



Standard Practice for Maintenance of Aircraft Electrical Wiring Systems¹

This standard is issued under the fixed designation F2799; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 *Definition*—This practice defines acceptable practices and processes for the maintenance, preventative maintenance, and repair of electric systems in general aviation aircraft. This practice does not change or create any additional regulatory requirements nor does it authorize changes in or permit deviations from existing regulatory requirements.

1.2 *Applicability*—The guidance provided in this practice is directed to air carriers, air operators, maintenance providers, repair stations, and anyone performing maintenance or repairs.

1.3 *Protections and Warnings*—This practice provides guidance to minimize contamination and accidental damage to electrical wiring interconnection systems (EWIS) while working on aircraft.

1.4 *“Protect and Clean As You Go” Philosophy*—This philosophy is applied to aircraft wiring through inclusion in operators’ maintenance and training programs. This philosophy stresses the importance of protective measures when working on or around wire bundles and connectors. It stresses how important it is to protect EWIS during structural repairs, (STC) installations, or other alterations by ensuring that metal shavings, debris, and contamination resulting from such work are removed.

1.5 *Units*—The values given in inch-pound units are to be regarded as the standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

NOTE 1—When SI units are required, refer to Annex 5 of ICAO.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

¹ This practice is under the jurisdiction of ASTM Committee F39 on Aircraft Systems and is the direct responsibility of Subcommittee F39.02 on Inspection, Maintenance, and Repair.

Current edition approved May 1, 2014. Published June 2014. Originally approved in 2009. Last previous edition approved in 2009 as F2799 – 09. DOI: 10.1520/F2799-14.

2. Referenced Documents

2.1 ASTM Standards:²

F2490 Guide for Aircraft Electrical Load and Power Source Capacity Analysis

F2639 Practice for Design, Alteration, and Certification of Airplane Electrical Wiring Systems

2.2 ICAO Standard:

ICAO Annex 5 Units of Measurement to Be Used in Air and Ground Operations³

2.3 JEDEC Standard:

EIA 471 Symbol and Label for Electrostatic Sensitive Devices⁴

2.4 NEMA Standard:

WC 27500 Standards for Aerospace and Industrial Electric Cable⁵

2.5 RTCA Standard:

DO-160C Environmental Conditions and Test Procedures for Airborne Equipment⁶

2.6 SAE Standards:

AS 4372 Performance Requirements for Wire, Electric, Insulated Copper or Copper Alloy⁷

AS 4373 Test Methods for Insulated Electric Wire⁷

AS 21919 Clamp, Loop Type, Cushioned Support⁷

AS 50881 Wiring Aerospace Vehicle⁷

ARP 1870 Aerospace Systems Electrical Bonding and Grounding for Electromagnetic Compatibility and Safety⁷

ARP 1928 Torque Recommendations for Attaching Electrical Wiring Devices to Terminal Boards or Blocks, Studs, Posts, Etc.⁷

2.7 Federal Standards:

Advisory Circular 20-53A Protection of Aircraft Fuel Systems against Fuel Vapor Ignition due to Lightning

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

³ Available from ICAO, Customer Services Unit, 999 University St., Montreal, Quebec, H3C 5H7, Canada.

⁴ Available from the JEDEC Solid State Technology Association, 3103 N. 10th St., Suite 240-S, Arlington, VA 22201.

⁵ Available from National Electrical Manufacturers Association (NEMA), 1300 N. 17th St., Suite 1752, Rosslyn, VA 22209, <http://www.nema.org>.

⁶ Available from RTCA, Inc., 1828 L St., NW, Suite 805, Washington, DC 20036.

⁷ Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.