

## Wiring & Electrical Terms (FAA)

**Arc tracking**—A phenomenon in which a conductive carbon path forms across an insulating surface. This carbon provides a short circuit path through which current can flow. Arc tracking is normally a result of electrical arcing. Also referred to as "carbon arc tracking," "wet arc tracking," or "dry arc tracking."

**Aircraft Evaluation Group (AEG)**—Flight Standards Service (AFS) representatives who know the operational and maintenance aspects of a certification project and are responsible for helping to determine their operational suitability. This role includes providing support to the cognizant ACO in the review and approval of the initial ICA and later changes to it related to the safety initiatives referenced in this AC.

**Aircraft Maintenance Manual**—A manual developed by the manufacturer of a particular airplane that contains information necessary for the continued airworthiness of that airplane.

**Auxiliary Tanks**—Fuel tanks installed in an airplane which make additional fuel available for increasing the flight range of that airplane. The term "auxiliary" means that the tank is secondary to the airplane's main fuel tanks. Auxiliary tanks have been installed in various locations, including center wing structure, horizontal stabilizers, wings, and cargo compartments.

**Combustible**—For the purposes of this AC, the term combustible refers to the ability of any solid, liquid, or gaseous material to cause a fire to be sustained after removal of the ignition source. The term is used in place of inflammable/flammable. It should not be interpreted as identifying material that will burn when subjected to a continuous source of heat as occurs when a fire develops.

**Contamination**—For the purposes of this AC, wiring contamination refers to either of the following:

- Presence of a foreign material likely to cause degradation of wiring.
- Presence of a foreign material that is combustible, or capable of sustaining a fire after removal of ignition source.

**Detailed Inspection (DET)**—An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. DET is discussed in greater detail in paragraph 10b(2) of this AC.

**Effective Task/Task Interval**—An "effective" task is an inspection or maintenance task, performed at defined intervals, that will ensure that the desired outcome of the task is achieved. To be effective the task must reduce the risk of wire failure, to ensure safe operation. For example, a cleaning task to remove contaminants that have accumulated on a wire bundle would be considered effective if it cleaned the bundle sufficiently to minimize the potential of contaminant-induced failure of the bundle, and allow an inspection for wire defects to be performed. The methods and intervals for performing an effective task are developed using a combination of standard industry practices, expert opinion, and engineering judgment from operators, manufacturers, and regulatory authorities. The criteria for the effectiveness of a task should include

safety and operational, as well as economic, considerations. Tasks should, at a minimum, be such that they will effectively accomplish all of the following:

- Make identification of failures possible.
- Detect wire degradation with frequent and consistent inspection intervals.
- Reduce the risk of failures.

**Electrical Wire Interconnection Systems (EWIS)**—An EWIS is defined by 14 CFR section 25.1701. As defined by that section, EWIS means any wire, wiring device, or combination of these, including termination devices, installed in any area of the airplane for the purpose of transmitting electrical energy between two or more intended termination points. The complete regulatory definition appears in Appendix E to this AC.

**Environmentally Sealed Splice**—A wire splice that ensures that moisture or fluid will not penetrate the spliced area.

**Enhanced Zonal Analysis Procedure (EZAP)**—A logical process for developing maintenance and inspection instructions for Electrical Wiring Interconnection System (EWIS).

**FAA Oversight Office**—The FAA Oversight Office is defined by 14 CFR section 26.3 as “the aircraft certification office or office of the Transport Airplane Directorate with oversight responsibility for the relevant type certificate, supplemental type certificate, or manufacturer, as determined by the Administrator.”

**Flammable fluid leakage zone**—Any area where flammable liquids or vapors are not intended to be present, but where they might exist due to leakage from flammable-fluid-carrying components (e.g. leakage from tanks, lines). These zones are typically identified by the airplane manufacturer. 11/23/07

Examples of such areas include:

- The wing leading and trailing edges (including any adjacent compartment such as the strut)
- Fairings located below the fuel tanks
- Wheel wells
- Fuel pump enclosures
- Unpressurized areas of the fuselage surrounding fuel tanks
- Areas containing flammable fluid lines or tanks

**Flight Standards Service (AFS) Offices**—Offices located in FAA headquarters (for transport category airplanes, AFS-200/-300) responsible for developing guidance and policy for AEG personnel who may assist cognizant Aircraft Certification Offices (ACO) and AFS field personnel (aviation safety inspectors) in the conduct of their responsibilities.

**Functional Failure**—Failure of an item to perform its intended function within specified limits.

**General Visual Inspection (GVI)**—A visual examination of an interior or exterior

area, installation, or assembly to detect obvious damage, failure, or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight, or droplight and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked.

**Instructions for Continued Airworthiness (ICA)**—The information documented in accordance with 14 CFR 25.1529 that includes the applicable methods, inspections, processes, procedures, and airworthiness limitations required to keep the airplane airworthy throughout its operational life.

**Lightning/High Intensity Radiated Field (L/HIRF) Protection**—The protection of airplane electrical systems and structure from induced voltages or currents by means of shielded wires, raceways, bonding jumpers, connectors, composite fairings with conductive mesh, static dischargers, and the inherent conductivity of the structure; may include aircraft specific devices, e.g., RF (radio frequency) gaskets.

**Maintenance**—As defined in 14 CFR 1.1, “maintenance means inspection, overhaul, repair, preservation, and the replacement of parts, but excludes preventive maintenance.” For the purposes of this advisory circular, maintenance also includes preventive maintenance, as described in both § 1.1 11/23/07 and 14 CFR part 43, Appendix A(c). Section 1.1 of 14 CFR provides the following definition: “Preventive maintenance means simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations.” Appendix A(c) of 14 CFR part 43 lists the tasks that are considered preventive maintenance.

**Maintenance Instructions**—Information that provides recommended periods for cleaning, inspection, adjustment, testing, lubrication, degree of inspection, applicable wear tolerances, and recommended work necessary for each part of the airplane and its engine auxiliary power units, propellers, accessories, instruments, and equipment to provide for continued airworthiness of the airplane. Recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the maintenance manual are also included.

**Maintenance Significant Item (MSI)**—Items (system or component) identified by the manufacturer whose failure could have one or more of the following results or characteristics –

- Could affect safety (on ground or in flight).
- Is undetectable during operations (on ground or in flight).
- Could have significant operational impact.
- Could have significant economic impact.

**MRB Report—Maintenance Review Board (MRB) Report** (Transport Category Aircraft). A report intended for use by air carriers that contains the initial minimum scheduled maintenance and inspection requirements for a particular transport category aircraft maintenance program. Air carriers use the MRB

report and its associated requirements to develop maintenance programs. See AC 121-22A Maintenance Review Board Procedures for more information.

**Needling**— The puncturing of a wire’s insulation to make contact with the core to test the continuity and presence of voltage in the wire segment.

**Stand-Alone GVI**—A general visual inspection which is not performed as part of a zonal inspection. Even in cases where the interval coincides with the zonal inspection, the stand-alone GVI remains an independent step on the work card.

**Structural Significant Item (SSI)**—Any detail, element, or assembly that contributes significantly to carrying flight, ground, pressure, or control loads and whose failure could affect the structural integrity necessary for the safety of the aircraft.

**Swarf**—British term used to describe the metal particles generated from drilling and machining operations. Such particles may accumulate on and between wires within a wire bundle.

**Zonal Inspection**—A collective term comprising selected general visual inspections and visual checks that are applied to each airplane zone, defined by access and area, to check system and power plant installations and structure for security and general condition. Zonal inspections are discussed in greater detail in section 10 of this AC.