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StandardTerminology for Light Sport Aircraft[1]

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1. Scope

1.1 This terminology standard covers definitions of terms and concepts related to light sport aircraft. It is intended to ensure the consistent use of terminology throughout all F37 documents.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

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
F2279 Practice for Quality Assurance in the Manufacture of Fixed Wing Light Sport Aircraft
F2295 Practice for Continued Operational Safety Monitoring of a Light Sport Aircraft
F2316 Specification for Airframe Emergency Parachutes
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
F2415 Practice for Continued Airworthiness System for Light Sport Gyroplane Aircraft
F2425 Specification for Continued Airworthiness System for Weight-Shift-Control Aircraft
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
F2457 Specification for Required Product Information to be Provided withWeight-Shift-Control Aircraft
F2483 Practice for Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft
F2506 Specification for Design and Testing of Fixed-Pitch or Ground Adjustable Light Sport Aircraft Propellers
F2507 Specification for Recreational Airpark Design
F2563 Practice for Kit Assembly Instructions of Aircraft Intended Primarily for Recreation
F2564 Specification for Design and Performance of a Light Sport Glider

3. Terminology

airport elevation—highest point on an airport's usable runway. **F2507**

airship—engine-driven lighter-than-air aircraft that can be steered. **F2354, F2356, F2427**

airship—engine-driven lighter-than-air aircraft that can be steered, and that sustains flight through the use of either gas buoyancy or an airborne heater, or both. **F2355**

annual condition inspection—detailed inspection accomplished once a year on a LSA in accordance with instructions provided in the maintenance manual supplied with the aircraft. 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. **F2483**

AOI—aircraft operating instructions **F2279, F2317/F2317M, F2352, F2425, F2427, F2449, F2457, F2564**

A&P—airframe and powerplant mechanic as defined by 14 CFR Part 65 in the U.S. or equivalent certification in other countries. **F2483**

AR—aspect ratio = b^2/S **F2245, F2564**

[1] This terminology is under the jurisdiction of ASTM Committee F37 on Light Sport Aircraft and is the direct responsibility of Subcommittee F37.91 on Terminology.

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[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.

armed or arming, *v*—the next action activates the system.
DISCUSSION—Armed or arming is not simply removing a safety pin. **F2316**

ASTM—American Society for Testing and Materials **F2352**

b—wing span (ft) **F2245**

b—wing span (m) **F2564**

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

BHP—brake horse power **F2245**

blade, *n*—the aerodynamic portion of a propeller which is rotated through and acts on the air. **F2506**

blade root, *n*—the portion of the blade that interfaces with the hub and provides retention. **F2506**

c—chord (ft) **F2245**

c—chord (m) **F2564**

C—Celsius **F2317/F2317M**

CAA—Civil Aviation Authority **F2425, F2563**

CAGE—commercial and government entity **F2563**

CAS—calibrated airspeed **F2317/F2317M, F2352**

CAS—calibrated airspeed (fps, kts, mph) **F2245**

CAS—calibrated airspeed (m/s, kts) **F2564**

C_D—drag coefficient of the aircraft **F2245, F2564**

CG—center of gravity **F2245, F2352, F2564**

civil aviation authority (CAA)—government which has regulatory oversight for aircraft operations/safety in the country which the airport is located; for example, United States → Federal Aviation Administration. **F2507**

C_L—lift coefficient of the aircraft **F2245, F2564**

C_m—moment coefficient (C_m is with respect to *c*/4 point, positive nose up) **F2245, F2564**

cm—centimetre **F2317/F2317M**

C_{MO}—zero lift moment coefficient **F2245, F2564**

C_n—normal coefficient **F2245, F2564**

CN—normal force coefficient **F2352**

consumer—any person who follows the instructions covered by this practice to assemble the kit. **F2563**

daN—deca Newton **F2317/F2317M**

design and performance specification—used herein to refer to Specifications F2245 and F2564. **F2279**

design maximum aircraft weight, *n*—aircraft design maximum weight W_{MAX} shall be the sum of $W_{WING} + W_{SUSP}$. **F2317/F2317M**

design maximum trike carriage weight, *n*—design maximum trike carriage weight, W_{susp}, shall be established so that it is: *(1)* highest trike carriage weight at which compliance with each applicable structural loading condition and each applicable flight requirement is shown, and *(2)* not less than the empty trike carriage weight, W_{tkmt}, plus a weight of occupant(s) of 86.0 kg (189.6 lb) for a single-seat aircraft or 150 kg (330.8 lb) for a two-seat aircraft, plus the lesser of full usable fuel or fuel weight equal to 1-h burn at economical cruise at maximum gross weight. **F2317/F2317M**

design useful load—load (other than structure, engine, enclosure, and systems) that a lighter-than-air aircraft can carry while achieving the design defining performance requirements. **F2355**

F—Fahrenheit **F2317/F2317M**

FAA—United States Federal Aviation Administration. **F2483**

factor of safety, *n*—multiplier of limit load to determine design ultimate load. **F2352**

fire proof, *adj*—capable of withstanding for a period of at least 15 min the application of heat by the standard flame. **F2352**

fire resistant, *adj*—capable of withstanding for a period of at least 5 min of heat by standard flame. **F2352**

fixed pitch propeller, *n*—a propeller with no capacity for pitch setting adjustment. **F2506**

flaps—any movable high lift device. **F2245, F2564**

FPM—feet per minute **F2245**

FTS—flight training supplement **F2457**

g—acceleration as a result of gravity = 32.2 ft/s^2 **F2245**

g—acceleration as a result of gravity = 9.81 m/s^2 **F2564**

gross weight, *n*—total aircraft system weight at takeoff. This weight includes anything and everything that is on or a part of the powered parachute aircraft, including, but not limited to, the wing, risers, fuselage, seats, engine, instruments, wheels, fuel, oil, water, pilot, passenger, clothing, and so forth. **F2244**

gross weight—total aircraft system weight(s) at takeoff. The weight limits must be established so that it is: *(1)* the designed maximum weight at which compliance with each applicable structural loading condition is demonstrated, or *(2)* the highest weight at which compliance at each applicable flight requirement is demonstrated. **F2355**

ground adjustable propeller, *n*—a propeller whose pitch setting is adjustable only when the aircraft is on the ground and the propeller is not rotating. **F2506**

heavy maintenance—any maintenance, inspection, repair, or alteration a manufacturer has designated that requires specialized training, equipment, or facilities. **F2483**

Hg—mercury **F2317/F2317M**

hub, *n*—any device that retains the blades of a propeller assembly. **F2506**

IAS—indicated air speed **F2317/F2317M, F2352**

IAS—indicated air speed (fps, kts, mph) **F2245**

IAS—indicated air speed (m/s, kts) **F2564**

ICAO—International Aviation Organization **F2245, F2352, F2564**

in.—inch **F2317/F2317M**

ISA—international standard atmosphere **F2317/F2317M**

KAI—kit assembly instructions **F2563**

kg—kilogram **F2317/F2317M**

kt(s)—nautical mile per hour (knot) (1 nautical mph = (1852/3600) m/s) **F2317/F2317M**

lb—pound (1 lb = 0.4539 kg) **F2317/F2317M**

lighter-than-air aircraft—aircraft that can rise and remain suspended by using contained gas weighing less than the air that is displaced by the gas.

DISCUSSION—Airships may include dynamic lift that derive as much as 30 % lift from other than buoyancy. **F2354, F2355, F2356, F2427**

light sport gyroplane, *n*—powered rotorcraft designed in accordance with Specification F2352. **F2415**

limit load, *n*—maximum expected static load on a component. **F2352**

line maintenance—any repair, maintenance, scheduled checks, servicing, inspections, or alterations not considered heavy maintenance that is approved by the manufacturer and is specified in the manufacturer's maintenance manual. **F2483**

LSA—light sport aircraft **F2245, F2352, F2564**

LSA (light sport aircraft)—used herein to refer to both LSA airplanes and LSA gliders. **F2295**

LSA (light sport aircraft)—used herein to refer to both LSA airplanes and LSA gliders, including kits. **F2279**

LSA (light sport aircraft)—aircraft designed in accordance with ASTM standards under the jurisdiction of Committee F37 Light Sport Aircraft, for example, Specification F2244 for powered parachutes, Specification F2245 for airplanes, and Specification F2352 for gyroplanes. **F2483**

LSA airplane (light sport aircraft airplane)—powered aircraft designed in accordance with Specification F2245 that is manufactured and delivered ready to fly. **F2279, F2295**

LSA glider (light sport aircraft glider)—aircraft designed in accordance with Specification F2564 that is manufactured and delivered ready to fly. **F2279, F2295**

LSA kit (light sport aircraft kit)—aircraft designed in accordance with Specifications F2245 or F2564 that is manufactured and delivered as a kit. **F2279**

LSA repairman inspection—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.

DISCUSSION—Experimental LSA do not require the individual performing maintenance to hold any FAA airman certificate in the U.S. **F2483**

LSA repairman maintenance—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. Authorized to perform the annual condition/100-h inspection on an LSA, or an equivalent rating issued by other civil aviation authorities. **F2483**

LSG (light sport gyroplane)—used in this specification to refer to both light sport gyroplanes and gyroplane kits. **F2449**

LSGA (light sport gyroplane aircraft)—rotary-wing aircraft designed in accordance with Specification F2352 that is manufactured and delivered ready to fly. **F2449**

LSG kit (light sport gyroplane kit)—complete or gyroplane or gyroplane accessory designed in accordance with Specification F2352 that is manufactured and delivered as a kit. **F2449**

m—metre **F2317/F2317M**

MAC—mean aerodynamic chord **F2245**

maintenance manual(s)—manual provided by an LSA manufacturer or supplier that specifies all maintenance, repairs, and alterations authorized by the manufacturer. **F2483**

major repair, alteration, or maintenance—any repair, alteration, or maintenance for which instructions to complete the task excluded from the maintenance manual(s) supplied to the consumer are considered major. **F2483**

manufacturer—any entity engaged in the production of a LSA. **F2279, F2295**

manufacturer—any entity engaged in the production of an LSA or component used on an LSA. **F2483**

manufacturer—any entity engaged in the production of a LSG. **F2449**

manufacturer—any entity engaged in the production of a light sport gyroplane aircraft or light sport gyroplane aircraft kit. **F2415**

maximum empty weight, W_E (kg)—largest empty weight of the glider, including all operational equipment that is installed in the glider: weight of the airframe, powerplant, required equipment, optional and specific equipment, fixed ballast, full engine coolant and oil, hydraulic fluid, and the unusable fuel. Hence, the maximum empty weight equals maximum takeoff weight minus minimum useful load: $W_E = W - W_U$. **F2564**

maximum empty weight, W_E (lb)—largest empty weight of the airplane, including all operational equipment that is