

FEDERAL AVIATION REGULATIONS

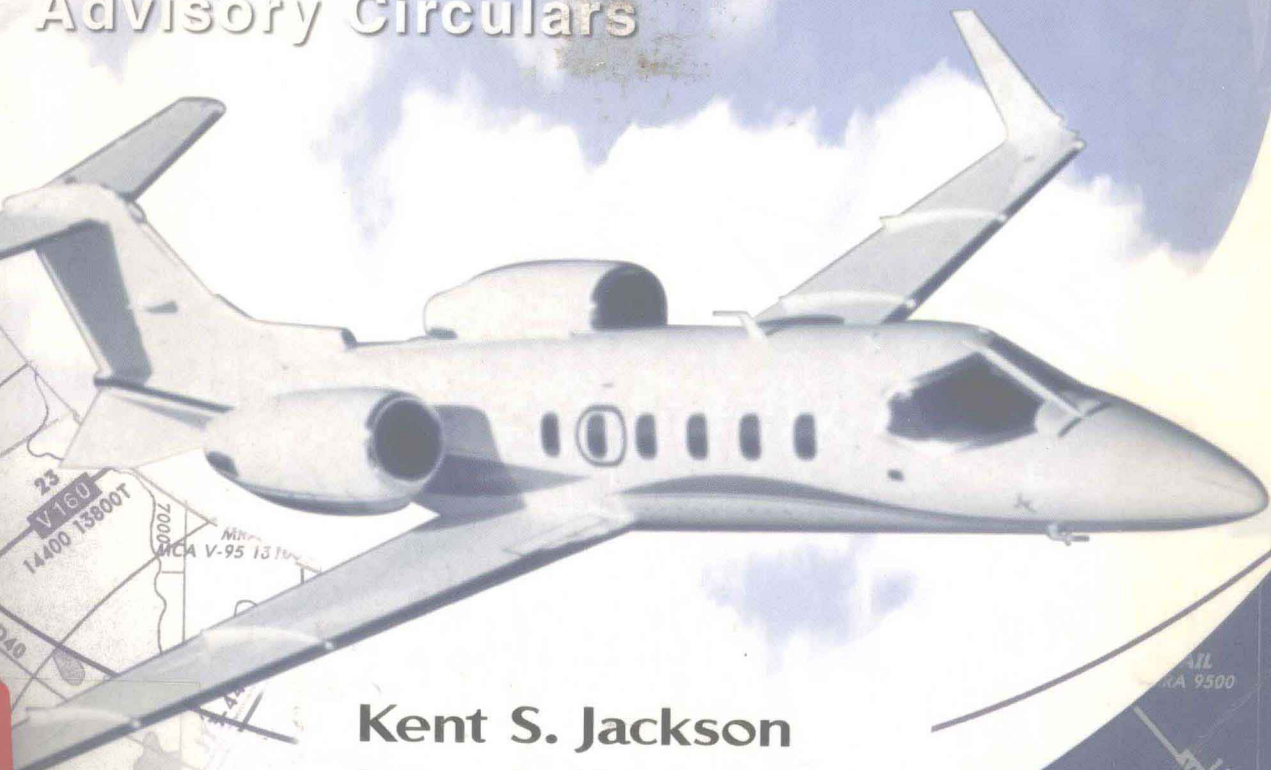
EXPLAINED

Cases **PARTS 1, 61, 91, 141, AND NTSB 830**

Preambles

Interpretations

Advisory Circulars



Kent S. Jackson
Joseph T. Brennan

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EXPLAINED

Parts 1, 61, 91, 141, and NTSB 830

Kent S. Jackson
Joseph T. Brennan

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Preface

When Captain Jeppesen began writing letdown procedures in his “little black book,” flying was less complicated and far less reliable. The demand for dependable schedules and safety in increasingly congested airspace has forced pilots to give up the romance of silk scarves and face the realities of complex, and sometimes confusing, regulations.

Intended to increase safety and make common sense of the law, the Federal Aviation Regulations have become so detailed and complex that pilots have found themselves saying “I know what it says, but what does it mean?” To help pilots answer the question “what does it mean?” the *Federal Aviation Regulations Explained* looks at Federal Register Preambles, FAA Advisory Circulars, the *Aeronautical Information Manual*, NTSB decisions, FAA Chief Counsel opinions, and other regulatory background. *Federal Aviation Regulations Explained* is the only publication that also provides cross references and an index to help pilots see the regulatory “big picture.”

This book contains the regulations for FAR Parts 61, 91, 141, and NTSB 830. FAR Part 1 is included as a reference source for the other regulations. Each regulation has the following interpretive resources:

- The regulation itself
- An explanation, unless it is self-explanatory
- Preamble Information
- Cross-references to other regulations
- Related advisory circulars
- The location in the *Aeronautical Information Manual* where related information can be found
- NTSB case excerpts associated with the regulation
- FAA Chief Counsel opinion excerpts

Not all the areas are covered in each regulation, only those areas which are pertinent are included.

Note: Regulation numbers mentioned in NTSB discussions and FAA Chief Council opinions enclosed in brackets “[]” indicate the present designation not the designation that was included in the original discussion or opinion.

Although it would be nearly impossible to locate **every** FAA interpretation of every issue presented by the FARs, the authors have endeavored to select NTSB decisions and FAA opinions that are representative of common interpretations. The authors have also selected some of the more conservative FAA interpretations to inform pilots of the FAA's position.

A Word of Caution

No book can replace the advice and counsel of an attorney experienced in aviation law. Federal Aviation Regulations Explained is intended to help pilots understand how the FAA and the NTSB have interpreted the regulations based on past incidences and circumstances. Since not every Flight Standards District Office interprets regulations in precisely the same way, a simple phone call to the local FSDO can often prevent expensive and time-consuming misunderstandings.

**FEDERAL AVIATION REGULATIONS
PART 1 DEFINITIONS AND ABBREVIATIONS**

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1.1 GENERAL DEFINITIONS

As used in Subchapters A through K of this chapter unless the context requires otherwise:

“Administrator” means the Federal Aviation Administrator or any person to whom he has delegated his authority in the matter concerned.

“Aerodynamic coefficients” means nondimensional coefficients for aerodynamic forces and moments.

“Air carrier” means a person who undertakes directly by lease, or other arrangement, to engage in air transportation.

“Air commerce” means interstate, overseas, or foreign air commerce or the transportation of mail by aircraft or any operation or navigation of aircraft within the limits of any Federal airway or any operation or navigation of aircraft which directly affects, or which may endanger safety in, interstate, overseas, or foreign air commerce.

“Aircraft” means a device that is used or intended to be used for flight in the air.

“Aircraft engine” means an engine that is used or intended to be used for propelling aircraft. It includes turbosuperchargers, appurtenances, and accessories necessary for its functioning, but does not include propellers.

“Airframe” means the fuselage, booms, nacelles, cowlings, fairings, airfoil surfaces (including rotors but excluding propellers and rotating airfoils of engines), and landing gear of an aircraft and their accessories and controls.

“Airplane” means an engine-driven fixed-wing aircraft heavier than air, that is supported in flight by the dynamic reaction of the air against its wings.

“Airport” means an area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

“Airship” means an engine-driven lighter-than-air aircraft that can be steered.

“Air traffic” means aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

“Air traffic clearance” means an authorization by air traffic control, for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace.

“Air traffic control” means a service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

“Air transportation” means interstate, overseas, or foreign air transportation or the transportation of mail by aircraft.

“Alert Area” means an established area in which a high volume of pilot training or an unusual type of aeronautical activity is conducted.

“Alternate airport” means an airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.

“Altitude engine” means a reciprocating aircraft engine having a rated takeoff power that is producible from sea level to an established higher altitude.

“Appliance” means 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 attached to the aircraft, and is not part of an airframe, engine, or propeller.

“Approved,” unless used with reference to another person, means approved by the Administrator.

“Area navigation (RNAV)” means a method of navigation that permits aircraft operations on any desired course within the coverage of station-referenced navigation signals or within the limits of self-contained system capability.

“Area navigation high route” means an area navigation route within the airspace extending upward from, and including, 18,000 feet MSL to flight level 450.

“Area navigation low route” means an area navigation route within the airspace extending upward from 1,200 feet above the surface of the earth to, but not including, 18,000 feet MSL.

“Armed Forces” means the Army, Navy, Air Force, Marine Corps, and Coast Guard, including their regular and reserve components and members serving without component status.

“Autorotation” means a rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

“Auxiliary rotor” means a rotor that serves either to counteract the effect of the main rotor torque on a rotorcraft or to maneuver the rotorcraft about one or more of its three principal axes.

“Balloon” means a lighter-than-air aircraft that is not engine-driven, and that sustains flight through the use of either gas buoyancy or an airborne heater.

“Brake horsepower” means the power delivered at the propeller shaft (main drive or main output) of an aircraft engine.

“Calibrated airspeed” means indicated airspeed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.

“Canard” means the forward wing of a canard configuration and may be a fixed, movable, or variable geometry surface, with or without control surfaces.

“Canard configuration” means a configuration in which the span of the forward wing is substantially less than that of the main wing.

“Category”—

- (1) As used with respect to the certification, ratings, privileges, and limitations of airmen, means a broad classification of aircraft. Examples include: airplane; rotorcraft; glider; and lighter-than-air; and
- (2) As used with respect to the certification of aircraft, means a grouping of aircraft based upon intended use or operating limitations. Examples include: transport; normal; utility; acrobatic; limited; restricted; and provisional.

“Category A,” with respect to transport category rotorcraft, means multiengine rotorcraft designed with engine and system isolation features specified in Part 29 and utilizing scheduled takeoff and landing operations under a critical engine failure concept which assures adequate designated surface area and adequate performance capability for continued safe flight in the event of engine failure.

“Category B,” with respect to transport category rotorcraft, means single-engine or multiengine rotorcraft which do not fully meet all Category A standards. Category B rotorcraft have no guaranteed stay-up ability in the event of engine failure and unscheduled landing is assumed.

“Category II operations,” with respect to the operation of aircraft, means a straight-in ILS approach to the runway of an airport under a Category II ILS instrument approach procedure issued by the Administrator or other appropriate authority.

“Category III operations,” with respect to the operation of aircraft, means an ILS approach to, and landing on, the runway of an airport using a Category III ILS instrument approach procedure issued by the Administrator or other appropriate authority.

“Category IIIa operations,” an ILS approach and landing with no decision height (DH), or a DH below 100 feet (30 meters), and controlling runway visual range not less than 700 feet (200 meters).

"Category IIIb operations," an ILS approach and landing with no DH, or with a DH below 50 feet (15 meters), and controlling runway visual range less than 700 feet (200 meters), but not less than 150 feet (50 meters).

"Category IIIc operations," an ILS approach and landing with no DH and no runway visual range limitation.

"Ceiling" means the height above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obscuration" and not classified as "thin" or "partial."

"Civil aircraft" means aircraft other than public aircraft.

"Class" —

- (1) As used with respect to the certification, ratings, privileges, and limitations of airmen, means a classification of aircraft within a category having similar operating characteristics. Examples include: single engine; multiengine; land; water; gyroplane; helicopter; airship; and free balloon; and
- (2) As used with respect to the certification of aircraft, means a broad grouping of aircraft having similar characteristics of propulsion, flight or landing. Examples include: airplane; rotorcraft; glider; balloon; landplane and seaplane.

"Clearway" means:

- (1) For turbine engine powered airplanes certificated after August 29, 1959, an area beyond the runway, not less than 500 feet wide, centrally located about the extended centerline of the runway, and under the control of the airport authorities. The clearway is expressed in terms of a clearway plane, extending from the end of the runway with an upward slope not exceeding 1.25 percent, above which no object nor any terrain protrudes. However, threshold lights may protrude above the plane if their height above the end of the runway is 26 inches or less and if they are located to each side of the runway.
- (2) For turbine engine powered airplanes certificated after September 30, 1958, but before August 30, 1959, an area beyond the takeoff runway extending no less than 300 feet on either side of the extended centerline of the runway, at an elevation no higher than the elevation of the end of the runway, clear of all fixed obstacles, and under the control of the airport authorities.

"Climbout speed," with respect to rotorcraft, means a referenced airspeed which results in a flight path clear of the height-velocity envelope during initial climbout.

“Commercial operator” means a person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier or foreign air carrier or under the authority of Part 375 of this Title. Where it is doubtful that an operation is for “compensation or hire,” the test applied is whether the carriage by air is merely incidental to the person's other business or is, in itself, a major enterprise for profit.

“Controlled airspace” means an airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

Note— Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.

“Controlled Firing Area” means an area that is established to contain activities, which if not conducted in a controlled environment, would be hazardous to nonparticipating aircraft.

“Crewmember” means a person assigned to perform duty in an aircraft during flight time.

“Critical altitude” means the maximum altitude at which, in standard atmosphere, it is possible to maintain, at a specified rotational speed, a specified power or a specified manifold pressure. Unless otherwise stated, the critical altitude is the maximum altitude at which it is possible to maintain, at the maximum continuous rotational speed, one of the following:

- (1) The maximum continuous power, in the case of engines for which this power rating is the same at sea level and at the rated altitude.
- (2) The maximum continuous rated manifold pressure, in the case of engines, the maximum continuous power of which is governed by a constant manifold pressure.

“Critical engine” means the engine whose failure would most adversely affect the performance or handling qualities of an aircraft.

“Decision height,” with respect to the operation of aircraft, means the height at which a decision must be made, during an ILS or PAR instrument approach, to either continue the approach or to execute a missed approach.

“Equivalent airspeed” means the calibrated airspeed of an aircraft corrected for adiabatic compressible flow for the particular altitude. Equivalent airspeed is equal to calibrated airspeed in standard atmosphere at sea level.

“Extended over-water operation” means —

- (1) With respect to aircraft other than helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline; and
- (2) With respect to helicopters, an operation over water at a horizontal distance of more than 50 nautical miles from the nearest shoreline and more than 50 nautical miles from an off-shore heliport structure.

“External load” means a load that is carried, or extends, outside of the aircraft fuselage.

“External-load attaching means” means the structural components used to attach an external load to an aircraft, including external-load containers, the backup structure at the attachment points, and any quick-release device used to jettison the external load.

“Fireproof”—

- (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.

“Fire resistant” —

- (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.

“Flame resistant” means not susceptible to combustion to the point of propagating a flame, beyond safe limits, after the ignition source is removed.

“Flammable”, with respect to a fluid or gas, means susceptible to igniting readily or to exploding.

“Flap extended speed” means the highest speed permissible with wing flaps in a prescribed extended position.

“Flash resistant” means not susceptible to burning violently when ignited.

“Flight crewmember” means a pilot, flight engineer, or flight navigator assigned to duty in an aircraft during flight time.

“Flight level” means a level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, flight level 250 represents a barometric altimeter indication of 25,000 feet; flight level 255, an indication of 25,500 feet.

"Flight plan" means specified information, relating to the intended flight of an aircraft, that is filed orally or in writing with air traffic control.

"Flight time" means:

- (1) Pilot time that commences when an aircraft moves under its own power for the purpose of flight and ends when the aircraft comes to rest after landing; or
- (2) For a glider without self-launch capability, pilot time that commences when the glider is towed for the purpose of flight and ends when the glider comes to rest after landing.

"Flight visibility" means the average forward horizontal distance, from the cockpit of an aircraft in flight, at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

"Foreign air carrier" means any person other than a citizen of the United States, who undertakes directly, by lease or other arrangement, to engage in air transportation.

"Foreign air commerce" means the carriage by aircraft of persons or property for compensation or hire, or the carriage of mail by aircraft, or the operation or navigation of aircraft in the conduct or furtherance of a business or vocation, in commerce between a place in the United States and any place outside thereof; whether such commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

"Foreign air transportation" means the carriage by aircraft of persons or property as a common carrier for compensation or hire, or the carriage of mail by aircraft, in commerce between a place in the United States and any place outside of the United States, whether that commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

"Forward wing" means a forward lifting surface of a canard configuration or tandem-wing configuration airplane. The surface may be a fixed, movable, or variable geometry surface, with or without control surfaces.

"Glider" means a heavier-than-air aircraft that is supported in flight by the dynamic reaction of the air against its lifting surfaces and whose free flight does not depend principally on an engine.

"Go-around power or thrust setting" means the maximum allowable in-flight power or thrust setting identified in the performance data.

"Ground visibility" means prevailing horizontal visibility near the earth's surface as reported by the United States National Weather Service or an accredited observer.

"Gyrodyne" means a rotorcraft whose rotors are normally engine-driven for takeoff, hovering, and landing, and for forward flight through part of its speed range, and whose means of propulsion, consisting usually of conventional propellers, is independent of the rotor system.

“Gyroplane” means a rotorcraft whose rotors are not engine-driven except for initial starting, but are made to rotate by action of the air when the rotorcraft is moving; and whose means of propulsion, consisting usually of conventional propellers, is independent of the rotor system.

“Helicopter” means a rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors.

“Heliport” means an area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters.

“Idle thrust” means the jet thrust obtained with the engine power control lever set at the stop for the least thrust position at which it can be placed.

“IFR conditions” means weather conditions below the minimum for flight under visual flight rules.

“IFR over-the-top,” with respect to the operation of aircraft, means the operation of an aircraft over-the-top on an IFR flight plan when cleared by air traffic control to maintain “VFR conditions” or “VFR conditions on top.”

“Indicated airspeed” means the 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.

“Instrument” means a device using an internal mechanism to show visually or aurally the attitude, altitude, or operation of an aircraft or aircraft part. It includes electronic devices for automatically controlling an aircraft in flight.

“Interstate air commerce” means the carriage by aircraft of persons or property for compensation or hire, or the carriage of mail by aircraft, or the operation or navigation of aircraft in the conduct or furtherance of a business or vocation, in commerce between a place in any State of the United States, or the District of Columbia, and a place in any other State of the United States, or the District of Columbia; or between places in the same State of the United States through the airspace over any place outside thereof; or between places in the same territory or possession of the United States, or the District of Columbia.