

AEROSPACE INFORMATION REPORT

SAE AIR1402

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Common Termination Method, Electrical
Wiring System, Application of

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1. PURPOSE:

This Aerospace Information Report (AIR) defines guidelines for a COMMON TERMINATION METHOD as applied to an electrical wiring system for installation in an aerospace vehicle.

2. SCOPE:

This report defines the guidelines for a COMMON TERMINATION METHOD for aerospace vehicle electrical wiring systems and shows how designers can select a minimum number of different parts, among preferred connecting devices that will satisfy all system requirements while achieving the objective of minimum cost in procurement, assembly and maintenance without compromising quality or reliability.

3. COMMON TERMINATION METHOD (CTM):

Common Termination Method is achieved when all the terminations of an electrical wiring system have been accomplished with:

Common Connecting Devices: These may vary in shape, but are common when the connecting devices selected for a system use interchangeable contacts, interchangeable rear accessories and use identical contact assembly tools and methods.

Common Contacts: Contacts are restricted to one type only for each required size, 22 through 0, to fit all of the connecting devices selected for the system.

Common Rear Accessories: Rear accessories may vary in shape but are common only when these are interchangeable among the connecting devices selected, cylindrical interchangeable with cylindrical connectors and rectangular interchangeable with rectangular connectors, and the back-end (wire entry) of the rear accessories selected all have identical assembly and cable termination methods.

Common Assembly Tools: Tools to crimp, insert and extract contacts are restricted to one set of tools for each given contact size required for the system.

4. GENERAL:

- 4.1 Connecting devices required to attach and detach electrical wires from electrical/avionic equipment installed in an aerospace vehicle can be generally categorized in three (3) categories:

Cable to Panel Application: Cylindrical connectors with threaded, bayonet or push-pull coupling.

Rack to Panel Application: Rectangular or Cylindrical connectors with blind-mate coupling.

Component Termination and Bussing Application: For terminating wires at junctions or electrical equipment such as switches, relays, etc.

All three categories involve military-type connecting devices with crimp removable, rear release and front release contacts. Some of these connecting devices of the various specifications specify use of contacts, rear accessories and contact assembly tools which are common to each other. These are the ones that should be sought out and selected to achieve commonality.

CAUTION: Use of both front and rear release contacts in the same vehicle should be avoided to prevent potential connector damage that can occur by use of wrong installing/removal tools, and to prevent the insertion of the wrong type of contacts.

- 4.2 In-as-much as the connecting devices with rear release contacts can provide commonality in an aerospace vehicle's wiring system, this AIR will identify only those connecting devices with rear release contacts. These are:

MIL-C-5015:	MS3450 Series, Threaded Coupling
MIL-C-26482:	Series 2, Bayonet Coupling
MIL-C-83723:	Series 3, Threaded and Bayonet Coupling
MIL-C-81703:	Series 3, Push-Pull and Blind Mate Coupling
MIL-C-38999:	Series I and II, Bayonet Coupling
MIL-C-83733:	Blind Mate Coupling
MIL-C-81659:	Series 2, Blind Mate Coupling