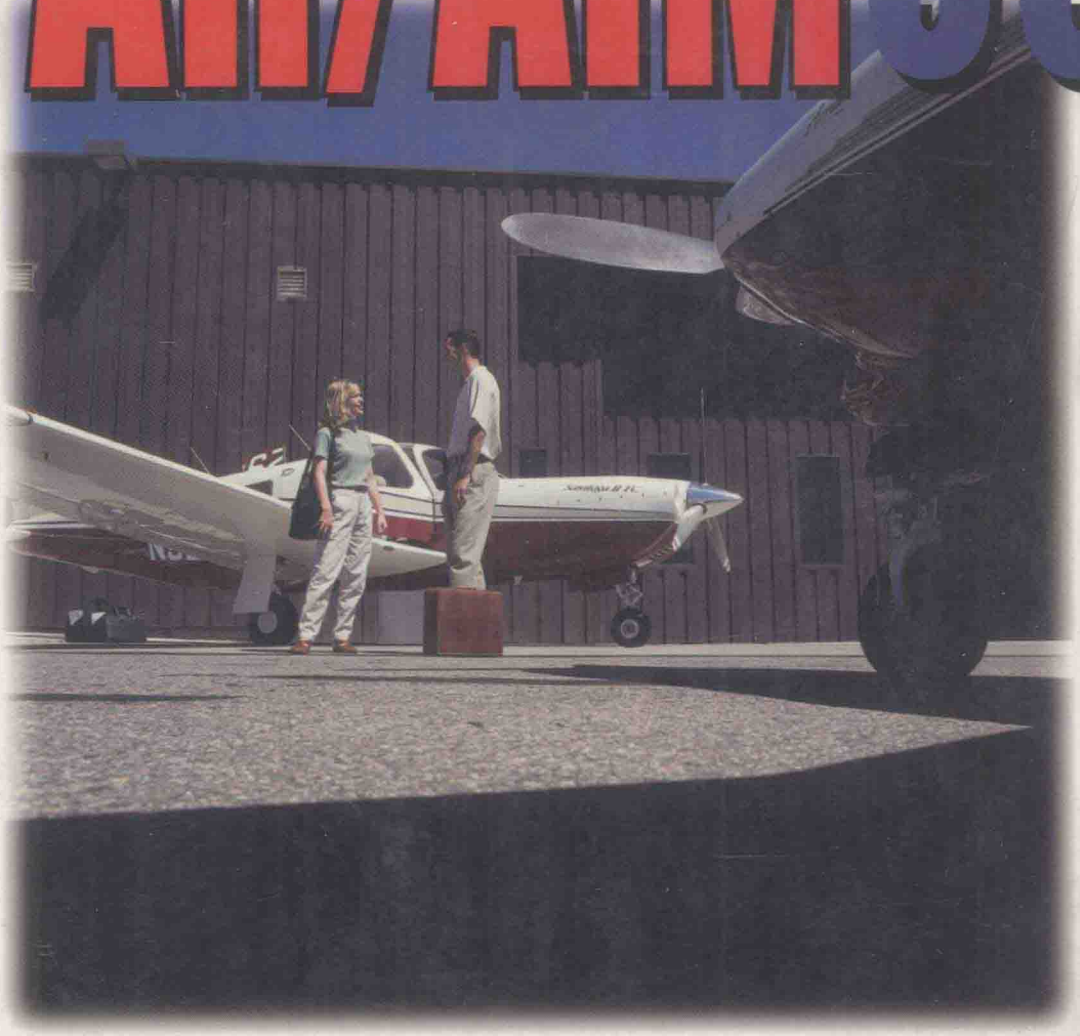
JEPPESEN
Sanderson Training Products

FREE UPDATE SUMMARY

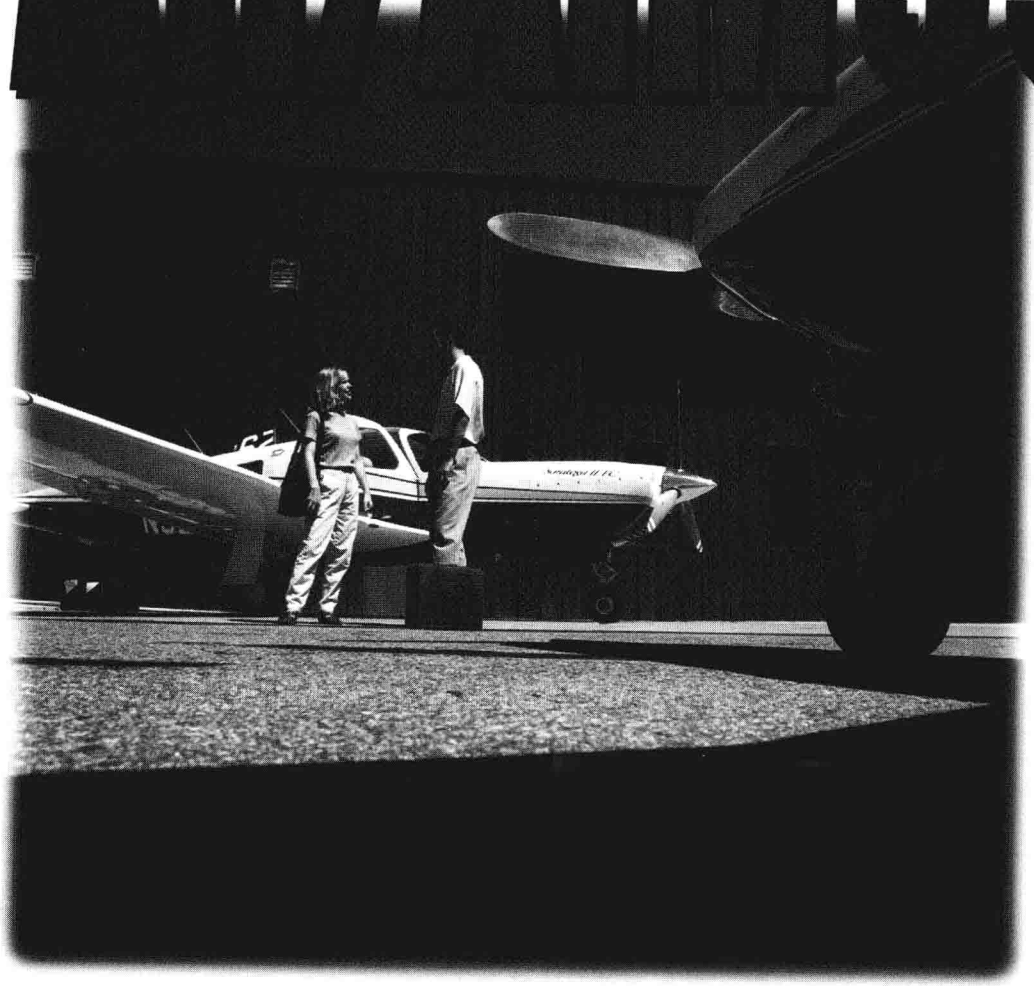
FAR/AIM 99



Federal Aviation Regulations/Aeronautical Information Manual

JEPPESEN®
Sanderson Training Products

FAR/AIM 99



Federal Aviation Regulations/Aeronautical Information Manual

FEDERAL AVIATION REGULATIONS

Includes regulation changes through October 1, 1998

AERONAUTICAL INFORMATION MANUAL

Includes AIM Change 1, effective August 13, 1998

55 Inverness Drive East, Englewood, CO 80112-5498

JS314125-004 FAR/AIM Manual
JS206350-001 FAR/AIM Manual with FAR/AIM CD-ROM

PREFACE

The *FAR/AIM BOOK* is really two publications in one. Federal Aviation Regulations (FARs) are covered in the first half and the *Aeronautical Information Manual* is included in the second half. A table of contents is included for the FARs and the AIM. Reference tabs are provided in each table of contents to help you locate a specific regulation or AIM paragraph. The alphabetical index at the end of this book includes both FAR and AIM entries. Changes since the last issue of this publication are shown with revision bars in the margin.

FEDERAL AVIATION REGULATIONS

The Federal Aviation Regulations are an integral part of your private, instrument, and commercial training. This book contains applicable portions of Parts 1, 43, 61, 67, 71, 73, 91, 97, 133, 141, 142, HMR 175, and NTSB 830. Rather than being bound into your pilot training manual, these regulations are printed separately so they can be updated frequently.

The FARs are presented in numerical sequence, and each is preceded by an expanded content listing for that Part. To help you tailor your studies, a list of recommended regulations for private, instrument, and commercial pilots is provided at the front of this book. Separate study lists are provided for both airplane and helicopter regulations. You should study the recommended regulations thoroughly. To check your understanding, work the exercises presented at the back of the FARs. They are divided into airplane and helicopter exercises for private, instrument, and commercial. Check your answers against the answer section, then review the regulations, as needed.

You should also seek out and review current regulations periodically, since the regulations are dynamic and they are frequently amended.

AERONAUTICAL INFORMATION MANUAL

The *Aeronautical Information Manual* is a complete reproduction of the FAA's publication. It includes the complete Pilot/Controller Glossary.

This manual is designed to provide the aviation community with basic flight information and ATC procedures for use in the National Airspace System (NAS) of the United States. The information contained parallels the U.S. Aeronautical Information Publication (AIP) distributed internationally.

This manual contains the fundamentals required in order to fly in the U.S. NAS. It also contains items of interest to pilots concerning health and medical facts, factors affecting flight safety, a pilot/controller glossary of terms used in the Air Traffic Control System, and information on safety, accident, and hazard reporting.

AIRPLANE
RECOMMENDED STUDY LISTS

PRIVATE PILOT

1.1	61.105	91.169
1.2	61.107	91.203
1.3	61.109	91.205
61.1	61.111	91.207
61.3	61.113	91.209
61.5	91.1	91.211
61.11	91.3	91.213
61.13	91.7	91.215
61.15	91.9	91.217
61.16	91.11	91.303
61.17	91.13	91.305
61.19	91.15	91.307
61.23	91.17	91.309
61.25	91.19	91.311
61.27	91.25	91.313
61.29	91.101	91.315
61.31	91.103	91.401
61.33	91.105	91.403
61.35	91.107	91.405
61.37	91.109	91.407
61.39	91.111	91.409
61.41	91.113	91.411
61.43	91.115	91.413
61.45	91.117	91.417
61.47	91.119	91.421
61.49	91.121	91.703
61.51	91.123	91.707
61.53	91.125	91.903
61.56	91.126	830.1
61.57	91.127	830.2
61.59	91.129	830.5
61.60	91.130	830.6
61.61	91.131	830.10
61.63	91.133	830.15
61.69	91.135	
61.71	91.137	
61.81	91.139	
61.83	91.141	
61.85	91.143	
61.87	91.144	
61.89	91.151	
61.93	91.153	
61.95	91.155	
61.102	91.157	
61.103	91.159	

INSTRUMENT RATING

1.1	91.105	91.313
1.2	91.107	91.315
1.3	91.109	91.401
61.1	91.111	91.403
61.3	91.113	91.411
61.5	91.115	91.413
61.11	91.117	91.703
61.13	91.119	91.707
61.15	91.121	91.903
61.16	91.123	830.1
61.17	91.125	830.2
61.23	91.126	830.5
61.25	91.127	830.6
61.29	91.129	830.10
61.33	91.130	830.15
61.35	91.131	
61.37	91.133	
61.39	91.135	
61.41	91.137	
61.43	91.139	
61.45	91.144	
61.47	91.151	
61.49	91.153	
61.51	91.155	
61.53	91.157	
61.56	91.159	
61.57	91.167	
61.59	91.169	
61.60	91.171	
61.61	91.173	
61.65	91.175	
61.71	91.177	
61.129	91.179	
91.1	91.181	
91.3	91.183	
91.7	91.185	
91.9	91.187	
91.11	91.203	
91.13	91.205	
91.17	91.207	
91.19	91.209	
91.21	91.211	
91.25	91.213	
91.101	91.215	
91.103	91.217	

COMMERCIAL PILOT

1.1	91.9	91.213
1.2	91.11	91.215
1.3	91.13	91.217
61.1	91.15	91.303
61.3	91.17	91.305
61.5	91.19	91.307
61.11	91.21	91.309
61.13	91.23	91.311
61.14	91.25	91.313
61.15	91.101	91.315
61.16	91.103	91.401
61.17	91.105	91.403
61.19	91.107	91.405
61.23	91.109	91.407
61.25	91.111	91.409
61.29	91.113	91.411
61.31	91.115	91.413
61.33	91.117	91.417
61.35	91.119	91.421
61.37	91.121	91.703
61.39	91.123	91.707
61.41	91.125	91.903
61.43	91.126	91.905
61.45	91.127	830.1
61.47	91.129	830.2
61.49	91.130	830.5
61.51	91.131	830.6
61.53	91.133	830.10
61.55	91.135	830.15
61.56	91.137	
61.57	91.139	
61.59	91.141	
61.60	91.143	
61.61	91.144	
61.63	91.151	
61.69	91.153	
61.71	91.155	
61.121	91.157	
61.123	91.159	
61.125	91.169	
61.127	91.203	
61.129	91.205	
91.1	91.207	
91.3	91.209	
91.7	91.211	

HELICOPTER RECOMMENDED STUDY LISTS

PRIVATE PILOT

1.1	61.93	91.141
1.2	61.95	91.143
1.3	61.102	91.144
61.1	61.103	91.151
61.3	61.105	91.153
61.5	61.107	91.155
61.11	61.111	91.157
61.13	61.113	91.159
61.14	91.1	91.203
61.15	91.3	91.205
61.16	91.7	91.207
61.17	91.9	91.209
61.19	91.11	91.211
61.23	91.13	91.213
61.25	91.15	91.215
61.27	91.17	91.217
61.29	91.19	91.303
61.31	91.25	91.305
61.33	91.101	91.307
61.35	91.103	91.313
61.37	91.105	91.315
61.39	91.107	91.401
61.41	91.109	91.403
61.43	91.111	91.405
61.45	91.113	91.407
61.47	91.115	91.409
61.49	91.117	91.411
61.51	91.119	91.413
61.53	91.121	91.417
61.56	91.123	91.421
61.57	91.125	91.703
61.59	91.126	91.707
61.60	91.127	830.1
61.61	91.129	830.2
61.63	91.130	830.5
61.71	91.131	830.6
61.81	91.133	830.10
61.83	91.135	830.15
61.85	91.137	
61.87	91.139	
61.89		

COMMERCIAL PILOT

1.1	61.131	91.157
1.2	91.1	91.159
1.3	91.3	91.203
61.1	91.7	91.205
61.3	91.9	91.207
61.5	91.11	91.209
61.11	91.13	91.211
61.13	91.15	91.213
61.14	91.17	91.215
61.15	91.19	91.217
61.16	91.21	91.303
61.17	91.23	91.305
61.19	91.25	91.307
61.23	91.101	91.313
61.25	91.103	91.315
61.27	91.105	91.401
61.29	91.107	91.403
61.31	91.109	91.405
61.33	91.111	91.407
61.35	91.113	91.409
61.37	91.115	91.411
61.39	91.117	91.413
61.41	91.119	91.417
61.43	91.121	91.421
61.45	91.123	91.703
61.47	91.125	91.707
61.49	91.126	91.903
61.51	91.127	91.905
61.53	91.129	830.1
61.55	91.130	830.2
61.56	91.131	830.5
61.57	91.133	830.6
61.59	91.135	830.10
61.60	91.137	830.15
61.61	91.139	
61.63	91.141	
61.71	91.143	
61.121	91.144	
61.123	91.151	
61.125	91.153	
61.127	91.155	

TABLE OF CONTENTS

PART 1 — DEFINITIONS AND ABBREVIATIONS

TABLE OF CONTENTS

INTENTIONALLY
LEFT
BLANK

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.

"Interstate 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 —

(1). Between a place in a State or the District of Columbia and another place in another State or the District of Columbia;

(2). Between places in the same State through the airspace of any place outside that State; or

(3). Between places in the same possession of the United States;whether that commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

"Intrastate air transportation" means the carriage of persons or property as a common carrier for compensation or hire, by turbojet-powered aircraft capable of carrying thirty or more persons, wholly within the same State of the United States.

"Kite" means a framework, covered with paper, cloth, metal, or other material, intended to be flown at the end of a rope or cable, and having as its only support the force of the wind moving past its surfaces.

"Landing gear extended speed" means the maximum speed at which an aircraft can be safely flown with the landing gear extended.

"Landing gear operating speed" means the maximum speed at which the landing gear can be safely extended or retracted.

"Large aircraft" means aircraft of more than 12,500 pounds maximum certificated takeoff weight.

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

"Load factor" means the ratio of a specified load to the total weight of the aircraft. The specified load is expressed in terms of any of the following: aerodynamic forces, inertia forces, or ground or water reactions.

"Long-range communication system (LRCS)" means a system that uses satellite relay, data link, high frequency, or another approved communication system which extends beyond line of sight.

"Long-range navigation system (LRNS)" means an electronic navigation unit that is approved for use under instrument flight rules as a primary means of navigation, and has at least one source of navigational input, such as inertial navigation system, global positioning system, Omega/very low frequency, or Loran C.

"Mach number" means the ratio of true airspeed to the speed of sound.

"Main rotor" means the rotor that supplies the principal lift to a rotorcraft.

"Maintenance" means inspection, overhaul, repair, preservation, and the replacement of parts, but excludes preventive maintenance.

"Major alteration" means an 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.

"Major repair" means a repair —

(1). That, if improperly done, might appreciably affect weight, balance, structural strength, performance, powerplant operaiton, flight characteristics, or other qualities affecting airworthiness; or

(2). That is not done according to accepted practices or cannot be done by elementary operations.

"Manifold pressure" means absolute pressure as measured at the appropriate point in the induction system and usually expressed in inches of mercury.

"Maximum speed for stability characteristics, V_{FC}/ M_{FC}" means a speed that may not be less than a speed midway between maximum operating limit speed (V_{MO}/M_{MO}) and demonstrated flight diving speed (V_{DF}/ M_{DF}), except that, for altitudes where the Mach number is the limiting factor, M_{FC} need not exceed the Mach number at which effective speed warning occurs.

"Medical certificate" means acceptable evidence of physical fitness on a form prescribed by the Administrator.

"Military operations area" (MOA) means an airspace that is established outside Class A airspace to separate or segregate certain nonhazardous military activities from IFR Traffic and to identify for VFR traffic where these activities are conducted.

"Minimum descent altitude" means the lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure, where no electronic glide slope is provided.

"Minor alteration" means an alteration other than a major alteration.

"Minor repair" means a repair other than a major repair.

"Navigable airspace" means airspace at and above the minimum flight altitudes prescribed by or under this chapter, including airspace needed for safe takeoff and landing.

"Night" means the time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.

"Nonprecision approach procedure" means a standard instrument approach procedure in which no electronic glide slope is provided.

"Operate," with respect to aircraft, means use, cause to use or authorize to use aircraft, for the purpose (except as provided in §91.13 of this chapter) of air navigation including the piloting of aircraft, with or without the right of legal control (as owner, lessee, or otherwise).

"Operational control," with respect to a flight, means the exercise of authority over initiating, conducting, or terminating a flight.

"Overseas 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 of furtherance of a business or vocation, in commerce between a place in any State of the United States, or the District of Columbia, and any place in a territory or possession of the United States; or between a place in a territory or possession of the United States, and a place in any other territory or possession of the United States.

"Overseas 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 —

(1). Between a place in a State or the District of Columbia and a place in a possession of the United States; or

(2). Between a place in a possession of the United States and a place in another possession of the United States; whether that commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

"Over-the-top" means above the layer of clouds or other obscuring phenomena forming the ceiling.

"Parachute" means a device used or intended to be used to retard the fall of a body or object through the air.

"Person" means an individual, firm, partnership, corporation, company, association, joint-stock association, or governmental entity. It includes a trustee, receiver, assignee, or similar representative of any of them.

"Pilotage" means navigation by visual reference to landmarks.

"Pilot in command" means the person who —

(1). Has final authority and responsibility for the operation and safety of the flight;

(2). Has been designated as pilot in command before or during the flight; and

(3). Holds the appropriate category, class, and type rating, if appropriate, for the conduct of the flight.

"Pitch setting" means the propeller blade setting as determined by the blade angle measured in a manner, and at a radius, specified by the instruction manual for the propeller.

"Positive control" means control of all air traffic, within designated airspace, by air traffic control.

"Powered-lift" means a heavier-than-air aircraft capable of vertical takeoff, vertical landing, and low speed flight that depends principally on engine-driven lift devices or engine thrust for lift during these flight regimes and on nonrotating airfoil(s) for lift during horizontal flight.

"Precision approach procedure" means a standard instrument approach procedure in which an electronic glide slope is provided, such as ILS and PAR.

"Preventive maintenance" means simple or minor preservation operations and the replacement of small standard parts not involving complex assembly operations.

"Prohibited area" means an airspace that is designated under Part 73 within which no person may operate an aircraft without the permission of the using agency.