

REV	REASON	AMP* "M" SERIES 104-POSITION RFI/EMI- SHIELDED CONNECTORS	ENGINEERING RELEASE DATE
A	ECN BD-2460		3-28-89
			APPROVAL RICK WALTER

1. INTRODUCTION

This specification covers the requirements for application of AMP "M" Series 104-Position RFI/EMI-Shielded Connectors. These connectors meet the requirements of Military Standard MIL-C-28748. The connector housings come unloaded, and use AMP Multimate Type II or Type III+ crimp contacts. Pin housings are available for pin contacts, and socket housings for socket contacts; but the contacts may be interchanged. Shielding kits are available either with an external or an internal closed-end pin hood. Figure 1 shows typical products and their features. The identifying terms are used throughout this specification.

NOTE

All dimensions are given in inches with an applied tolerance of $\pm.005$ unless otherwise specified. Metric equivalents may be obtained by multiplying the dimensions and tolerances by 25.4 (millimeters) and rounding to the nearest hundredth.

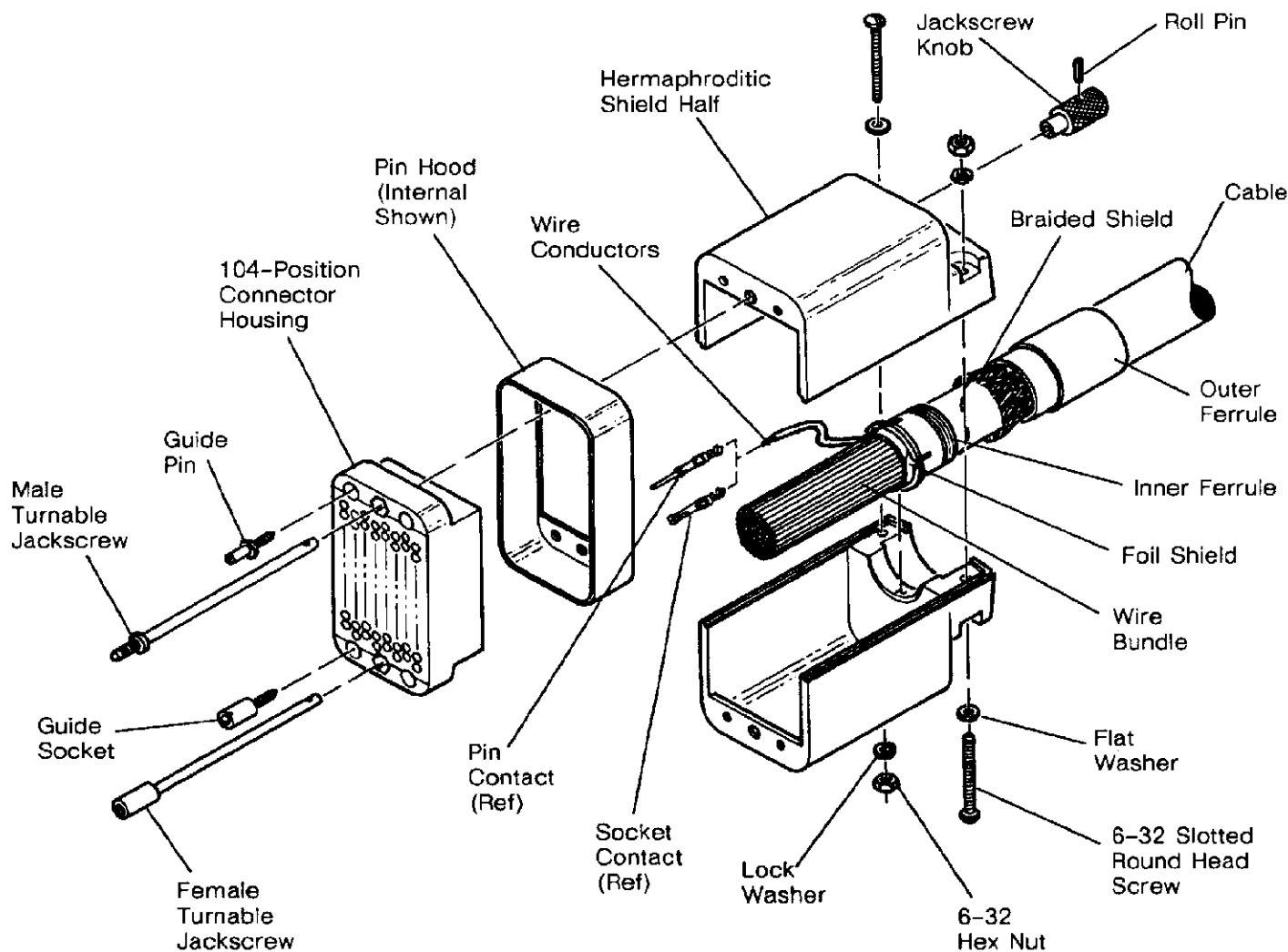


Fig. 1. Product Features

2. REFERENCE MATERIAL

2.1. Specifications

A. The AMP Product Specifications listed below cover test data and performance requirements relating to the products shown.

- 108-10001 — "M" Series Connectors
- 108-10039 — Type II Contacts
- 108-10042 — Type III+ Contacts

B. AMP Application Specification 114-10004 covers the requirements for application of Type III+ Contacts.

2.2. Technical Publications

A. The following AMP Customer Manual (CM) and Instruction Sheets (IS) provide **tooling** information as listed:

- IS 1216 — Contact Extraction Tooling
- CM 5289 — AMP Model "T" Terminating Unit
- IS 6780 — Hand Crimping Tool
- IS 6816 — Die Assembly for Hand Tool
- IS 7347 — Contact Insertion Tooling

Refer to Section 4, TOOLING TYPES, of this specification for more on application tooling. Contact insertion tooling is discussed in paragraph 3.4, and repair tooling in paragraph 3.8.

B. The following AMP Instruction Sheets provide **product** information and assembly procedures as listed:

- IS 1340 — Keying Plug (Refer to paragraph 3.)
- IS 6800 — Shielding Kit

2.3. Engineering Drawings

Customer Drawings for specific products are available from the responsible AMP Engineering department. The information on 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 Identification

REF PART NO. 208783 and PRODUCT CODE 5001 are representative numbers which identify the AMP "M" Series 104-Position RFI/EMI-Shielded Connectors. These numbers are useful for accessing tooling and product application information. The AMP service network provides this information through your local AMP representative (Field Sales Engineer, Field Applications Engineer, etc) or, after purchase, by calling the CUSTOMER HOTLINE number at the top of page 1.

3. REQUIREMENTS

3.1. Cable Selection

A. Cable insulation outside diameter shall be a maximum dimension of 1.000.

B. Individual wires shall have a minimum insulation outside diameter of .014 and a maximum of .105. Actual diameter depends on the specific contacts to be crimped to the wires (Refer to the appropriate contact Application Specification as listed in paragraph 2.1.B, and tooling information as listed in Section 4 of this specification).

NOTE

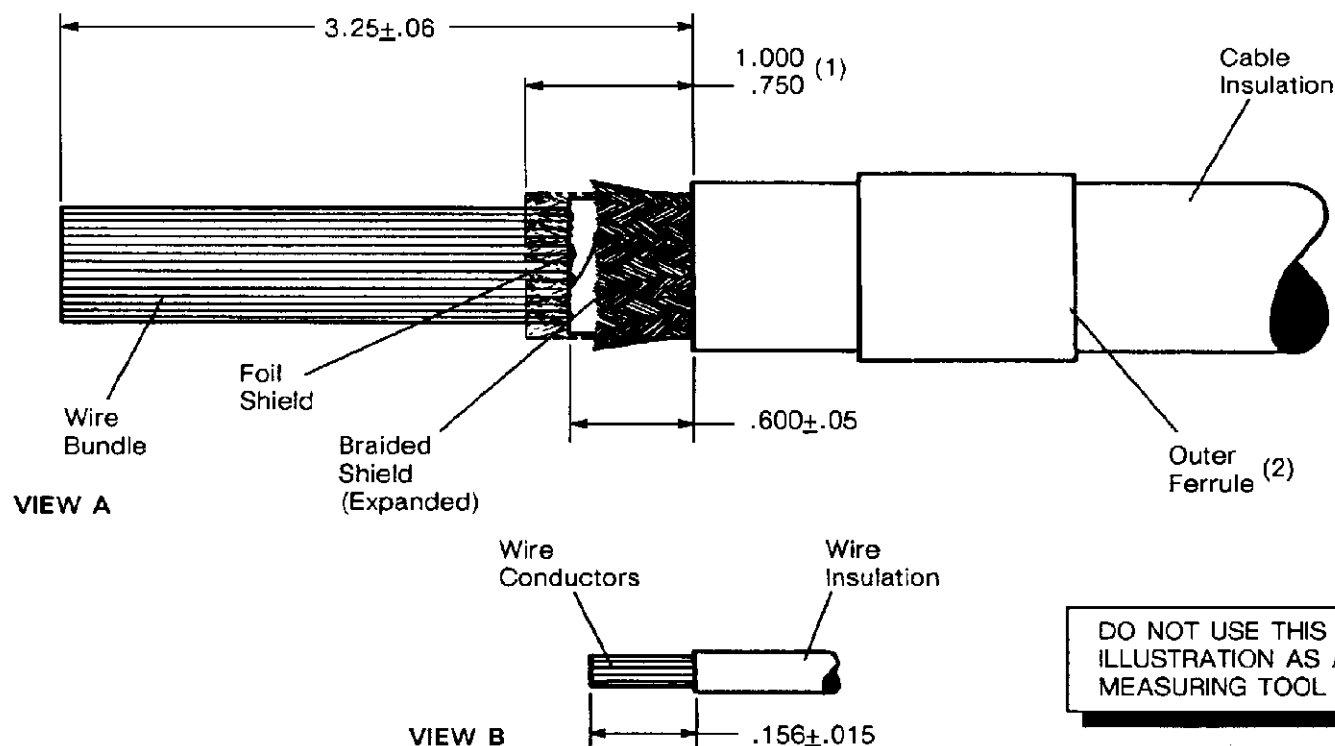
*Contacts should be crimped to wires **after** the stripping and ferrule crimping operations.*

3.2. Cable and Wire Preparation

Strip the cable insulation, braided shield, foil, and conductor strands as shown in Figure 2, View A. Strip individual conductor insulation as shown in Figure 2, View B.

NOTE

DO NOT nick, scrape or cut foil or braided shield when stripping cable insulation; wire insulation when stripping the shield; or conductors when stripping the wire insulation.



- NOTES:
1. This reflects the actual stripping dimension before expanding the braid to accept the inner ferrule. After braid expansion, this dimension should equal approximately .500 (Ref).
 2. It may be helpful to position the outer ferrule over the cable prior to stripping.

Fig. 2. Cable and Wire Preparation

3.3. Ferrule Crimp Requirements

The crimping of the inner and outer ferrules shall conform to the dimensions shown in Figure 3.

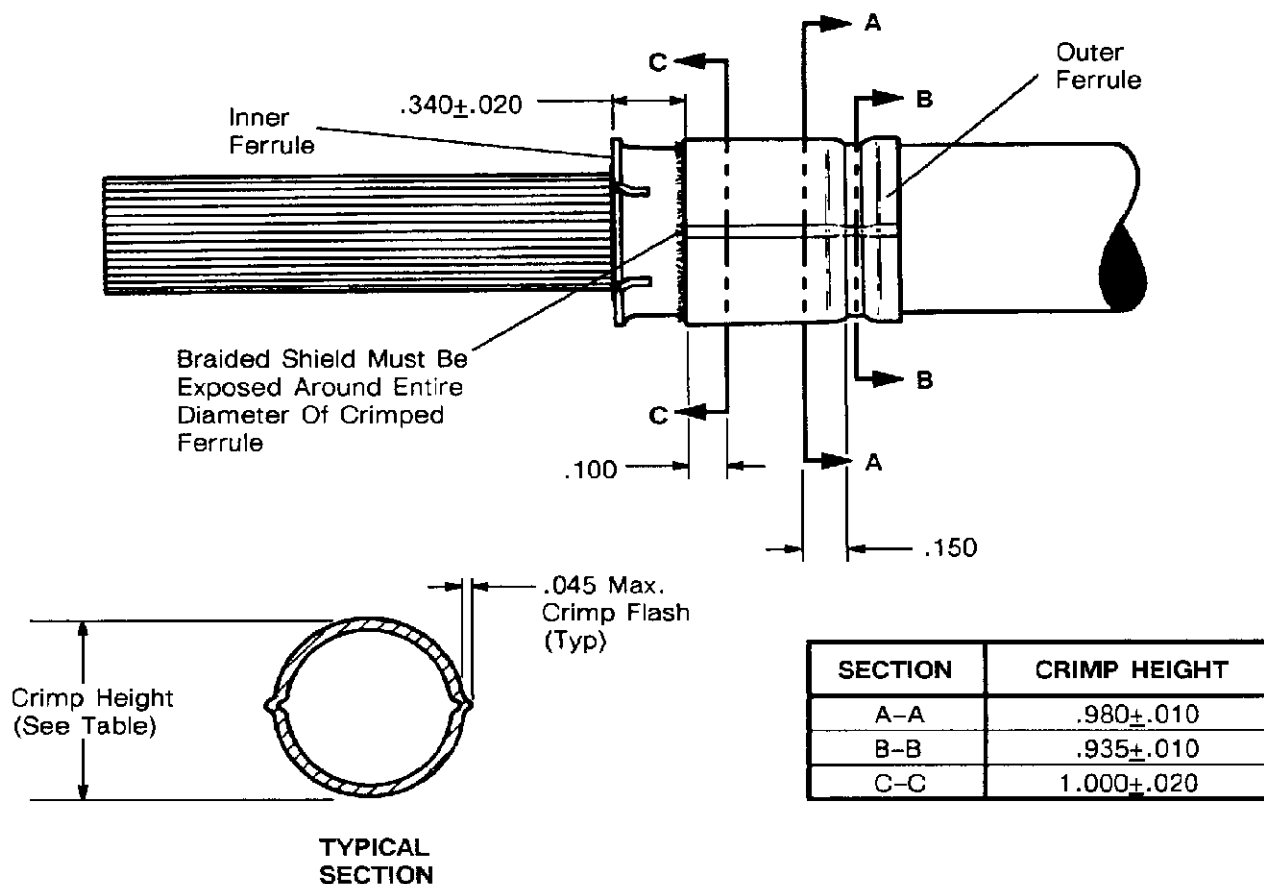


Fig. 3. Ferrule Crimp Requirements

3.4. Contact Insertion

Crimped contacts are inserted into the rear of the connector cavities using AMP Insertion Tool 91002-1 or -2. Refer to IS 7347 for tool operation and maintenance.

3.5. Connector Polarization

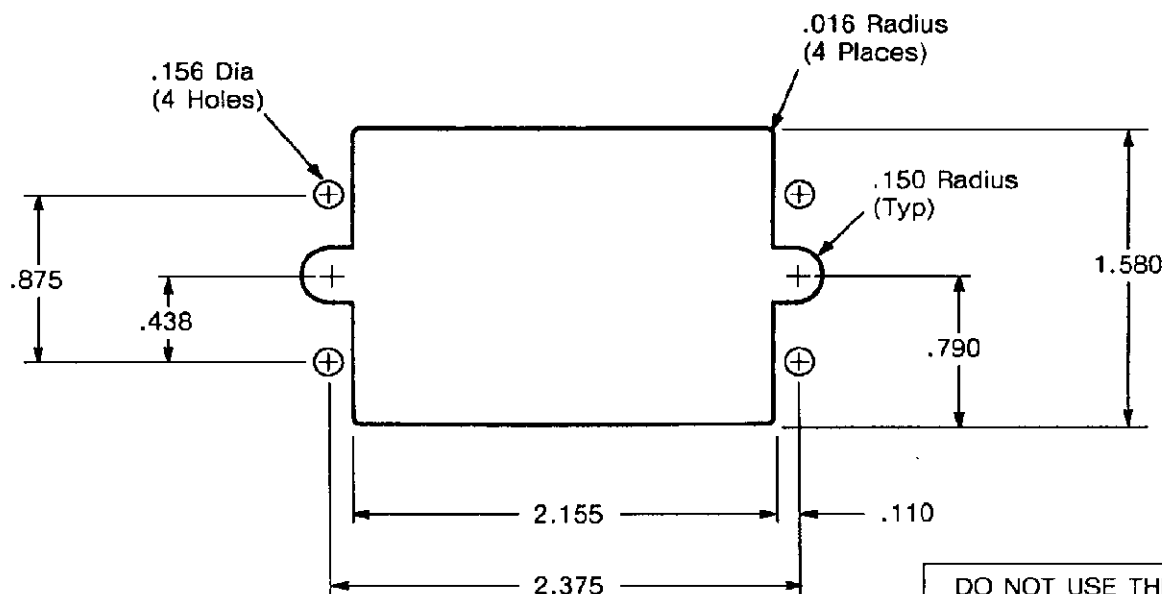
One (1) male and one (1) female jackscrew are provided in each shielding kit. Two (2) guide pins and two (2) guide sockets are also supplied. The jackscrews may be interchanged between the hex-shaped holes on the face of the connector block, and the guides may be used in any combination in the round holes. These options allow a total of twelve differently polarized connector faces.

3.6. Connector Keying

In addition to polarizing the connector as described above, any combination of contact cavities may be plugged to further key the connector. The keying plugs are designed to fit into the socket housing. The corresponding cavity in the mating pin housing must be left vacant to accommodate the plug. Refer to IS 1340 for installation procedures.

3.7. Panel Cutout

When mounting the "M" Series 104-Position Shielded Connector housings to a panel, AMP recommends preparing a cutout using the dimensions given in Figure 4. Mount housing to panel using the guide pins and sockets supplied in the shielded connector kit, and attach the appropriate pin hood—internal or external.



DO NOT USE THIS
ILLUSTRATION AS A
MEASURING TOOL

Fig. 4. Recommended Panel Cutout

3.8. Contact Repair and Replacement

Damaged contacts can be removed from the connector housing, replaced and re-inserted into the housing — provided there is sufficient slack wire to perform the replacement procedures. To make repairs, use AMP Extraction Tool 305183 according to the instructions given in IS 1216, and AMP Insertion Tool 91002 (IS 7347).

NOTE

DO NOT reuse damaged contacts.

4. TOOLING TYPES

4.1. Contact Tooling

Refer to AMP Application Specification 114-10004 (Type III+) or 114-10026 (Type II) for information on contact crimping tooling.

4.2. Ferrule Crimp Tooling

A. For low volume manufacturing operations, use AMP Hand Crimping Tool 90410-1 (IS 6780) equipped with AMP Crimping Die Assembly 90411-1 (IS 6816).

B. For higher volume manufacturing operations, use the AMP Model "T" Terminating Unit 467000-3 (CM 5289), equipped with AMP Crimping Die Assembly 812559-3 (Refer to assembly drawing).

5. QUALIFYING SUPPORT

The AMP "M" Series 104-Position RFI/EMI-Shielded Connectors are UL Recognized and CSA Certified.

6. VISUAL AID

Figure 5 shows a properly crimped ferrule assembly and a correctly assembled connector. This figure is to be used by production personnel to visually ensure a properly assembled or applied product. Applications which are NOT visually correct should be inspected using the information in the main body of this specification, or in the instructional materials shipped with the product or tooling.

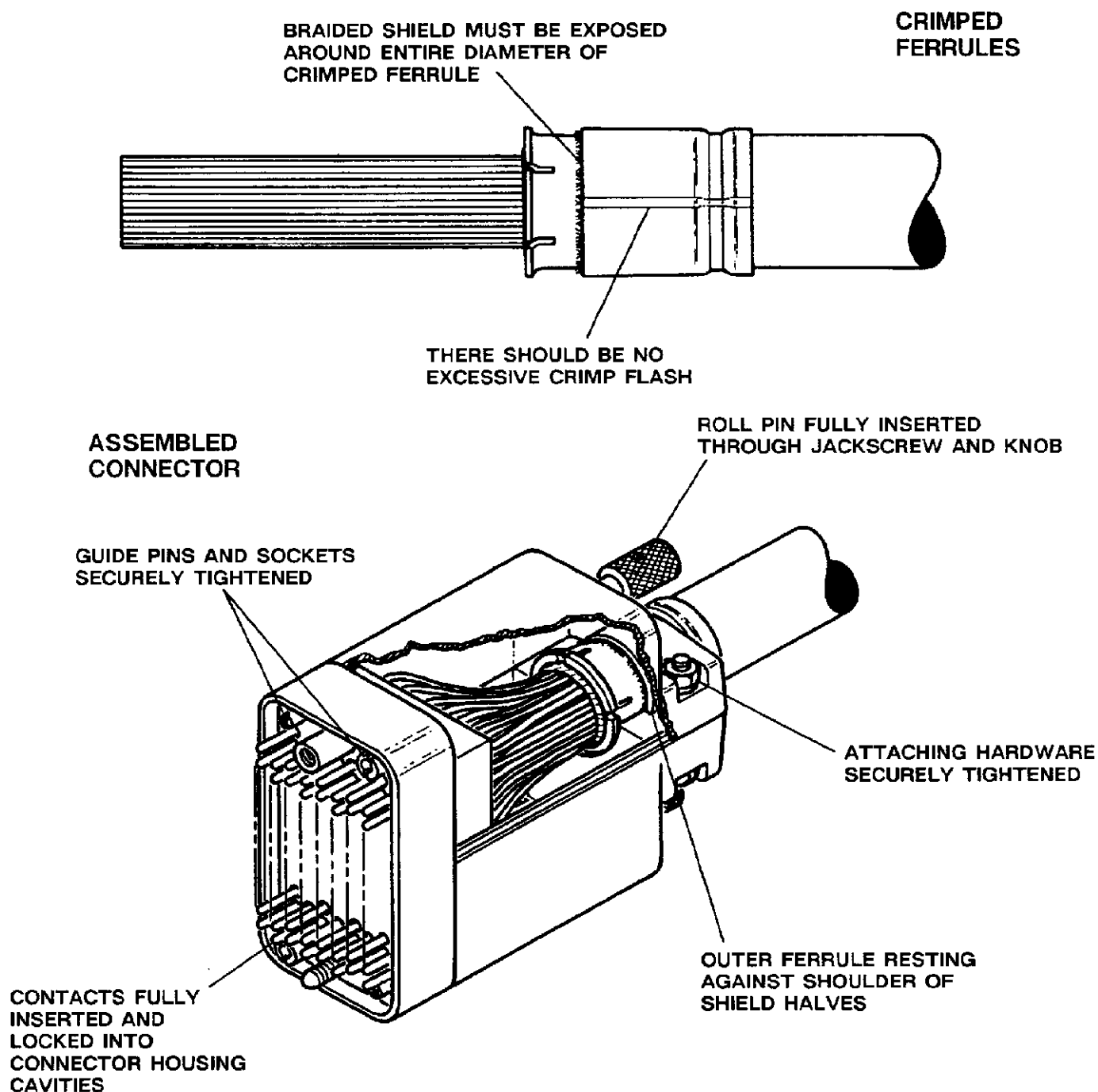


FIG. 5. VISUAL AID