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Superseding AS85049

Connector Accessories, Electrical
General Specification For

FSC 5935

1. SCOPE:

1.1 Scope:

This specification covers connector accessories for use with electrical connectors under environmental or non-environmental conditions. Applicable connector accessories defined in this specification are delineated for the suppression of Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI).

1.1.1 Connector accessory categories: Connector accessories covered in this specification shall include but are not limited to the following categories:

Category	Item	Description
1A Heavy Duty	Connector Accessory, Cable Sealing, Environmental	Provides water proofing and environmental sealing under specified hydrostatic pressure. Straight, 90°, or 45° configurations. May include termination features for individual or overall EMI/RFI shielding. May include strain relief. Withstands most severe shock, vibration, cable pullout, and external bending moment.

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1.1.1 (Continued):

Category	Item	Description
1B Medium Duty	Connector Accessory, Cable Sealing, Environmental	Same as for Category 1A. Withstands less severe shock, vibration, cable pullout, and external bending moment than Category 1A.
1C Light Duty	Connector Accessory, Cable Sealing, Environmental	Same as for Category 1A. Withstands less severe shock, vibration, and external bending moment than Category 1B. No cable pullout capability.
2A Heavy Duty	Connector Accessory, Environmental	Does not provide waterproofing and environmental sealing under hydrostatic pressure. Straight, 90°, or 45° configurations. May include termination features for individual or overall EMI/RFI shielding. May include strain relief. Withstands most severe shock, vibration, cable pullout and external bending moment.
2B Medium Duty	Connector Accessory, Environmental	Same as for Category 2A. Withstands less severe shock, vibration, cable pullout and external bending moment than Category 2A.
2C Light Duty	Connector Accessory, Environmental	Same as for Category 2A. Withstands less severe shock, vibration, and external bending moment than Category 2B. No cable pullout capability.
3A Heavy Duty	Connector Accessory, Nonenvironmental	May provide termination features for individual or overall, wire or cable, shielding. May extend working area for wire or cable termination. Straight, 90°, or 45° configurations. May include termination features for individual or overall EMI/RFI shielding. May include strain relief. Withstands most severe shock, vibration, cable and external bending moment.

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1.1.1 (Continued):

Category	Item	Description
3B Medium Duty	Connector Accessory, Nonenvironmental	Same as for Category 3A. Withstands less severe shock, vibration, cable pullout and external bending moment than Category 3A.
3C Light Duty	Connector Accessory, Nonenvironmental	Same as for Category 3A. Withstands less severe shock, vibration, and external bending moment than Category 3B. No cable pullout capability.
4A Heavy Duty	Connector Accessory, Strain Relief, Nonenvironmental	Provides mechanical strain and side loading relief to wire bundles and cable support to jacketed cables. Straight, 90°, or 45° configurations. May be attached to wire bundle or cable by means of metal clamp, plastic straps, lacing cord, or twine. Withstands same shock, vibration, cable pullout, and external bending moment as medium duty connector accessories of Categories 1, 2 and 3.
4B Medium Duty	Connector Accessory, Strain Relief, Nonenvironmental	Same as Category 4A. Withstands less severe shock, vibration, cable pullout, and external bending moment than Category 4A.
4C Light Duty	Connector Accessory, Strain Relief, Nonenvironmental	Same as Category 4A. Withstands less severe shock, vibration, cable pullout and bending moment than Category 4A. No cable pullout capability.
5	Connector Accessory, Adapter, Shrink Boot and Ring, Potting Boot	Provides means of attaching heat shrinkable boot to connector. Provides means of attaching potting boot to connector.
6	Boots and Sleeves, Heat Shrinkable	Cancelled. See SAE AS5258.

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1.1.1 (Continued):

Category	Item	Description
7	Connector Accessory, Miscellaneous Devices	Examination of product. This category defines connector accessories which require relatively few test procedures for qualification. Additional requirements and test procedures shall be defined in the individual specification sheet.
8A	Connector Accessory, Adapter, Conduit, Cable Sealing	Provides waterproofing and environmental sealing under hydrostatic pressure. Straight or angled.
8B	Connector Accessory, Adapter, Conduit, Nonenvironmental	Provides termination area for connectors on conduit. Straight or angled.

1.2 Classification:

Connector accessories shall be of the size, style, finish, and class as specified on the applicable military specification sheet (see 3.1).

2. APPLICABLE DOCUMENTS:

2.1 Government documents:

2.1.1 Specifications and standards: The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

MILITARY

MIL-C-915	Cable and Cord, Electrical, for Shipboard Use
MIL-DTL-5015	Connectors, Electrical, Circular Threaded, AN Type
MIL-S-7742	Screw Threads, Standard, Optimum Selected Series
MIL-C-22992	Connectors, Plugs and Receptacles, Electrical, Waterproof, Quick Disconnect, Heavy Duty Type, General Specification for
MIL-DTL-24308	Connectors, Electric, Rectangular, Miniature Polarized Shell, Rack and Panel
MIL-DTL-24643/18	Cable, Electrical, 1000 Volts, Type LSMSCU (Including Variations LSMSCA and LSMSCS)

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2.1.1 (Continued):

MIL-R-25988	Rubber, Fluorosilicone Elastomer, Oil and Fuel Resistant, Sheets, Strips, Molded Parts, and Extruded Shapes
MIL-C-26482	Connectors, Electrical (Circular, Miniature, Quick Disconnect, Environment Resisting), Receptacles and Plugs
MIL-C-27599	Connector, Electrical, Miniature, Quick Disconnect (for Weapons Systems), Established Reliability
MIL-DTL-28804	Connector, Electric, Rectangular, High Density, Polarized Center Jackscrew, General Specification for
MIL-DTL-38999	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded, and Breech Coupling), Environment Resistant, Removable Crimp and Hermetic Solder Contacts
MIL-C-55330	Connectors, Electrical and Fiber Optic, Packaging of
MIL-DTL-83723	Connectors, Electrical, Circular (Environment Resisting), Receptacles and Plugs
MIL-C-83733	Connectors, Electrical, Miniature, Rectangular Type, Rack to Panel, Environment Resisting, 200°C Total Continuous Operating Temperature, General Specification for

STANDARDS

FEDERAL

FED-STD-H28 Federal Standards, Screw-Thread Standards for Federal Services

MILITARY

MS20995	Wire, Safety or Lock
ANSI/ASQC Z1.4	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-167-1	Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internally Excited)
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-790	Reliability Assurance Program for Electronic Parts Specifications
MIL-STD-1285	Marking of Electrical and Electronic Parts
MIL-STD-45662/	Calibration Systems Requirements
ANSI/NCSL Z540-1-1994	

(Copies of applicable specifications, standards and handbooks listed in the Department of Defense Index of Specifications and Standards (DODISS) and required by the contractor in connection with specific procurement functions may be obtained upon application to the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

List of superseded documents is delineated in Table V of AS85049A.

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2.2 Other publications:

The following document(s) form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are Department of Defense (DOD) adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

SAE

AMS-QQ-P-35	Passivation Treatments for Austenitic, Ferretic, and Corrosion Resisting Steel
AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)
AMS-QQ-S-763	Steel Bars, Wires, Shapes, and Forgings, Corrosion-Resisting
AMS-A-8625	Anodic Coatings for Aluminum and Aluminum Alloys
AMS-C-26074	Coatings, Electroless Nickel, Requirements for
AS81703	Connectors, Electric, Circular, Miniature, Rack and Panel or Push-Pull Coupling, Environment Resisting
AS85049/1	Connector Accessories, Electrical, Backshell, Nonenvironmental, Cable Sealing, Straight, Grounding (Without Strain Relief), Category 1C (For MIL-DTL-5015 Solder Type, MS310X, Connectors)
AS85049/2	Connector Accessories, Electrical, Backshell, Nonenvironmental, Cable Sealing, Straight, Category 1C (For MIL-DTL-5015 Solder Type, MS310X, Connectors)
AS85049/3	Connector Accessories, Electrical, Backshell, Cable Sealing, Straight, Category 1A (For MIL-C-22992 Connectors, Classes C, J and R)
AS85049/4	Connector Accessories, Electrical, Backshell, Cable Sealing, Straight, Step-Up, Category 1A (For MIL-C-22992 Connectors, Classes C, J and R)
AS85049/5	Connector Accessories, Electrical, Backshell, Cable Sealing, Straight, Step-Down, Category 1A (For MIL-C-22992 Connectors, Classes C, J and R)
AS85049/6	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, 45°, Shield Termination, Category 1A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III)
AS85049/7	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, 45°, Category 1A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III)
AS85049/8	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, 90°, Shield Termination, Category 1A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/9	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, 90°, Category 1A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)

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2.2 (Continued):

AS85049/10	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, Straight, Shield Termination, Category 1A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/11	Connector Accessories, Electrical, Backshell, Environmental, Cable Sealing, Straight, Category 1A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/14	Connector Accessories, Electrical, Backshell, Straight, Self-Locking, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/15	Connector Accessories, Electrical, Strain Relief, 45°, Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/16	Connector Accessories, Electrical, Strain Relief, 90°, Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/17	Connector Accessories, Electrical, Backshell, Environmental, Straight, EMI/RFI Shield Termination, Category 2B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/18	Connector Accessories, Electrical, Backshell, Environmental, Straight, RFI/EMI, Category 2B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/19	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, RFI/EMI, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/20	Connector Accessories, Electrical, Backshell, Straight, RFI, EMI, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/21	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/23	Connector Accessories, Electrical, Backshell, Nonenvironmental, 45°, Shield Termination, Category 3A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/24	Connector Accessories, Electrical, Backshell, Nonenvironmental, 90°, Shield Termination, Category 3A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/25	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Shield Termination, Category 3A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/26	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Shield Termination, Category 3A (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/27	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Self-Locking and Nonself-Locking, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/28	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Shield Termination, Category 3B (For MIL-C-83733 Connectors)
AS85049/29	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Category 3B (For MIL-DTL-38999 Series I and II Connectors)

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2.2 (Continued):

AS85049/30	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Individual Shielded Wire Termination, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/31	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Self-Locking and Non-Self-Locking, Category 3B (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/32	Connector Accessories, Electrical, Backshell, Nonenvironmental, 90°, Shield Termination, Category 3C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/33	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, Shield Termination, Category 3C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/34	Connector Accessories, Electrical, Backshell, Nonenvironmental, Threaded Adapter, Category 3C (For MIL-C-26482 Series I Jam Nut Receptacle Connector) (Inactive for New Design Equipment or Modification of Existing Equipment)
AS85049/36	Connector Accessories, Electrical, Backshell, Nonenvironmental, Straight, EMI/RFI Shield Termination, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/37	Connector Accessories, Electrical, Backshell, Nonenvironmental, Split 90°, EMI/RFI Shield Termination, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/38	Connector Accessories, Electrical, Strain Relief, Straight, Self-Locking, Non-Self-Locking Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/39	Connector Accessories, Electrical, Strain Relief, 90°, Self-Locking, Non-Self-Locking Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/41	Connector Accessories, Electrical, Nonenvironmental, Strain Relief, Straight, Category 4C (For MIL-DTL-5015 Solder Type, MS310X Connectors)
AS85049/42	Connector Accessories, Electrical, Nonenvironmental, Strain Relief, Straight, Category 4A (For MIL-DTL-5015 Solder Type, MS310X Connectors)
AS85049/43	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, 45°, Category 4B (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/44	Connector Accessories, Electrical, Strain Relief, Straight, Category 4C (For MIL-C-83733 Connectors)
AS85049/45	Connector Accessories, Electrical, Strain Relief, Straight, Nonmetallic, Category 4C (For MIL-C-27599 Series I and MIL-DTL-38999 Series I and II Connectors)
AS85049/46	Connector Accessories, Electrical, Strain Relief, 90°, Nonmetallic, Category 4C (For MIL-C-27599 Series I and MIL-DTL-38999 Series I and II Connectors)
AS85049/47	Connector Accessories, Electrical, Strain Relief, 90°, Self-Locking and Nonself-Locking, Category 4B (For MIL-DTL-38999 Series I and II Connectors)

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2.2 (Continued):

AS85049/48	Connector Accessories, Electrical, Strain Relief, Straight, Category 4C (For MIL-DTL-24308 Connectors)
AS85049/49	Connector Accessories, Electrical, Strain Relief, Straight, Self-Locking and Nonself-Locking, Category 4B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/50	Connector Accessories, Electrical, Strain Relief, 90°, Category 4C (For MIL-DTL-24308 Connectors)
AS85049/51	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, 90°, Self-Locking and Non-Self-Locking, Category 4B (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/52	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, Straight, Self-Locking and Non-Self-Locking, Category 4B (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/53	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, Straight, Category 4C (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors) (Inactive for New Design. For New Design Use AS85049/52)
AS85049/54	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, 45°, Category 4C (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors) (Inactive for New Design. For New Design Use AS85049/43)
AS85049/55	Connector Accessories, Electrical, Strain Relief, Nonenvironmental, 90°, Self-Locking and Non-Self-Locking, Category 4C (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors) (Inactive for New Design. For New Design Use AS85049/51)
AS85049/56	Connector Accessories, Electrical, Strain Relief, Straight, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/57	Connector Accessories, Electrical, Strain Relief, 45°, Self-Locking and Nonself-Locking, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/58	Connector Accessories, Electrical, Ring, Potting Boot, Category 5 (For MIL-DTL-38999 Series I and II Connectors)
AS85049/59	Connector Accessories, Electrical, Adapter, Shrink Boot, Category 5 (For MIL-C-22992 Connectors, Classes C, J and R)
AS85049/60	Connector Accessories, Electrical, Adapter, Shrink Boot, Category 5 (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/61	Connector Accessories, Electrical, Ring, Potting Boot, Category 5 (For MIL-C-27599 Connectors)
AS85049/62	Connector Accessories, Electrical, Adapter, Shrink Boot, Category 5 (For MIL-DTL-38999 Series I and II Connectors)

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2.2 (Continued):

AS85049/63	Connector Accessories, Electrical, Strain Relief, 90°, Self-Locking and Nonself-Locking, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/64	Connector Accessories, Electrical, Strain Relief, Split, Straight, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/65	Connector Accessories, Electrical, Strain Relief, Split 90°, Category 4C (For MIL-DTL-38999 Series I and II Connectors)
AS85049/69	Connector Accessories, Electrical, Adapter, Shrink Boot, Category 5 (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/74	Connector Accessories, Electrical, Potting Boot, Category 7 (For Use With AS85049/61 Potting Boot Ring)
AS85049/75	Connector Accessories, Electrical, Potting Boot, Category 7 (For Use With AS85049/58 Potting Boot Ring)
AS85049/76	Connector Accessories, Electrical, Backshell, Environmental, 90°, Shield Termination, Category 2B, Nonself-Locking (MIL-DTL-38999 Series I and II Connectors)
AS85049/77	Connector Accessories, Electrical, Backshell, Environmental, 45°, Shield Termination, Category 2B, Nonself-Locking (MIL-DTL-38999 Series I and II Connectors)
AS85049/78	Connector Accessories, Electrical, Backshell, Environmental, 45°, Shield Termination, Category 2B, Nonself-Locking (MIL-DTL-38999 Series III and IV Connectors)
AS85049/79	Connector Accessories, Electrical, Backshell, Environmental, 90°, Shield Termination, Category 2B, Nonself-Locking (MIL-DTL-38999 Series III and IV Connectors)
AS85049/80	Connector Accessories, Electrical, Dummy Contact, Sizes 12 and 8, Category 7 (For MIL-DTL-38999 Connectors)
AS85049/81	Connector Accessories, Electrical, Seal Plug, Size 10, Category 7 (For MIL-DTL-38999 Connectors)
AS85049/82	Connector Accessories, Electrical, Backshell, Straight, Self-Locking, Shield Band Termination (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III Connectors)
AS85049/83	Connector Accessories, Electrical, Backshell, 45°, Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/84	Connector Accessories, Electrical, Backshell, 90°, Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III Connectors)
AS85049/85	Connector Accessories, Electrical, Backshell, Straight, Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Boot Accommodation, Category 3B (For MIL-DTL-38999 Series I and II Connectors)

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2.2 (Continued):

AS85049/86	Connector Accessories, Electrical, Backshell, 45°, Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/87	Connector Accessories, Electrical, Backshell, 90°, Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-38999 Series I and II Connectors)
AS85049/88	Connector Accessories, Electrical Backshell, Straight, Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Boot Accommodation, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/89	Connector Accessories, Electrical, Backshell, 45°, Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/90	Connector Accessories, Electrical, Backshell, 90°, Self-Locking, Shield Band Termination, (RFI/EMI), Shrink Sleeve Accommodation, Category 3B (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/91	Connector Accessories, Composite, Electrical, Strain Relief, Straight, Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/92	Connector Accessories, Composite, Electrical, Strain Relief, 90°, Self-Locking, Category 4C (For MIL-DTL-38999 Series III and IV Connectors)
AS85049/93	Connector Accessories, Electrical, Termination, Shield, Split Support Ring, Composite, Nonenvironmental, Straight, Category 7
AS85049/94	Connector Accessories, Electrical, Mounting Device, Flange Type, Full Mounting Perimeter Device, Type I (Heavy Duty)
AS85049/95	Connector Accessories, Electrical, Mounting Device, Flange Type, 3/4 Mounting Perimeter Device, Type II (Medium Duty)
AS85049/96	Connector Accessories, Electrical, Mounting Device, Flange Type, 1/4 Mounting Perimeter Device, Type III (Light Duty)

(Application for copies should be addressed to SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)

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2.2 (Continued):

ASTM

ASTM G 21	Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
ASTM B 26/B 26M	Aluminum Alloy Sand Castings
ASTM B 85	Aluminum Alloy Die Castings
ASTM B 209	Aluminum and Aluminum Alloy Plate and Sheet
ASTM B 211/B 221	Aluminum and Aluminum Alloy Bar, Rod, Wire, or Shapes; Rolled, Drawn, Extruded or Cold Finished
ASTM D 4066	Nylon, Injection and Extrusion Materials (PA)

(Application for copies should be addressed to the American Society for Testing Materials, 1916 Race Street, Philadelphia, PA 19103.)

SD-6 Provisions Governing Qualification

(Application for copies should be addressed to the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

EIA

(Application for copies should be addressed to EIA, 2500 Wilson Blvd., Arlington, VA 22201-3834.)

EIA 364 Connector Test Methods Standards

2.3 Order of precedence:

In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets, or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS:

3.1 Specification sheets:

The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.2 Qualification:

The connector accessories furnished under this specification shall be products which are authorized by the qualifying activity for listing on the applicable qualified products list at the time set by the government for opening of bids (see 4.3 and 6.6).

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3.2.1 Provisions governing qualification: The provisions governing qualification are specified in SD-6.

3.2.2 Reliability: The contractor's reliability program for assembled connector accessories and assembly procedures shall meet the requirements of MIL-STD-790.

3.3 Materials:

Materials shall be suitable for the purpose intended and as specified (see 3.1), however, when a definite material is not specified, a material shall be used which will enable the connector accessory to meet the performance requirements of this specification. Acceptance or approval of any constituent material shall not be construed as a guarantee for acceptance of the finished product.

3.3.1 Corrosion resisting steel: Where applicable, corrosion resisting steel shall be 300 series, in accordance with AMS-QQ-S-763/ASTM 582.

3.3.2 Composite: Corrosion resistant, high performance resins with or without filler materials. The resins must be defined by specifications listed in the DODISS or published by professional materials associations. Exceptions may be granted by the preparing activity.

3.3.3 Aluminum: Aluminum alloy shall be in accordance with ASTM B 211, B 221, B 209, B 85, B 26/B 26M, AMS-QQ-A-225/6, /7, /8.

3.3.4 Elastomers: Unless otherwise specified (see 3.1), elastomers shall be silicone or fluorosilicone. Connector accessories which utilize elastomers shall meet the fluid immersion requirements (see 3.5.12).

3.3.5 Nylon: Nylon shall be in accordance with ASTM D 4066, shall be fungus inert in accordance with ASTM G 21 (see 4.6.14), shall be self-extinguishing in accordance with MIL-STD-202, method 111, and shall be non-toxic.

3.3.6 Dissimilar metals: When dissimilar metals are employed in intimate contact with each other, suitable protection against electrolytic corrosion shall be provided as specified in MIL-STD-889.

3.3.7 Finish: Finish for aluminum connector accessories shall be as follows:

A - Black Anodize - In accordance with Class 2 of AMS-A-8625, Type II.

N - Electroless Nickel - In accordance with SAE AMS-C-26074.

W - Cadmium - Olive drab over suitable underplate, 1000 hour salt spray (see 3.5.3).
W is not for use in space application.

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3.3.7 (Continued):

Finish for corrosion resisting steel accessories shall be as follows:

B - Black Cadmium - In accordance with AMS-QQ-P-416, Type II, Class 3.

S - Passivate - In accordance with AMS-QQ-P-35.

Finish for composite accessories shall be as follows:

J - Olive drab cadmium plate in accordance with AMS-QQ-P-416 over a suitable underplate to withstand 2000 hour salt spray (see 3.5.3). Final finish shall be electrically conductive.

M - Electrically conductive electroless nickel plating. Finish shall withstand 2000 hour salt spray (see 3.5.3). Use of a suitable underplate is permissible.

3.4 Design and construction:

Connector accessories shall be designed and constructed to withstand normal handling incident to installation and maintenance in service.

- 3.4.1 Configuration: The configuration and dimensions of connector accessories shall be as specified (see 3.1).
- 3.4.2 Screw threads: English unit screw threads intended to mate with connectors, unless otherwise specified, shall be unified 2A or 2B, conforming to MIL-S-7742. Metric unit screw threads intended to mate with connectors shall be in accordance with FED-STD-H28. Screw threads shall be checked after plating by means of ring and plug gages only, in accordance with FED-STD-H28. Out of roundness is not objectionable if the threads can be checked without forcing the thread gage.
- 3.4.3 Safety wiring: When specified, threaded coupling connector interfaces shall be designed for safety wiring. A minimum of two holes shall be provided for shell size 14 or smaller, and at least three equally spaced holes for sizes 16 and larger. Holes shall be of a diameter sufficient to accommodate .020 inch wire. For non-self-locking accessories safety wire holes shall not be optional. Self-locking accessories shall not have safety wire holes on the coupling nut.
- 3.4.4 Interchangeability: All connector accessories having the same military part number shall be completely interchangeable with each other with respect to installation and performance as specified herein.
- 3.4.5 Intermateability: Unless otherwise specified (see 3.1), the intermateability control dimensions for the threaded mating end of the connector accessories shall conform to the interface dimensions specified in Figures 2 - 4 and Tables VIII - X.

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3.4.6 Spin coupling: Unless otherwise specified (see 3.1), for all circular connector accessory applications the coupling nut shall have spin coupling. The coupling nut shall be captivated to, and free to rotate on, the follower of the circular connector accessory. Unless otherwise specified (see 3.1), the spin coupling nut will be either non-self-locking or self-locking. The self-locking coupling devices may exhibit some mechanical resistance while captivated to the follower.

3.4.6.1 Self-locking devices: The self-locking devices within the coupling nut shall be a corrosion-resistant material and shall provide either a positive detent or be an internal captivated anti-decoupling device that maintains applied torque. Coupling nuts with self-locking devices shall meet all of the performance requirements specified herein for the accessories specified category. Lockwire, set screws and/or locking compounds shall not be used as an anti-decoupling device.

3.4.7 Dummy connector test fixture: When specified for applicable tests in this specification, a dummy connector test fixture which duplicates the connector interfacing features may be used in place of the applicable connector. The dummy connector test fixture material shall be aluminum alloy in accordance with 3.3.3 for aluminum connector accessory testing and corrosion resistant steel in accordance with 3.3.1 for corrosion resistant steel connector accessory testing. The dummy connector test fixture shall have the same plating as the connector accessory being tested. The dummy connector test fixture configuration and dimensions for MIL-DTL-38999 Series I and II connectors are defined in Figure 5 and Table XI. The dummy connector test fixture configuration and dimensions for MIL-DTL-38999 Series III and IV connectors are defined in Figure 6 and Table XII. The dummy connector test fixture configuration and dimensions for MIL-DTL-5015 crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III are defined in Figure 7 and Table XIII. The overall length of the dummy connector test fixture shall not exceed the length of the equivalent features on the connectors with which it is used.

3.4.7.1 Dummy connector test plug: When specified for applicable tests in this specification, a dummy cable test plug made of metal core and coated with neoprene, polychloroprene or fluorocarbon polymer. The test plug diameter shall be equal or not more than 0.016 (.406 mm) smaller than the minimum cable sealing diameter being tested.

3.5 Performance requirements:

Connector accessories shall meet the performance requirements specified herein when tested in accordance with the specified methods of Section 4.

3.5.1 Magnetic permeability: When tested as specified in 4.6.2, the relative permeability of the connector accessory shall be less than 2.0 for aluminum accessories and 5.0 for stainless steel.

3.5.2 Shell conductivity: Category 1, 2, and 3 connector accessories that provide termination features for individual or overall EMI/RFI shielding shall be tested as specified in 4.6.3. The connector and connector accessory assembly shall be electrically conductive. The overall resistance shall not exceed 0.0025 ohms for aluminum and composite connector accessories and 0.0050 ohms for stainless steel connector accessories. Accessories with self-locking coupling nut devices shall be monitored for loss of electrical continuity during vibration.

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- 3.5.3 Salt spray (corrosion): When tested as specified in 4.6.4, connector accessories shall exhibit no exposure of basis material evident to the unaided eye. For finish J, after 500 hours salt spray, inspect connector accessories for cadmium (inspection method optional). No underplate or basis material shall be exposed. Return to chamber for completion of test.
- 3.5.4 Vibration: When tested as specified in 4.6.5, connector accessories shall not be damaged, nor shall there be any loosening of parts during vibration. Monitoring for electrical conductivity shall be performed during initial qualification only.
- 3.5.4.1 Vibration (self-locking): When tested as specified in 4.6.5.4, connector accessories shall not be damaged, nor shall there be any loosening of parts during vibration. The coupling torque shall be within +20, -10 inch pounds of the initial value after vibration. Monitoring for electrical conductivity shall not be used for pass fail criteria.
- 3.5.5 Shock: When tested as specified in 4.6.6, connector accessories shall not be damaged, nor shall there be any loosening of parts during exposure to shock.
- 3.5.6 Humidity (category 2): After being subjected to the humidity test specified in 4.6.7, connector accessories mated to counterpart connectors (or dummy connectors, see 3.4.7) shall be examined and there shall be no evidence of water entrance.
- 3.5.7 Water pressure (categories 1 and 8A only): After being subjected to the test specified in 4.6.8, connector accessories shall be examined and shall show no evidence of internal water entrance.
- 3.5.8 Cable pullout: When tested as specified in 4.6.9, the test plug shall not pull out nor shall slippage exceed .125 inch. The cable pullout requirement is not applicable to categories 1C, 2C, 3C and 4C.
- 3.5.9 Coupling thread strength: When tested as specified in 4.6.10, connector accessory threads shall withstand the torque specified in Table III without damage. AS85049, category 5 connector accessories shall satisfy the heavy duty requirement specified in Table III for specification sheets that are utilized for MIL-DTL-38999 Series III and IV; MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III; and MIL-C-22992 Class C, J, and R connectors. Category 5 connector accessories that are used on MIL-DTL-38999 Series I and II and MIL-C-27599 connectors shall satisfy the medium duty requirement specified in Table III. Category 8 connector accessories shall satisfy the heavy duty requirement specified in Table III.
- 3.5.10 External bending moment: When tested as specified in 4.6.11, connector accessories shall show no evidence of damage detrimental to their normal operation.
- 3.5.11 Safety wire holes (not applicable to self-locking coupling): When tested as specified in 4.6.12, the safety wire (lock wire) hole shall not pull out.
- 3.5.12 Fluid immersion: When tested as specified in 4.6.13, the elastomers (see 3.3.4) shall show no evidence of cracking, swelling/shrinkage, expansion or dissolution which would be detrimental to performance.

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- 3.5.13 Life cycle (self-locking) (see 4.6.15): After being subjected to the test specified in 4.6.15, connector accessories shall pass succeeding tests.
- 3.5.14 Temperature cycling (finishes J and M): When tested as specified in 4.6.16 there shall be no blistering, peeling or separation of plating, or other damage detrimental to the operation of the connector accessories.
- 3.5.15 Hydrolytic stability (finishes J and M): When tested as specified in 4.6.17, the connector accessories shall be without defects detrimental to performance. There shall be no increase in weight greater than 5%. Connector accessories shall meet the coupling thread strength requirements of paragraph 3.5.9.

3.6 Marking:

Connector accessories shall be legibly and permanently marked in accordance with MIL-STD-1285. The part number shall be as specified (see 3.1). Part marking to include manufacturer's name or trademark, IAW AIR1351 P/N per slash sheet, and manufacturing date code tag in bag permissible.

- 3.6.1 Superseded Military Standard (MS) connector accessory marking: Equivalent MS connector accessories which are superseded by AS85049 parts shall have the corresponding new AS85049 part number marked on the part. The superseded MS connector accessory shall meet the requirements of the corresponding AS85049 specification sheet (see 6.7).

3.7 Workmanship:

Connector accessories shall meet all design dimensions, interchangeability, and intermateability requirements. Poor molding, nicks, burrs, or chipping of plating or finish shall be considered adequate basis for rejection of items as inferior quality for qualification inspection or quality conformance inspection.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for inspection:

Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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4.1.1 Responsibility for compliance: All items must meet all requirements of Sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Test equipment and inspection facilities: Test and measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with MIL-STD-45662/ANSI/NCSL Z540-1-1994.

4.2 Classification of inspections:

The inspections specified herein are classified as follows:

- a. Qualification inspection (see 4.3).
- b. Retention of qualification (see 4.3.4).
- c. Quality conformance inspection (see 4.4).

4.2.1 Inspection conditions: Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in EIA 364.

4.3 Qualification inspection:

Qualification inspection shall consist of all of the applicable examinations and tests performed in the sequence specified in Table I on the qualification test samples specified in 4.3.3. Qualification tests shall not begin until authorized by the qualifying activity (see 6.7). The letter of authorization shall specify the conditions under which the qualification tests shall be performed and specify the number of tested or untested samples required to be submitted with the test results. Samples shall be provided to the qualifying activity at no cost to the government.

4.3.1 Qualification by similarity: For parts which differ only in minor details from those submitted for qualification (see 4.3.2), the manufacturer shall provide data from control drawings which describes the dimensions specified in 3.1 and 3.4. This data shall be tabulated and compared against the dimensional requirements. The extent of qualification testing by similarity shall be specified by the Qualified Products Laboratory (QPL) evaluating activity.

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TABLE I. Qualification inspection.

Inspection	Requirement paragraph	Test method paragraph
<u>Category 1</u>		
Examination of product	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Shell conductivity	3.5.2	4.6.3
Salt spray (corrosion)	3.5.3	4.6.4
Shell conductivity	3.5.2	4.6.3
Vibration - Category 1A	3.5.4	4.6.5.1
Category 1B	3.5.4	4.6.5.2
Category 1C	3.5.4	4.6.5.3
Shock - Category 1A	3.5.5	4.6.6.1
Categories 1B and 1C	3.5.5	4.6.6.2
Water pressure	3.5.7	4.6.8
Cable pullout - Categories 1A and 1B	3.5.8	4.6.9
Coupling thread strength	3.5.9	4.6.10
External bending moment	3.5.10	4.6.11
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13
<u>Category 2</u>		
Examination of product	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Temperature cycling (finishes J and M) ...	3.5.14	4.6.16
Hydrolytic stability (finishes J and M) ..	3.5.15	4.6.17
Coupling thread strength	3.5.9	4.6.10
Shell conductivity	3.5.2	4.6.3
Salt spray (corrosion)	3.5.3	4.6.4
Shell conductivity	3.5.2	4.6.3
Vibration - Category 2A	3.5.4	4.6.5.1
Category 2B	3.5.4	4.6.5.2
Category 2C	3.5.4	4.6.5.3
Shock - Category 2A	3.5.5	4.6.6.1
Categories 2B and 2C	3.5.5	4.6.6.2
Humidity	3.5.6	4.6.7
Cable pullout - Categories 2A and 2B	3.5.8	4.6.9
Coupling thread strength	3.5.9	4.6.10
External bending moment	3.5.10	4.6.11
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13

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TABLE I. Qualification inspection (continued).

Inspection	Requirement paragraph	Test method paragraph
<u>Category 3</u>		
Examination of product	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Life cycling	3.5.13	4.6.15
Temperature cycling (finishes J and M) ...	3.5.14	4.6.16
Hydrolytic stability (finishes J and M) ..	3.5.15	4.6.17
Coupling thread strength	3.5.9	4.6.10
Salt spray (corrosion)	3.5.3	4.6.4
Shell conductivity	3.5.2	4.6.3
Vibration - Category 3A	3.5.4	4.6.5.1
Category 3B	3.5.4	4.6.5.2
Category 3C	3.5.4	4.6.5.3
Shock - Category 3A	3.5.5	4.6.6.1
Categories 3B and 3C	3.5.5	4.6.6.2
Cable pullout - Categories 3A and 3B	3.5.8	4.6.9
Coupling thread strength	3.5.9	4.6.10
External bending moment	3.5.10	4.6.11
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13
<u>Category 4</u>		
Examination of product	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Life cycling	3.5.13	4.6.15
Temperature cycling (finishes J and M) ...	3.5.14	4.6.16
Hydrolytic stability (finishes J and M) ..	3.5.15	4.6.17
Coupling thread strength	3.5.9	4.6.10
Salt spray (corrosion)	3.5.3	4.6.4
Vibration - Category 4A	3.5.4	4.6.5.2
Category 4B and 4C	3.5.4	4.6.5.3
Shock - Categories 4A, 4B and 4C	3.5.5	4.6.6.2
Cable pullout - Categories 4A and 4B	3.5.8	4.6.9
Coupling thread strength	3.5.9	4.6.10
External bending moment	3.5.10	4.6.11
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13

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TABLE I. Qualification inspection (continued).

Inspection	Requirement paragraph	Test method paragraph
<u>Category 5</u>		
Examination of product	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Salt spray (corrosion)	3.5.3	4.6.4
Vibration	3.5.4	4.6.5.3
Shock	3.5.5	4.6.6.2
Coupling thread strength	3.5.9	4.6.10
Safety wire holes	3.5.11	4.6.11
Post examination	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13
<u>Category 7</u>		
Examination of product	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
<u>Category 8</u>		
Examination of product	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Magnetic permeability	3.5.1	4.6.2
Salt spray (corrosion)	3.5.3	4.6.4
Vibration	3.5.4	4.6.5.2
Shock	3.5.5	4.6.6.2
Water pressure (Category 3A only)	3.5.7	4.6.8
Coupling thread strength	3.5.9	4.6.10
Safety wire holes	3.5.11	4.6.12
Post examination	3.1, 3.3, 3.4, 3.6 and 3.7	4.6.1
Fluid immersion	3.5.12	4.6.13

4.3.2 Sample size: Two sample connector accessories in each shell size range (small range 08 to 16); (medium range 18 to 28); (large range 32 to 48), for MIL-DTL-5015 and MIL-C-22992 accessories, and (small range 08/09 to 12/13); (medium range 14/15 to 18/19); (large range 20/21 to 24/25) for the MIL-DTL-38999 Series I thru IV accessories, and in each finish for which qualification is desired, shall be provided for qualification testing. Each part subjected to qualification testing shall be provided with an applicable connector. The counterpart connectors supplied for this purpose shall be new, previously qualified connectors. Manufacturers not producing connectors shall submit data substantiating that tests were performed with qualified counterpart connectors. For those tests not requiring indication of connector performance when tested with the connector accessory, a similarly compatible dummy connector, duplicating accessory mating features may be used in place of an actual connector. When a fluid test is required, 9 untested sample accessories of any shell size range or finish shall be tested.

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- 4.3.2.1 Counterpart connectors: Counterpart connectors shall be qualified to MIL-DTL-5015, MIL-C-22992, MIL-DTL-24308, MIL-C-26482, MIL-C-27599, MIL-DTL-38999, AS81703, MIL-DTL-83723, or MIL-C-83733.
- 4.3.2.2 Preparation of samples (self-locking): For Qualification Testing self-locking accessories shall be installed on the specified connector or fixture with a coupling torque of 80 percent of the coupling thread strength values given for medium and light duty accessories as specified in Table III. Tolerances shall be ± 5 inch-pounds.
- 4.3.3 Failures: There shall be no failures during any examination or tests of the connector accessories submitted for qualification tests. The agent responsible for qualification testing (see 6.6), shall notify the manufacturer of the failures. The manufacturer shall submit details of the failure corrective action before the qualification agent will initiate any further tests required to assure compliance with this specification.
- 4.3.4 Retention of qualification: At thirty-six month intervals the manufacturer shall submit retention of qualification data. The qualifying activity shall establish the initial reporting date. The manufacturer shall request authorization to begin testing and shall make the request sufficiently in advance of the due date to ensure timely submission of the data. Retention of qualification consists of the applicable tests of Table I, on the sample size specified in 4.3.4.1. Tested and untested connector accessories and materials may be required to be submitted to the qualifying activity (see 6.6) at no cost to the government. Failure to submit to retention of qualification shall result in loss of qualification for previously approved products.
- 4.3.4.1 Retention of qualification samples: For each category (see 1.1.1) of which the manufacturer is qualified, two sample connector accessories in each shell size range (small range 08 thru 16; medium range 18 to 28; large range 32 to 48) for MIL-DTL-5015 and MIL-C-22992 accessories, and (small range 08/09 to 12/13; medium range 14/15 to 18/19; large range 20/21 to 24/25) for the MIL-DTL-38999 Series I thru IV accessories. All qualified finishes (see 3.3.7) and base materials (cast molded and wrought materials) shall be included as part of the sample in each category. For all other connector accessories qualified but not being tested, the dimensions described in 3.1 and 3.4 shall be extracted from the manufacturer control drawings, tabulated, and then compared against the specification requirements. Manufacturers not producing connectors shall submit data substantiating that tests were performed with qualified counterpart connectors. For those tests not requiring indication of connector performance when tested with the connector accessory, a similarly compatible dummy connector, duplicating accessory mating features may be used in place of an actual connector.
- 4.3.4.2 Disposition of failures: The disposition of failures shall be as specified in 4.3.3.
- 4.4 Quality conformance inspection:
- 4.4.1 Inspection of product for delivery: Inspection of product for delivery shall consist of the examination of the product in accordance with 4.6.1.

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- 4.4.2 Inspection lot: An inspection lot shall consist of all connector accessories of the same type covered by one specification sheet, produced under essentially the same conditions, and offered for inspection at one time.
- 4.4.3 Sampling plan: Statistical sampling and inspection shall be in accordance with ANSI/ASQC Z1.4 for general inspection level II. Unless otherwise specified, the Acceptable Quality Level (AQL) shall be 1.0 for major defects and 4.0 for minor defects. Major and minor defects shall be as defined in MIL-STD-105/ANSI/ASQC 71.4.
- 4.4.4 Rejected lots: If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units and resubmit for reinspection. Resubmitted lots shall be inspected in accordance with ANSI/ASQC Z1.4, tightened inspection. Such lots shall be separate from new lots and shall be clearly identified as reinspected lots. The contractor shall notify the qualifying activity (see 6.6) immediately of any quality conformance inspection failures which result in a change in control drawings or process control inspection points. Failure to notify the qualifying activity may result in loss of qualification of that product.
- 4.4.5 Disposition of sample units: Sample units which have passed quality conformance inspection may be delivered on the contract if the lot is accepted and the sample units are still within specified tolerances.
- 4.5 Inspection of packaging:
- Sample packages and packs and the inspection of the preservation-packaging, packing and marking for shipment and storage shall be in accordance with the requirements of MIL-C-55330.
- 4.6 Methods of inspection:
- 4.6.1 Examination of product: The connector accessories shall be examined to assure compliance with the following requirements:
- Military specification sheet (see 3.1).
 - Materials (see 3.3).
 - Design and construction (see 3.4).
 - Temperature cycling (finishes J and M) (see 3.5.14).
 - Marking (see 3.6).
 - Workmanship (see 3.7).
- 4.6.1.1 In-process controls: The contractor may use in-process controls to satisfy the requirements listed in 4.6.1. These in-process controls will be subject to review by the qualifying activity (see 6.6) upon request.
- 4.6.2 Magnetic permeability (see 3.5.1): The relative permeability shall be in accordance with EIA 364-54.

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- 4.6.3 Shell conductivity (see 3.5.2): Shell conductivity shall be measured in accordance with EIA 364-083. The applied potential shall be 1.5 volts maximum. A resistance shall be inserted in the circuit to limit the current to .100 amperes \pm .010. Measurements shall be made from a point on the overall cable shield (or individual wire shields, if applicable), located 1.0 inch \pm .25 to the rear of the connector accessory, to the point on the square flange receptacle as specified in EIA 364-083.
- 4.6.4 Salt spray (corrosion) (see 3.5.3): Connector accessories shall be tested in accordance with EIA 364-026. The samples shall not be mounted, but shall be suspended from the top of the chamber using waxed twine or string, glass rods, or glass cord. The duration shall be as specified in 4.6.4.1, 4.6.4.2 or 4.6.4.3.
- 4.6.4.1 Standard test (96 hours): Stainless steel connector accessories with finish B and aluminum connector accessories with finish N (see 3.3.6), shall be subjected to test condition letter A for a duration of 96 hours.
- 4.6.4.2 Extended test (1000 hours): Stainless steel connector accessories with finish S and aluminum connector accessories with finish W and A (see 3.3.7), shall be subjected to test condition letter D for a duration of 1000 hours for initial qualification. Finish S, W and A connector accessories shall be subjected to test condition letter C for a duration of 500 hours for retention of qualification.
- 4.6.4.3 Extended test (2000 hours): Composite accessories with finish J and M shall be subjected for a duration of 2000 hours.
- 4.6.5 Vibration: A counterpart receptacle connector shall be mounted on a suitable fixture, which in turn shall be attached to the vibration table. The fully wired counterpart connector or approved modification to fixturing and connector accessory shall be engaged with the receptacle by normal locking means. No safety wire shall be used. The sensing device shall monitor vibration at a point on or near the receptacle connector. Vibration for self-locking (see 3.1).
- 4.6.5.1 Vibration - Heavy duty (see 3.5.4): The assembly shall be subjected to the vibrational requirements of MIL-STD-167-1(SHIPS), paragraph 5.1.3.3.3.
- 4.6.5.2 Random vibration - Medium duty (see 3.5.4): The connector accessory shall then be subjected to EIA 364-028, condition VI, test condition letter I. The duration of the test shall be 8 hours in the longitudinal direction and 8 hours in the perpendicular direction.
- 4.6.5.3 Vibration - Light duty (see 3.5.4): The connector accessory shall then be subjected to EIA 364-28, condition III. Total duration 12 hours, 4 each direction.
- 4.6.5.4 Vibration (self-locking only) (see 3.5.4.1): Backshells shall be subjected to the test parameters of the applicable connector specification. Coupling nut torque shall be 80% of coupling thread strength values given for light and medium duty accessories as specified in Table III of AS85049. In Table III when N/A appears, the values shall be 80% of those values given for heavy duty accessories.

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4.6.6 Shock:

- 4.6.6.1 Shock - Heavy duty (see 3.5.5): Connector accessories shall be assembled to counterpart plug and receptacle connectors, wired with 6 feet of MIL-C-915, Type MSCU (unarmored) cable, and tested in accordance with MIL-STD-202, method 207. Mounting fixtures shall be in accordance with MIL-STD-202, method 207. No safety wire shall be used. Cables shall be supported on a stationary frame a minimum of 36 inches from the assembly. Monitoring for discontinuity is not required.
- 4.6.6.2 Shock - Medium and light duty (see 3.5.5): A counterpart receptacle connector, mounted on a suitable fixture, shall be attached to the shock machine. The wired mating plug connector and connector accessory shall be engaged with the receptacle connector by normal locking means. The cable shall be clamped to a fixed point at least 8 inches from the rear of the assembly. The assembly shall be subjected to the shock test requirements of EIA 364-27, condition C. Monitoring for discontinuity is not required.
- 4.6.7 Humidity (see 3.5.6): The accessory sample shall be prepared as specified in 4.6.10. The prepared accessory sample shall be subjected to humidity in accordance with EIA 364-31, test procedure II, with the exception of step 7b.
- 4.6.8 Water pressure (see 3.5.7): The connector accessory shall be assembled to a counterpart connector (or dummy connector test fixture, see 3.4.7). The face of the connector (or dummy connector) shall have a section of cable (or test plug, see 3.4.7.1) installed to simulate jacketed cable. The face of the connector (or dummy connector) shall be protected from the test environment. Use of lubricants which act as a sealant in this test is prohibited. The assembly shall be immersed in tap water to a depth of 6 feet for a period of 48 hours.
- 4.6.9 Cable pullout (see 3.5.8): The connector accessory shall be subjected to cable pullout in accordance with EIA 364-038, except that the test plug (see 3.4.7.1) shall be installed in the assembly in lieu of cable. The applicable tensile load specified in Table II shall be applied to the test plug in the direction tending to displace it toward the rear of the connector accessory. The load shall be applied for a period of 1 hour and the amount of slippage shall be measured.
- 4.6.10 Coupling thread strength (see 3.5.9): A counterpart connector or dummy connector (see 3.4.7) shall be mounted in a suitable fixture. The connector accessory shall be attached and a torque wrench used to apply the required torque at a rate of approximately 10 inch pounds per second. The connector accessory thread torque shall be as specified in Table III. After the required load has been held for 1 minute minimum, the connector accessory shall be removed and inspected to 3X magnification for damage or breakage.

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TABLE II. Cable pullout (categories 1 through 4 with cable clamp).

Cable Range	Load Heavy Duty	Load Medium Duty
.062- .500	25	12.5
.501- .750	50	25
.751-1.500	75	37.5
1.501-2.500	100	50

NOTE: Test plug diameter should equal the minimum cable range with a $+.000/- .016$ tolerance. (For example cable range minimum .500 = test plug .500/.484 diameter.)

TABLE III. Coupling thread strength.

Shell Size	Accessory thread torque $\pm .5$ inch pounds	
	Heavy duty	Medium, light duty and composite
8,9	75	50
3,10,10SL,11	100	50
7,12,12S,13	140	50
14,14S,15	150	50
16,16S,17	150	50
18,19,27	150	50
20,21,37	175	100
22,23	175	100
24,25,61	175	100
28	190	N/A
32	190	N/A
36	190	N/A
40	210	N/A
44	210	N/A
48	210	N/A

4.6.11 External bending moment (see 3.4.7 and 3.5.10): The connector accessory shall be mounted as in normal service to a rigid panel as shown in Figure 1. The load to be applied to point "P" shall be in accordance with Table IV. The load shall be applied at a rate of approximately 10 pounds per second until the required load is achieved. The applied load shall be held for 1 minute, and then released. The load shall be applied as shown in two axes 90 degrees apart, at different times for straight and angled connector accessories.

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TABLE IV. Bending moment.

Categories						
Heavy Duty		Medium Duty		Light Duty & Composite		
Shell Size	Applied Load	Shell Size	Applied Load	Shell Size	Applied Load	
					With Saddle bars	W/out Saddle bars
8, 9	25	8, 9	25	8, 9	15	10
3, 10, 10SL, 11	50	3, 10, 10SL, 11	40	10, 11	30	10
7, 12, 12S, 13	100	7, 12, 12S, 13	60	12, 13	35	10
14, 14S, 15	100	14, 14S, 15	70	14, 15	45	20
16, 16S, 17	150	16, 16S, 17	80	16, 17	55	20
18, 19, 27	150	18, 19, 27	100	18, 19	55	20
20, 21, 37	175	20, 21, 37	100	20, 21	55	30
22, 23	200	22, 23	100	22, 23	55	30
24, 25, 61	200	24, 25, 61	125	24, 25	65	35
28	250	28	125	28	80	35
32	250	32	125	32	90	
36	250	36	150	36	90	
40	250	40	150	40	95	
44	300	44	150	44	95	
48	300	48	150	48	100	

- 4.6.12 Safety wire holes (see 3.5.11): Safety wire (lock wire) shall be threaded through a lock wire hole, and a pull of 30 ± 2 pounds shall be applied. The pull shall be parallel with the axis of the connector, connector accessory, or coupling ring. The safety wire shall be Ni-Cu alloy (Monel) or Ni-Cr alloy (Inconel) .020 diameter in accordance with MS20995.
- 4.6.13 Fluid immersion (3.5.12): Only connector accessories with elastomers shall be subjected to the test specified in EIA 364-10 (one sample per fluid).
- 4.6.14 Fungus resistance certification (see 3.3.4): Certification of ASTM G 213 is required.
- 4.6.15 Life cycle (self-locking) (see 3.4.6, 3.4.6.1, 3.5.13): The coupling with the locking device shall be engaged, and disengaged 10 full cycles, onto its mating connector 6 full turns in a clockwise direction and 6 full turns counterclockwise. Cycle speed shall not exceed one full turn per second.
- 4.6.16 Temperature cycling (finishes J and M) (see 3.5.14): Connector accessories shall be subjected to the temperature cycling of EIA 364-32, condition I, 5 cycles, except that steps 2 and 4 shall be of 2 minutes maximum duration. The temperature of step 1 shall be $-65^{\circ} +0, -5^{\circ}\text{C}$ and the temperature of step 3 shall be $175^{\circ} +5, -0^{\circ}\text{C}$ for finish J and $200^{\circ} +5, -0^{\circ}\text{C}$ for finish M.

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4.6.17 Hydrolytic stability (finishes J and M) (see 3.5.15): Connector accessories shall be subjected to the following water absorption test:

4.6.17.1 Hydrolytic stability (initial qualification): The connectors shall be subjected to the test specified in ASTM D570-95, paragraph 7.4, long-term immersion.

4.6.17.2 Hydrolytic stability (periodic qualification): The connectors shall be subjected to the test specified in ASTM D570-95, paragraph 7.5, 2 hour boiling water immersion.

5. PACKAGING:

5.1 Packaging requirements:

The requirements for packaging shall be in accordance with MIL-C-55330.

5.2 Assembly instructions:

Unless otherwise specified (see 3.1), assembly instructions shall be furnished with each connector accessory and included within the unit container. The assembly instructions shall be approved by the qualifying activity (see 6.6).

6. NOTES:

6.1 Intended use:

The connector accessories covered in this specification are intended for use with electrical connectors used in aircraft, missile, shipboard and ground support equipment. Composite connector accessories are intended for use with composite connectors only.

6.2 Ordering data:

6.2.1 Acquisition requirements: Acquisition documents should specify the following:

- a. Title, number and date of this specification.
- b. The complete part number in accordance with the applicable specification sheet (see 3.1).

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6.3 Definitions:

The following definitions apply to this specification:

- 6.3.1 Cable clamp: A connector accessory or part of a component to grip the cable or wire to provide strain relief and absorb mechanical stress which would otherwise be transmitted to the terminal.
- 6.3.2 Cable sealing: Connector accessories which provide waterproofing and environmental sealing under specified hydrostatic pressure.
- 6.3.3 Category types: The following definitions are applicable to categories 1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B and 4C:
- a. Heavy duty connector accessory (Category A). A connector accessory intended for use in the most extreme environment. This connector accessory withstands the most severe shock, vibration, cable pullout and external bending moment tests.
 - b. Medium duty connector accessory (Category B). A connector accessory intended for use in an environment less severe than the environment which requires a heavy duty connector accessory. This connector accessory withstands shock, vibration, cable pullout, and external bending moment tests which are less severe than tests for a heavy duty connector accessory.
 - c. Light duty connector accessory (Category C). A connector accessory intended for use in an environment less severe than the environment which requires a medium duty connector accessory. This connector accessory withstands vibration and external bending moment tests which are less severe than tests for a medium duty accessory. The cable pull-out test is not required for a light duty accessory.
- 6.3.4 Environmental: Connector accessories which provide humidity resistance.
- 6.3.5 Nonenvironmental: Connector accessories that do not provide humidity resistance.
- 6.3.6 Shield termination: Connector accessories which provide the capability of terminating an EMI/RFI cable shield over a wire bundle or cable.
- 6.3.7 Strain relief: Connector accessories which provide strain and side loading relief to wire bundles and cable support to jacketed cables.

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6.4 Abbreviations and acronyms:

The following abbreviations and acronyms apply to this specification:

AFB - Air Force Base
AQL - Accepted Quality Level
DOD - Department of Defense
DODISS - Department of Defense Index of Specifications and Standards
EMI - Electromagnetic Interference
MS - Military Standard
QPL - Qualified Products List
RFI - Radio Frequency Interference
SESD - Systems Engineering and Standardization Department

6.5 Subject term (key word) listing:

Connector Accessory
Cable Sealing
Environmental
Nonenvironmental
Strain Relief

6.6 Qualification:

With respect to products requiring qualification by the government, awards will be made only for products which are at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List (QPL), whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts for the products delineated in this specification. Qualification is required for U.S. Government procurement. The QPL Evaluating Activity, for U.S. Department of Defense procurement purposes, Naval Air Systems Command (Code 4.4.4.3), 48142 Shaw Road, Bldg. 3197, Suite E, Patuxent River, MD 20670. Application for qualification tests shall be made in accordance with provisions governing qualification SD-6 (see 2.2).

6.7 Cross reference of superseded documents:

The cross reference of MS and connector specification accessories with the corresponding AS85049 superseded specification sheet is defined in Table V.

6.8 Applicable connector accessory for connector specifications:

The applicable AS85049 connector accessory for the corresponding electrical connector specification is delineated in Table VI.

6.9 Connector accessory by similar groups:

The applicable connector accessory group for the corresponding electrical connector specification is delineated in Table VII. The AS85049 connectors accessories are listed into the following groups:

- a. Full Body Backshells
- b. Saddle Clamps
- c. Tie Wrap Backshells
- d. Rubber Boots
- e. Boot Adapters
- f. Shield Terminators
- g. Individual Shield Terminator
- h. Grommet Compressors
- i. Potting Boots
- j. MIL-DTL-5015 Solder Type, MS310X Connectors
- k. MIL-C-22992 Connectors, Classes C, J and R
- l. Split Backshells
- m. Threaded Adapters
- n. Copper Body Backshells
- o. Rectangular Backshells
- p. Nut Plates

Tables VI and VII are defined as an application guide only; for detailed information refer to the AS85049 specification sheet.

6.10 Not applicable to this specification.

6.11 The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document indicates a complete revision of the document.

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TABLE V. Cross reference of superseded documents.

Superseded Document	Superseded By	Superseded Document	Superseded By
MS3057 type A	AS85049/41	MS27485	AS85049/58
MS3057 type B	AS85049/1	MS27486	AS85049/75
MS3057 type C	AS85049/2	MS27487-1	AS85049/33-1
MS3057 type D	AS85049/42	MS27487-2	AS85049/32-1
MS3152	AS85049/53	MS27489	AS85049/32-2
MS3153	AS85049/54	MS27506-2	AS85049/49-2
MS3154	AS85049/55	MS27507	AS85049/47
MS3158	AS85049/60-1	MS27663-1	AS85049/45
MS3161	AS85049/26-2	MS27663-2	AS85049/46
MS3184	AS85049/34	MS27668 type R	AS85049/56
MS3188 type A	AS85049/8	MS27669	AS85049/57
MS3188 type B	AS85049/9	MS27670	AS85049/63
MS3188 type C	AS85049/24	MS90568	AS85049/59
MS3189 type A	AS85049/6	MS90569	AS85049/4-3
MS3189 type B	AS85049/7	MS90570	AS85049/5-3
MS3189 type C	AS85049/23	MS90571	AS85049/3-3
MS3415	AS85049/43	MIL-C-24308/19	AS85049/50
MS3416 style E	AS85049/31	MIL-C-24308/20	AS85049/48-1
MS3416 style G	AS85049/60-2	MIL-C-24308/21	AS85049/48-2
MS3417	AS85049/52-1	MIL-C-24308/22	AS85049/48-3
MS3418	AS85049/51-1	MIL-C-38999/1	AS85049/27
MS3419	AS85049/26-1	MIL-C-38999/2	AS85049/62
MS3437 type A	AS85049/10	MIL-C-38999/3	AS85049/33-2
MS3437 type B	AS85049/11	MIL-C-38999/4	AS85049/30
MS3437 type C	AS85049/25	MIL-C-38999/5	AS85049/17
MS17340 style 1	AS85049/3-1	MIL-C-38999/6	AS85049/29
MS17340 style 2	AS85049/3-2	MIL-C-38999/7	AS85049/36
MS17341 style 1	AS85049/5-1	MIL-C-38999/8	AS85049/37
MS17341 style 2	AS85049/5-2	MIL-C-83723/15 type N	AS85049/31
MS17342 style 1	AS85049/4-1	MIL-C-83723/15 type A	AS85049/51-1
MS17342 style 2	AS85049/4-2	MIL-C-83723/15 type S	AS85049/52-1
MS27332	AS85049/61	MIL-C-83723M	AS85049/60-2
MS27333	AS85049/74	MIL-C-83733/15	AS85049/28
MS27342-1	AS85049/35	MIL-C-83733/16	AS85049/44
MS27342-2	AS85049/49-1		

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TABLE VI. Applicable connector accessory for connector specifications.

Applicable Connector Type	AS85049 Specification Sheet	Category	Configuration	Self-locking Coupling Availability	Non-self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
1. MIL-DTL-5015 Solder Type, MS310X Connectors	1	1C	Straight	N/A	N/A	X				
	2	1C	Straight	N/A	N/A	X		X		
	41	4C	Straight	N/A	N/A	X		X		
	42	4A	Straight	N/A	N/A	X		X		
2. MIL-DTL-5015 CrImp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III	6	1A	45°		X	X	X	X	X	
	7	1A	45°		X	X	X	X	X	
	8	1A	90°		X	X	X	X	X	
	9	1A	90°		X	X	X	X	X	
	10	1A	Straight		X	X	X	X	X	
	11	1A	Straight		X	X	X	X	X	
	23	3A	45°		X	X	X	X	X	
	24	3A	90°		X	X	X	X	X	
	25	3A	Straight		X	X	X	X	X	
	26-1	3A	Straight		X	X	X	X	X	
	26-2	3A	Straight		X	X	X	X	X	
	26-3	3A	Straight		X	X	X	X	X	
	31	3B	Straight	1/		X	X	X	X	
	43	4B	45°	1/		X	X	X	X	
	51	4B	90°	1/		X	X	X	X	
	52	4B	Straight	1/		X	X	X	X	
	53	4C	Straight			X	X	X	X	
	54	4C	45°			X	X	X	X	
	55	4C	90°			X	X	X	X	
	60-1	5	Straight			X	X	X	X	
	60-2	5	Straight			X	X	X	X	
	66	4C	Straight			X	X	X	X	
	67	4C	90°			X	X	X	X	
	82	3B	Straight			X	X	X	X	
83	3B	45°			X	X	X	X		
84	3B	90°			X	X	X	X		
3. MIL-C-22992 Connectors, Classes C, J and R	3	1A	Straight	N/A	N/A	X	X			
	4	1A	Straight	N/A	N/A	X	X			
	5	1A	Straight	N/A	N/A	X	X			
	59	5	Straight		X					
	59	5	Straight							
4. MIL-DTL-24308 Connectors	48	4C	Straight	N/A	N/A					
	50	4C	90°	N/A	N/A					
5. MIL-C-26482 Series I, Jam Nut Receptacle Connector	34	3C			X					Threaded Adapter

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TABLE VI. Applicable connector accessory for connector specifications (continued)

Applicable Connector Type	AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
6. MIL-C-27599 Connectors	45 3/	4C	Straight	N/A	N/A			X		Nonmetallic
	46 3/	4C	90°	N/A	N/A			X		Nonmetallic
	61	5		N/A	N/A					Ring, Potting Boot
	74	7		N/A	N/A					Potting Boot
7. MIL-DTL-38999 Series I and II Connectors	17	2B	Straight	X	X		X	X	X	Individual Shielded Wire Termination
	27	3B	Straight		X					
	29	3B	Straight		X					
	30	3B	Straight		X					
	32-1	3C	90°		X				X	
	32-2	3C	90°		X				X	
	33-1	3C	Straight		X				X	
	33-2	3C	Straight		X				X	
	33-3	3C	Straight		X				X	
	35 4/	3C	Straight		X				X	
	36	3B	Straight		X				X	
	37	3B	90°		X				X	
	45 3/	4C	Straight	N/A	N/A			X		Split Nonmetallic
	46 3/	4C	90°	N/A	N/A			X		
	47	4C	90°	X	X			X		
	49	4C	Straight	X	X			X		
	56	4C	Straight	X	X			X		
	57	4C	45°	X	X			X		
	58	5			X					
	62	5	90°	N/A	X					Ring, Potting Boot Adapter Shrink Boot
63	4C	90°	X	X			X			
64	4C	Straight	X	X			X			
65	4C	90°	X	X			X			
75	7			N/A	N/A					Split Potting Boot Seal Plug
80	7			N/A	N/A					Seal Plug
81	7			N/A	N/A					Banding/Shrink Boot
85	3B	45°	1/	1/					X	Banding/Shrink Boot
86	3B	90°	1/	1/					X	Banding/Shrink Boot
87	3B			1/					X	Banding/Shrink Boot

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TABLE VI. Applicable connector accessory for connector specifications (continued)

Applicable Connector Type	AS85049 Specification Sheet	Category	Configuration	Self-locking Coupling Availability	Non-self-locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
8. MIL-DTL-38999 Series III and IV	14	38	Straight	X				X		
	15	4C	45°	X				X		
	16	4C	90°	X				X		
	18	2B	Straight		X		X	X		
	19	3B	Straight		X			X		
	20	3B	Straight		X			X		
	21	3B	Straight		X			X		
	38	4B	Straight	1/	X			X		
	39	4B	Straight	2/	X			X		
	69	5	90°		X			X		
	80	7			X			X		Adapter Shrink Boot
	81	7								
	88	3B	Straight	1/					X	Banding/Shrink Boot
	89	3B	45°	2/					X	Banding/Shrink Boot
	90	3B	90°	3/					X	Banding/Shrink Boot
	91	4C	Straight	4/					X	Composite
92	4C	90°	5/					X	Composite	
9. MIL-DTL-83733 Connectors	28	3B	Straight							
	44	4C	Straight					X		

1/ - Self-locking coupling is available as an Air Force 00 slash sheet.

2/ - Inactive for New Design or Modification of Existing Equipment.

3/ - Inactive for Air Force and Navy New Design Equipment or Modification of Existing Equipment.

4/ - Cancelled.

N/A - Not Applicable.

TABLE VII. Applicable connector accessory group for connector specifications.

1. FULL BODY BACKSHELLS										
A. MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III										
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other	
10	1A	Straight		X	X	X	X	X		
11	1A	Straight		X	X	X	X	X		Banding
25	3A	Straight	X	X	X	X	X	X		
83	3B	Straight		X	X	X	X	X		
6	1A	45°		X	X	X	X	X		
7	1A	45°		X	X	X	X	X		
23	3A	45°	X	X	X	X	X	X		Banding
84	3B	45°		X	X	X	X	X		
8	1A	90°		X	X	X	X	X		
9	1A	90°		X	X	X	X	X		
24	3A	90°	X	X	X	X	X	X		Banding
85	3B	90°		X	X	X	X	X		Banding
B. MIL-DTL-38999 Series I and II Connectors										
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other	
17	2B	Straight		X		X		X		
29	3B	Straight		X			X	X		
36	3B	Straight		X				X		
37	3B	90°		X			X	X		
85	3B	Straight	X	X				X		Split Banding
86	3B	45°	X	X				X		Banding
87	3B	90°	X	X				X		Banding
C. MIL-DTL-38999 Series III and IV Connectors										
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other	
18	2B	Straight		X				X		
19	3B	Straight		X			X	X		
21	3B	Straight	X	X			X	X		
88	3B	Straight	X	X			X	X		Banding
89	3B	45°	X	X			X	X		Banding
90	3B	90°	X	X			X	X		Banding
2. SADDLE CLAMPS										
A. MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III										
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other	
52	4B	Straight	1/	X			X			
43	4B	45°	1/	X			X			
51	4B	90°	1/	X			X			

TABLE VII. Applicable connector accessory group for connector specifications (continued)

B. MIL-DTL-38999 Series I and II Connectors										
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other	
49	4C	Straight 90°	X	X			X			
47	4C		X	X			X			
C. MIL-DTL-38999 Series III and IV Connectors										
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other	
38	4B	Straight 90° Straight 90°	1/	X			X		Composite Composite	
39	4B		1/	X			X			
91	4C		1/				X			
92	4C		1/				X			
3. TIE WRAP BACKSHELLS										
A. MIL-C-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III										
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other	
53*	4C	Straight 45° 90°		X			X			
54*	4C			X			X			
55*	4C			X			X			
B. MIL-DTL-38999 Series I and II Connectors										
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other	
56	4C	Straight 45° 90° Straight 90°	X	X			X		Nonmetallic Nonmetallic	
57	4C		X	X			X			
63	4C		N/A	X			X			
45**	4C		N/A	N/A			X			
46**	4C		N/A	N/A			X			

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TABLE VII. Applicable connector accessory group for connector specifications (continued)

C. MIL-DTL-38999 Series III and IV Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
15	4C	45°	X				X		Ground Lug Availability
16	4C	90°	X				X		Ground Lug Availability
D. MIL-C-27599 Series I Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
45** 46**	4C 4C	Straight 90°	N/A N/A	N/A N/A			X X		Nonmetallic Nonmetallic
4. RUBBER BOOTS									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
68 2/									
5. BOOT ADAPTERS									
A. MIL-C-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3, and MIL-DTL-83723 Series III									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
60-1 60-2	5 5	Straight Straight		X X					Shrink Boot Adapter Shrink Boot Adapter
B. MIL-DTL-30999 Series I and II Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
62	5	Straight		X					Shrink Boot Adapter

TABLE VII. Applicable connector accessory group for connector specifications (continued)

6. SHIELD TERMINATORS									
A. MIL-C-5015 Cr Imp, MIL-C-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
26-1 26-2 26-3	3A 3A 3A	Straight Straight Straight		X X X				X X X	
B. MIL-DTL-38999 Series I and II Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
33-2 33-3	3C 3C	Straight Straight		X X				X X	
C. MIL-DTL-38999 Series III and IV Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
20	3B	Straight		X				X	

TABLE VII. Applicable connector accessory group for connector specifications (continued)

7. INDIVIDUAL SHIELD TERMINATOR									
A. MIL-DTL-38999 Series I and II Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
30	38	Straight		X					Individual shield wire termination
8. GROMMET COMPRESSORS									
A. MIL-C-5015 Cr-imp, MIL-C-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
31	38	Straight	1/	X					
B. MIL-DTL-38999 Series I and II Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
27	38	Straight	X	X					
C. MIL-DTL-38999 Series III and IV Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
14	38	Straight	X						Ground Lug Availability

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TABLE VII. Applicable connector accessory group for connector specifications (continued)

9. POTTING BOOT, ACCESSORY									
A. MIL-DTL-38999 Series I and II Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
58	5			X					Ring, Potting Boot
75	7		N/A	N/A					Potting Boot
B. MIL-C-27599 Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
61	5		N/A	N/A					Ring, Potting Boot
74	7		N/A	N/A					Potting Boot
10. MIL-C-5015 SOLDER TYPE, MS310X CONNECTORS									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
1	4C	Straight	N/A	N/A	X				
2	4C	Straight	N/A	N/A	X				
41	4C	Straight	N/A	N/A			X		
42	4A	Straight	N/A	N/A			X		
11. MIL-C-22992 CONNECTORS, CLASSES C, J AND R									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
3	1A	Straight	N/A	N/A	X	X			
4	1A	Straight	N/A	N/A	X	X			
5	1A	Straight	N/A	N/A	X	X			

TABLE VII. Applicable connector accessory group for connector specifications (continued)

12. SPLIT BACKSHELLS									
A. MIL-DTL-5015 Crimp, MIL-C-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
66 67	4C 4C	Straight 90°		X X			X X		
B. MIL-DTL-38999 Series I and II Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
64 65	4C 4C	Straight 90°		X X			X X		Split Split
13. THREADED ADAPTERS									
A. MIL-DTL-38999 Series I and II Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
35***									
B. MIL-C-26482 Series I, Jam Nut Receptacle Connector									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
34	3C			X					Threaded Adapter

TABLE VII. Applicable connector accessory group for connector specifications (continued)

14. COPPER BODY BACKSHELLS									
A. MIL-DTL-38999 Series I and II Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
32-1	3C	90°		X				X	
32-2	3C	90°		X				X	
33-1	3C	Straight		X				X	
15. RECTANGULAR BACKSHELLS									
A. MIL-C-24308 Connectors									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
48	4C	Straight	N/A	N/A			X		
50	4C	90°	N/A	N/A			X		
B. MIL-C-83733 CONNECTORS									
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
28	3B	Straight							
44	4C	Straight					X	X	
AS85049 Specification Sheet	Category	Configuration	Self-Locking Coupling Availability	Non-Self-Locking Coupling Availability	Cable Sealing	Environmental	Strain Relief	Shield Termination	Other
94	7	Straight	N/A	N/A					Nut Plate
95	7	Straight	N/A	N/A					
96	7	Straight	N/A	N/A					

1/ - Self-locking is available as an Air Force 00 slash sheet.
 2/ - Superseded by MS3109(AS), MS3117(AS) and MIL-C-83723/16 Boots, Heat-Shrinkable.
 * - Inactive for New Design or Modification of Existing Equipment.
 ** - Inactive for Air Force and Navy New Design Equipment or Modification of Existing Equipment.
 *** - Cancelled.
 N/A - Not Applicable.

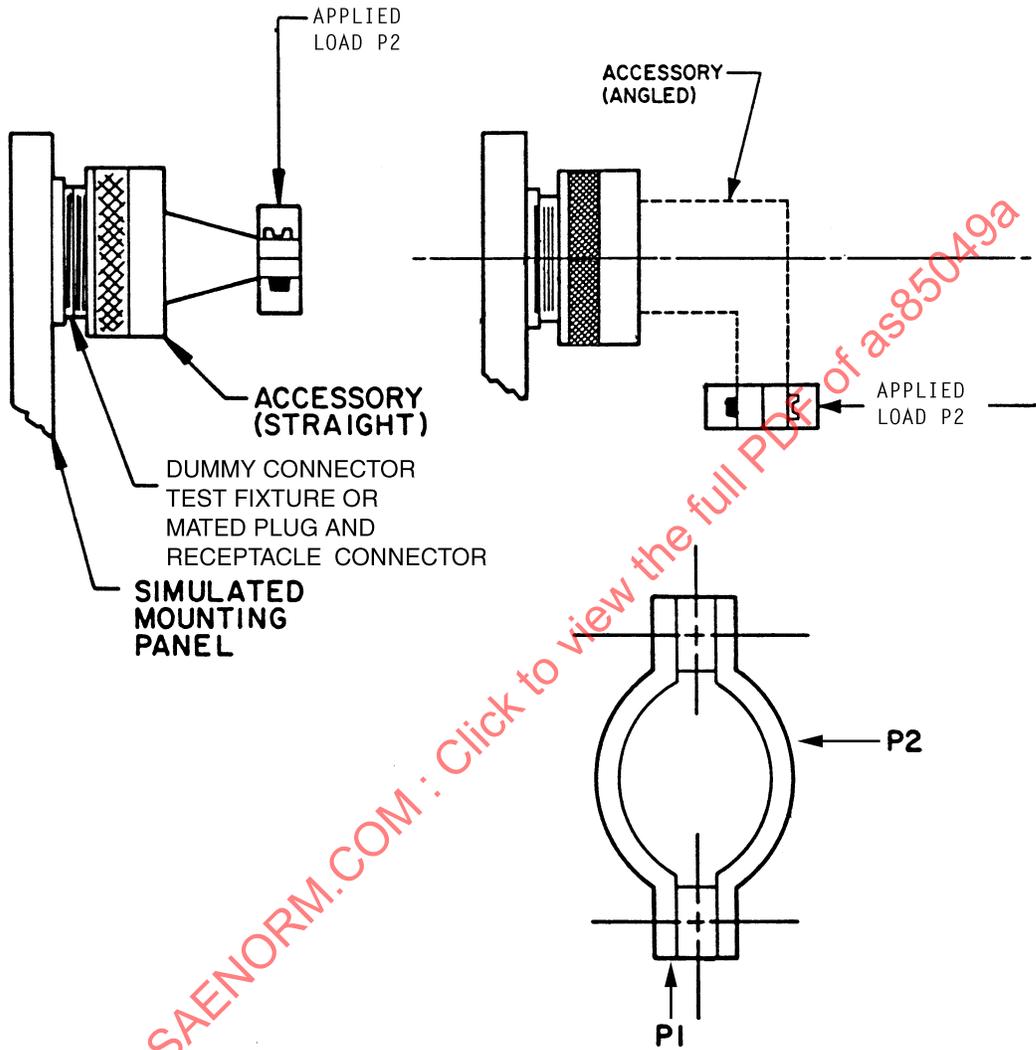
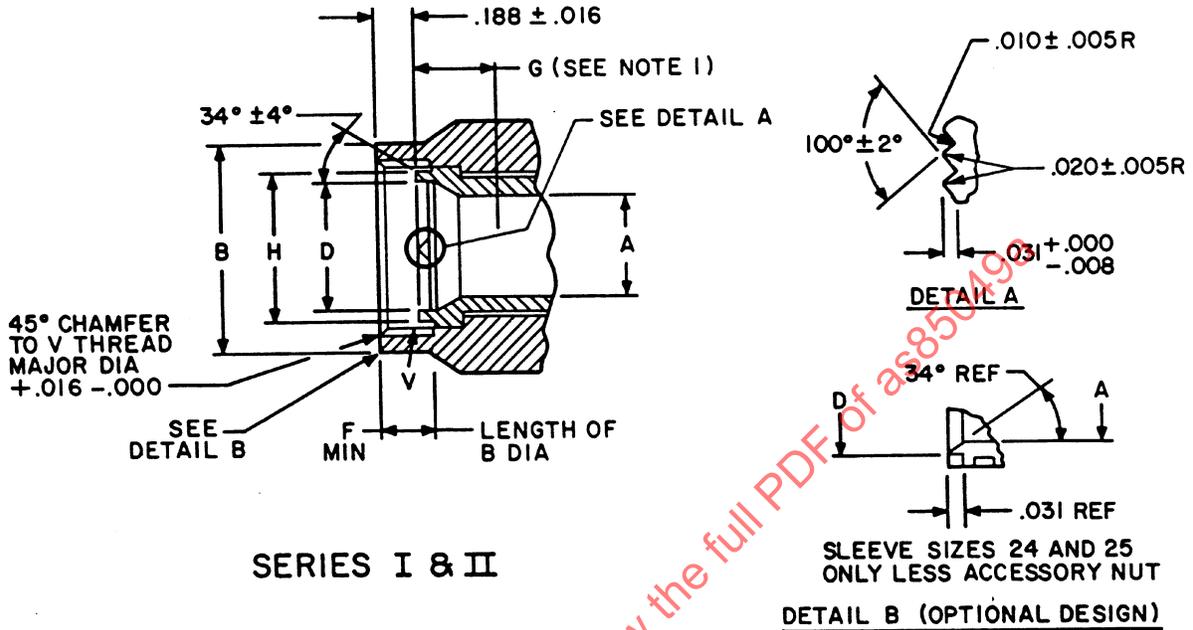


FIGURE 1. External bending moment test setup.

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NOTES:

1. Minimum penetration of "A" diameter from front of serrations.
2. Metric equivalents are based upon 1.00 inch - 25.4 mm and shall be in accordance with ASTM E380, paragraph 4.5, method A, and ASTM E29, rounding-off method.
3. Dimensions are in inches.

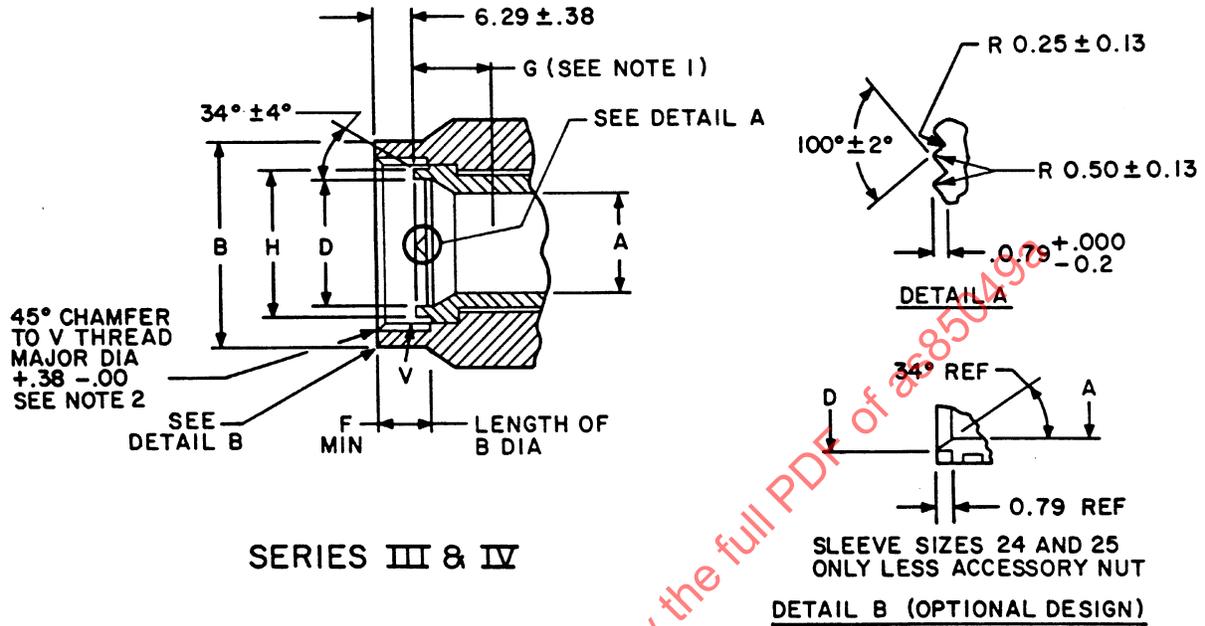
FIGURE 2. Connector accessory intermateability data for MIL-DTL-38999 connectors Series I and II.

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TABLE VIII. Connector accessory intermateability data
for MIL-DTL-38999 connectors Series I and II (Figure 2).

AS85049 Dash No.	MIL-DTL-38999 Shell Size		A Dia	B Dia	D Dia	F Min	G Min	H Dia Ref	N No. of Teeth	V Thread UNEF-2B (Plated)
	Series I	Series II								
08	9	8	.269 +.005 -.005	.567 +.000 -.062	.321 +.023 -.022	.084	.117	.386	12	.4375-28
10	11	10	.402 +.010 -.010	.704 +.000 -.062	.449 +.023 -.022	.084	.117	.503	16	.5625-24
12	13	12	.516 +.010 -.010	.829 +.000 -.062	.565 +.023 -.022	.084	.117	.628	20	.6875-24
14	15	14	.641 +.010 -.010	.954 +.000 -.062	.688 +.023 -.022	.084	.117	.742	24	.8125-20
16	17	16	.766 +.010 -.010	1.079 +.000 -.062	.813 +.023 -.022	.084	.117	.866	28	.9375-20
18	19	18	.863 +.019 -.019	1.203 +.000 -.062	.919 +.023 -.022	.172	.117	.984	32	1.0625-18
20	21	20	.988 +.018 -.018	1.329 +.000 -.062	1.044 +.023 -.022	.172	.117	1.109	36	1.1875-18
22	23	22	1.113 +.019 -.019	1.454 +.000 -.062	1.169 +.023 -.022	.172	.117	1.234	40	1.3125-18
24	25	24	1.238 +.019 -.019	1.579 +.000 -.062	1.290 +.019 -.018	.172	.067	1.359	44	1.4375-18

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NOTES:

1. Minimum penetration of "A" diameter from front of serrations.
2. Dimensions are millimeters.

FIGURE 3. Connector accessory intermateability data for MIL-DTL-38999 connectors Series III and IV.

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TABLE IX. Connector accessory intermateability date
for MIL-DTL-38999 connectors Series III and IV (Figure 3).

AS85049 Dash No.	MIL-DTL-38999 Shell Size		A Dia	B Dia	D Dia	F Min	G Min	H Dia Ref	N No. of Teeth	V Thread
	Series III	Series IV								
09	A	9	6.7 Min	15.24 Max	7.5 Min	2.1	2.9	10.57	12	M12x1.0-6H
11	B	11	9.9 Min	18.21 Max	10.8 Min	2.1	2.9	13.56	16	M15x1.0-6H
13	C	13	12.8 Min	21.18 Max	13.8 Min	2.1	2.9	16.58	20	M18x1.0-6H
15	D	15	16.0 Min	25.14 Max	16.9 Min	2.1	2.9	20.57	24	M22x1.0-6H
17	E	17	19.2 Min	28.12 Max	20.1 Min	2.1	2.9	23.57	28	M25x1.0-6H
19	F	19	21.4 Min	31.09 Max	22.8 Min	2.1	2.9	26.57	32	M28x1.0-6H
21	G	21	24.6 Min	34.06 Max	26.0 Min	2.1	2.9	29.57	36	M31x1.0-6H
23	H	23	27.7 Min	36.90 Max	29.1 Min	2.1	2.9	32.56	40	M34x1.0-6H
25	J	25	30.9 Min	39.88 Max	32.3 Min	2.1	1.7	35.56	44	M37x1.0-6H

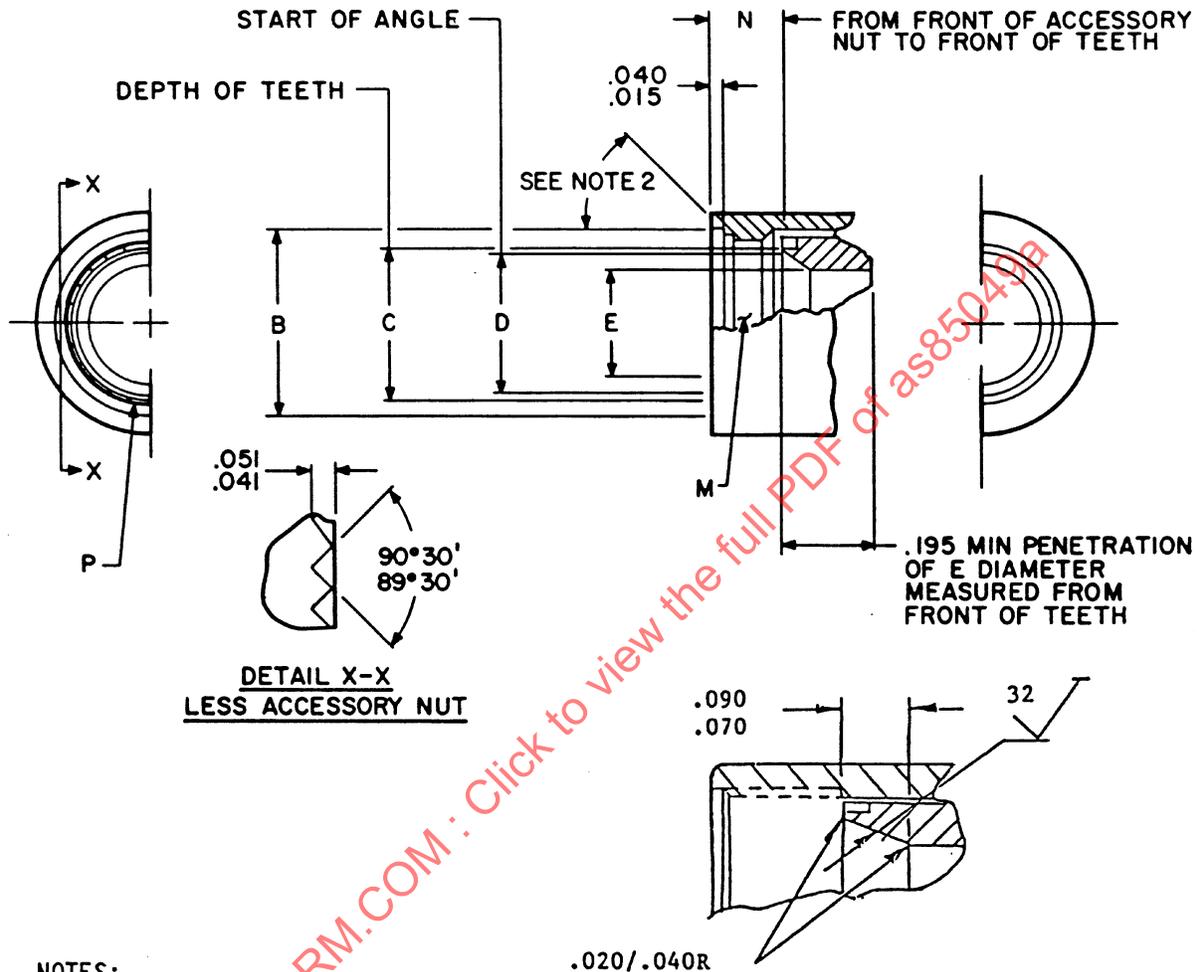
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TABLE IX. Connector accessory metric internal thread dimensions
for MIL-DTL-38999 connectors Series III and IV (X Thread, Table IX).

AS85049 Dash No.	Designation (Thread Size)	Minor Diameter		Pitch Diameter		Major Diameter	
		Min	Max	Min	Max	Min	Max
09	M12x1.0-6H 0.100R	10.917	11.153	11.350	11.510	12.000	12.304
11	M15x1.0-6H 0.100R	13.917	14.153	14.350	14.510	15.000	15.304
13	M18x1.0-6H 0.100R	16.917	17.153	17.350	17.510	18.000	18.304
15	M22x1.0-6H 0.100R	20.917	21.153	21.350	21.510	22.000	22.304
17	M25x1.0-6H 0.100R	23.917	24.153	24.350	24.520	25.000	25.314
19	M28x1.0-6H 0.100R	26.917	27.153	27.350	27.520	28.000	28.314
21	M31x1.0-6H 0.100R	29.917	30.153	30.350	30.520	31.000	31.314
23	M34x1.0-6H 0.100R	32.917	33.153	33.350	33.520	34.000	34.314
25	M37x1.0-6H 0.100R	35.917	36.153	36.350	36.520	37.000	37.314

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NOTES:

1. The first thread is to be chamfered.
2. Metric equivalents are based upon 1.00 inch = 25.4 mm and shall be in accordance with ASTM E380, paragraph 4.5, method A and ASTM E29, rounding-off method.
3. Dimensions are in inches.
4. This figure supersedes MS3155.

FIGURE 4. Connector accessory intermateability data for MIL-DTL-5015 crimp, MIL-C-26482 Series 2, AS81703 Series 3 and MIL-DTL-83723 Series III.