



Designation: **F3060–15b F3060 – 16**

## Standard Terminology for Aircraft<sup>1</sup>

This standard is issued under the fixed designation F3060; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

### 1. Scope

1.1 This terminology contains a listing of terms, abbreviations, acronyms, and symbols related to aircraft covered by ASTM Committees F37 and F44 airworthiness design standards. It is intended to ensure the consistent use of terminology throughout all ASTM light aircraft standards.

1.2 *Units*—The definitions of units will be as defined in NIST SP 330 and will not be duplicated in this document. NIST SP 330 is available on the internet. The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

1.3 *Source References*—The listed document(s) was/were the original source for the definition. However, the definition may have been edited for use in this document and the F37 and F44 standards and may not completely match the original in every respect.

1.4 A definition adapted from a particular standard within the ASTM aircraft collection of standards is not limited to use within only those standards.

1.5 *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.*

### 2. Referenced Documents

NOTE 1—All terms will reference the source of the definition. Any terms not referencing their source will be considered for deletion.

#### 2.1 ASTM Standards:<sup>2</sup>

- F2241 Specification for Continued Airworthiness System for Powered Parachute Aircraft
- F2242 Specification for Production Acceptance Testing System for Powered Parachute Aircraft
- F2243 Specification for Required Product Information to be Provided with Powered Parachute Aircraft
- F2244 Specification for Design and Performance Requirements for Powered Parachute Aircraft
- F2245 Specification for Design and Performance of a Light Sport Airplane
- F2249 Specification for In-Service Test Methods for Temporary Grounding Jumper Assemblies Used on De-Energized Electric Power Lines and Equipment
- F2279 Practice for Quality Assurance in the Manufacture of Fixed Wing Light Sport Aircraft (Withdrawn 2014)<sup>3</sup>
- F2295 Practice for Continued Operational Safety Monitoring of a Light Sport Aircraft
- F2317/F2317M Specification for Design of Weight-Shift-Control Aircraft
- F2352 Specification for Design and Performance of Light Sport Gyroplane Aircraft
- F2354 Specification for Continued Airworthiness System for Lighter-Than-Air Light Sport Aircraft
- F2355 Specification for Design and Performance Requirements for Lighter-Than-Air Light Sport Aircraft
- F2356 Specification for Production Acceptance Testing System for Lighter-Than-Air Light Sport Aircraft
- F2411 Specification for Design and Performance of an Airborne Sense-and-Avoid System (Withdrawn 2014)<sup>3</sup>
- F2415 Practice for Continued Airworthiness System for Light Sport Gyroplane Aircraft
- F2425 Specification for Continued Airworthiness System for Weight-Shift-Control Aircraft

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee F44 on General Aviation Aircraft and is the direct responsibility of Subcommittee F44.91 on Terminology. Current edition approved Sept. 15, 2015 April 1, 2016. Published October 2015 April 2016. Originally approved in 2014. Last previous edition approved in 2015 as F3060–15a-F3060–15b. DOI: 10.1520/F3060-15B-10.1520/F3060-16.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

- [F2426 Guide on Wing Interface Documentation for Powered Parachute Aircraft](#)
- [F2427 Specification for Required Product Information to be Provided with Lighter-Than-Air Light Sport Aircraft](#)
- [F2449 Specification for Manufacturer Quality Assurance Program for Light Sport Gyroplane Aircraft \(Withdrawn 2014\)<sup>3</sup>](#)
- [F2457 Specification for Required Product Information to be Provided with Weight-Shift-Control Aircraft](#)
- [F2483 Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft](#)
- [F2490 Guide for Aircraft Electrical Load and Power Source Capacity Analysis](#)
- [F2506 Specification for Design and Testing of Light Sport Aircraft Propellers](#)
- [F2507 Specification for Recreational Airpark Design](#)
- [F2512 Practice for Quality Assurance in the Manufacture of Light Unmanned Aircraft System](#)
- [F2563 Practice for Kit Assembly Instructions of Aircraft Intended Primarily for Recreation](#)
- [F2564 Specification for Design and Performance of a Light Sport Glider](#)
- [F2584 Practice for Maintenance and Development of Maintenance Manuals for Light Unmanned Aircraft System \(UAS\) \(Withdrawn 2015\)<sup>3</sup>](#)
- [F2626 Terminology for Light Sport Aircraft](#)
- [F2639 Practice for Design, Alteration, and Certification of Aircraft Electrical Wiring Systems](#)
- [F2745 Specification for Required Product Information to be Provided with an Airplane](#)
- [F2746 Specification for Pilot's Operating Handbook \(POH\) for Light Sport Airplane](#)
- [F2799 Practice for Maintenance of Aircraft Electrical Wiring Systems](#)
- [F2930 Guide for Compliance with Light Sport Aircraft Standards](#)
- [F2972 Specification for Light Sport Aircraft Manufacturer's Quality Assurance System](#)
- [F3035 Practice for Production Acceptance in the Manufacture of a Fixed Wing Light Sport Aircraft](#)
- [F3061 Specification for Systems and Equipment in Small Aircraft](#)
- [F3062 Specification for Installation of Powerplant Systems](#)
- [F3082 Specification for Flight for General Aviation Aeroplanes](#)
- [F3093 Specification for Aeroelasticity Requirements](#)
- [F3116 Specification for Design Loads and Conditions](#)
- [F3117 Specification for Crew Interface in Aircraft](#)

## 2.2 Other Standards:

CFR, Title 14 Aeronautics and Space<sup>4</sup>

European Aviation Safety Agency (EASA) "Definitions and abbreviations used in Certification Specifications for products, parts and appliances; CS-Definitions," Annex to ED Decision 2007/016/R, Amendment 2, December 23, 2010<sup>5</sup>

GAMA Specification 1 Specification for Pilot's Operating Handbook<sup>6</sup>

International Civil Aviation Organization (ICAO) International Standards and Recommended Practices, Annex 8 to the Convention on International Civil Aviation, "Airworthiness of Aircraft: Part 1, Definitions," eleventh edition, July 2010<sup>7</sup>

NIST SP 330 The International System of Units<sup>8</sup>

TCCA Canadian Aviation Regulations (CARs) 2012-1, Subpart 1, "Interpretation," revised December 1, 2011<sup>9</sup>

## 3. Terminology

### 3.1 Terms and Definitions:

**100-hour inspection, *n***—inspection used when the aircraft is carrying any person for hire including flight instruction. **(F2483)**

<sup>4</sup> Available from the U.S. Government Printing Office, Superintendent of Documents, 732 N. Capital St. NW, Washington, DC 20402-0001.

<sup>5</sup> Available from the European Aviation Safety Agency, Ottoplatz, 1, D-50679 Cologne, Germany.

<sup>6</sup> Available from the General Aviation Manufacturers Association, 1400 K St. NW, Suite 801, Washington, DC 20005-2485.

<sup>7</sup> Available from the International Civil Aviation Organization, <http://www.intlaviationstandards.org/Documents/AircraftMakeModelSeriesBusinessRules1.pdf>

<sup>8</sup> Available from National Institute of Standards and Technology (NIST), 100 Bureau Dr., Stop 1070, Gaithersburg, MD 20899-1070, <http://www.nist.gov>.

<sup>9</sup> Available from Transport Canada, 330 Sparks St., Ottawa, ON Canada K1A 0N5.

#### DISCUSSION—

Same as an annual condition inspection, except the interval of inspection is 100 hours of operation instead of twelve calendar months. "Annual condition inspection" is a term used for U.S. experimental aircraft. The term "annual airworthiness inspection" is used when considering certified aircraft. While similar, the two inspections differ by who is authorized to do the inspections and make log book entries.

**abnormal electrical power operation, *n***—occurs when a malfunction or failure in the electric system has taken place and the protective devices of the system are operating to remove the malfunction or failure from the remainder of the system before the limits of abnormal electrical power operation are exceeded. **(F2490)**

**accelerate-go distance, *n***—horizontal distance from the start of the takeoff to the point where the airplane reaches the prescribed screen height above the takeoff surface with the critical engine having failed at the designated speed. **(AC 120-62)**

**accelerate-stop distance, *n***—horizontal distance from takeoff to the point where the airplane is stopped in the runway or runway and stopway, when the stop is initiated at VI, and completed using the approved procedures and specified conditions. (AC 120-62)

**acceptable means of compliance, AMC, *n***—method determined to be acceptable by a Civil Aviation Authority (CAA) as a means to establish compliance with a regulation. (F44)

DISCUSSION—

The acceptable means is usually defined in CAA guidance or industry standards or both. There may be multiple means to determine compliance with any regulation accepted by the CAA.

**aerobatic maneuver, *n***—intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight. (14 CFR Part 91.303)

**Aeronautical Radio, Incorporated, ARINC, *n***—aeronautical standards body made up of Airlines Electronic Engineering Committee, (AEEC), Avionics Maintenance Conference (AMC), and Flight Simulation, Engineering, and Maintenance Committee, (FSEMC) and organized by ARINC to establish cooperatively consensus-based, voluntary aviation technical standards that no one organization could develop independently.

**Agência Nacional de Aviação Civil, ANAC, *n***—national civil aviation authority of Brazil. (ANAC)

**aircraft make, *n***—name assigned to the aircraft by the aircraft manufacturer when each aircraft was produced (F2930, CICTT)

DISCUSSION—

In most cases, aircraft make is the name of the aircraft manufacturer, such as Cub Crafters, Quest, Piper, and so forth.

**aircraft manufacturer, *n***—organization that has been recognized by its certifying authority as having manufactured the aircraft, at the time of completion. (CICTT)

**aircraft master model, *n***—grouping of similar aircraft models for analytical purposes and to identify aircraft models that share airworthiness properties; the master model is the first model in a series of that aircraft make. (CICTT)

**aircraft mechanic, *n***—~~person authorized to perform who performs maintenance on aircraft, engines, propellers, appliances, and other aircraft components.~~ components within the scope of their authorization by the applicable authority or regulation. (F2483)

DISCUSSION—

~~This person—An aircraft mechanic may go by different titles such as under different authorities. The common name for an aircraft mechanic in some countries is Licensed Aircraft Maintenance Engineer and in others it may be Airframe and Powerplant Mechanic (A&P), etc. under different authorities and may be authorized to only work on certain aircraft or components.~~ (A&P) mechanic. For some authorizations a mechanic's license or certificate issued by an authority is required while for LSA aircraft authorization by the manufacturer may be required.

**aircraft model, *n***—aircraft manufacturer's designation for an aircraft. (F2930, CICTT)

DISCUSSION—

The aircraft model is: (1) listed in the aircraft type certificate, (2) the designation used by the aircraft manufacturer to legally distinguish a particular aircraft, or (3) the designation used by a national military or armed force to distinguish a particular aircraft. It is usually a model number that may be part of a series of similar models. If an aircraft manufacturer is amateur construction, in most cases, the aircraft model would be the name designated by the organization responsible for design.

**aircraft operating instructions, AOI, *n***—provide methods and procedures to operate the aircraft safely (F2243, F2427, F2457, F2564, F2746)

DISCUSSION—

For LSA, the AOI specify those parameters (for example, weight, stall speed, and maximum speed) that show the aircraft make and model meets the LSA definition. The AOI may also be referred to as a POH.

**aircraft popular name, *n***—name used by the aircraft manufacturer to market or otherwise distinguish a particular aircraft model or series or both or the name used by a national military or armed force to distinguish a particular aircraft model or series or both. (CICTT)

DISCUSSION—

An aircraft model or series or both may have more than one popular name. It is normally not the legal identification of the aircraft and, when found on the type certificate or type certificate data sheet, it is supplementary information. Examples would be the Cessna Skyhawk or Sovereign, which are popular names but not the legal identification. Popular names can be changed without affecting the type data of the aircraft.

**airplane configuration, *n***—particular combination of the fixed components including wing(s), fuselage, empennage, propulsion system, and landing gear along with the positions of the moveable elements, such as wing flaps, cowl flaps, landing gear, and equipment, software configuration, and so forth that affects the aerodynamic or operational characteristics of the airplane. **(F44)**

**airplane positive gust limit load factor, *n*<sub>3</sub>, *n***—airplane positive gust limit load factor at *V*<sub>C</sub>. **(14 CFR 23, App A, Par. A23.3)**

**airship, *n***—power-driven lighter-than-air aircraft that can be steered. **(F2354, F2355, F2356, F2427)**

**airworthiness design standards, ADS, *n***—standards that identify acceptable means of compliance to the regulatory requirements for aircraft design for certified aircraft or the consensus standards such as ASTM F37, F38, or F39 for non-certified aircraft.

**airworthiness directive, AD, *n***—regulation issued by the CAA that applies to aircraft, aircraft engines, propellers, or appliances when an unsafe condition exists and that condition is likely to exist or develop in other products of the same design. **(F2639)**

DISCUSSION—

Airworthiness Directives (ADs) are legally enforceable regulations issued by the CAA to correct an unsafe condition in a product. Each CAA will have its own guidance on ADs. For FAA-issued Ads, this follows the guidance in 14 CFR 39.

**airworthiness limitation, *n***—limitation applicable to an aircraft or article installed on an aircraft in the form of a life limit or a maintenance task that is mandatory to maintain the aircraft in airworthy condition. **(F44)**

**alteration, *n***—modification of a product to establish a new airworthy configuration. **(F44)**

**American Institute of Aeronautics and Astronautics, AIAA, *n***—world’s largest technical society dedicated to the global aerospace profession. **(F44)**

**American Society ASTM International, ASTM, *n***—globally recognized leader in the development and delivery of international voluntary consensus standards. **(F44)**

**annual condition inspection, *n***—detailed inspection accomplished once a year on an aircraft in accordance with the applicable instructions for continued airworthiness. **(F2483, F44)**

[ASTM F3060-16](https://standards.iteh.ai/catalog/standards/sist/62adbfa-93e3-4a7d-a830-4ac83d008256/astm-f3060-16)

DISCUSSION— [standards.iteh.ai/catalog/standards/sist/62adbfa-93e3-4a7d-a830-4ac83d008256/astm-f3060-16](https://standards.iteh.ai/catalog/standards/sist/62adbfa-93e3-4a7d-a830-4ac83d008256/astm-f3060-16)

The purpose of the inspection is to look for any wear, corrosion, or damage that would cause an aircraft to not be in a condition for safe operation.

**appliance, *n***—any instrument, mechanism, equipment, part, apparatus, appurtenance, or accessory, including communications equipment, that is used or intended to be used in operating or controlling an aircraft in flight; is installed in or permanently attached to the aircraft; and is not part of an airframe, engine, or propeller. **(F2639, 14 CFR Part 1)**

**arc fault circuit breaker, *n***—circuit breaker specifically designed to open when arcing faults are detected. **(F2639)**

**aspect ratio, AR, *n***—wing span (*b*) squared divided by the wing area (*S*), *b*<sup>2</sup>/*S*. **(F2245, F2564)**

**auxiliary power unit, APU, *n***—any power unit delivering rotating shaft power, compressed air, or both, that is not intended for direct propulsion of an aircraft. **(F44)**

**average design surface load, *w*, *n***—load divided by area. **(F2564)**

**balanced field length, BFL, *n***—for airplanes with more than one engine, it is the minimum allowable runway length for a given airplane weight, configuration and atmospheric conditions as per field limitations. **(FAA AC 120-62)**

DISCUSSION—

It corresponds to the point where the accelerate-go performance required is equal to (“balances”) the accelerate-stop performance required.

**balloon, *n***—lighter-than-air aircraft that is not engine-driven and sustains flight through the use of either gas buoyancy or an airborne heater or both. **(F2354, F2355, F2356, F2427)**

**best angle of climb, *n***—climb angle which produces the most altitude gain with least distance traveled horizontally **(F44)**

**best angle of climb speed,  $V_x$ ,  $n$** —the speed at which the aircraft will obtain the highest altitude in a given horizontal distance. **(F2317/F2317M)**

DISCUSSION—

This best angle-of-climb speed normally increases slightly with altitude.

**best rate of climb,  $n$** —climb rate that produces the most altitude gain in the least amount of time. **(F44)**

**best rate of climb speed,  $V_y$ ,  $n$** —speed at which the aircraft will obtain the maximum increase in altitude per unit of time. **(F2317/F2317M)**

DISCUSSION—

This best rate-of-climb speed normally decreases slightly with altitude.

**calibrated airspeed, CAS,  $n$** —indicated airspeed of an aircraft corrected for position and instrument error. **(FAA Part1, EASA CS1)**

DISCUSSION—

Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.

**center of gravity, CG,  $n$** —point at which the entire weight of a body may be considered as concentrated so that if supported at this point the body would remain in equilibrium in any position. **(TCCA, F2245, F2352, F2564)**

**certificate of airworthiness, CofA,  $n$** —a CAA document which grants authorization to operate an aircraft in flight. **(F44)**

**chord,  $c$ ,  $n$** —straight line distance joining the leading and trailing edges of an airfoil. **(F2245)**

**civil aviation authority, CAA,  $n$** —governmental agency responsible for regulation of civil-aviation-related activities in a country or jurisdiction, such as Agência Nacional de Aviação Civil (ANAC) of Brazil, or Transport Canada Civil Aviation (TCCA). **(F2425, F2563, F2507)**

DISCUSSION—

In some countries, only certain parts of the aviation activities are the responsibility of the CAA. For the purposes of this terminology, the activities are those related to aircraft, engine, and propeller certification and continued operational safety.

**commercial part,  $n$** —part that is listed on an approved commercial parts list included in a design approval holder's instructions for continued airworthiness and for which:

- (1) The failure of the commercial part, as installed in the product, would not degrade the level of safety of the product; and
- (2) The part is produced only under the commercial part manufacturer's specification and marked only with the commercial part manufacturer's markings. **(14 CFR 21.1(b)(3), 21.50(c)(2))**

**compliance package,  $n$** —set of documents that provides objective, verifiable evidence for compliance to CAA regulations using CAA accepted means of compliance which may be industry consensus standards or applicant developed means of compliance. **(F44)**

**compliance program,  $n$** —set of activities planned for, executed, and for which results are reviewed against CAA accepted industry consensus standards or applicant developed means of compliance for the purpose of declaring compliance to a particular standard. **(F2930, F44)**

**consensus standard,  $n$** —for the purpose of certificating aircraft, an industry developed standard that applies to aircraft design, production, and airworthiness. **(14 CFR Part 1.1)**

DISCUSSION—

It includes, but is not limited to, standards for aircraft design and performance, required equipment, manufacturer quality assurance systems, production acceptance test procedures, operating instructions, maintenance and inspection procedures, identification and recording of major repairs and major alterations, and continued airworthiness.

**continuing airworthiness,  $n$** —set of processes by which an aircraft, engine, propeller, or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life. **(ICAO)**

- conventional fixed pitch propeller**, *n*—one-piece fixed pitch propeller that is constructed of material such as wood or metal that has no abrupt changes in material properties as the blades transition through the hub area. (F2506)
- creepage**, *n*—conduction of electrical current along a surface between two points at different potentials. (F2639)
- critical engine failure takeoff speed**,  $V_{EF}$ , *n*—speed at which the critical engine is assumed to fail during takeoff.
- cruise**, *n*—condition during which the aircraft is in level flight or making altitude changes between the take-off and climb phase and the descent to landing phase. (F2490)
- demonstrated flight dive speed**,  $V_{DF}/M_{DF}$ , *n*—maximum speed at which it has been demonstrated there is an absence of excessive buffet, vibration, or controllability problems ( $V_{DF} \leq V_D$ ). (14 CFR Part 1, F2317/F2317M, F2245, F2564)
- design and performance specification**, *n*—used herein to refer to Specifications F2245 and F2564. (F3035)
- design cruising speed**,  $V_C$ , *n*—maximum speed for which the aircraft has been designed for cruise flight. (14 CFR Part 1, F2245, F2564)
- design dive speed**,  $V_D/M_D$ , *n*—maximum speed for which the structure has been designed. (FAA Part 1, F2245, F2564)
- design flap speed**,  $V_F$ , *n*—maximum speed at which the aircraft can be flown at the selected flap deflection. (F2245, F2564)
- design maneuvering speed**,  $V_A$ , *n*—speed below which you can move a single flight control, one time, to its full deflection, for one axis of airplane rotation only (pitch, roll or yaw), in smooth air, air, without risk of damage to the airplane. (F2245, F2564, F2317/F2317M, F44)
- design maximum aircraft weight**,  $W_{MAX}$ , *n*—aircraft design maximum weight for LSA aircraft shall be the maximum weight for which the aircraft is designed. (F2317/F2317M)

DISCUSSION—

This is acceptable for LSA aircraft but is inadequate definition for many of today's Part 23 aircraft that have a maximum taxi weight, maximum takeoff weight, maximum landing weight, and maximum zero fuel weight that are all different.

- design maximum trike carriage weight**,  $W_{susp}$ , *n*—highest trike carriage weight at which compliance with each applicable structural loading condition and each applicable flight requirement is shown. (F2317/F2317M)
- design speed for maximum gust intensity**,  $V_B$ , *n*—the speed at which particular gust intensities apply in the determination of structural loads. (F44)
- design stall speed**,  $V_S$ , *n*—stalling speed or the minimum steady flight speed at which the airplane is controllable. (F2245, F2564, F44)
- design useful load**, *n*—load (other than structure, engine, enclosure, and systems) that an aircraft can carry while achieving the design defining performance requirements. (F2355, F44)
- drag coefficient**,  $C_D$ , *n*—nondimensional number whose value represents a relative magnitude of the resistance force of a body against a moving fluid environment, for example, to the free stream air flow in the case of an aircraft. (F2245, F2564, F44)
- dynamic pressure**,  $Q$  or  $q$ , *n*—pressure that would be exerted by a moving air flow against a body if it were brought to rest. (F2245, F2564, F44)
- electrical wiring interconnection system**, EWIS, *n*—any wire, wiring device, or combination of these, including termination devices, installed in any area of the aircraft for the purpose of transmitting electrical energy between two or more intended termination points. (F2799)
- electronic engine control system**, EECs, *n*—engine control system in which the primary functions are provided using electronics. (EASA CS1)

DISCUSSION—

It includes all the components (for example, digital, electrical, electronic, hydro-mechanical, and pneumatic) necessary for the control of the engine and may incorporate other control functions where desired.

- emergency electrical power operation**, *n*—condition that occurs following a loss of all normal electrical generating power sources or another malfunction that results in operation on an alternate electrical power source only or both. (F2490)

**empty weight, *n***—the empty weight of the aircraft includes the combined weight of the airframe, propulsion system, required equipment, installed optional or special equipment, fixed ballast, unusable fuel, and full operating fluids, including oil, hydraulic fluid, and other fluids required for normal operation of aircraft systems, except potable water, lavatory precharge water, and water intended for injection in the engines. **(F3082, F3116, F3117)**

**equivalent airspeed, EAS, *n***—calibrated airspeed of an aircraft corrected for adiabatic compressible flow for the particular altitude. **(14 CFR Part 1, EASA CS1)**

DISCUSSION—

Equivalent airspeed is equal to calibrated airspeed in standard atmosphere at sea level.

**European Aviation Safety Agency, EASA, *n***—agency of the European Union that serves as the CAA for contracting states. **(EASA)**

**European Organization for Civil Aviation Equipment, EUROCAE, *n***—(1) nonprofit organization that was formed at Lucerne, Switzerland in 1963 to provide a European forum for resolving technical problems with electronic equipment for air transport; (2) deals exclusively with aviation standardization (airborne and ground systems and equipment) and related documents as required to use in the regulation of aviation equipment and systems; and (3) association composed of members who are all specialized in one or several technical fields of aeronautics and many of them are considered to be among world’s leaders in their domain. **(F44)**

**exhaust gas temperature, EGT, *n***—temperature of the exhaust gas exiting an engine. **(F44)**

**fabricate, *v***—fabricate is a privilege under Part 145 to make parts within a maintenance task and release it under the maintenance release of the aircraft/component being serviced. **(F44)**

**factor of safety, FOS, *n***—design factor (multiplier) used to provide for the possibility of loads greater than those assumed and uncertainties in design and fabrication. **(ICAO, F2352)**

DISCUSSION—

Refer to ultimate load definition for relationship between factor of safety and ultimate load.

**final takeoff speed,  $V_{FTO}$ , *n***—speed of the airplane that exists at the end of the takeoff path in the en-route configuration with one engine inoperative. **(14 CFR Part 1, EASA CS1)**

**fireproof, *adj***—(1) With respect to materials and parts used to confine fire in a designated fire zone, means the capacity to withstand at least as well as steel in dimensions appropriate for the purpose for which they are used, the heat produced when there is a severe fire of extended duration in that zone; and (2) with respect to other materials and parts, means the capacity to withstand the heat associated with fire at least as well as steel in dimensions appropriate for the purpose for which they are used. **(F2352, 14 CFR Part 1)**

DISCUSSION—

For materials, this is considered to be equivalent to the capability of withstanding a fire at least as well as steel or titanium in dimensions appropriate for the purposes for which they are used.

**fire resistant, *adj***—(1) With respect to sheet or structural members, means the capacity to withstand the heat associated with fire at least as well as aluminum alloy in dimensions appropriate for the purpose for which they are used; and (2) with respect to fluid-carrying lines, fluid system parts, wiring, air ducts, fittings, and powerplant controls, means the capacity to perform the intended functions under the heat and other conditions likely to occur when there is a fire at the place concerned. **(14 CFR Part 1)**

DISCUSSION—

For materials, this may be considered to be equivalent to the capability of withstanding a fire at least as well as aluminum alloy in dimensions appropriate for the purposes for which they are used.

**fixed pitch propeller, *n***—propeller, the pitch of which cannot be changed, except by processes constituting a workshop operation. **(EASA CS1, F2506, F44)**

**flame resistant, *adj***—not susceptible to combustion to the point of propagating a flame, beyond safe limits, after the ignition source is removed. **(14 CFR, Part 1, EASA CS1)**

**flaps, *n***—trailing or leading edge devices to increase lift and drag.

**(F2245, F2564, F44)**

DISCUSSION—

Although most flaps are on the trailing edge, some flaps such as Krueger flaps are on the leading edge.

**flight data recorder, FDR, *n***—device used to record specific aircraft parameters.

**(F44)**

**flight management system, FMS, *n***—specialized computer system that automates a wide variety of in-flight tasks, reducing the workload on the flight crew.

**(F44)**

DISCUSSION—

A primary function is in-flight management of the flight plan.

**flight manual, FM, *n***—manual describing the operation of the aircraft and includes any limitations; normal, abnormal, and emergency procedures; and provides specific facts, information, and/or instructions about a particular aircraft and the operation of that aircraft.

**(F44)**

DISCUSSION—

For airplanes, this is identified as an airplane flight manual (AFM).

**flight manual supplement, FMS, *n***—document that provides supplemental information, usually for equipment such as options or STCs that are not part of the basic aircraft and included in the main flight manual.

**(F44)**

**flight training supplement, FTS, *n***—document providing guidance for training for LSA aircraft.

**(F2457, F2745)**

**full authority digital engine control, FADEC, *n***—system consisting of digital computer, called an electronic engine controller (EEC) or engine control unit (ECU), and its related accessories that control all aspects of aircraft engine performance.

**(F44)**

**General Aviation Manufacturers Association, GAMA, *n***—international trade association representing over 80 of the world's leading manufacturers of general aviation airplanes and rotorcraft, engines, avionics, components and related services.

**(F44)**

DISCUSSION—

ASTM F3060-16

GAMA's members also operate repair stations, fixed-based operations, pilot and maintenance training facilities, and they manage fleets of aircraft.

~~**gross weight, *n***—total aircraft systems weight at takeoff including fluids, crew, passengers, baggage, cargo, equipment, and so forth.~~

~~**(F2355, F2244)**~~

**ground adjustable propeller, *n***—propeller whose pitch setting is adjustable only when the aircraft is on the ground and the propeller is not rotating.

**(F2506)**

**heavy maintenance, *n***—any maintenance, inspection, repair, or alteration a manufacturer has designated that requires specialized training, equipment, or facilities.

**(F2483, F2584)**

**high-intensity radiated field, HIRF, *n***—radio frequency energy of a strength sufficient to adversely affect either a living organism or the performance of a device subjected to it.

**(F44)**

**illustrated parts breakdown, IPB, *n***—technical publications identifying the parts making up assemblies and products and relation to each other through the use of illustrations. Also referred to as an illustrated parts catalog (IPC).

**(F44)**

**instrument flight rules, IFR, *n***—rules and regulations governing flight by relying on instrument readings instead of visual reference to the ground.

**(14 CFR Part 1)**

**indicated airspeed, IAS, *n***—speed of an aircraft as shown on its pitot static airspeed indicator calibrated to reflect standard atmosphere adiabatic compressible flow at sea level uncorrected for airspeed system errors.

**(14 CFR Part 1)**

**Institute of Electrical and Electronics Engineers, IEEE, *n***—leading authority on areas ranging from aerospace systems, computers, and telecommunications to biomedical engineering, electric power, and consumer electronics.

**(F44)**

**instructions for continued airworthiness, ICA, *n***—provide documentation of recommended methods, inspections, processes, and procedures to keep products airworthy. The ICA must contain information on each item or part, as appropriate, installed on the product.

**(F2799)**



**instrument meteorological conditions, IMC, *n***—weather conditions below the minimum for flight under visual flight rules, also referred to as IFR conditions. **(14 CFR Part 1, EASA CS1, CS2)**

**International Civil Aviation Organization, ICAO, *n***—agency of the that codifies the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth. **(F44)**

**International Electrotechnical Commission, IEC, *n***—international standards and conformity assessment body for all fields of electrotechnology. **(F44)**

**Joint Electron Device Engineering Council, JEDEC, *n***—independent semiconductor engineering trade organization and standardization body associated with the Electronic Industries Alliance (EIA), a trade association that represents all areas of the electronics industry in the United States. **(F44)**

**kit assembly instructions, KAI, *n***—instructions for assembling an LSA aircraft kit. **(F2563, F2745)**

**life-limited part, *n***—part that, as a condition of the type certificate, may not exceed a specified time, or number of operating cycles, in service. **(TCCA)**

**light-sport aircraft, LSA, *n***—aircraft designed in accordance with recognized consensus standards and an aircraft, other than a helicopter or powered-lift that, since its original certification, has continued to meet the following:

- (1) A maximum takeoff weight of not more than:
  - (a) 600 kg (1320 lbs) for aircraft not intended for operation on water or
  - (b) 650 kg (1430 lbs) for an aircraft intended for operation on water;
- (2) A maximum airspeed in level flight with maximum continuous power ( $V_H$ ) of not more than 120 knots CAS under standard atmospheric conditions at sea level;
- (3) A maximum never-exceed speed ( $V_{NE}$ ) of not more than 120 knots CAS for a glider;
- (4) A maximum stalling speed or minimum steady flight speed without the use of lift-enhancing devices ( $V_{S1}$ ) of not more than 45 knots CAS at the aircraft's maximum certificated takeoff weight and most critical center of gravity;
- (5) A maximum seating capacity of no more than two persons, including the pilot;
- (6) A single, reciprocating engine, if powered;
- (7) A fixed or ground-adjustable propeller if a powered aircraft other than a powered glider;
- (8) A fixed or feathering propeller system if a powered glider;
- (9) A fixed-pitch, semi-rigid, teetering, two-blade rotor system, if a gyroplane;
- (10) A nonpressurized cabin, if equipped with a cabin;
- (11) Fixed landing gear, except for an aircraft intended for operation on water or a glider;
- (12) Fixed or retractable landing gear, or a hull, for an aircraft intended for operation on water; and
- (13) Fixed or retractable landing gear for a glider. **(F2244, F2245, F2295, F2317/F2317M, F2352, F2355, F2483, F3035, 14 CFR Part 1)**

DISCUSSION—

Current recognized standards are ASTM International standards under the jurisdiction of Committee F37 on Light-Sport Aircraft. The exact definition of LSA regarding physical characteristics varies between different countries and types of LSA. Different types of LSA are specified in separate standards: Specification **F2244** for powered parachutes, Specification **F2245** for airplanes, Specification **F2564** for gliders, Specification **F2352** for gyroplanes, Specification **F2355** for lighter-than air, and Specification **F2317/F2317M** for weight-shift-control. LSA can be manufactured and delivered ready to fly or as kits.

**light-sport aircraft kit, LSA kit, *n***—aircraft designed in accordance with Specifications **F2245** or **F2564** that is manufactured and delivered as a kit. **(F3035)**

**lighter-than-air aircraft, *n***—aircraft that can rise and remain suspended by using contained gas weighting less than the air that is displaced by the gas. **(F2354, F2355, F2356, F2427)**

DISCUSSION—

Airships may include dynamic lift that derives as much as 30 % lift from other than buoyancy.

**limit load, *n***—maximum loads assumed to occur in the anticipated operating conditions. **(ICAO, F2352)**

DISCUSSION—

Refer to ultimate load for relationship of limit load to ultimate load.

**line maintenance, *n***—any repair, maintenance, scheduled checks, servicing, inspections, or alterations not considered heavy maintenance that is specified in the manufacturer’s maintenance manual. **(F2483)**

**line replaceable unit, LRU, *n***—modular component of an aircraft designed to be replaced quickly at an operating location. **(F2799, F44)**

**light-sport repairman inspection, LSRI, *n***—U.S. FAA-certificated repairman (light-sport aircraft) with an inspection rating as defined by 14 CFR Part 65 authorized to perform the annual condition inspection on experimental light-sport aircraft or an equivalent rating issued by other civil aviation authorities. **(F2483)**

DISCUSSION—

Experimental LSA do not require the individual performing maintenance to hold any FAA airman certificate in the United States.

**LSA repairman maintenance, LSRM, *n***—U.S. FAA-certificated repairman (light-sport aircraft) with a maintenance rating as defined by 14 CFR Part 65 authorized to perform line maintenance on aircraft certificated as special LSA aircraft and authorized to perform the annual condition/100-h inspection on an LSA or an equivalent rating issued by other civil aviation authorities. **(F37, F2483)**

**maintenance manual(s), MM(s), *n***—manual provided by a manufacturer or supplier that specifies all maintenance, repairs, scheduled checks, and alterations authorized by the manufacturer to maintain the aircraft in an airworthy condition. **(F2483, F2930)**

**major alteration, *n***—alteration not listed in the aircraft, aircraft engine, or propeller specifications: (1) that might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness or (2) that is not done according to accepted practices or cannot be done by elementary operations. **(F2483, 14 CFR Part 43)**

DISCUSSION—

For LSA, a major alteration is any alteration for which instructions to complete the task are excluded from the maintenance manual(s) supplied to the consumer. For certified aircraft refer to the applicable CAA guidance for additional definition and examples.

**major repair, *n***—repair: (1) that, if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness or (2) that is not done according to applicable CAA guidance or cannot be done by elementary operations. **(F2483, 14 CFR Part 43)**

DISCUSSION—

For LSA, a major repair is any repair for which instructions to complete the task are excluded from the maintenance manual(s) supplied to the consumer. For certified aircraft it is taken to mean changes to the empty weight or empty balance which increase in the maximum certificated weight or center of gravity limits of the aircraft. See applicable CAA guidance for more specific examples of major repair.

**manufacturer, *n***—any entity engaged in the production of an aircraft or component used on an aircraft. **(F44, F2295, F2415, F2483)**

DISCUSSION—

For LSA, the manufacturer is also responsible for completing all compliance related paperwork and assertions of compliance.

**master compliance checklist, MCCL, *n***—listing of all the regulations applicable to a specific product.

**material bond, *n***—adhesion of one surface to another with or without the use of an adhesive as a bonding agent for the purpose of making the parts act as one part. **(F2639)**

~~**maximum certificated takeoff weight, MCTOW, *n***—maximum certificated takeoff weight permitted under the type certificate, or equivalent document. **(CICFT)**~~

**maximum continuous power or thrust or both, *n***—power or thrust or both identified in the performance data for use during periods of unrestricted duration. **(EASA CS1)**

**maximum continuous power or thrust or both rating, *n***—minimum test bed acceptance power or thrust or both, as stated in the engine-type certificate data sheet, of series and newly overhauled engines when running at the specified conditions and within the appropriate acceptance limitations. **(EASA CS1)**