

INCH-POUND

MIL-PRF-49142/9D
w/Amendment 1
22 March 2016
SUPERSEDING
MIL-PRF-49142/9D
18 April 2005

PERFORMANCE SPECIFICATION SHEET

CONNECTOR, TRIAXIAL, RADIO FREQUENCY, (SERIES TRT (CABLED))
RECEPTACLE, SOCKET CONTACT, JAMNUT MOUNTED, 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 sheet and MIL-PRF-49142.

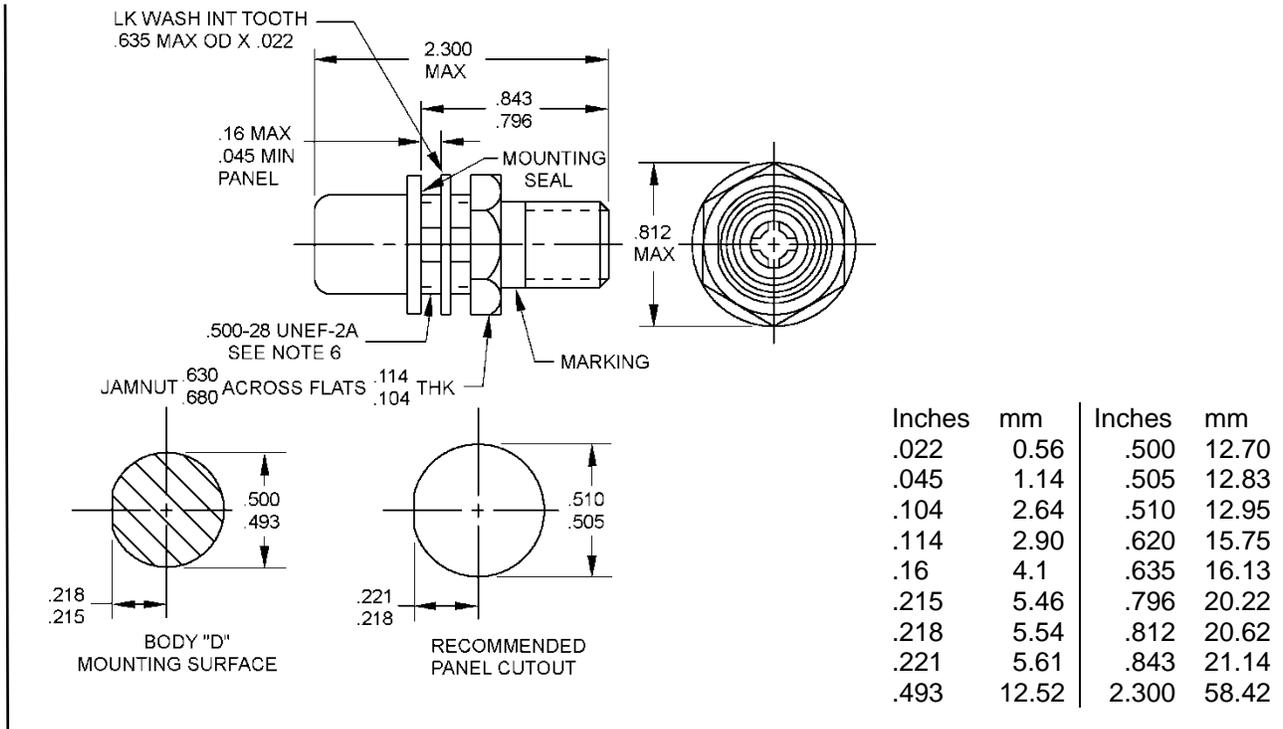


FIGURE 1. General configuration.

AMSC N/A

FSC 5935



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NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Wrench flats are to accommodate standard wrench openings in accordance with FED-STD-H28.
4. 2.300 (58.42 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. Full threads to within .063 (1.60 mm) of shoulder.
7. Interface shall be in accordance with MIL-STD-348, series TRT, socket contact.

FIGURE 1. General configuration – Continued.

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 (4.437 kPa).

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 (0.28 Nm) maximum.

Coupling proof torque: Not applicable.

Inspection conditions: Coupling torque: 4 to 6 inch-pounds (0.45 Nm to 0.68 Nm).

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

Center contact (socket):

Oversize test pin: 0.040 inch (1.02 mm) diameter minimum (nonclosed entry contacts only).

Insertion depth: .125 inch (3.17 mm) minimum.

Number of insertions: 1.

Insertion force test:

Steel test pin finish: 16 microinches (0.406 μ m).

Insertion force: 2 pounds (8.90 N) maximum.

Steel test pin diameter: .039 inch (0.99 mm) minimum, +.001 inch (0.02 mm).

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Withdrawal force test:

Steel test pin diameter: .037 inch (0.94 mm) maximum -.001 inch (0.02 mm).
Withdrawal force: 2 ounces (0.56 N) minimum.
Test pin finish: 16 microinches (0.406 μ m).

Permeability: Applicable.

Hermetic seal: Not applicable.

Leakage: Not applicable.

Insulation resistance: 5,000 megohms.

Center conductor retention: 6 pounds (26.69 N) 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.

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 plated)	0.2	0.3
Outer conductor (Nickel plated)	0.4	0.6

Dash number and applicable cable: See table I.

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TABLE I. Dash number and applicable cable.

Dash number ("X" in the dash number allows material options, refer to the basic document) <u>1/</u>	Cable <u>2/</u>
Category A – No special tools required <u>3/</u> <u>4/</u>	
X001	M17/134-00001 M17/134-00003
X002	M17/134-00002 M17/134-00004
X003 <u>5/</u>	D3-7619-5/336
X004 <u>5/</u>	D3-7619-5/338
X005 <u>5/</u>	380-10045-1
X006	M17/176-00002 <u>6/</u>
X007	M17/116-RG307
X009	M17/177-00001 <u>6/</u>
X010	M17/178-00001
X011	M17/179-00001
X012	M24643/33-01UN
X022	M17/135-00003 M17/135-00005
X023	M17/135-00004 M17/135-00006

See notes at end of table.

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TABLE I. Dash number and applicable cable – Continued.

Dash number ("X" in the dash number allows material options, refer to the basic document) <u>1/</u>	Cable <u>2/</u>
Category G – Use of MIL-DTL-22520 tool required for assembly <u>3/</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>6/</u>
X018	M17/177-00001 <u>6/</u>
X019	M17/178-00001
X020	M17/179-00001
X021 X021	M24643/33-01UN
X024	M17/135-00003 M17/135-00005
X025	M17/135-00004 M17/135-00006

1/ 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.

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

3/ These connectors have captivated center contacts.

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

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

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

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

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

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Corona level:

Altitude: 70,000 feet (4.437 kPa).

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 (5.08 mm) to .325 inch (8.25 mm) outside dimension): 40 pounds (177.93 N) minimum.

Coupling mechanism retention force: Not applicable.

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): M49142/09- (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.

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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 X009	X001 X002 X005 X007 X009
II	X003 X004 X010 X011	X003 X004 X010 X011
III	X006 X012	X006 X012
IV	X013 X014 X015 X018	X013 X014 X015 X018
V	X021 X016 X017	X021 X016 X017
VI	X019 X020	X019 X020
VII	X022 X023	X022 X023
VIII	X024 X025	X024 X025

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 PIN's 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.

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

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TABLE IV. Retention of qualification.

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

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Referenced documents. In addition to MIL-PRF-49142, this document references the following:

MIL-DTL-22520
FED-STD-H28
MIL-STD-348

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force - 85
NASA - NA
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-2016-058)

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 <https://assist.dla.mil>.