Time</b>
Near End	6.5%		3.5%
Far End	3.5%		2%
<b>Crosstalk (SIG to GND Plane):</b>		<b>3.5 ns</b>	<b>7 ns</b>
		<b>Rise Time</b>	<b>Rise Time</b>
Near End	9%		6.5%
Far End	2%		1%

No. of Conductors	Dimensions				Reel Part No.*
	A	± Tolerance	B	± Tolerance	
10	.450 11.43	.010 0.25	.750 19.05	.015 0.38	746397-2
14	.650 16.51	.010 0.25	.950 24.13	.015 0.38	746397-3
16	.750 19.05	.010 0.25	1.050 26.67	.015 0.38	746397-5
20	.950 24.13	.010 0.25	1.250 31.75	.015 0.38	746397-6
25	1.200 30.48	.010 0.25	1.500 38.1	.015 0.38	746397-8
26	1.250 31.75	.010 0.25	1.550 39.37	.015 0.38	746397-9
34	1.650 41.91	.010 0.25	1.950 49.53	.020 0.51	1-746397-0
40	1.950 49.53	.010 0.25	2.250 57.15	.020 0.51	1-746397-2
50	2.450 62.23	.010 0.25	2.750 69.85	.020 0.51	1-746397-3
60	2.950 74.93	.010 0.25	3.250 82.55	.020 0.51	1-746397-4

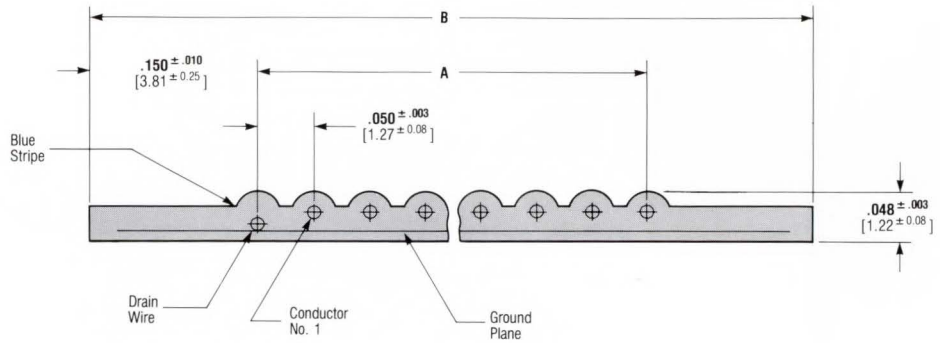
\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length is 20 ft [6.1 m].



**Ground Plane Ribbon Cable with Single Drain Wire**

**Dimensioning:**  
 Dimensions are in inches and millimetres unless specified otherwise.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 2682  
 Flammability Rating — VW-1



**Conductors and Drain Wire:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** light gray PVC, flame retardant; with blue stripe next to drain wire.  
**Ground Plane:** expanded copper mesh, .005 [0.13] thick  
**Temperature Rating:** + 105°C  
**Voltage Rating:** 300 volts  
**Conductor Resistance:** 67.5 ohms/1000 ft [304.8 m]

**Typical Electrical Values:**

	<b>SIG to GND Plane</b>
Characteristic Impedance	65 ohms
Capacitance	29 pf/ft
Time Delay	1.68 ns/ft

**Crosstalk (GND-SIG-GND to GND Plane):**

	<b>3.5 ns Rise Time</b>	<b>7 ns Rise Time</b>
Near End	6.5%	3.5%
Far End	3.5%	2%

**Crosstalk (SIG to GND Plane):**

	<b>3.5 ns Rise Time</b>	<b>7 ns Rise Time</b>
Near End	9%	6.5%
Far End	2%	1%

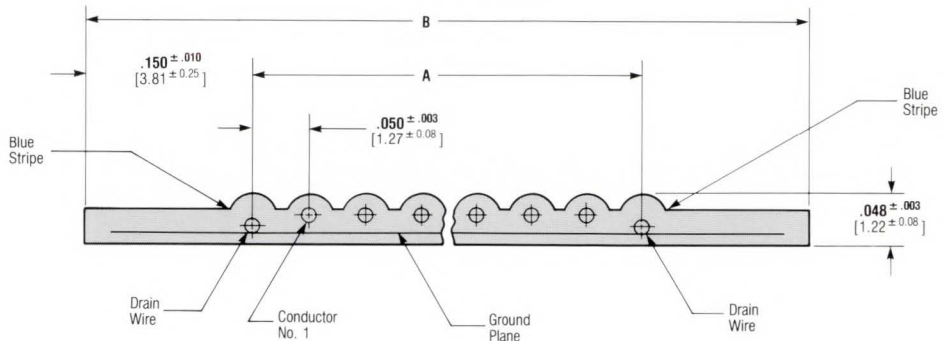
No. of Conductors	Dimensions				Reel Part No.*
	A	± Tolerance	B	± Tolerance	
10	.450 11.43	.010 0.25	.750 19.05	.015 0.38	746398-2
14	.650 16.51	.010 0.25	.950 24.13	.015 0.38	746398-3
16	.750 19.05	.010 0.25	1.050 26.67	.015 0.38	746398-5
20	.950 24.13	.010 0.25	1.250 31.75	.015 0.38	746398-6
25	1.200 30.48	.010 0.25	1.500 38.1	.015 0.38	746398-8
26	1.250 31.75	.010 0.25	1.550 39.37	.015 0.38	746398-9
34	1.650 41.91	.010 0.25	1.950 49.53	.020 0.51	1-746398-0
40	1.950 49.53	.010 0.25	2.250 57.15	.020 0.51	1-746398-2
50	2.450 62.23	.010 0.25	2.750 69.85	.020 0.51	1-746398-3
60	2.950 74.93	.010 0.25	3.250 82.55	.020 0.51	1-746398-4

\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length is 20 ft [6.1 m].

## Ground Plane Ribbon Cable with Two Drain Wires

**Dimensioning:**  
 Dimensions are in inches and millimetres unless specified otherwise.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 2682  
 Flammability Rating — VW-1



**Conductors and Drain Wires:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** light gray PVC, flame retardant; with blue stripe next to each drain wire.  
**Ground Plane:** expanded copper mesh, .005 [0.13] thick  
**Temperature Rating:** + 105°C  
**Voltage Rating:** 300 volts  
**Conductor Resistance:** 67.5 ohms/1000 ft [304.8 m]

**Typical Electrical Values:**

	SIG to GND Plane	
Characteristic Impedance	65 ohms	
Capacitance	29 pf/ft	
Time Delay	1.68 ns/ft	

**Crosstalk (GND-SIG-GND to GND Plane):**

	3.5 ns Rise Time	7 ns Rise Time
Near End	6.5%	3.5%
Far End	3.5%	2%

**Crosstalk (SIG to GND Plane):**

	3.5 ns Rise Time	7 ns Rise Time
Near End	9%	6.5%
Far End	2%	1%

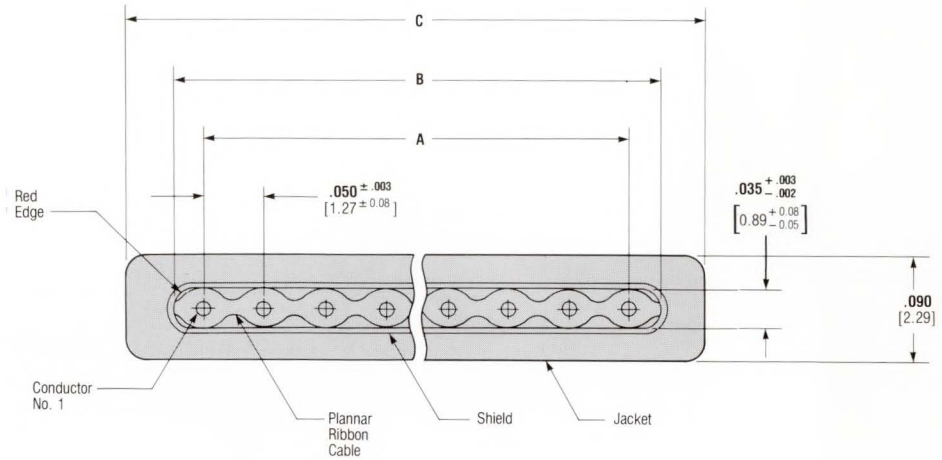
No. of Conductors	Dimensions				Reel Part No.*
	A	± Tolerance	B	± Tolerance	
10	.450 11.43	.010 0.25	.750 19.05	.015 0.38	746399-2
14	.650 16.51	.010 0.25	.950 24.13	.015 0.38	746399-3
16	.750 19.05	.010 0.25	1.050 26.67	.015 0.38	746399-5
20	.950 24.13	.010 0.25	1.250 31.75	.015 0.38	746399-6
25	1.200 30.48	.010 0.25	1.500 38.1	.015 0.38	746399-8
26	1.250 31.75	.010 0.25	1.550 39.37	.015 0.38	746399-9
34	1.650 41.91	.010 0.25	1.950 49.53	.020 0.51	1-746399-0
40	1.950 49.53	.010 0.25	2.250 57.15	.020 0.51	1-746399-2
50	2.450 62.23	.010 0.25	2.750 69.85	.020 0.51	1-746399-3
60	2.950 74.93	.010 0.25	3.250 82.55	.020 0.51	1-746399-4

\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length 20 ft [6.1 m].

## Shielded/Jacketed Planar Ribbon Cable for Internal Use

**Dimensioning:**  
 Dimensions are in inches and millimetres unless specified otherwise.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 2651  
 Flammability Rating — VW-1



**Conductors:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** standard gray PVC, flame retardant; with red edge on Conductor No. 1 side.  
**Shield:** expanded copper mesh, .005 [0.13] thick  
**Jacket:** black PVC, flame retardant, .018 [0.46] wall thickness  
**Temperature Rating:** + 105°C  
**Voltage Rating:** 300 volts  
**Conductor Resistance:** 67.5 ohms/1000 ft [304.8 m]

**Typical Electrical Values:**

	GND-SIG-GND to Shield
Characteristic Impedance	70 ohms
Capacitance	20 pf/ft
Time Delay	1.45 ns/ft

**Crosstalk:**

	3.5 ns Rise Time	7 ns Rise Time
Near End	5.5%	2%
Far End	1.6%	.5%

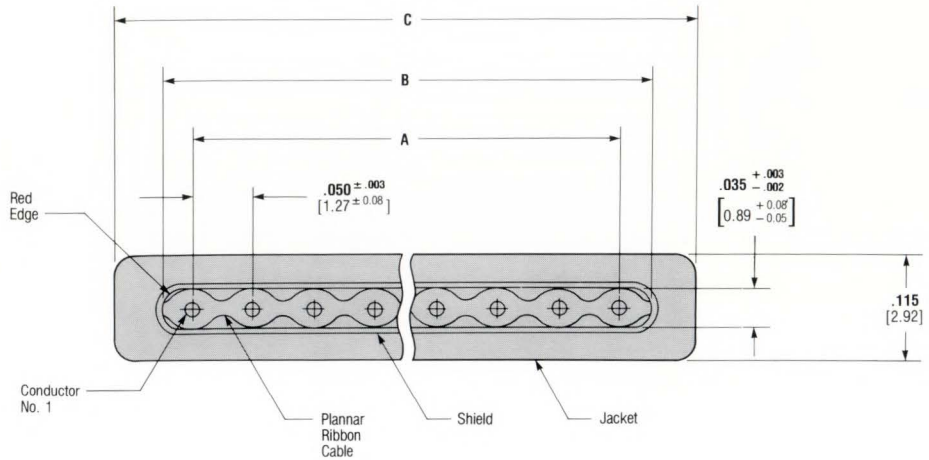
No. of Conductors	Dimensions						Reel Part No.*
	A	± Tolerance	B	± Tolerance	C	± Tolerance	
9	.400 10.16	.010 0.25	.450 11.43	.015 0.38	.525 13.34	.020 0.51	746400-1
15	.700 17.78	.010 0.25	.750 19.05	.015 0.38	.825 20.96	.030 0.76	746400-4
16	.750 19.05	.010 0.25	.800 20.32	.015 0.38	.875 22.22	.030 0.76	746400-5
20	.950 24.13	.010 0.25	1.000 25.4	.015 0.38	1.075 27.3	.030 0.76	746400-6
24	1.150 29.21	.010 0.25	1.200 30.48	.015 0.38	1.275 32.38	.030 0.76	746400-7
25	1.200 30.48	.010 0.25	1.250 31.75	.015 0.38	1.325 33.66	.030 0.76	746400-8
26	1.250 31.75	.010 0.25	1.300 33.02	.015 0.38	1.375 34.92	.030 0.76	746400-9
34	1.650 41.91	.015 0.38	1.700 43.18	.020 0.51	1.775 45.08	.030 0.76	1-746400-0
40	1.950 49.53	.015 0.38	2.000 50.8	.020 0.51	2.075 52.7	.035 0.89	1-746400-2
50	2.450 62.23	.015 0.38	2.500 63.5	.020 0.51	2.575 65.4	.035 0.89	1-746400-3
60	2.950 74.93	.015 0.38	3.000 76.2	.020 0.51	3.075 78.1	.035 0.89	1-746400-4

\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length is 20 ft [6.1 m].

## Shielded/Jacketed Planar Ribbon Cable for External Use

**Dimensioning:**  
Dimensions are in inches and millimetres unless specified otherwise. Values in brackets are metric equivalents. Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 2912  
Flammability Rating — VW-1



**Conductors:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** standard gray PVC, flame retardant; with red edge on Conductor No. 1 side.  
**Shield:** expanded copper mesh, .005 [0.13] thick  
**Jacket:** black PVC, flame retardant, .030 [0.76] wall thickness  
**Temperature Rating:** + 105°C  
**Voltage Rating:** 300 volts  
**Conductor Resistance:** 67.5 ohms/1000 ft [304.8 m]

**Typical Electrical Values:** **GND-SIG-GND to Shield**  
 Characteristic Impedance 70 ohms  
 Capacitance 20 pf/ft  
 Time Delay 1.45 ns/ft

**Crosstalk:**

	3.5 ns Rise Time	7 ns Rise Time
Near End	5.5%	2%
Far End	1.6%	.5%

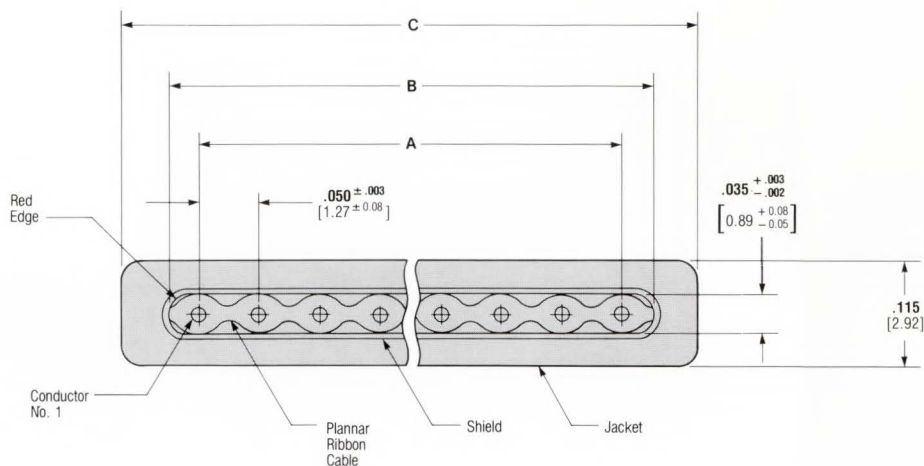
No. of Conductors	Dimensions						Reel Part No.*
	A	± Tolerance	B	± Tolerance	C	± Tolerance	
9	.400 10.16	.010 0.25	.450 11.43	.010 0.25	.520 13.21	.020 0.51	746401-1
10	.450 11.43	.010 0.25	.500 12.7	.015 0.38	.570 14.48	.020 0.51	746401-2
15	.700 17.78	.010 0.25	.750 19.05	.015 0.38	.820 20.83	.030 0.76	746401-4
16	.750 19.05	.010 0.25	.800 20.32	.015 0.38	.870 22.1	.030 0.76	746401-5
20	.950 24.13	.010 0.25	1.000 25.4	.015 0.38	1.070 27.18	.030 0.76	746401-6
24	1.150 29.21	.010 0.25	1.200 30.48	.015 0.38	1.270 32.26	.030 0.76	746401-7
25	1.200 30.48	.010 0.25	1.250 31.75	.015 0.38	1.320 33.53	.030 0.76	746401-8
26	1.250 31.75	.010 0.25	1.300 33.02	.015 0.38	1.370 34.8	.030 0.76	746401-9
34	1.650 41.91	.015 0.38	1.700 43.18	.020 0.51	1.770 44.96	.030 0.76	1-746401-0
40	1.950 49.53	.015 0.38	2.000 50.8	.020 0.51	2.070 52.58	.035 0.89	1-746401-2
50	2.450 62.23	.015 0.38	2.500 63.5	.020 0.51	2.570 65.28	.035 0.89	1-746401-3
60	2.950 74.93	.015 0.38	3.000 76.2	.020 0.51	3.070 77.98	.035 0.89	1-746401-4

\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length is 20 ft [6.1 m].

## Shielded/Jacketed Planar Ribbon Cable for External Use

**Dimensioning:**  
Dimensions are in inches and millimetres unless specified otherwise. Values in brackets are metric equivalents. Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 2912  
Flammability Rating — VW-1



**Conductors:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded  
**Insulation:** standard gray PVC, flame retardant; with red edge on Conductor No. 1 side.  
**Shield:** aluminum, .002 [0.05] thick; polyester, .001 [0.03] thick; with folded edge for metal contact (aluminum inward)  
**Jacket:** black PVC, flame retardant, .030 [0.76] wall thickness  
**Temperature Rating:** + 105°C  
**Voltage Rating:** 300 volts  
**Conductor Resistance:** 67.5 ohms/1000 ft [304.8 m]

**Typical Electrical Values:**

	GND-SIG-GND to Shield
Characteristic Impedance	70 ohms
Capacitance	20 pf/ft
Time Delay	1.45 ns/ft

**Crosstalk:**

	3.5 ns Rise Time	7 ns Rise Time
Near End	5.5%	2%
Far End	1.6%	.5%

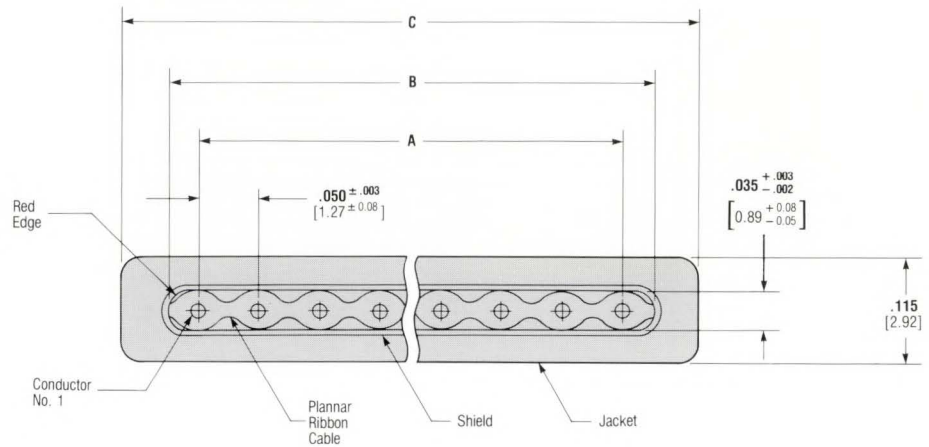
No. of Conductors	Dimensions						Reel Part No.*
	A	± Tolerance	B	± Tolerance	C	± Tolerance	
9	.400 10.16	.010 0.25	.450 11.43	.010 0.25	.520 13.21	.020 0.51	746470-1
15	.700 17.78	.010 0.25	.750 19.05	.015 0.38	.820 20.83	.030 0.76	746470-4
16	.750 19.05	.010 0.25	.800 20.32	.015 0.38	.870 22.1	.030 0.76	746470-5
20	.950 24.13	.010 0.25	1.000 25.4	.015 0.38	1.070 27.18	.030 0.76	746470-6
24	1.150 29.21	.010 0.25	1.200 30.48	.015 0.38	1.270 32.26	.030 0.76	746470-7
25	1.200 30.48	.010 0.25	1.250 31.75	.015 0.38	1.320 33.53	.030 0.76	746470-8
26	1.250 31.75	.010 0.25	1.300 33.02	.015 0.38	1.370 34.8	.030 0.76	746470-9
34	1.650 41.91	.015 0.38	1.700 43.18	.020 0.51	1.770 44.96	.030 0.76	1-746470-0
40	1.950 49.53	.015 0.38	2.000 50.8	.020 0.51	2.070 52.58	.035 0.89	1-746470-2
50	2.450 62.23	.015 0.38	2.500 63.5	.020 0.51	2.570 65.28	.035 0.89	1-746470-3
60	2.950 74.93	.015 0.38	3.000 76.2	.020 0.51	3.070 77.98	.035 0.89	1-746470-4

\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length is 20 ft [6.1 m].

## Shielded/Jacketed Planar Ribbon Cable for External Use

**Dimensioning:**  
 Dimensions are in inches and millimetres unless specified otherwise.  
 Values in brackets are metric equivalents.  
 Chart contains dimensions in inches over millimetres.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E15369, UL Style No. 2912  
 Flammability Rating — VW-1



**Conductors:** 28 AWG [0.08-0.09 mm<sup>2</sup>] tinned copper, 7/36 stranded

**Insulation:** standard gray PVC, flame retardant; with red edge on Conductor No. 1 side.

**Shield:** aluminum, .002 [0.05] thick; polyester, .001 [0.03] thick; with sealed edge, metal overlap and full contact at seam (aluminum inward)

**Jacket:** black PVC, flame retardant, .030 [0.76] wall thickness

**Temperature Rating:** + 105°C

**Voltage Rating:** 300 volts

**Conductor Resistance:** 67.5 ohms/1000 ft [304.8 m]

**Typical Electrical Values:** **GND-SIG-GND to Shield**

Characteristic Impedance 70 ohms  
 Capacitance 20 pf/ft  
 Time Delay 1.45 ns/ft

**Crosstalk:**

	3.5 ns Rise Time	7 ns Rise Time
Near End	5.5%	2%
Far End	1.6%	.5%

No. of Conductors	Dimensions						Reel Part No.*
	A	± Tolerance	B	± Tolerance	C	± Tolerance	
9	.400 10.16	.010 0.25	.450 11.43	.010 0.25	.520 13.21	.020 0.51	746471-1
15	.700 17.78	.010 0.25	.750 19.05	.015 0.38	.820 20.83	.030 0.76	746471-4
16	.750 19.05	.010 0.25	.800 20.32	.015 0.38	.870 22.1	.030 0.76	746471-5
20	.950 24.13	.010 0.25	1.000 25.4	.015 0.38	1.070 27.18	.030 0.76	746471-6
24	1.150 29.21	.010 0.25	1.200 30.48	.015 0.38	1.270 32.26	.030 0.76	746471-7
25	1.200 30.48	.010 0.25	1.250 31.75	.015 0.38	1.320 33.53	.030 0.76	746471-8
26	1.250 31.75	.010 0.25	1.300 33.02	.015 0.38	1.370 34.8	.030 0.76	746471-9
34	1.650 41.91	.015 0.38	1.700 43.18	.020 0.51	1.770 44.96	.030 0.76	1-746471-0
40	1.950 49.53	.015 0.38	2.000 50.8	.020 0.51	2.070 52.58	.035 0.89	1-746471-2
50	2.450 62.23	.015 0.38	2.500 63.5	.020 0.51	2.570 65.28	.035 0.89	1-746471-3
60	2.950 74.93	.015 0.38	3.000 76.2	.020 0.51	3.070 77.98	.035 0.89	1-746471-4

\*Reels are 100 ft [30.48 m] with a maximum of one splice per reel. Minimum continuous length is 20 ft [6.1 m].

## Accessories

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

### Pull Tabs, Permanent (for Receptacles and Pin Connectors)

**Material:**

Natural Color PVC

**Reference Information:**

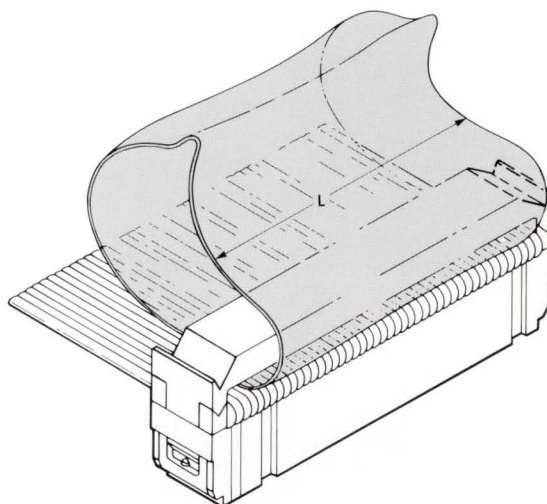
**Receptacles used with:**

- Standard — pages 4 thru 9
- Novo — pages 10 thru 17
- Stackable Novo — pages 18 thru 21
- .100 x .200 [2.54 x 5.08] Centers — page 23

**Connectors used with:**

- Pin Connectors — pages 40 thru 43

**Technical Documents** — page 109



**Note:** For one-step termination of preassembled products, the pull tab is installed manually between the cover and strain relief. For two-step termination of unassembled products, the pull tab may be installed between the housing and cover using standard termination tooling, or manually between the cover and strain relief.

No. of Pos.	Dimension L	Pull Tab Part No.
—	<b>.120</b> 3 048	88450-1
10	<b>.44</b> 11.2	88450-2
14	<b>.64</b> 16.3	88450-3
16	<b>.74</b> 18.8	88450-4
20	<b>.88</b> 22.4	88450-5
24	<b>1.08</b> 27.4	88450-6
26	<b>1.18</b> 30	88450-7
30	<b>1.38</b> 35.1	1-88450-2
34	<b>1.58</b> 40.1	88450-8
40	<b>1.82</b> 46.2	88450-9
50	<b>2.32</b> 58.9	1-88450-0
60	<b>2.80</b> 71.1	1-88450-1

### Pull Tabs, Snap-In (for Receptacles without Strain Relief)

**Material:**

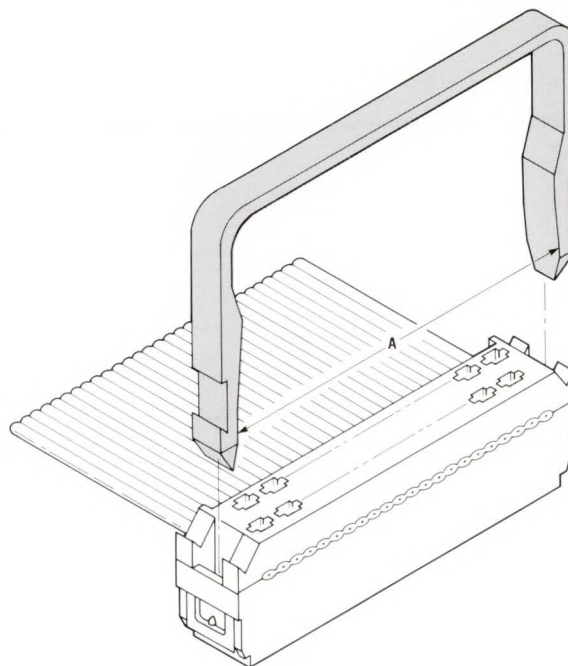
Black Thermoplastic, 94V-0 Rated

**Reference Information:**

**Receptacles used with:**

- Standard — pages 4 thru 9
- Novo — pages 10 thru 17

**Technical Documents** — page 109



No. of Pos.	Dimension A	Pull Tab Part No. *
10	<b>.550</b> 13.97	746488-1
14	<b>.750</b> 19.05	746488-2
16	<b>.850</b> 21.59	746488-3
20	<b>1.050</b> 26.67	746488-4
24	<b>1.250</b> 31.75	746488-5
26	<b>1.350</b> 34.29	746488-6
30	<b>1.550</b> 39.37	746488-7
34	<b>1.750</b> 44.45	746488-8
40	<b>2.050</b> 52.07	746488-9
44	<b>2.250</b> 57.15	1-746488-0
50	<b>2.550</b> 64.77	1-746488-1
60	<b>3.050</b> 77.47	1-746488-2
64	<b>3.250</b> 82.55	1-746488-3

\* Snap-in pull tabs are packaged 50 per bag.

**Accessories**

**Polarizer  
(for Receptacles with  
.100 x .200 [2.54 x 5.08]  
Centers)**

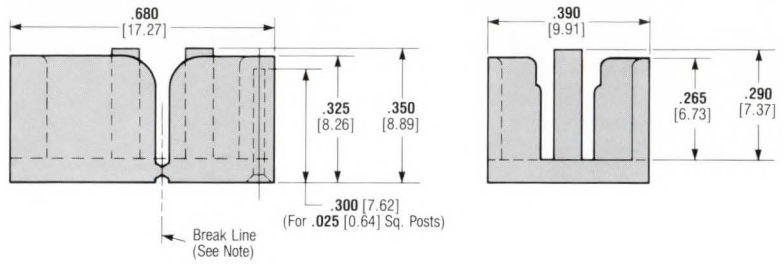
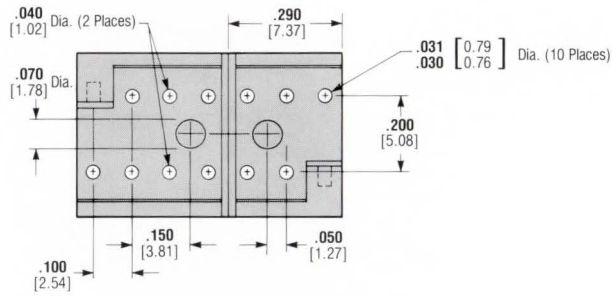
**Material:**

Black Thermoplastic, 94V-0 Rated

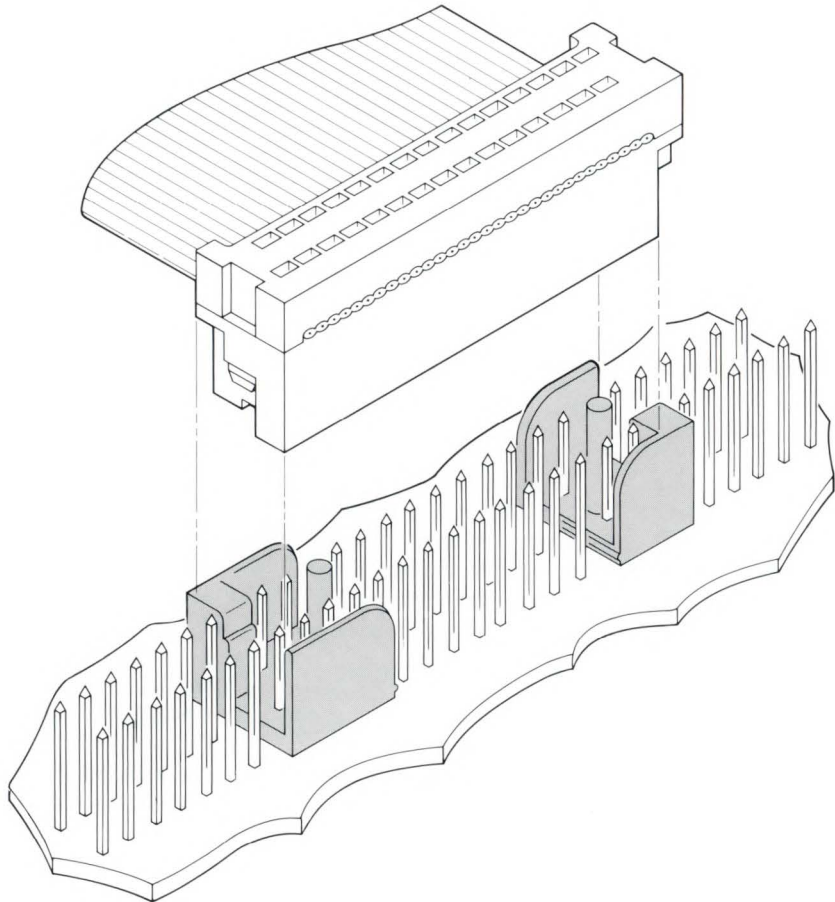
Part No. 88560-1

**Reference Information:**

Receptacles used with — page 23  
Technical Documents — page 109



**Note:** Polarizer is to be separated at the break line for use with receptacles 12 position and larger.





**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.

**Polarizer, Snap-In  
(for Pin Connectors,  
Universal Pin and  
Pinless Headers and  
Low Profile Pin  
Headers)**

**Material:**

Black Thermoplastic, 94V-0 Rated

**Part Nos.:**

499991-2 (Packaged 50 per Bag)  
499991-3 (Packaged 1000 per Box)

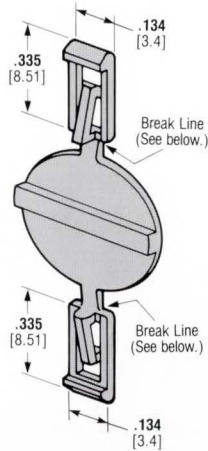
**Reference Information:**

**Pin Connectors used with (without Detent Windows)** — Pages 40 thru 43

**Pin Headers used with:**  
Universal — pages 48 thru 53 & 56 thru 59

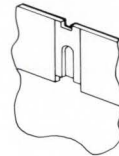
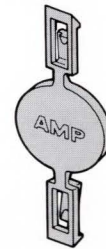
Low Profile — pages 60 & 61  
**Universal Pinless Headers used with** — pages 54 & 55

**Technical Documents** — page 109

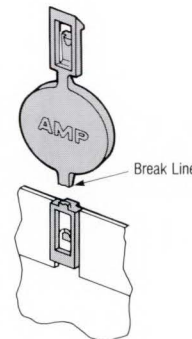


The snap-in polarizer provides military polarization for pin connectors (without detent windows), Universal pin and pinless headers and Low Profile pin headers. Installation of the polarizer is as follows:

Orient the polarizer so that the polarizer latch is on the same side as the inner wall (post side) of the connector/header housing.



Slide the polarizer over the polarizing slot of the housing until the latch engages the hole. Snap off the tab at the break line next to the housing. Using the remaining polarizer, repeat the process for the other housing location.



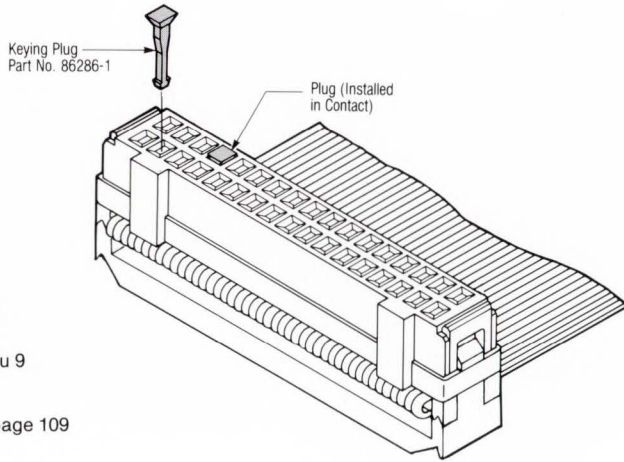
**Accessories**

**Keying Plug  
(for All Receptacles,  
except Novo Receptacles)**

**Material:**  
Natural Color Nylon  
**Part No. 86286-1**



**Keying Plug**  
(Plugs into Contact)



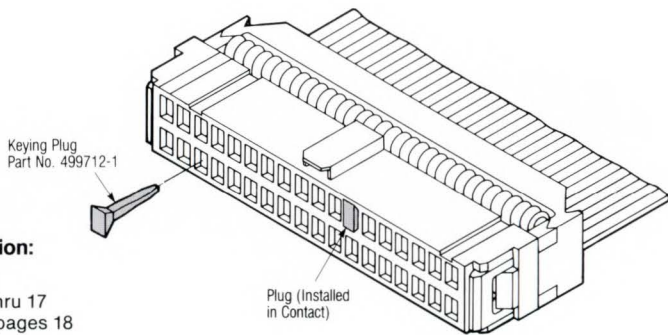
**Reference Information:**  
**Receptacles used in:**  
Standard — pages 4 thru 9  
.100 x .200 [2.54 x 5.08]  
Centers — page 23  
**Technical Documents** — page 109

**Keying Plug  
(for Novo Receptacles)**

**Material:**  
Black Thermoplastic, 94V-0 Rated  
**Part No. 499712-1**



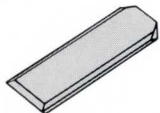
**Keying Plug**  
(Plugs into Contact)



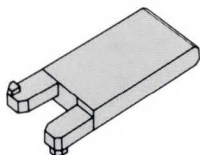
**Reference Information:**  
**Receptacles used in:**  
Novo — pages 10 thru 17  
Stackable Novo — pages 18  
thru 21  
**Technical Documents** — page 109

**Keying Plug  
(for Card Edge  
Connectors)**

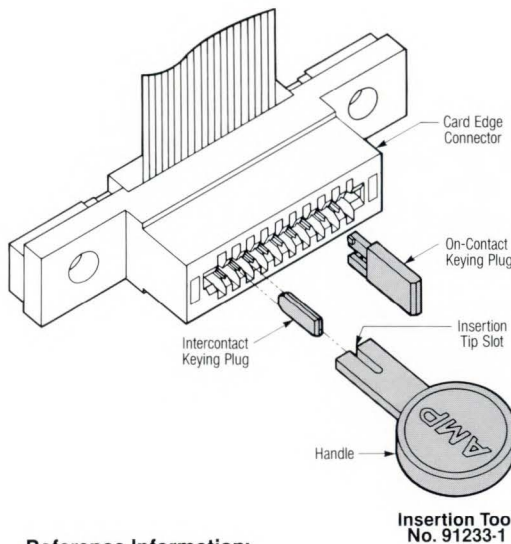
**Material:**  
Natural Color Thermoplastic,  
94V-0 Rated



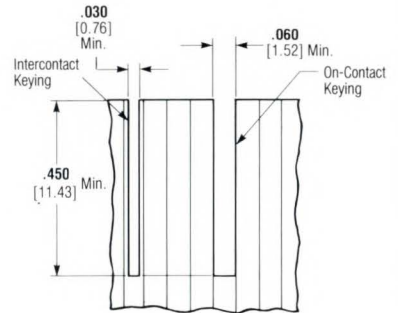
**Intercontact Keying Plug,**  
**Part No. 88113-1**  
(Use Insertion Tool No. 91233-1)



**On-Contact Keying Plug,**  
**Part No. 88114-1**



**Reference Information:**  
**Card Edge Connectors used in** —  
page 24 thru 29  
**Technical Documents** — page 109



**Pc Board Slot Dimensions**

**Note:**  
Molded-in keying plugs are available for card edge connectors between positions 3, 4 and 5, 6. Consult AMP Incorporated.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.

## Keying Plug (for HDF-20 Receptacles, Size 20 Socket Contacts)

**Material:**

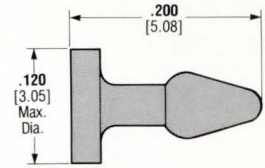
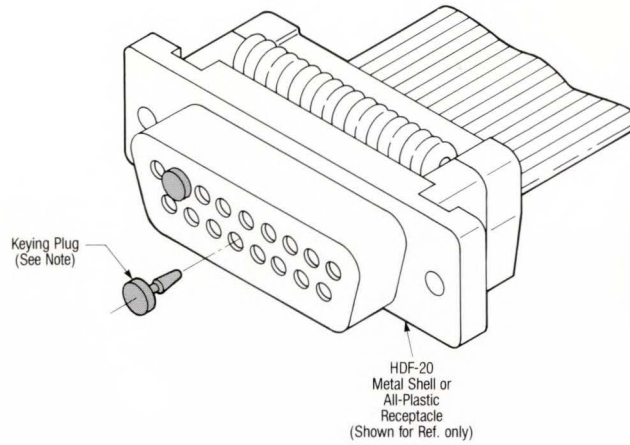
Natural Color Nylon

Part No. 206509-1

**Reference Information:**

HDF-20 Receptacles used in  
— pages 67 & 69

Technical Documents — page  
109



**Note:**  
Keying plug is installed taper-end first  
into front of receptacle.

## Commoning Strip (for HDF-20 Plugs, Size 20 Pin Contacts)

**Material and Finish:**

Brass, .004 [0.1] thick; tin plated

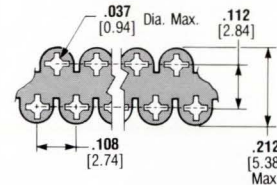
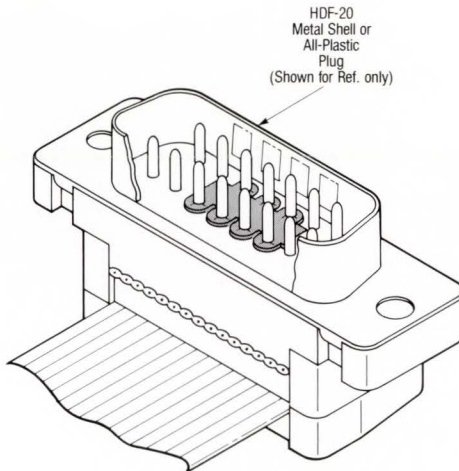
Part No. 206918-2

(Continuous Strip)

**Reference Information:**

HDF-20 Plugs used on — pages 66  
& 68

Technical Documents — page 109



**Note:**  
Use punching tool to remove undesired  
pin commoning locations on  
commoning strip. Use mating receptacle  
to seat strip over pins in plug. Punching  
tool is not supplied by AMP.

## Accessories

### Male Screw Retainers (for HDF-20 Metal-Shell and All-Plastic Connectors)

#### Material and Finish:

**Male Screw** — Steel; zinc plated (clear chromate)

**Retaining Clip** — Steel, .012 [0.3] thick; aluminum coated

#### Kit No.:

**746881-1** (two assemblies per package)

**746881-2** (bulk packed)\*

\*Each part is individually bulk packed for multiple kit orders.

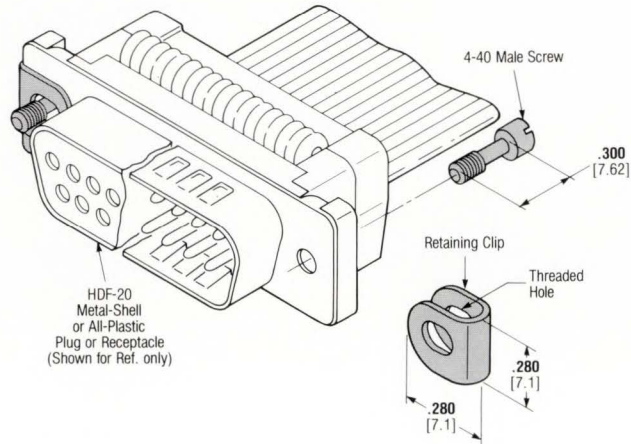
#### Reference Information:

**HDF-20 Connectors used on** — pages 66 thru 69

#### Mateable Hardware:

Female Screwlocks — see below.

Technical Documents — page 109



- Notes:**
1. All parts are packaged unassembled.
  2. Each kit is comprised of two male screws and two retaining clips.
  3. Retaining clips must be assembled onto connector flanges with threaded hole toward ribbon cable side of connector.

### Female Screwlocks (for HDF-20 Metal-Shell and All-Plastic Connectors)

#### Material and Finish:

**All Parts** — Cold Rolled Steel; zinc plated (clear or yellow chromate)

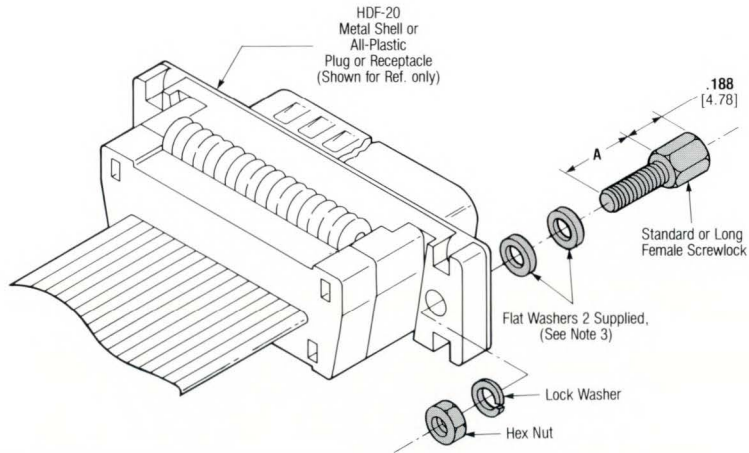
#### Reference Information:

**HDF-20 Connectors used on** — pages 66 thru 69

#### Mateable Hardware:

Male Screw Retainers — see above.

Technical Documents — page 109



**Nut Driver, Part No. 811262-1**  
(for assembling female screwlocks to connector flange)

Dimension A	Thread Size	Finish	Kit No.			
			Standard Female Screwlock		Long Female Screwlock	
			Individual	Bulk Packed*	Individual	Bulk Packed*
.312 7.92	4-40	Yellow Chromate	205817-1	205817-2	—	—
		Clear Chromate	205817-3	205817-4	—	—
	M3 (Metric)	Yellow Chromate	207872-1	207872-2	—	—
		Clear Chromate	207872-3	207872-4	—	—
.560 14.22	4-40	Yellow Chromate	—	—	207719-1	207719-2
		Clear Chromate	—	—	207719-3	207719-4
	2-56 (See Note 4.)	Yellow Chromate	—	—	747223-1	747223-2
		Clear Chromate	—	—	747223-3	747223-4

\*Each part is individually bulk packed for multiple kit orders.

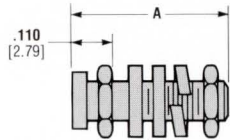
- Notes:**
1. All parts are packaged unassembled.
  2. Each kit is comprised of two female screwlocks, lockwashers and hex nuts and four flat washers.
  3. One or two flat washers may be required for panel thicknesses less than .060 [1.52].
  4. 2-56 is the male thread size. The female thread size is 4-40.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## 4-40 Locking Post Assemblies (for HDF-20 Metal-Shell and All-Plastic Connectors)

### Material and Finish:

**All-Parts** — Cold Rolled Steel; zinc plated (yellow chromate)



4-40 Locking Post Assembly

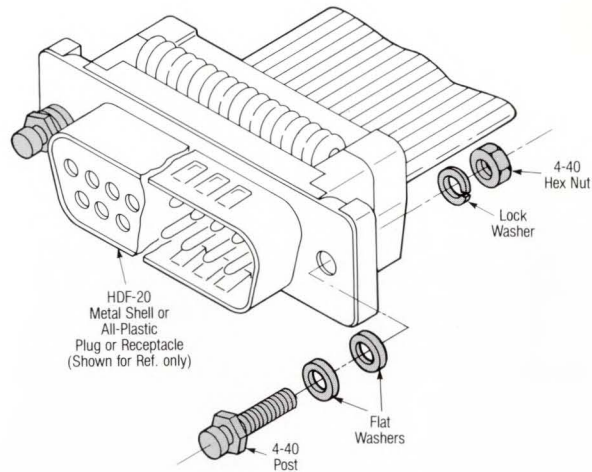
### Reference Information:

**HDF-20 Connectors used on** — pages 66 thru 69

### Mateable Hardware:

Slide Latch Assemblies — see below.

**Technical Documents** — page 109



Thread Size	Dimension A	Locking Post Assembly Kit No.	
		Individual	Bulk Packed*
4-40	.416 10.57	206514-1	206514-3
	.560 14.22	206514-6	206514-7

\*Each part is individually bulk packed for multiple kit orders.

- Notes:** 1. All parts are packaged unassembled.  
2. Each kit is comprised of two assemblies, as illustrated above.

## Slide Latch Assemblies (for HDF-20 Metal-Shell and All-Plastic Connectors)

### Material and Finish:

**Slide Latch** — Stainless Steel  
**4-40 Screws, Washers & Hex Nuts** — Steel; zinc plated (yellow chromate)

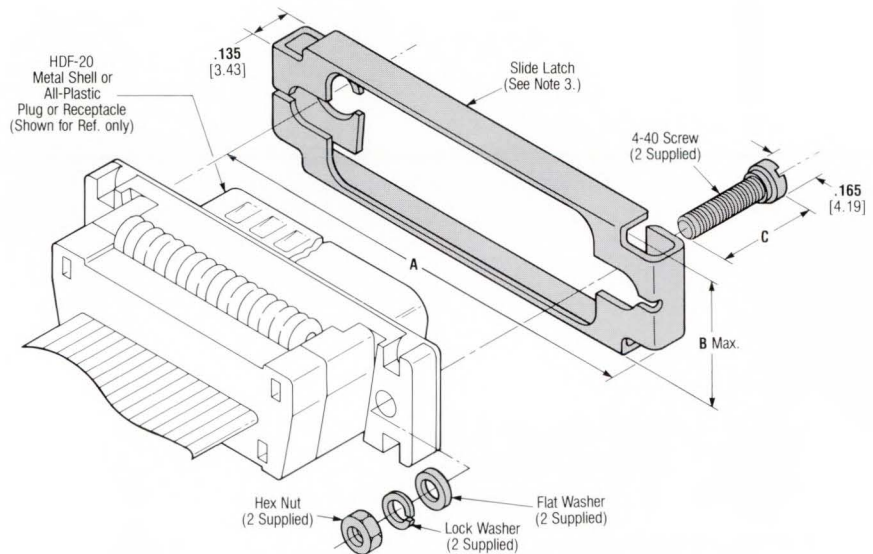
### Reference Information:

**HDF-20 Connectors used on** — pages 66 thru 69

### Mateable Hardware:

4-40 Locking Post Assemblies — see above.

**Technical Documents** — page 109



Shell Size (No. of Contact Pos.)	Dimensions		Mounting Screw		Slide Latch Assembly Kit No.	
	A	B	Thread Size	C Dim.	Individual	Bulk Packed*
1 (9)	1.397 35.48	.490 12.45	4-40	.415 10.54	745404-1	745404-2
2 (15)	1.725 43.82	.490 12.45	4-40	.415 10.54	747475-1	747475-2
3 (25)	2.265 57.53	.490 12.45	4-40	.415 10.54	747476-1	747476-2
4 (37)	2.913 73.99	.490 12.45	4-40	.415 10.54	745407-1	745407-2

\*Each part is individually bulk packed for multiple kit orders.

- Notes:** 1. All parts are packaged unassembled.  
2. Each kit is comprised of a slide latch and two screws, flat washers, lock washers and hex nuts.  
3. These slide latch assemblies cannot be used with cable clamp bodies that extend beyond the front flange of the connector.

Accessories

Latching Blocks with Threaded Hole

Material: Zinc

Reference Information:

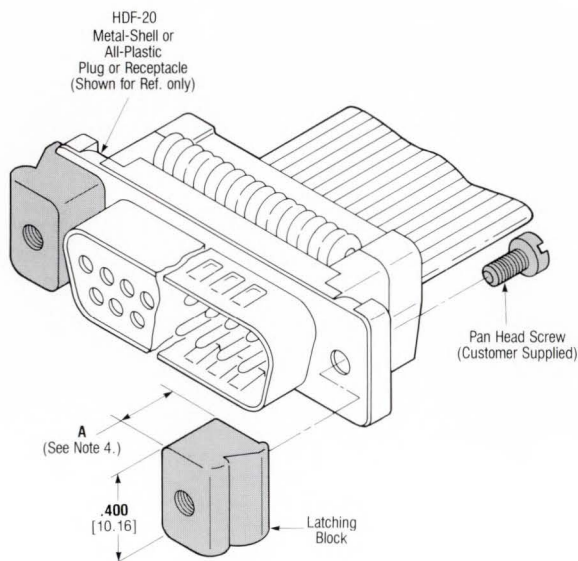
HDF-20 Connectors used on — pages 66 thru 69

Mating/Panel Mounting — page 70

Mateable Hardware:

Spring Latches — AMP Catalog 79-546

Technical Documents — page 109



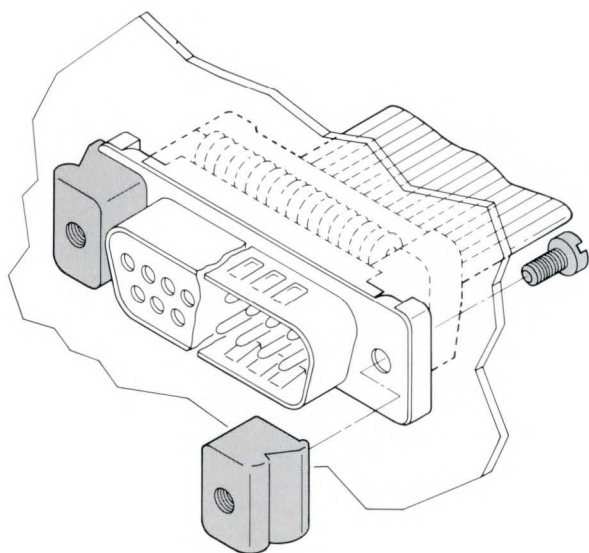
Shell Size (No. of Contact Pos.)	Dimension A	Thread Size	Rear-Panel Latching Block Part No.		Front-Panel Latching Block Part No.	
			Individual	Bulk Packed*	Individual	Bulk Packed*
1 thru 4 (9 thru 37)	.190 4.83	M3 (Metric)	745403-1	745403-2	—	—
			745403-8	745403-9	—	—
	.220 5.59	4-40	747717-2	747717-3	—	—
			—	—	208101-1	208101-2
.250 6.35	M3 (Metric)	—	—	208101-1	208101-2	
		—	—	208101-8	208101-9	

\*Bulk packed for multiple part orders.

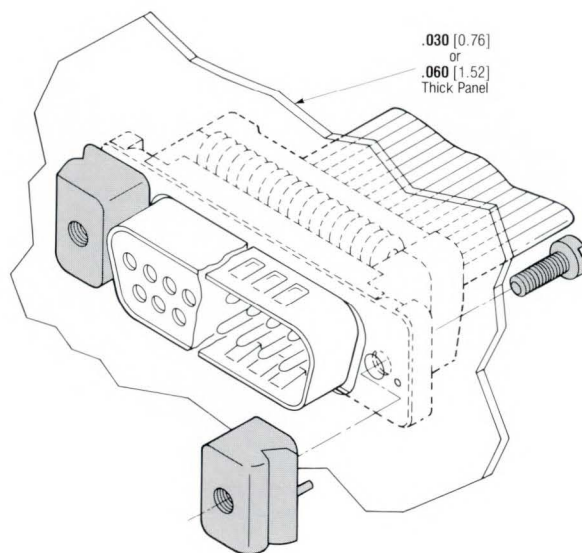
Notes: 1. Individual latching blocks include two per package.

2. Pan head screws are to be supplied by Customer.

3. A dimension .250 [6.35] is for connector flange mounting, .220 [5.59] is for use with .030 [0.76] thick panels, and .190 [4.83] is for use with .060 [1.52] thick panels.



Typical Application of Front-Panel Mounted HDF-20 Connector using Front-Panel Latching Blocks



Typical Application of Rear-Panel Mounted HDF-20 Connector using Rear-Panel Latching Blocks

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.  
Charts contain dimensions in inches over millimetres.

## Latching Blocks with Slot Recess and Thru Hole

**Material:** Zinc

### Reference Information:

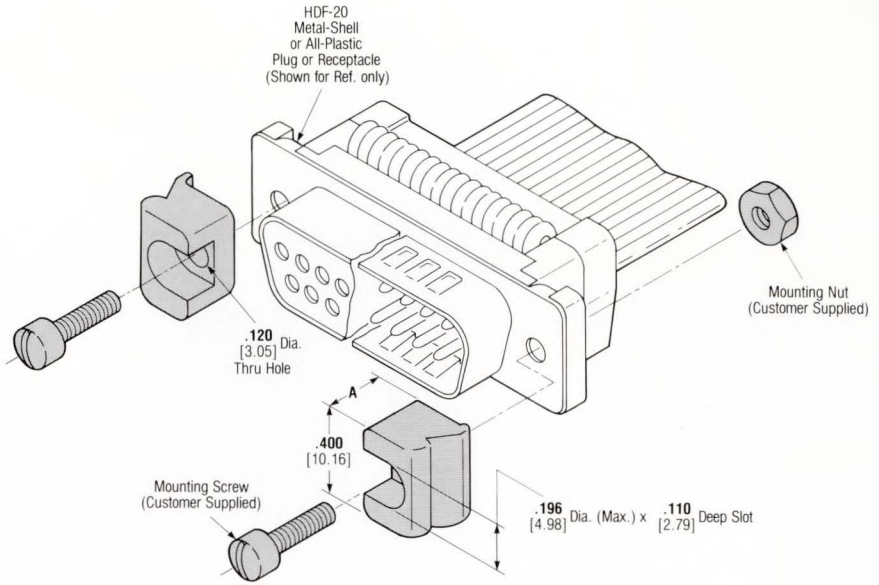
**HDF-20 Connectors used on** — pages 66 thru 69

**Mating/Panel Mounting** — page 70

### Mateable Hardware:

Spring Latches — AMP Catalog 79-546

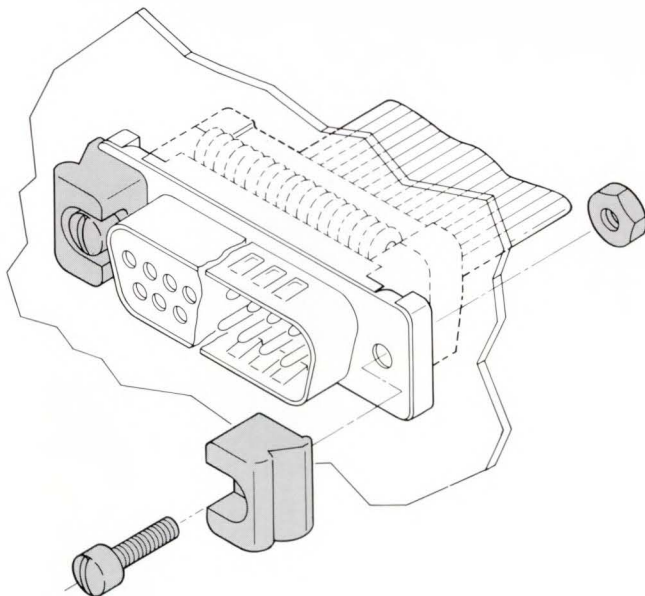
**Technical Documents** — page 109



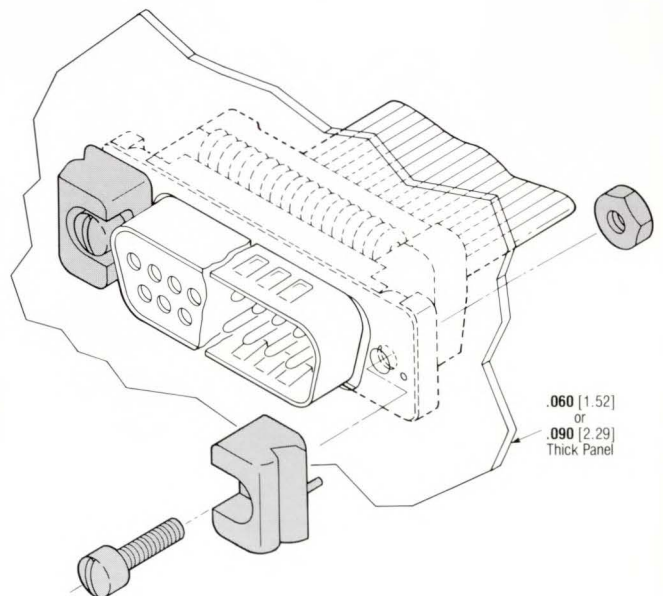
Shell Size (No. of Contact Pos.)	Dimension A	Panel Thickness	Rear-Panel Latching Block Part No.		Front-Panel Latching Block Part No.	
			Individual	Bulk Packed*	Individual	Bulk Packed*
1 thru 4 (9 thru 37)	.160 4.06	.090 2.29	747080-1	747080-2	—	—
	.190 4.83	.060 1.52	745245-2	745245-3	—	—
	.250 6.35	—	—	—	745286-2	745286-3

\*Bulk packed for multiple part orders.

- Notes:**
1. Individual latching blocks include two per package.
  2. Mounting screws and nuts are to be supplied by Customer.
  3. These latching blocks allow mounting screws to be installed thru the front of the block and to be screwed into a fixed insert in a connector mounting flange, or a nut behind the connector mounting flange (as illustrated above).



Typical Application of Front-Panel Mounted  
HDF-20 Connector using Front-Panel Latching Blocks



Typical Application of Rear-Panel Mounted  
HDF-20 Connector using Rear-Panel Latching Blocks

**Application Tooling for AMP-LATCH Connector Contacts  
(One-Step Termination)**

These application tools are designed for one-step termination of AMP-LATCH connectors to planar, ground plane and shielded/jacketed ribbon cable with round conductors on .050 [1.27] centers. A complete set of tooling consists of a tool (manual or pneumatic) and a termination die set or shuttle tool.

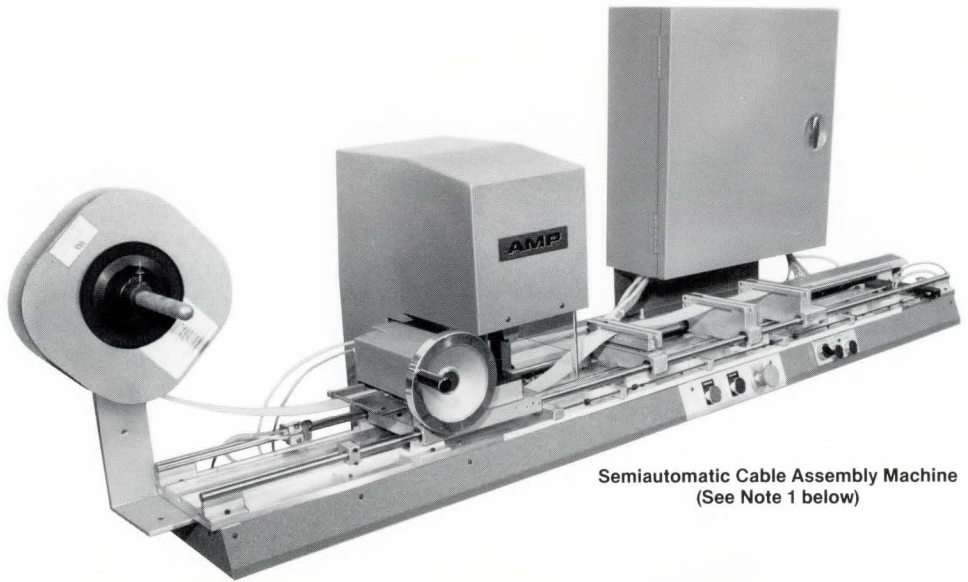
Part nos. for ordering all AMP-LATCH tooling, including a hand tool and cable preparation tooling, are presented on page 105 and in the charts on pages 106 and 107.



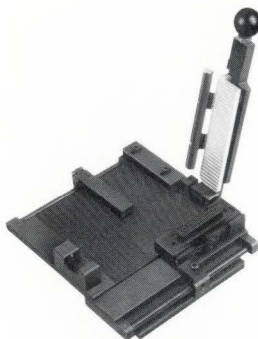
**Pneumatic Tool  
No. 91112-2  
(Foot Pedal)  
(See Note 3 below)**



**Manual Tool  
No. 91085-2  
(See Note 3 below)**



**Semiautomatic Cable Assembly Machine  
(See Note 1 below)**



**Typical Termination Die Set  
(Tool Base and Locator Kit Shown)**



**Pneumatic Tool No. 91112-3  
(Auto-Cycle) (See Note 4 below)**

- Notes:** 1. For applications using the Semiautomatic Cable Assembly Machine, consult AMP Incorporated.  
 2. Tool nos. shown above do not include termination die sets or termination shuttle tool. Die sets and shuttle tool must be purchased separately. See pages 106 and 107.  
 3. Shown with one-step termination die set installed.  
 4. Shown with shuttle termination tool installed.



**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.

This AMP hand tool kit is designed to terminate AMP-LATCH receptacles, card edge and HDF connectors up to and including 60 positions with contacts on .100 x .100 [2.54 x 2.54] centers to flat ribbon cable. Cable conductor sizes may be 30 AWG [0.05 mm<sup>2</sup>] solid, 28 AWG [0.08-0.09 mm<sup>2</sup>] solid or stranded or 26 AWG [0.12-0.15 mm<sup>2</sup>] solid or stranded. Cable cutter and bench-mount clamp are included.

Recessed covers and strain reliefs are used to route cable from the rear of a connector while permitting the cable to remain within the outside dimensions of the connector. This feature allows connectors to be stacked on close centers or plugged into protected (shrouded) headers. Proper positioning of the cable during termination is illustrated at the right.



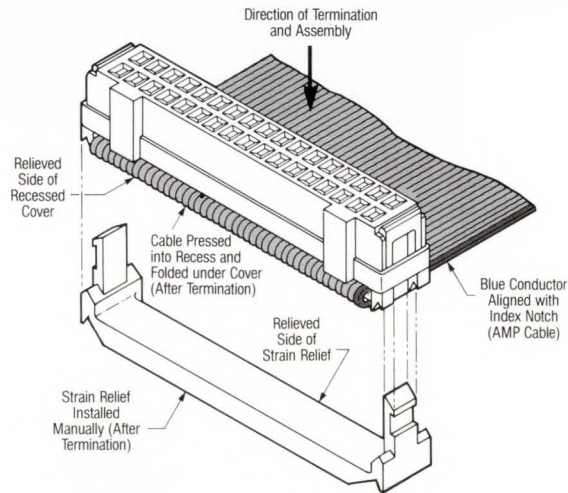
**Cable Cutter No. 606717-1**  
Replacement Parts:  
Blade No. 606718-1  
Anvil No. 606719-1



**AMP Hand Tool Kit —**  
Part No. 91271-1

**Locator Kits:**

- I/O Pin Connector —**  
Part No. 543259-1
- DIP Plug —** Part No. 543260-1
- Stackable Receptacle —**  
Part No. 543261-1
- CHAMP-Latch Connector —**  
Part No. 543262-1
- 50-Pos. Low Profile HDF and I/O**  
**Bulkhead Pin Connector —**  
Part No. 543297-1
- EUROLATCH Receptacle —**  
Part No. 543298-1



**Ground Plane Cable Trimmer**

Cable trimmers are used in Manual Tool 91085-2 and are designed to trim the edges of ground plane ribbon cable for termination. Each cable trimmer consists of a small or large tooling holder and the appropriate cable cutting tool.

Conversion kits are available, allowing customers to purchase one cable trimmer and only the cable cutting tool needed to trim other cable sizes within the same tooling holder size. All cable trimmers and conversion kits are listed in the chart at the left.

Cable Size (No. of Conductors)	Tooling Holder Size	Cable Trimmer Part No.	Conversion Kit No.
14	Small	91146-1	126811-1
16		91146-2	126811-2
20		91146-3	126811-3
26		91146-4	126811-4
30	Large	91146-5	126811-5
34		91146-6	126811-6
40		91146-7	126811-7
50		91146-8	126811-8

**Notes:** Each Conversion Kit includes a Locator Plate and Left and Right Cutting Rails for trimming the specific cable size listed. These kits are interchangeable only with the Cable Trimmers having the appropriately sized Tooling Holder (Small or Large).

**Application Tooling for AMP-LATCH Connector Contacts  
(One-Step Termination)**

Tooling available for terminating AMP-LATCH connectors to round conductor flat ribbon cable is divided into two basic categories: recommended tooling for new applications (listed below) and tooling for existing application equipment (listed on page 107). All tooling will terminate AMP-LATCH connectors to flat ribbon cable with .045 [1.45] max. thick insulation and 30 AWG [0.05 mm<sup>2</sup>] solid, 28 AWG [0.08-0.09 mm<sup>2</sup>] solid or stranded or 26 AWG [0.12-0.15 mm<sup>2</sup>] solid or stranded conductors.

Recommended tooling for new applications consists of Pneumatic (Auto-Cycle) Tool

No. 91112-3 and Termination Shuttle Tool No. 91265-1. Except where noted (\*) below, Termination Shuttle Tool No. 91265-1 is supplied with Locator Kit No. 543207-1, providing termination capabilities for all standard and Novo receptacles as well as card edge and HDF-20 low profile connectors. To terminate any of the other connector styles with the original shuttle tool, a customer has to purchase the appropriate locator kit listed in the chart.

Tooling for existing application equipment consists of Pneumatic Tool No. 91112-2 or Manual Tool No. 91085-2

and the appropriate termination die set for terminating a particular connector style. Each termination die set includes locator and upper tool kits, where applicable, and the tool base. Any termination die set can be converted to terminate a different connector style by simply changing the locator and upper tool kits listed for the desired connector style. Also, Adaptor Kit No. 543160-1 is available to adapt termination die sets (Series 912XX) for use in Pneumatic (Auto-Cycle) Tool No. 91112-3.

**Reference Information:**

**Ribbon Cable:**

- Planar — pages 84 thru 87
- Ground Plane — pages 88 thru 90
- Shielded/Jacketed — pages 91 thru 94

**Technical Documents** — page 109

**Recommended Tooling for New Applications — Pneumatic (Auto-Cycle) Tool No. 91112-3**

Connector Style to be Terminated	Termination Shuttle Tool No.	Locator Kit No. (Conversion/Replacement)	Connectors Shown on (Page Ref.)
Receptacles, .100 x .100 [2.54 x 2.54] Centers	91265-1	543207-1	4 thru 9
Novo Receptacles, .100 x .100 [2.54 x 2.54] Centers	91265-1	543207-1	10 thru 17
Stackable Novo Receptacles, .100 x .100 [2.54 x 2.54] Centers	91265-1	543243-1*	18 thru 21
Card Edge Connectors (Single & Bifurcated Beam Contacts), with & without Mounting Ears	91265-1	543207-1	24 thru 29
DIP Plugs (Preassembled) .100 x .100 [2.54 x 2.54], .100 x .300 [2.54 x 7.62] & .100 x .600 [2.54 x 15.24] Centers	91265-1	543205-1*	30, 31 & 33
Pin Connectors, with & without Mounting Ears	91265-1	543206-1*	40 thru 43
HDF-20 Low Profile Connectors, Metal-Shell & All Plastic	91265-1	543207-1	66 thru 69
Low Profile CHAMP Latch Connectors	91265-1	543230-1*	See AMP Catalog 73-152

\*Locator kit not included with termination shuttle tool; must be ordered separately.

- Notes:**
1. These locator kits cannot be used with termination die sets listed on page 107.
  2. All AMP-LATCH connectors listed above are terminated to ribbon cable using the one-step termination technique.
  3. Pneumatic and manual tools are shown on page 104.
  4. Hand tool and cable preparation tooling are presented on page 105.

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.

## Tooling for Existing Application Equipment — Pneumatic Tool No. 91112-2 or Manual Tool No. 91085-2

Connector Style to be Terminated	Termination Die Set No.*	Conversion/Replacement Kits		Connectors Shown on (Page Ref.)
		Locator Kit No.	Upper Tool Kit No.	
Receptacles, .100 x .100 [2.54 x 2.54] Centers	91221-1	126852-1	126850-1	4 thru 9
Novo Receptacles, .100 x .100 [2.54 x 2.54] Centers	91221-1	126852-1	126850-1	10 thru 17
Stackable Novo Receptacles, .100 x .100 [2.54 x 2.54] Centers	91244-1	126994-1	126850-1	18 thru 21
EUROLATCH Receptacles	91264-1	543200-1	126850-1	22
Receptacles, .100 x .200 [2.54 x 5.08] Centers	91145-1	—	—	23
<b>Card Edge Connectors (Single &amp; Bifurcated Beam Contacts):</b>				
without Mounting Ears	91223-1	126854-1	126850-1	24 & 25
with Rnd. Hole Mounting Ears	91224-1	126855-1	126850-1	26 & 27
with Slotted Mounting Ears	91225-1	126856-1	126850-1	28 & 29
<b>DIP Plugs (Preassembled):</b>				
.100 x .100 [2.54 x 2.54] Centers	91258-1	543175-1	543188-1	30
.100 x .300 [2.54 x 7.62] Centers	91259-1	543180-1	543188-1	31
.100 x .600 [2.54 x 15.24] Centers	91260-1	543185-1	543188-1	33
<b>DIP Plugs (Unassembled) .100 x .300 [2.54 x 7.62] Centers (MIL-C-83503 Qualified)</b>				
91226-1	126857-1	126883-1		32
<b>Paddle Board Connectors (Unassembled):</b>				
Full Row & Short End	91115-1	—	—	34 thru 37
Special Center	91115-2	—	—	38 & 39
<b>Pin Connectors:</b>				
without Mounting Ears	91252-1	543111-1	126850-1	40 & 41
with Slotted Mounting Ears	91253-1	543110-1	126850-1	42 & 43
Bulkhead Pin Connectors	91236-1	126947-1	126850-1	44 & 45
HDF-20 Low Profile Connectors Metal-Shell & All Plastic	91257-1	543170-1	126850-1	66 thru 69
Shielded Novo Receptacles, .100 x .100 [2.54 x 2.54] Centers	91254-1	543130-1	126850-1	74 & 75
Shielded HDF-20 Low Profile Connectors	91248-1	543190-1	126850-1	81
<b>Shielding Hardware for:</b>				
Novo Receptacles	91249-1**	—	—	74 & 75
HDF-20 Low Profile Connectors	91249-1**	—	—	81

\*Termination Die Set No. includes locator kit, upper tool kit and tool base.

\*\*Used in Manual Tool No. 91085-2 only.

- Notes:**
1. These locator and upper tool kits cannot be used with termination shuttle tools listed on page 106.
  2. Adaptor Kit No. 543160-1 is available to adapt termination die sets (Series 912XX) for use in Pneumatic (Auto-Cycle) Tool No. 91112-3.
  3. Except for Paddle Board Connectors and .100 x .200 [2.54 x 5.08] Receptacles, all AMP-LATCH connectors listed above are terminated to ribbon cable using the one-step termination technique.
  4. Pneumatic and manual tools are shown on page 104.
  5. Hand tool and cable preparation tooling are shown on page 105.

## Seating Tools for Universal Ejection Style Pin Headers with ACTION PIN Contacts

**Dimensioning:**  
Dimensions are in inches and millimetres  
unless specified otherwise.  
Values in brackets are metric equivalents.



**SM-10/20 (H-Frame) Machine No. 803880-6**  
**Seating Tool No. Series 91268 (See chart below.)**

This semiautomatic machine consists of a 10/20 ton [9 072/18 144 kg] hydraulically operated power unit and seating tools. A pin header is installed into a pc board using a seating tool and a template to support the pc board. Seating tools are available in different lengths to accommodate the various sizes of pin headers.

This pneumatically powered machine is designed to accommodate pc boards up to 18 [457.2] wide. It has variable seating pressure (up to 3 tons [2 722 kg]) with board height sensing.

Commercially available arbor style tools, such as the Model

3A or 3B manufactured by Greenerd Press and Machine Company, Inc., are also suitable tools for installing AMP-LATCH pin headers with ACTION PIN contacts. Seating tools and templates are common to both the SM-10/20 machine and the arbor style tools.



**SM-3 Machine No. 814700-1**  
**Seating Tool No. Series 91268**  
**(See chart below.)**

Pin Header Size (No. of Pos.)	Seating Tool No.
10	91268-1
14	91268-2
16	91268-3
20	91268-4
24	91268-5
26	91268-6
30	91268-7

Pin Header Size (No. of Pos.)	Seating Tool No.
34	91268-8
40	91268-9
44	1-91268-0
50	1-91268-1
60	1-91268-2
64	1-91268-3

\*Universal Ejection Style Pin Headers with ACTION PIN contacts are presented on pages 50 and 51.

\*\*AMP recommends the use of an adapter in all applications to assure proper seating of headers.

**Notes:** 1. The SM-10/20 (H-Frame) Machine No. 803880-6 and SM-3 Machine No. 814700-1 do not include the tooling. All tooling must be ordered separately.

2. Accessories are available to enhance productivity of the Greenerd arbor style tools, request AMP Instruction Sheet IS 9027.

3. See Technical Documents (page 109) for appropriate application specifications and instruction sheets.

4. For more detailed application tooling information, consult AMP Incorporated.

## Technical Documents

**Dimensioning:**  
Dimensions are in inches and millimetres.  
Values in brackets are metric equivalents.

The following is a list of technical documents covering the application, maintenance and performance of AMP-LATCH Connectors and related tooling.

### Product Specifications

- 108-40000 Novo Receptacles
- 108-40004 Ribbon Cable, PVC Insulated, AMP
- 108-40009 Receptacles
- 108-40012 HDF-20 Low Profile Connectors
- 108-40013 Paddle Board and DIP Plug Connectors
- 108-40018 Pin Headers
- 108-40019 Pin Headers with ACTION PIN Contacts
- 108-40022 Pin Connectors
- 108-40024 Stackable Novo Receptacles
- 108-46000 Card Edge Connectors
- 108-46001 Shielded Receptacles
- 108-46002 Shielded HDF-20 Low Profile Connectors
- 108-46003 EUROLATCH Receptacles

### Application Specifications

- 114-40005 Ribbon Cable Connectors
- 114-46000 Shielded Novo Receptacles
- 114-46001 Shielded HDF-20 Low Profile Connectors

### Instruction Sheets

#### Receptacles, .100 x .100 [2.54 x 2.54] Centers

- IS 6577 One-Step Termination Die Set 91221-1, Standard and Novo
- IS 6590 One-step Conversion Tooling Kits
- IS 6782 One-Step Termination Die Set 91244-1, Stackable Novo
- IS 6905 One-Step Termination Shuttle Tool 91265-1; Standard, Novo and Stackable Novo
- IS 6938 Hand Tool 91271-1

#### EUROLATCH Receptacles

- IS 6590 One-Step Conversion Tooling Kits
- IS 9156 EUROLATCH Receptacles
- IS 9162 One-Step Termination Die Set 91264-1

#### Receptacles, .100 x .200 [2.54 x 5.08] Centers

- IS 6596 Discrete Wire Tooling Assembly 91204-1
- IS 7752 Receptacles, AMP-LATCH
- IS 7908 Two-Step Termination Die Set 91145-1

#### Card Edge Connectors

- IS 6585 One-Step Termination Die Set 91223-1, Connectors without Mounting Ears
- IS 6586 One-Step Termination Die Set 91224-1, Connectors with Round Hole Mounting Ears
- IS 6587 One-Step Termination Die Set 91225-1, Connectors with Slotted Mounting Ears
- IS 6590 One-Step Conversion Tooling Kits
- IS 6625 Insertion Tool 91233-1, Intercontact Keying Plug
- IS 6905 One-Step Termination Shuttle Tool 91265-1 (All Connectors)
- IS 6938 Hand Tool 91271-1

#### DIP Plugs

- IS 6588 One-Step Termination Die Set 91226-1, .100 x .300 [2.54 x 7.62] Centers, Unassembled DIP Plugs
- IS 6590 One-Step Conversion Tooling Kits
- IS 6900 One-Step Termination Shuttle Tool 91265-1, Preassembled DIP Plugs (All)
- IS 9151 One-Step Termination Die Set 91258-1, .100 x .100 [2.54 x 2.54] Centers, Preassembled DIP Plugs
- IS 9152 One-Step Termination Die Set 91259-1, .100 x .300 [2.54 x 7.62] Centers, Preassembled DIP Plugs
- IS 9153 One-Step Termination Die Set 91260-1, .100 x .600 [2.54 x 15.24] Centers, Preassembled DIP Plugs

- IS 9154 Guide Block and Insert 543188-1, Preassembled DIP Plugs (All)

#### Paddle Board Connectors

- IS 7767 Paddle Board Connectors
- IS 7775 Two-Step Termination Die Sets 91115-1 & -2
- IS 7917 Locator Kits 126702-1 and 126703-1 (for Reverse Termination)

#### Pin Connectors

- IS 6590 One-Step Conversion Tooling Kits
- IS 6905 One-Step Termination Shuttle Tool 91265-1
- IS 6820 One-Step Termination Die Set 91252-1, Connectors without Mounting Ears
- IS 6821 One-Step Termination Die Set 91253-1, Connectors with Mounting Ears

#### Bulkhead Pin Connectors

- IS 6802 One-Step Termination Die Set 91236-1

#### Ejection Style Pin and Pinless Headers

- IS 6722 Insertion/Extraction Tool 91241-1 for ACTION PIN Contacts
- IS 6926 Insertion Tooling 91268 for Pin Headers with ACTION PIN Contacts
- IS 7970 Installation Procedures for Universal Pin Headers

#### HDF-20 Low Profile Connectors

- IS 6590 One-Step Conversion Tooling Kits
- IS 6905 One-Step Termination Shuttle Tool 91265-1
- IS 6608 HDF-20 Low Profile Connectors
- IS 6893 One-Step Termination Die Set 91257-1
- IS 6983 Hand Tool 91271-1
- IS 9026 Connector Savers and Plug/Receptacle Adapters

#### Shielded Connectors and Hardware

- IS 6845 Termination Die Set 91249-1, Shielding Hardware for Novo Receptacles and HDF-20 Low Profile Connectors
- IS 6867 One-Step Termination Die Set 91254-1, Shielded Novo Receptacles
- IS 9002 Kits 746447 and 746483, Shielded Novo Receptacles
- IS 9003 Mating Hardware for Shielded AMP-LATCH Connectors
- IS 9004 Kits 746677 and 746678, Shielded HDF-20 Connectors
- IS 9011 One-Step Termination Die Set 91248-1, Shielded HDF-20 Connectors
- IS 9117 One-Step Conversion Kits for Shielded AMP-LATCH Connectors

#### Accessories

- IS 7785 Locking Post and Slide Latch Assembly Kits for HDF-20 Connectors
- IS 7837 Female Screwlock and Male Screw Retainer Kits for HDF-20 Connectors
- IS 9128 Latching Blocks

#### Application Tooling\*

- IS 6558 Ground Plane Cable Trimmer 91146
- IS 6732 Pneumatic Tool 91112-3 (Auto-Cycle)
- IS 6864 One-Step Adapter Kit 543160-1 for Pneumatic (Auto-Cycle) Tool
- IS 7763 Pneumatic Tool 91112-2 (Foot Pedal Actuated)
- IS 7777 Manual Tool 91085-2
- IS 9027 AMP Adapter Kit for Greenerd Frame Assemblies 3A and 3B

\*Only documents covering base units are listed here. Documents covering termination tooling which forms a part of the base unit and is required for terminating specific AMP-LATCH products are listed under the applicable products.

#### Military and Federal Specifications

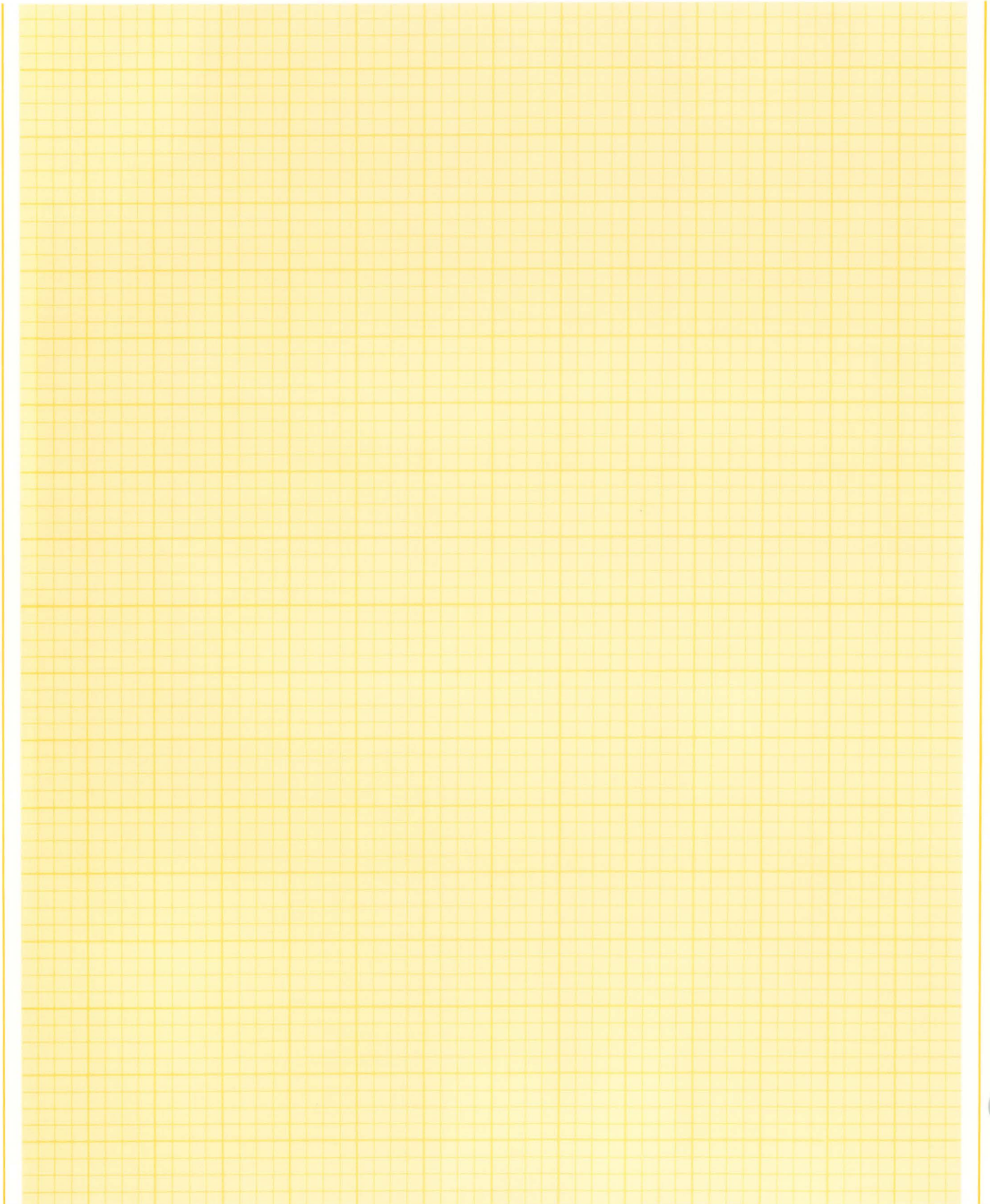
- |           |                   |             |                  |
|-----------|-------------------|-------------|------------------|
| QQ-B-626  | Copper Alloy      | QQ-N-290    | Nickel Plating   |
| QQ-B-750  | Phosphor Bronze   | ASTM B633   | Zinc Plating     |
| ASTM A108 | Cold Rolled Steel | MIL-G-45204 | Gold Plating     |
| ASTM A109 | Steel             | MIL-T-10727 | Tin Plating      |
| MIL-C-50  | Brass             | MIL-P-81728 | Tin-Lead Plating |

## Numerical Index

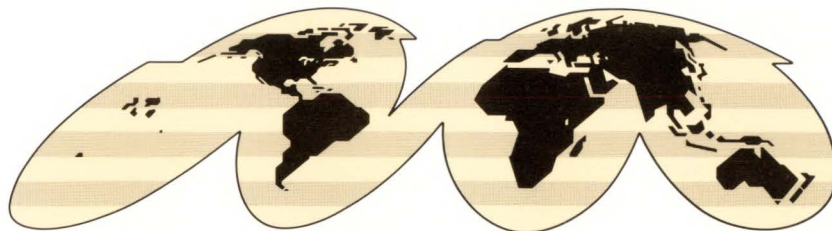
This numerical index lists all cataloged parts by base (series) no. only. Complete part nos. (with prefixes and/or suffixes) are shown on the page(s) indicated.

Part No. (Series)	Page No.	Part No. (Series)	Page No.	Part No. (Series)	Page No.
19156	49,51,57	499368	53	499899	53
86286	98	499369	53	499904	49
88113	98	499370	53	499905	49
88114	98	499373	53	499906	49
88213	35	499374	49	499907	53
88214	35	499375	49	499908	53
88216	37	499376	53	499909	53
88217	37	499377	53	499910	49
88219	39	499436	49	499911	49
88220	39	499437	49	499912	49
88450	95	499438	53	499913	53
88550	23	499439	53	499914	53
88560	96	499485	13	499915	53
88767	23	499486	64	499922	49
102153	49	499487	64	499923	49
102154	49	499488	65	499924	49
102155	49	499489	65	499925	53
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