AMP

I/O Printed Circuit Card CHAMP* Cable Connector and Printed Circuit Board Header

NOTE *All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of ±0.10 [.004] and angles have a tolerance of ±1°.*

1. INTRODUCTION

This specification covers the requirements for application of AMP* I/O printed circuit (pc) card CHAMP cable connectors and pc board headers. The connectors and headers are available in 9 and 15 position in-line versions. The cable connectors feature contact solder tails and wire strain relief. The pc board headers feature 0.3175 x 0.5 [0.0125 x 0.0197] solder tails for surface mounting.

When corresponding with AMP Personnel, use the terminology provided on this specification to help facilitate your inquiry for information. Basic terms and features of components are provided in Figure 1.

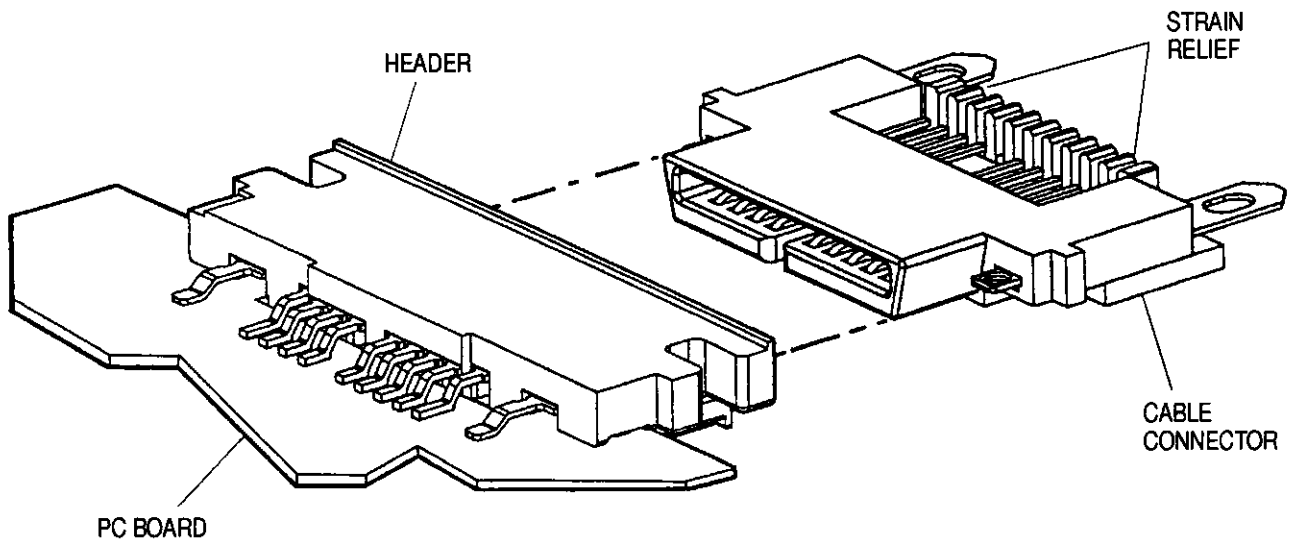


Figure 1 94-20

2. REFERENCE MATERIAL

2.1. Revision Summary

This paragraph is reserved for a revision summary of changes and additions made to this specification. No summary is required on this initial release, Revision O (Rev O).

2.2. Customer Assistance

Reference Part Number 558314 and Product Code 0977 are representative numbers of AMP I/O PC Card CHAMP Connectors and Headers. Use of these numbers will identify the product line and expedite your inquiries through an AMP service network established to help you obtain product and tooling information. Such information can be obtained through a local AMP Representative (Field Sales Engineer, Field Applications Engineer, etc.) or, after purchase, by calling the TECHNICAL ASSISTANCE CENTER or the AMP FAX/PRODUCT INFORMATION number at the bottom of this page.

2.3. Engineering Drawings

Customer Drawings for specific products are available from the responsible AMP Engineering Department via the service network. The information contained in the Customer Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by AMP Incorporated.

2.4. Product Specifications

AMP Product Specification 108-1460 provides performance tests for I/O pc card connectors and headers.

2.5. Instructional Material

AMP Corporate Bulletin No. 52 is available upon request and can be used as a guide in soldering. This bulletin provides information on various flux types and characteristics along with the commercial designation and flux removal procedures. A checklist is attached to the bulletin as a guide for information on soldering problems.

3. REQUIREMENTS

3.1. Cable and Wire Preparation (Cable Connector)

1. Strip 20.3 [0.80] of jacket from cable (see Figure 2).
2. Cut away filler and wrap, flush with jacket.
3. Strip 3.8 [0.15] of insulation from conductors.

NOTE *Care must be taken that the conductor strands are twisted well to ensure an acceptable solder joint.*

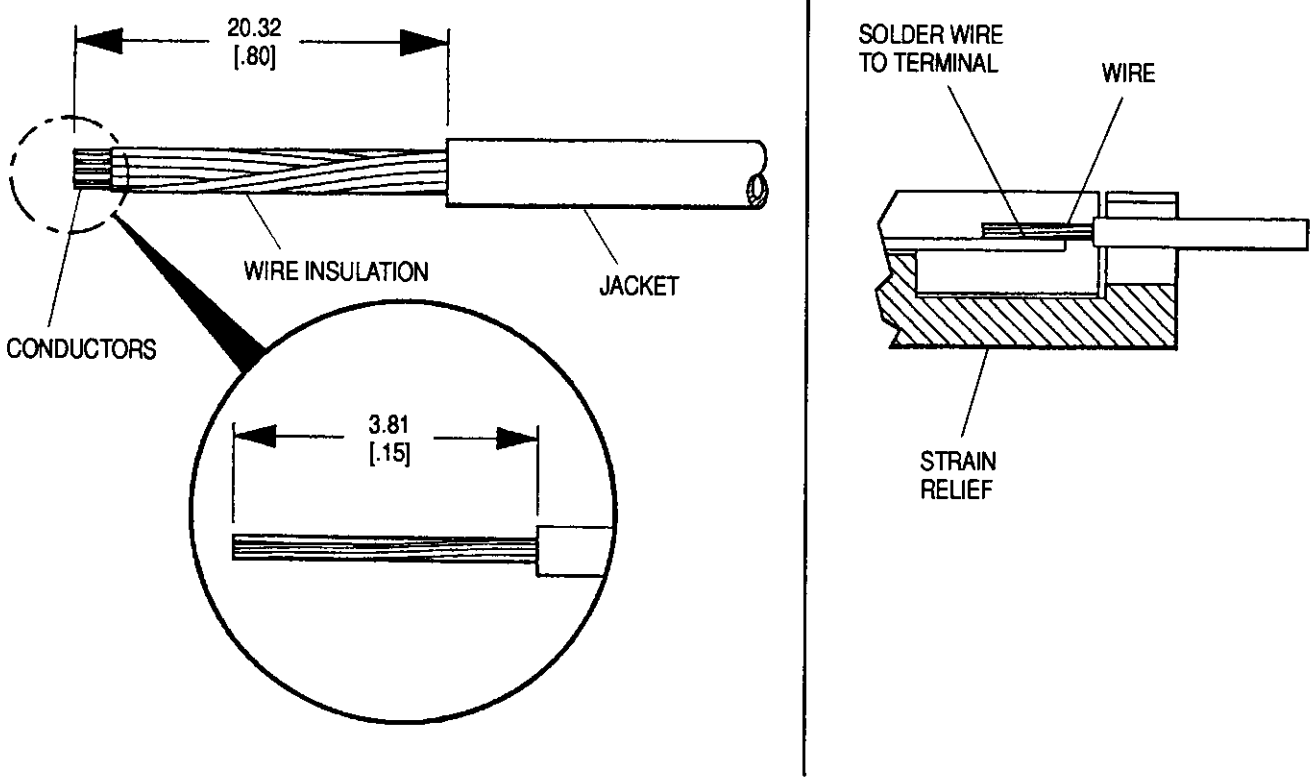


Figure 2 94-21

3.2. PC Board Layout (Headers)

The pc board thickness shall be 0.5 ± 0.08 [0.0197 ± 0.003]. The pc board layout requirements shall be as shown in Figure 3. All layouts depict the top side of the pc board.

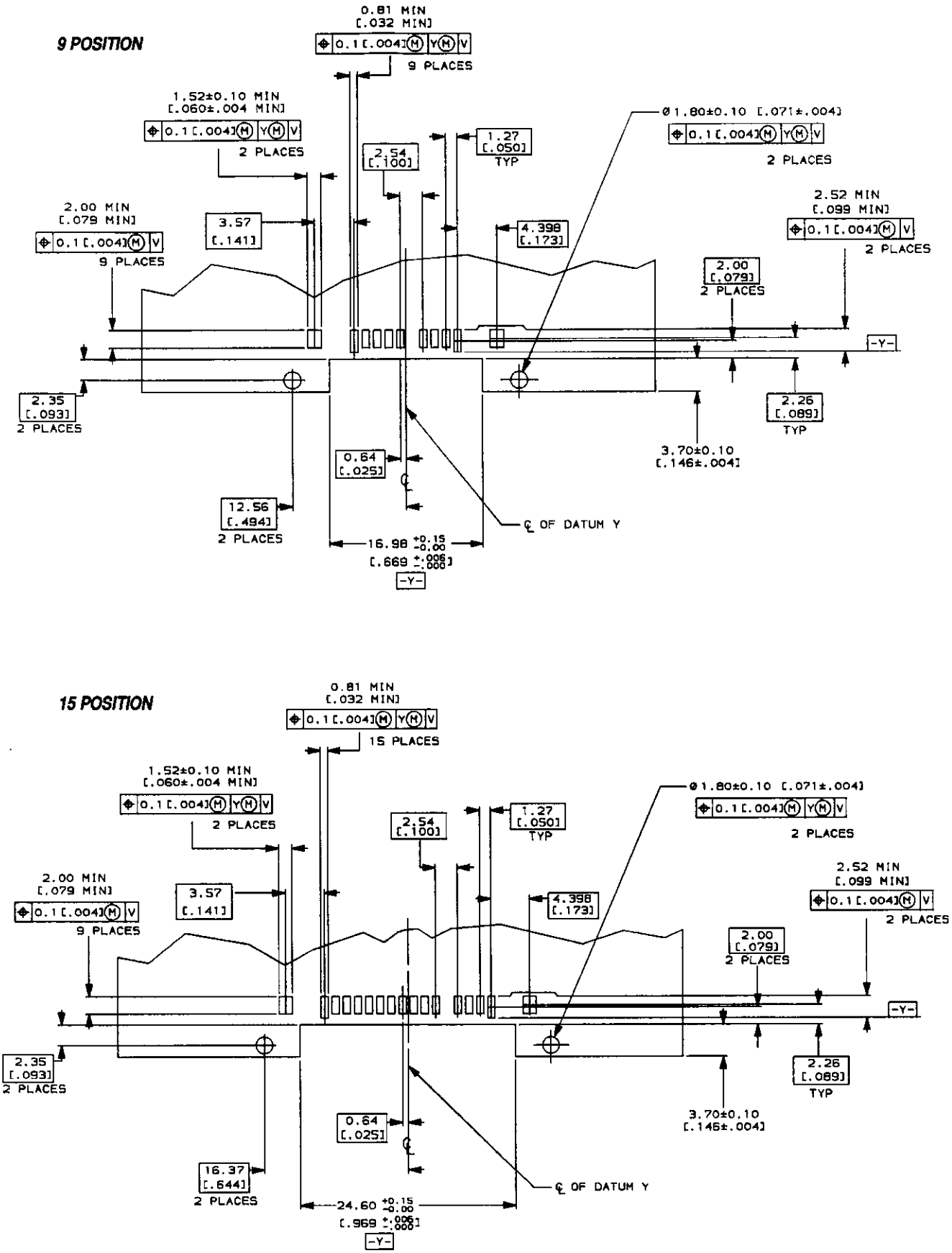

9 POSITION
0.81 MIN
[.032 MIN]
0.1 [.004] M Y M V
9 PLACES
1.52±0.10 MIN
[.060±.004 MIN]
0.1 [.004] M Y M V
2 PLACES
2.54
[.100]
1.27
[.050]
TYP
Ø1.80±0.10 [.071±.004]
0.1 [.004] M Y M V
2 PLACES
2.00 MIN
[.079 MIN]
0.1 [.004] M V
9 PLACES
3.57
[.141]
4.398
[.173]
2.52 MIN
[.099 MIN]
0.1 [.004] M V
2 PLACES
2.00
[.079]
2 PLACES
-Y-
2.35
[.093]
2 PLACES
2.26
[.089]
TYP
3.70±0.10
[.146±.004]
0.64
[.025]
12.56
[.494]
2 PLACES
℄ OF DATUM Y
16.98 +0.15 -0.00
[.669 +.006 -.000]
-Y-
15 POSITION
0.81 MIN
[.032 MIN]
0.1 [.004] M Y M V
15 PLACES
1.52±0.10 MIN
[.060±.004 MIN]
0.1 [.004] M Y M V
2 PLACES
2.54
[.100]
1.27
[.050]
TYP
Ø1.80±0.10 [.071±.004]
0.1 [.004] M Y M V
2 PLACES
2.00 MIN
[.079 MIN]
0.1 [.004] M V
9 PLACES
3.57
[.141]
4.398
[.173]
2.52 MIN
[.099 MIN]
0.1 [.004] M V
2 PLACES
2.00
[.079]
2 PLACES
-Y-
2.35
[.093]
2 PLACES
2.26
[.089]
TYP
3.70±0.10
[.146±.004]
0.64
[.025]
16.37
[.644]
2 PLACES
℄ OF DATUM Y
24.60 +0.15 -0.00
[.969 +.006 -.000]
-Y-

Figure 3

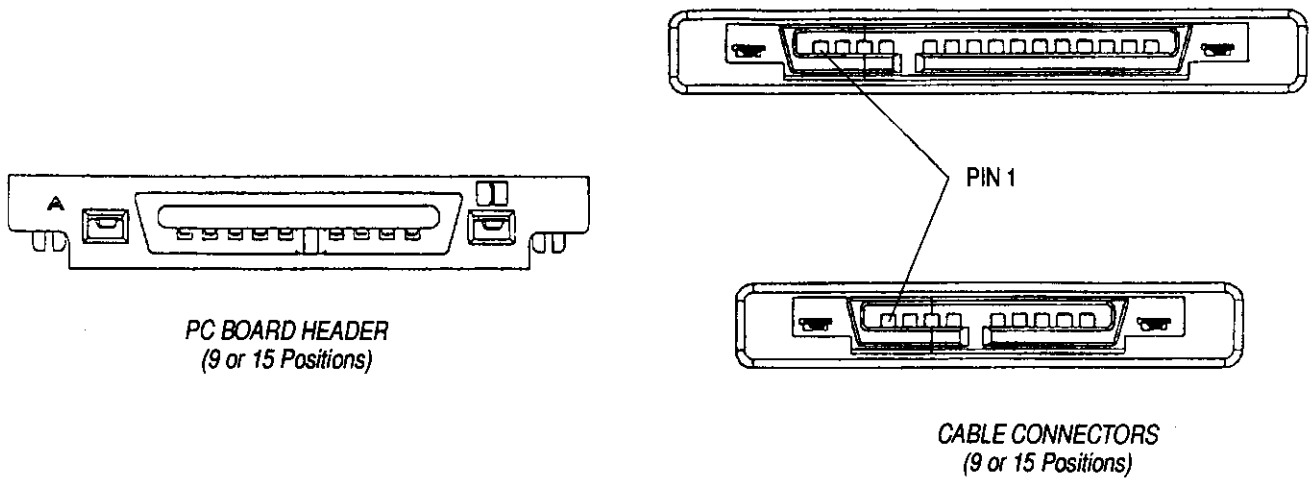


Figure 4 94-22

3.3. Polarizing Features (Figure 4)

The cable connectors and pc board headers are inherently polarized. The trapezoidal configuration of the mating face prohibits the accidental inversion of a mating connector. The cable connectors and pc board headers have keyways at the fifth position.

3.4. Soldering Preparation (Cable Connector)

Pre-tin conductors by dipping stripped ends into flux and then dipping stripped ends into a solder pot. Take care to dip conductors up to, but not touching, insulation.

NOTE *Remove slag from solder pot at start-up and as needed.*

Dress conductors into the strain relief on connector. Lay stripped section on terminal. Insulation should be through strain relief, but not touching terminals. See Figure 2.

NOTE *For ease of soldering, lay soldering paste or a soldering preform, on terminals prior to dressing the conductors into the strain relief. Once the conductors have been placed, touch the soldering iron to the conductor to melt the solder paste or preform.*

3.5. Soldering (Headers)

A. Flux Selection

The solder tails and attaching hardware (if applicable) must be fluxed prior to soldering. Selection of the proper flux will depend on the type of pc board and other components, if any, mounted on the board. The flux must be compatible with the wave solder line, manufacturing, and safety requirements.

B. Cleaning

After soldering, removal of fluxes, residues, and activators is necessary. Consult the supplier of the solder and flux for recommended cleaning solvents. The following common cleaning solvents can be used on these connectors for a period of up to 10 minutes at room temperature with no harmful affects. If you have a particular solvent that is not listed, consult an AMP Representative before using it on these connectors.

1,1,1 – Trichloroethane	Freon TMS†	Freon TF†	Prelete●
Freon TA†	Freon TMC†	Genesolv■	Freon TE†

† Trademark of E .I. DuPont de Nemours & Co., Inc.
● Trademark of Dow Chemical Co., Inc.
■ Trademark of Allied-Signal Inc.

DANGER *Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacturer. Refer to the Material Safety Data Sheet (MSDS) for characteristics and handling of cleaners.*

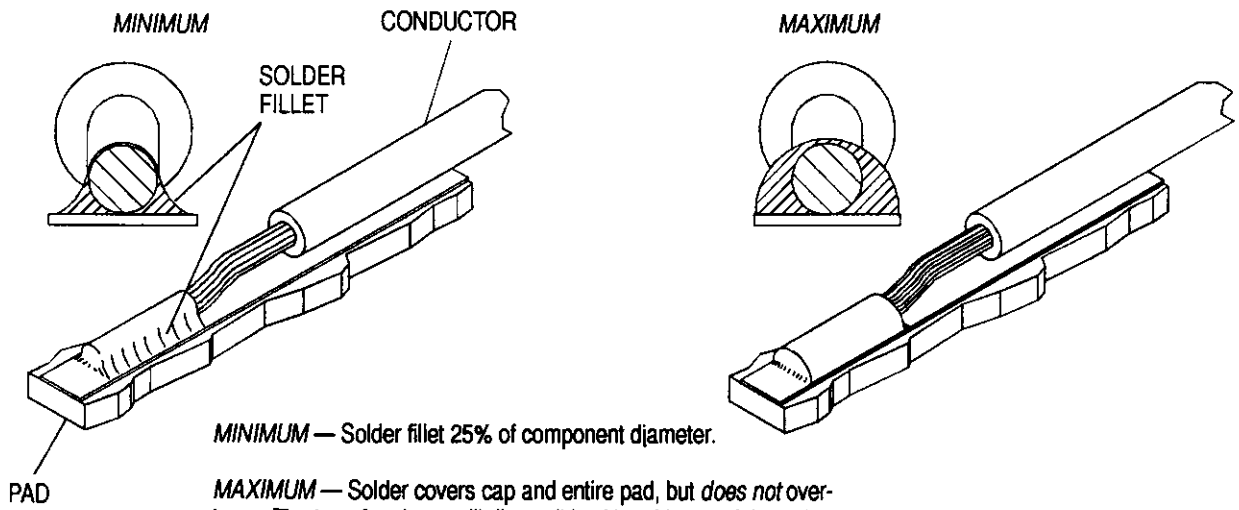
C. Drying

Connectors can withstand a temperature of 105°C [221°F] for a period of five minutes with no degradation to the connector components. Values may vary with different types of automatic cleaning equipment (see equipment manufacturer's recommendation).

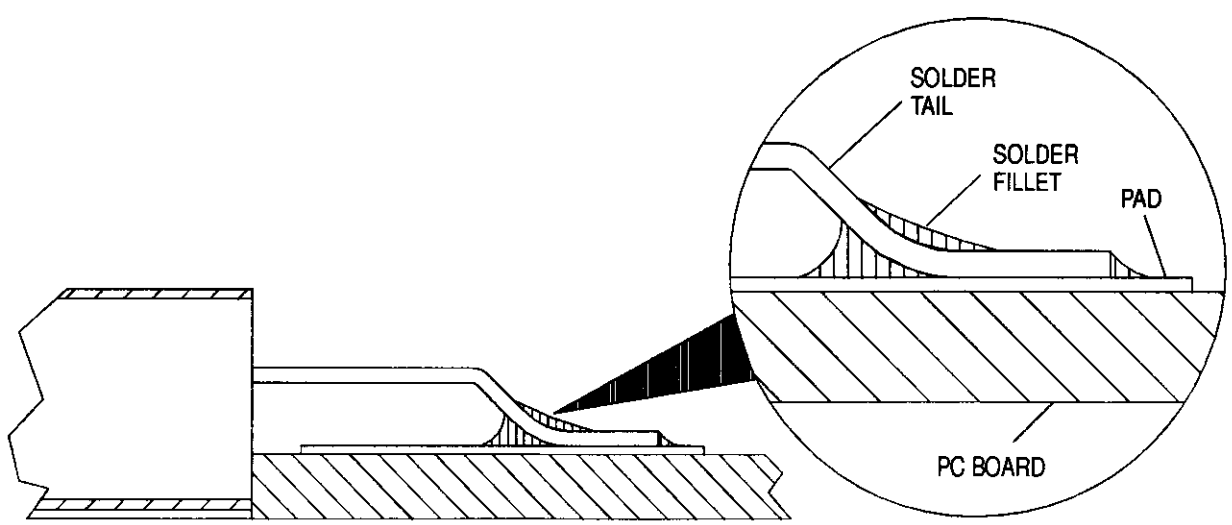
D. Soldering Guidelines

Refer to Paragraph 2.5. for instructional material that is available for establishing soldering guidelines. Refer to Figure 5 for an illustration of an acceptable solder joint.

SOLDERING GUIDELINES FOR CABLE CONNECTOR



SOLDERING GUIDELINES FOR PC BOARD HEADER



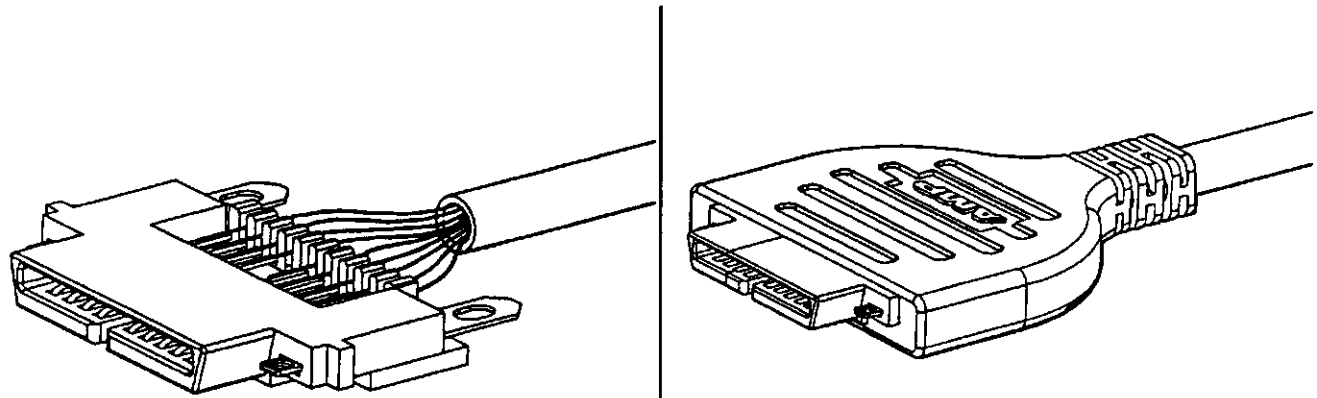
NOTE: Pad outline can be found in customer drawings.

Figure 5

3.6. Molding (Cable Connector)

Overmolding is recommended as a final process. Overmolding protects the wire connections and also may make the connector more appealing. Figure 6 illustrates an example of an overmolded connector.

NOTE *Prior to and after molding, test cable for electrical connections.*



SOLDERED CONNECTOR

OVERMOLDED CONNECTOR

Figure 6 94-23

4. QUALIFICATION

AMP I/O pc card cable connectors and pc board headers are recognized by Underwriters' Laboratories, Inc. under the File Number E28-476 Vol 7. This product complies with AMP Solderability Specification 109-11-1.

5. TOOLING

No special tooling is required for hand placement of a header on a pc board. Robotic equipment must use the header datum surfaces detailed on the customer drawing to ensure reliable header placement.

NOTE *AMP Tool Engineers have designed machines for a variety of application requirements. For assistance in setting up prototype and production line equipment, contact AMP Tool Engineering through your local AMP Representative or call the Technical Assistance Center number listed on Page 1.*

6. VISUAL AID

The illustrations depict, in general, the conditions that production personnel should check to visually ensure proper termination and installation. For dimensional inspection, refer to the details in the preceding pages of this specification.

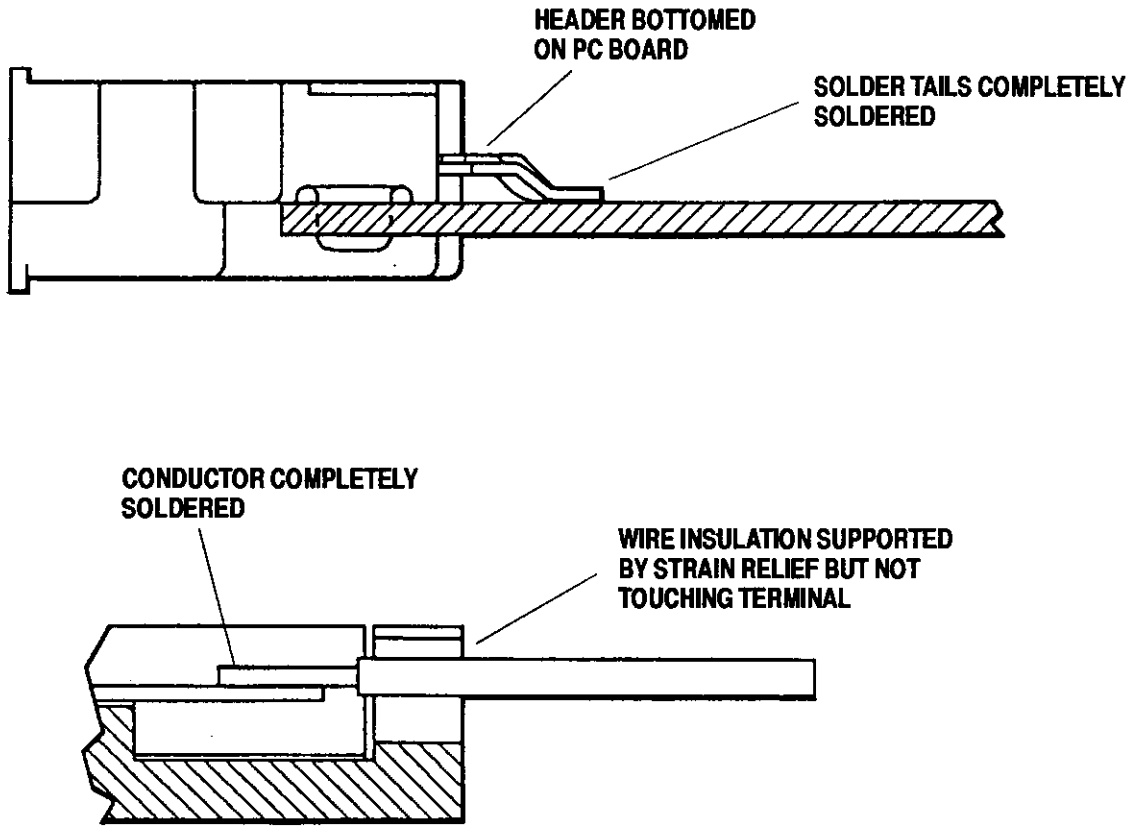


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FIGURE 7. VISUAL AID