



## DEFENSE LOGISTICS AGENCY

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IN REPLY

REFER DSCC-VAI (Mr. Ron Gary/(614) 692-0568

May 21, 2004

### MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Drafts of MIL-PRF-49142/3F through /12D; Connectors, Plugs and Receptacles, Electrical, Triaxial, Radio Frequency, Series TRB and TRT; Project Numbers 5935-4682-001 through -010.

The initial drafts for this subject documents will be available for viewing and downloading from the DSCC-VAI Web site within the next 5 working days:

<http://www.dsccl.dla.mil/Programs/MilSpec/initialdrafts.asp>

Changes to this document include new part number additions that allow for the use of Nickel plated adapter bodies, contact resistance values for the new plating and format up dates. However, the entire set of specification sheets are offered up for comment.

Concurrence or comments are required at this Center within 45 days from the date of this letter. Late comments will be held for the next coordination of this document. Comments from Military Departments must be identified as either "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians, as applicable, in sufficient time to allow for consolidation of the Department reply.

Please forward your comments or concurrence electronically to the project officer listed below. This can be in the form of a return e-mail, with or without attached text files. If an electronic response is not possible, we will accept comments via letter, facsimilie, or phone call. Any further coordination concerning this document will be circulated only to firms and organizations that furnish comments or reply that they have an interest.

The point of contact for this document is Mr. Ron Gary. The preferred method of contact is via e-mail: [Estel.Gary@dla.mil](mailto:Estel.Gary@dla.mil). Mr. Gary can also be reached at 614-692-0568/DSN 850-0568, or by facsimilie 614-692-6940.

Sincerely,

/signed/

RICHARD L. TAYLOR  
Chief,  
Interconnection Devices Team

Note: This draft dated 12 May 2004, prepared by the Defense Supply Center Columbus (DSCC-VAI) has not been approved and is subject to modification.

**DO NOT USE PRIOR TO APPROVAL** (5935-4682-010)

INCH-POUND

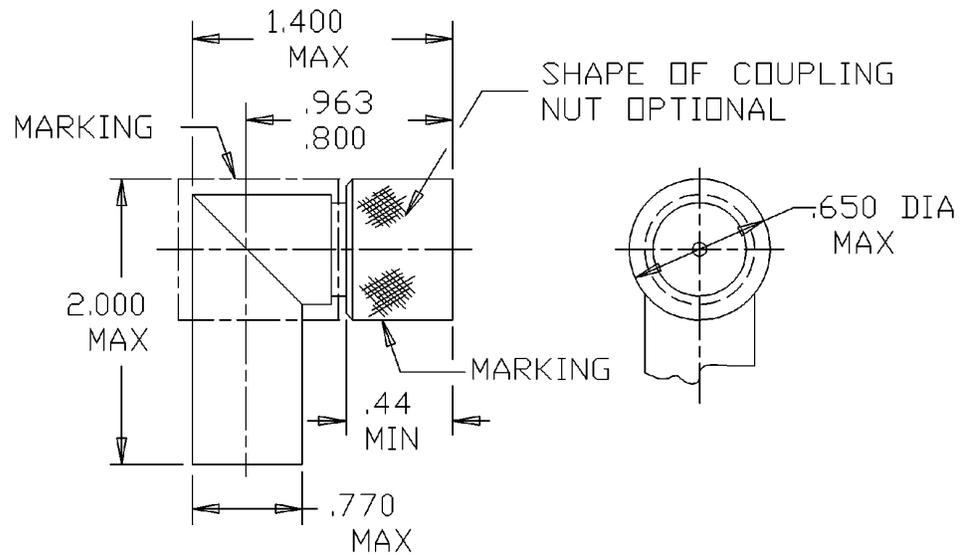
MIL-PRF-49142/12D  
**DRAFT**  
 SUPERSEDING  
 MIL-PRF-49142/12C  
 27 February 2002

PERFORMANCE SPECIFICATION SHEET

CONNECTORS, PLUG, ELECTRICAL, TRIAXIAL, RADIO FREQUENCY,  
 (SERIES TRT (CABLED) PIN CONTACT, RIGHT ANGLE, CLASS 2)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-PRF-49142.



Inches	mm
.44	11.18
.650	16.51
.770	19.56
.800	20.32
.963	24.46
1.400	35.56
2.000	50.80

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Wrench flats are to accommodate standard wrench openings in accordance with FED-STD-H28.
4. 2.000 (50.80 mm) defines the maximum length of the connector when assembled to the appropriate cable.
5. All undimensioned pictorial representations are for reference purpose only.
6. Interface shall be in accordance with MIL-STD-348, series TRT, pin contact.

FIGURE 1. General configuration.

MIL-PRF-49142/12D

ENGINEERING DATA:

Nominal impedance: Non-constant.

Frequency range: 0 to 500 MHz minimum.

Voltage rating: 400 V rms maximum working voltage at sea level. 100 V rms maximum working voltage at 70,000 feet.

Temperature range: -65°C to +165°C.

REQUIREMENTS:

Dimensions and configuration: See figure 1 and MIL-STD-348.

Force to engage and disengage:

Longitudinal force: Not applicable.

Torque: 2.5 inch-pounds maximum.

Coupling proof torque: 15 inch-pounds minimum.

Inspection conditions: 15-inch-pounds minimum.

Mating characteristics: See MIL-STD-348 for dimensions.

Intermediate contact:

Test ring ID: .169 inch maximum, 16-microinch finish.

Insertion force: 3 pounds maximum when inserted a minimum of .093 inch.

Contacts with slotted members: Shall contact a .173 inch minimum diameter ring within .031 inch of their tip ends.

Outer contact:

Test ring ID: .319 inch maximum. 16-microinch finish.

Insertion force: 5 pounds maximum when inserted a minimum of .093 inch.

Contacts with slotted members: Shall contact a .324 inch diameter ring within .031 inch of their tip ends.

Permeability: Applicable.

Hermetic seal: Not applicable.

Leakage: To be added.

Insulation resistance: 5,000 megohms.

Inner conductor retention: 6 pounds minimum axial force.

Dielectric withstanding voltage: At sea level, 1,200 V rms, between center conductor and intermediate conductor. 500 V rms, between intermediate conductor and outer conductor.

Salt spray (corrosion): Applicable.

Vibration: Applicable.

Shock: Applicable.

Thermal shock: Applicable (except high test temperature shall be +200°C for connectors using +200°C cables).

Moisture resistance: Applicable.

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Conductor resistance: In milliohms, maximum.

	<u>Initial</u>	<u>After environment</u>
Center conductor:	2.0	2.5
Intermediate conductor	0.5	0.6
Outer conductor (Silver)	0.2	0.3
Outer conductor (Nickel)	0.4	0.6

Dash number and applicable cable: See table I.

TABLE I. Dash number and applicable cable.

Dash number (X in the dash number allows material options, refer to the basic document)	Cable <u>1/</u>
Category A – No special tools required <u>2/ 3/ 8/</u>	
X001	M17/134-00001 M17/134-00003
X002	M17/134-00002 M17/134-00004
X003 <u>4/</u>	D3-7619-5/336
X004 <u>4/</u>	D3-7619-5/338
X005	M17/116-RG307
X006	M17/176-00002 <u>5/</u>
X007	M17/177-00001 <u>5/</u>
X008	M17/178-00001
X009	M17/179-00001
X010	M24643/33-01UN
X011	M17/135-00003 M17/135-00005
X012	M17/135-00004 M17/135-00006

See footnotes at end of table.

TABLE I. Dash number and applicable cable – Continued.

Dash number (X in the dash number allows material options, refer to the basic document)	Cable <u>1/</u>
Category G – Use of MIL-C-22520 tool required for assembly <u>2/</u> <u>6/</u> <u>7/</u> <u>8/</u>	
X013	M17/134-00001 M17/134-00003
X014	M17/134-00002 M17/134-00004
X015	M17/116-RG307
X016	M17/45-RG108 M17/186-00001
X017	M17/176-00002 <u>5/</u>
X018	M17/177-00001 <u>5/</u>
X019	M17/178-00001
X020	M17/179-00001
X021	M24643/33-01UN
X022	M17/135-00003 M17/135-00005
X023	M17/135-00004 M17/135-00006

1/ The latest version of each cable shall be applicable.

2/ These connectors have captivated center contacts.

3/ Not for Navy use. **THIS NOTE WILL BE DELETED.**

4/ Inactive for new design (see table III).

5/ Cables to be used for the +200°C thermal shock test.

6/ These connectors are assembled using the applicable crimping tool to the specified cables.

7/ Complete connector assembly shall consist of a body, center contact, intermediate contact, ferrule, and assembly instructions.

8/ The "X" is placed in the dash number to allow the user connector body plating options provided in the General specification. Only connectors of the same materials are to be intermated to reduce the possibility of dissimilar problems, including galvanic corrosion.

Corona level:

Altitude: 70,000 feet.

Voltage: 200 V rms minimum.

RF high potential withstanding voltage:

800 V rms, between center conductor and intermediate conductor.

200 V rms, between intermediate conductor and outer conductor at 5 MHz to 7.5 MHz.

Leakage current: Not applicable.

Cable retention force (for cable .200 inch to .325 inch outside dimension). 40 pounds minimum.

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Coupling mechanism retention force: 100 pounds minimum.

Rise time degradation: 400 picoseconds maximum. (Not applicable to connectors using twin conductor cables.)

Connector durability: 500 cycles minimum at 12 cycles per minute maximum.

Part or Identifying Number (PIN): M49142/12- (dash number from table I). **CAUTION: A NICKEL PLATED BODY COMBINATION IS AVAILABLE. THIS COMBINATION IS NOT FOR USE IN APPLICATIONS WHERE PASSIVE INTERMODULATION GENERATION (PIM) MAY BE A CONCERN.**

Group qualification: See table II.

Cross-reference of cables: See table III.

Retention of qualification: See table IV.

TABLE II. Group qualification. 1/

Groups	Submission and qualification of any of the following dash numbers	Qualifies the following dash numbers
I	X001 X002 X005 X007	X001 X002 X005 X007
II	X003 X004 X008 X009	X003 X004 X008 X009
III	X012 X006	X012 X006
IV	X013 X014 X015 X018	X013 X014 X015 X018
V	X021 X016 X017	X021 X016 X017
VI	X019 X020	X019 X020
VII	X011 X012	X011 X012
VIII	X022 X023	X022 X023

1/ If a connector manufacturer produces a connector which meets all the requirements for two or more connector PIN'S (within same series), the manufacturer may receive qualification approval for two or more connector PINs by qualifying the one connector. It is not necessary that such connectors be in the same group. Each connector, however, must be marked with its own appropriate PIN. For group qualification, the connectors must be of similar design. Qualification of connectors qualifies connectors of the same body material and finish only. X Designates body material and finish.

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TABLE III. Cross-reference of cables.

Preferred cable	Superseded cable
M17/177-00001	380-10045-1
M17/178-00001	D3-7619-5/336
M17/179-00001	D3-7619-5/338

TABLE IV. Retention of qualification. <sup>1/</sup>

Subgroup	/3 & /8		/4 & /10	/5 & /9		/6 & /11	
1	/3-X008	---	/4-X004	---	---	---	---
2	/3-X008	/8-X006	/4-X004	---	---	---	/11-X006
3	/3-X008	/8-X006	---	---	---	---	---
4	/3-X008	/8-X006	---	---	---	/6-X007	/11-X006
5	/3-X008	---	/4-X004	---	---	---	---
Units	15	9	9	0	0	3	6

<sup>1/</sup> The X in the dash number refers to body material and finish combinations. Only connector combinations of the same material and finish allow for retention of that specific connector. Refer to the basic specification for the material and finish requirements.

Referenced documents:

MIL-PRF-49142  
MIL-C-17  
MIL-C-22520  
MIL-STD-348

NOTE: Revision letters are not used to denote changes due to the extensiveness of the changes.

CONCLUDING MATERIAL

Custodians:

Army - CR  
Navy - EC  
Air Force - 11  
NASA - NA  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5935-4682-010)

Review activities:

Army - AR, AT, MI  
Navy - AS, MC, OS, SH  
Air Force - 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at [www.dodssp.daps.mil](http://www.dodssp.daps.mil).