

-A-

Abeam: An aircraft is “abeam” a fix, point, or object when that fix, point, or object is approximately 90 degrees to the right or left of the aircraft track. Abeam indicates a general position rather than a precise point.

Abort: To terminate a preplanned aircraft maneuver, for example, an aborted takeoff.

Above Ground Level (AGL): See Altitude.

Above Surface Level (ASL): The distance between the aircraft and the nearest surface.

ABRO: ICS mnemonic for the Aircraft Base Radio Operator.

ACETA: See Aerial Capture, Eradication, And Tagging of Animals.

Acknowledge: To let one know that one has received and understood another’s message.

Actual Time Of Arrival (ATA): Term used in flight planning and flight following to document the time of arrival at a point.

Actual Time Of Departure (ATD): Term used in flight planning and flight following to document the actual time of departure from a given point.

Actual Time Enroute (ATE): Term used in flight planning and flight following to document the actual time spent flying from one point to another.

ADF: See Automatic Direction Finder.

Advancing Blade: That half of the rotor disc in which the rotation of the blade is moving in the same direction as the movement of the helicopter.

Advisory: Advice and information provided to assist a Pilot in the safe conduct of flight and aircraft movement.

Aerial Capture, Eradication, And Tagging of Animals: USDI Handbook that outlines policy and procedures for these types of operations.

Affirmative: Yes

Aft: Rearward; in the back.

AGL: See Above Ground Level.

Agreement Aircraft: An aircraft that is approved and available for intermittent, short-term use under an ordering or rental agreement. Orders for use of the agreement aircraft are subject to the small purchase limitation established under the Federal Acquisition Regulations unless otherwise authorized by the Contracting Officer.

Air Crew Member: Additional crew member required for accomplishment of the mission such as flight attendant, smokejumper/rappeI spotter, cargo loadmaster, helicopter manager, etc. These positions usually do not require any Airman Certificate(s) or flight physical.

Air Guard: A common frequency preset into each 9600 channel radio. The air guard frequency is 168.625 MHz.

Air Operations Branch Director (AOBD): The supervisor of the air operations staff on an incident or project. The Air Tactical Group Supervisor and Air Support Group Supervisor work for the AOBD; the AOBD works for the Operations Section Chief or Project Aviation Manager. (See the aviation table of organization in Chapter II for further information.)

Air Route Traffic Control Center (ARTCC): Major FAA radar centers established to provide air traffic control service to aircraft operating on IFR (Instrument Flight Rules) flight plans within controlled airspace and principally during the en route phase of flight. Each ARTCC has an assigned geographical area. Refer to the Interagency Airspace Coordination Guide for further discussion of the role ARTCC's play in the National Airspace System.

Air Support Group Supervisor (ASGS): The supervisor of the Air Support staff on an incident or project. The ASGS supervises the Helibase Manager(s) and is responsible for support from fixed-wing bases; the ASGS works for the Air Operations Branch Director. (See the aviation table of organization in Chapter II for further information.)

Air Traffic Control (ATC): A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

Air Tactical Group Supervisor (ATGS): The supervisor of the Air Tactics staff on an incident or project. The ATGS supervises the Air Tanker and Helicopter Coordinators and is responsible for tactical coordination of aircraft; the ATGS works for the Air Operations Branch Director. (See the aviation table of organization in Chapter II for further information.)

Aircraft: The term aircraft is used to refer to both airplanes and helicopters.

Aircraft Accident: An unplanned event that does substantial damage or causes serious injuries when associated with the operation of applicable aircraft, occurring between the time the engine(s) is (are) started or rotors turning for the purpose of commencing flight, until the aircraft comes to rest with engines and propellers or rotors stopped, and the brakes set or wheel chocks in place and all persons have disembarked.

Aircraft Base Radio Operator (ABRO): The Aircraft Base Radio Operator is supervised by the Helibase Manager and is responsible for establishing and facilitating communications among incident- or project-assigned helicopters, helibases, helispots, air operations staff or Project Aviation Manager, and the Takeoff And Landing Coordinator. Note that on smaller incidents or projects that this position may be combined with the Aircraft Timekeeper position. See Chapter 2.

Aircraft Chief-of-Party: The government representative responsible for coordinating with the Pilot concerning mission planning, needs and conduct. This individual may be a helicopter manager, authorized crew member, rappel spotter, etc. See **Project Flight Manager**.

Aircraft Data Card: “Card” or documentation required to be onboard the helicopter that approves the aircraft for use, and the types of use. Example of carding for specific uses include: long line, helitorch, and passenger transport. Cards are issued by USDI, USDA-Forest Service, and various State agencies.

Aircraft Ground Mishap: An aircraft mishap in which there is no intent to fly; however, the power plants and/or rotors are in operation and damage incurred requiring replacement or repair of rotors, propellers, wheels, tires, wing tips, flaps, etc., or an injury is incurred requiring first-aid or medical attention.

Aircraft Incident: An unplanned event that results in damage which is less than serious aircraft incident criteria, or injury less than medical attention (that is, first aid). A situation involving an aircraft and/or personnel which has the potential of resulting in an aircraft accident is also classified as an aircraft incident. Examples include a forced or precautionary landing, an aircraft ground mishap or ground damage to an aircraft, and a near mid-air collision.

Aircraft Rental Agreement (ARA): For USDI, a written instrument of understanding, negotiated between an agency, contracting activity, or contracting office and a contractor, that contains (1) terms and clauses applying to future contracts (orders) between the parties during its term; (2) a description, as specific as practicable, of supplies or services to be provided; and (3) methods for pricing, issuing, and delivering future orders under the Aircraft Rental Agreement. An Aircraft Rental Agreement is not a contract. In this guide, may be used interchangeably with “rental” or “call-when-needed.”

Aircraft Timekeeper (ATIM): The Aircraft Timekeeper is supervised by the Helibase Manager and is responsible for keeping time and other information concerning all helicopters assigned to the helibase. Note that on smaller incidents or projects that this position may be combined with the Aircraft Base Radio Operator position. See Chapter 2.

Airfoil: Any surface designed to obtain a useful reaction from the air through which it moves.

Airman’s Information Manual: A publication containing basic flight information and ATC procedures designed primarily as a Pilot’s instructional manual for the use of the national airspace system. May be called the FAR/AIM when selected Federal Aviation Regulations (FAR’s) are included.

Airport/Facility Directory (A/FD): A publication designed primarily as a Pilot’s operational manual containing all airports, seaplane bases, and heliports open to the public including communications data, navigational facilities, and certain special notices and procedures. This publication is issued in seven volumes according to geographical area.

Airspeed: The speed of an aircraft relative to its surrounding air mass. The unqualified term “airspeed” means one of the following:

1. **Indicated Airspeed:** The speed shown on the aircraft airspeed indicator. This is the speed used in Pilot/controller communications under the general term “airspeed” (refer to FAR 1).
2. **True Airspeed:** The airspeed of an aircraft relative to undisturbed air. It is used primarily in flight planning and the en route portion of flight. When used in Pilot/controller communications, it is referred to as “true airspeed” and not shortened to “airspeed.”

Airway: A control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids. See **Chartered VFR Flyways**.

All Risk: Emergency operations of all types, including but not limited to floods, hurricanes, hazardous materials spills, volcanic eruptions, fires, etc.

Allowable Payload: The allowable payload represents the amount of weight that is available for passengers and/or cargo. On the load calculation form, the allowable payload is the operating weight subtracted from the selected weight.

ALSE: See Aviation Life Support Equipment.

Altimeter Setting: The barometric pressure reading used to adjust a pressure altimeter for variations in existing atmospheric pressure or to the standard altimeter setting (29.92 inches).

Altitude: The height of a level point or object measured in feet **Above Ground Level (AGL)** or from **Mean Sea Level (MSL)**.

1. **MSL Altitude:** Altitude in feet measured from mean sea level.
2. **AGL Altitude:** Altitude in feet measured from above ground level, that is, the vertical height of the aircraft above the ground. See **Above Surface Level**.
3. **Indicated Altitude:** The altitude as shown by an altimeter. On a pressure or barometric altimeter it is altitude as shown uncorrected for instrument error and uncompensated for variation from standard atmospheric conditions.

➔ **AMD-2:** Aircraft Use Report utilized by USDI agencies to record flight and other payment items for government-owned aircraft.

➔ **AMD-23:** Aircraft Use Report utilized by USDI agencies to record flight and other payment items for vendor aircraft.

AMIS: See Aviation Mishap Information System or Aviation Management Information System.

Angle Of Attack: The acute angle measured between the chord of an airfoil and the relative wind.

Antitorque Rotor: See Tail Rotor.

AOBD: See Air Operations Branch Director.

Approach-Departure Path: The clear path selected for flight extending upward and outward from the touchdown pad and safety circle. The approach and departure path should not overfly structures, inhabited areas, personnel, and vehicle parking areas. See Chapter 8 for recommended specifications.

APU: Auxiliary Power Unit

Aramide: See Nomex.

Articulated Rotor: A rotor system in which the blades are free to flap, drag (hunt), and feather. See Rigid Rotor and Semirigid Rotor.

ASGS: See Air Support Group Supervisor.

ASL: See Above Surface Level.

ATA: See Actual Time of Arrival.

ATC: See Air Traffic Control

ATD: See Actual Time of Departure.

ATE: See Actual Time Enroute.

ATGS: See Air Tactical Group Supervisor.

ATIM: ICS mnemonic for the Aircraft Timekeeper.

Authorized Passenger: Passengers may be transported in government aircraft only if they meet definition of an Official or an Unofficial Passenger. See Unauthorized Passenger. See Official Passenger.

Autorotation: A rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion. No engine power is supplied to the main rotor, and lift is developed from the free turning of the rotor blades, which are driven by aerodynamic forces. Rotor inertia is used as the helicopter nears the ground to check the descent.

Automatic Direction Finder (ADF): An aircraft navigation system which senses and indicates the direction to a low/medium frequency nondirectional radio beacon (NDB) ground transmitter. Direction is indicated to the Pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft, depending upon the type of indicator installed.

Aviation Hazard: Any condition, act or set of circumstances that compromises the safety of personnel or resources engaged in aviation activities. These hazards include inadequacies, deficiencies or unsafe practices pertaining to all aspects of aviation operation and activities.

Aviation Life Support Equipment (ALSE): This includes PPE, and other items like Personnel flotation devices/vests, oxygen units, survival vests.

Aviation Management Directorate (AMD): Office in the Department of the Interior's Denver Service Center with departmental wide functions related to aircraft services, aircraft contracting, training, and facilities.

Aviation Mishap: An unplanned, unintended event involving aircraft operations that results in damage to aircraft, injuries to personnel, or presents the potential for such. Mishaps include aircraft accidents, serious aircraft incidents, aircraft incidents, aviation hazards, and aircraft maintenance deficiencies.

Aviation Management Information System (AMIS): Information systems operated by USDA-FS that collects and collates aviation use and cost statistics from flight payment documents. See Management Information System (MIS) for USDI.

Aviation Mishap Information System (AMIS): Information system operated by USDI that collects and collates accident, incident, hazard, and maintenance deficiency statistics through submission of AMD-34 Safecom Reports.

Azimuth: A magnetic bearing extending from a Microwave Landing System navigation facility. Azimuth bearings are described as magnetic and are referred to as "azimuth" in radio telephone communications. See Bearing.

-B-

Bailed Aircraft: Aircraft on loan from the Department of Defense (DOD).

Base Leg: See Traffic Pattern.

Bearing: The horizontal direction to or from any point, usually measured clockwise from true north, magnetic north, or some other reference point through 360 degrees.

Below Minimums: Weather conditions below the minimums prescribed by regulation for the particular action involved (for example, landing minimums, takeoff minimums, VFR flight minimums).

Blade Damper: A device (spring, friction, or hydraulic) installed on the vertical (drag) hinge to diminish or dampen blade oscillation (hunting) around the hinge.

Blade Hunting: The tendency of a blade (due to coriolis effect) to seek a position ahead of or behind that which would be determined by centrifugal force alone.

Blade Loading: The load placed on the rotor blades of a helicopter, determined by dividing the gross weight of the helicopter by the combined area of all the rotor blades.

Blade Stall: The stall condition on the retreating blade which occurs at high forward speeds.

Blind Spot: An area from which radio transmissions and/or radar echoes cannot be received.

Blind Transmission: A transmission from one station to another station or stations in circumstances where two-way communication cannot be established but where it is believed that the called station(s) may be able to receive the transmission.

BLM: See Bureau of Land Management.

Blivet: Container for liquids (water, fuel, etc.) that is helicopter-transportable. Also known as a water bag.

Broadcast: Transmission of information for which an acknowledgement is not expected.

Bucket: A rigid, collapsible, or collapsible-foldable container slung below a helicopter, usually to transport water, foam, or retardant.

Bureau: Generic reference to the Offices, Bureaus, Surveys, or Services in USDI.

Bureau of Land Management (BLM): Agency in the United States Department of the Interior.

-C-

Call-When-Needed (CWN): See Aircraft Rental Agreement. In this guide, may be used interchangeably with “rental” or “ARA”.

Call Up: Initial voice contact between a facility and an aircraft, using the identification of the unit being called and the unit initiating the call.

Cardinal Altitudes: “Odd” or “Even” thousand-foot altitudes or flight levels (for example, 5000, 7000, FL260).

Cargo Freefall: Delivery of cargo by dropping it out of the helicopter without a parachute.

Cargo Hook: Term commonly used to identify the load-carrying device mounted beneath the helicopter to which external cargo is attached. Cargo hooks usually have both manual and electrical quick-release mechanisms operated by the Pilot.

Cargo Letdown: The method of lowering cargo from a hovering helicopter using a letdown line or rope controlled by a “Figure 8” device.

Cargo Net: A net used in external load operations.

Cargo Rack Or Basket: A structure attached externally to a helicopter for transport of cargo.

Carousel Hook: The carousel system is a remote hook attached to the end of a longline. It has four or more individual hooks contained within the carousel. Each hook can be independently released, allowing the Pilot to fly different cargo loads to different locations without landing.

Category: As used with respect to 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.

CCR: See Closed Circuit Refueling.

Ceiling: The heights 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."

Center Of Gravity (CG): An imaginary point where the resultant weight forces in the body may be considered to be concentrated for any position of the body. Consideration of center of gravity limitations is important in the loading of all aircraft, but it is particularly important and critical in helicopters. In an airplane, the load is balanced over a horizontal wing area and has comparatively wide range. In a single main rotor helicopter, it is carried under a single point, like a pendulum. Therefore, very little out-of-CG loading can greatly affect the controllability of the helicopter.

Center Of Pressure: The imaginary point on the chord line where the resultant of all aerodynamic forces of an airfoil section may be considered to be concentrated.

Centrifugal Force: The force created by the tendency of a body to follow a straight-line path against the force which causes it to move in a curve, resulting in a force which tends to pull away from the axis of rotation.

Certificated Gross Weight: See Maximum Certificated Gross Weight.

CFR: See Code of Federal Regulations

CG: See Center of Gravity.

Charted VFR Flyways: Charted VFR Flyways are flight paths recommended for use to bypass areas heavily traversed by large turbine-powered aircraft. Pilot compliance with recommended flyways and associated altitudes is strictly voluntary. VFR Flyway Planning charts are published on the back of existing VFR Terminal Area charts.

Chase Truck: Helicopter crew vehicle, also known as a "helitender," that carries crew gear, supplies, and operational equipment for initial/extended attack and helispot/helibase operations.

Chord: An imaginary straight line between the leading and trailing edges of an airfoil.

Civil Aircraft: Aircraft that are not public aircraft.

Closed Circuit Refueling (CCR): A fueling system designed to prevent spills, minimize fuel contamination, and prevent escape of flammable fuel vapors. See Chapter 13.

CO: Contracting Officer.

Code of Federal Regulations (CFR's): That body of regulations contained in the United States Code (USC).

Collective Pitch Control: The method of control by which the pitch of all rotor blades is varied equally and simultaneously. The collective regulates the pitch angle, or angle of attack, of the main rotor blades. It is used as the primary power control. As the pitch of the blades is increased, lift is induced, causing the helicopter to lift off the ground, hover, or climb, as long as sufficient power is available.

Common Traffic Advisory Frequency (CTAF): A frequency designed for the purpose of carrying out airport advisory practices while operating to and from an uncontrolled airport. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications.

Compass Rose: A circle, graduated in degrees, printed on some charts or marked on the ground at an airport or heliport. It is used as a reference to either true or magnetic direction.

Computed Gross Weight: See Maximum Computed Gross Weight.

Contact: Establish communication with (followed by the name of the facility and, if appropriate, the frequency to be used).

Contract Aircraft: An aircraft that has been approved for use by a formal contract. Generally, there is no monetary limitation on the extent of use of the contract aircraft. Contract aircraft may be either **Exclusive-Use Contract** or **On-Call Contract** aircraft.

Exclusive-Use Contract Aircraft: An aircraft contracted for a specified period during which time it is under the exclusive use and control of the government. It may be released from the contract only through authorization by the Contracting Officer.

On-Call Contract: An aircraft contracted for a specified number of hours but which is not under the exclusive use and control of the government until the time of order (there may be a penalty incurred by the vendor for not meeting the order).

Contracting Officer (CO) or Administrative Contracting Officer (ACO): The Contracting Officer (CO in DOI) or Administrative Contracting Officer (ACO in USDA-FS) is responsible for all contracting actions including contracting procedures and methods, contract legality, compliance with existing laws and regulations, contract administration and terminations. The CO may delegate certain contract administration functions.

Contracting Officer's Representative (COR): The Contracting Officer's Representative (COR) is directly responsible to the Contracting Officer for monitoring contract performance. The COR is primarily responsible for assuring compliance with the administrative provisions of the contract. The COR maintains communications with the vendor concerning day-to-day operations, though this may be further delegated to a Project Inspector (see below). The COR may represent the CO in making minor allowances which do not modify the price, or other provisions of the contract. The COR is responsible for verifying the work performed upon which payment is based. Responsibilities may be further delegated to a Project Inspector (PI).

Contracting Officer's Technical Representative (COTR): The Contracting Officer's Technical Representative (COTR) is directly responsible to the Contracting Officer for assuring compliance with the technical provisions of the contract. The COTR conducts initial inspections and approves the vendor's equipment, facilities, and personnel prior to, and periodically during, contract performance.

Controlled Airspace: Airspace within which some or all aircraft may be subject to air traffic control (see FAR 71 and/or the FAR/AIM).

Coordinates: The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine or report position or location.

Copter: Helicopter

COR: See Contracting Officer's Representative

Correction: An error has been made in the transmission and the correct version follows.

COTR: See Contracting Officer's Technical Representative

Course: The intended direction of flight in the horizontal plane measured in degrees from north. See Bearing and Radial.

Crashed Aircraft: A crashed aircraft is one that is known or is suspected of having had an accident.

Crosswind Leg: See Traffic Pattern.

Cruise Speed: The air speed, in knots, equivalent to 80 percent of VNE, at 5,000 feet, 80° F (26° C).

CTAF: See Common Traffic Advisory Frequency.

CWN: See Call-When-Needed.

CWN Manager: Individual who manages a CWN aircraft (usually in reference to fire CWN helicopters).

Cyclic Pitch Control: The control which changes the pitch of the rotor blades individually during a cycle of revolution by regulating the tilt of the rotor disc, and therefore, the direction and velocity of horizontal flight. The cyclic is used as the primary control for bank, horizontal movement, and speed. The main rotor system is tilted in the direction of stick movement, causing the helicopter to move in that direction.

-D-

DA: See Density Altitude

DECK: ICS mnemonic for the Deck Coordinator.

Deck: That part of the helibase operational area that includes the touchdown pad, safety circle, hover lanes, and external cargo transport area. It is also usually roped off with flagging.

Deck Coordinator (DECK): The Deck Coordinator is supervised by the Helibase Manager and is responsible for providing coordination at the helibase for personnel and cargo movement. The Deck Coordinator supervises the Parking Tenders and Loadmasters. See Chapter 2.

Delta (Flapping) Hinge: The hinge with its axis parallel to the rotor plane of rotation, which permits the rotor blades to flap to equalize lift between the advancing blade half and retreating blade half of the rotor disc.

Density Altitude (DA): Pressure altitude corrected for temperature and humidity.

Disc Area: The area swept by the blades of the rotor. This is a circle with its center at the rotor hub axis and a radius of one blade length.

Disc Loading: The ratio of the helicopter gross weight to rotor disc area (total helicopter weight divided by the rotor disc area).

Discrete Frequency: A separate radio frequency for use in air traffic control which reduces frequency congestion by controlling the number of aircraft operating on a particular frequency at one time.

Distance Measuring Equipment (DME): Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid (see VORTAC).

Distress: A condition of being threatened by serious and/or imminent danger and requiring immediate assistance.

DM: Departmental Manual (for the United States Department of the Interior)

DME: See Distance Measuring Equipment.

DOI: Department Of the Interior. Officially known as USDI (United States Department of the Interior).

DOT: United States Department Of Transportation.

Downloading: See Weight Reduction.

Downwind Leg: See Traffic Pattern.

Dual-Function Pilot: Any person who acts as Pilot-in-command of an aircraft while on official government business and is not a full-time Pilot (Office of Personnel Management classification 2181), but whose job description does include Pilot duties.

Dual-Rotor Helicopter: Some helicopters have dual main rotors, mounted in tandem, side by side, or one above the other. Torque compensation is usually achieved by turning the rotors in opposite directions.

-E-

EGT: See Exhaust Gas Temperature.

ELT: See Emergency Locator Transmitter

EMT: Emergency Medical Technician.

Emergency: Emergencies can be classified two ways:

1. Life-Threatening Emergency: A situation or occurrence of a serious nature, developing suddenly and unexpectedly and demanding immediate action to prevent loss of life;
2. Operational Emergency: An unforeseen combination of circumstances that calls for immediate action, but is not life-threatening.

Emergency Locator Transmitter: A radio transmitter attached to the aircraft structure which operates from its own power source on 121.5 MHz and 243.0 MHz. It aids in locating downed aircraft by radiating a downward sweeping audio tone, 2-4 times per second. It is designed to function without human action after an accident.

Empty Weight: The weight of the helicopter including the structure, powerplants, all fixed equipment, all fixed ballast, unusable fuel, undrained oil, and total quantity of hydraulic fluid.

EPA: Environmental Protection Agency

Equipped Weight: Empty weight of the helicopter, plus the weight of equipment required for the mission, plus weight of oil. It is a term used by USDA-FS, USDI, and some state and local agencies for load calculation purposes.

→ **Essential Passenger:** The assigned Aircraft Flight Manager is responsible for ensuring that only passengers essential to the accomplishment of the mission, including trainees, are on board the aircraft.

Estimated Time Of Arrival (ETA): Term used in flight planning and flight following to estimate the time of arrival at a point.

Estimated Time Of Departure (ETD): Term used in flight planning and flight following to estimate the time of departure from a given point.

Estimated Time Enroute (ETE): Term used in flight planning and flight following to estimate the time enroute from one point to another.

ETA: See Estimated Time of Arrival.

ETD: See Estimated Time of Departure.

ETE: See Estimated Time Enroute.

Excess/Surplus Military Aircraft: Aircraft whose ownership has been transferred to a government agency by the Department of Defense.

Exclusive-Use Contract: See Contract Aircraft.

Exhaust Gas Temperature: An exhaust gas temperature gauge measures, in degrees Celsius or Fahrenheit, the temperature of the exhaust gases at the exhaust manifold.

External Load: A load that is carried outside of the fuselage (normally suspended from a cargo hook).

External Load (Jettisonable). A jettisonable load is usually associated with being an external load that can be released from the cargo hook. Anything attached to the cargo hook on the belly of the helicopter should be capable of being released at any time by the Pilot, or in the event of an emergency (i.e. cargo, slings load lines, lead lines, long line with remote hook). A jettisonable load may be classified as Class B, C, or D in accordance with 14 CFR 133. External Load Classes include:

Class A Rotorcraft Load: The external load cannot move freely, cannot be jettisoned, and does not extend below the landing gear (for example, fixed water tank, cargo rack, etc.).

Class B Rotorcraft Load: The external load is jettisonable and is lifted free of land or water during the rotorcraft operation (for example, water bucket, sling load, etc.).

Class C Rotorcraft Load: The external load is jettisonable and remains in contact with land or water during the rotorcraft operation (for example, a snow sled).

Class D Rotorcraft Load: The external load is other than a Class A, B, or C and has been specifically approved by the FAA for that operation.

-F-

FAA: Federal Aviation Administration.

FAR: See Federal Aviation Regulations, or, depending upon the context, Federal Acquisition Regulations.

FAR/AIM: See Airman's Information Manual.

Federal Aviation Regulations (FAR's): Regulations contained in 14 CFR governing the operation of aircraft in the United States. For public aircraft, FAR Part 47 and Part 91, Subpart B, are the only regulations mandated by the FAA. Agencies gain compliance with other FAR's by incorporating them by reference into manual directives and contracts.

Feet Per Minute (FPM): Feet per minute, usually in reference to ascent or descent.

Final Approach: See Traffic Pattern.

First Aid: Any attention that involves no medical bill. If a physician prescribes medical treatment for less than serious injury and makes a charge for this service, that injury becomes Medical Attention. Also see Serious Injury.

Flapping: The vertical movement of a blade about a delta (flapping) hinge.

Flight Crew Member: An individual holding a valid Federal Aviation Administration (FAA) Airman's Certificate and flight physical as a prerequisite to performance of the duties of the position during flight (for example, Pilot, co-Pilot, flight engineer, flight navigator).

Flight Following: The method(s) and process(es) through which an aircraft is tracked from departure point to destination. Flight following is the knowledge of the aircraft location and condition with a reasonable degree of certainty such that, in the event of mishap, those on board may be rescued. Flight following may be accomplished through filing of flight plans with FAA and/or agency offices, or by an automated satellite reporting system. Though the end result of position check-ins is often the same, flight following should be differentiated from Resource Tracking.

Flight Manager: See Project Flight Manager.

Flight Path: A line, course, or track along which an aircraft is flying or intended to be flown.

Flight Plan: Specified information relating to the intended flight of an aircraft that is filed with FAA or an agency office.

Flight Service Station (FSS): Air traffic facilities which provide Pilot briefing, en route communications, and VFR search and rescue services, assist lost aircraft and aircraft in emergency situations, relay ATC clearances, originate Notices to Airmen, broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor NAVAID's. In addition, at selected locations, FSS's provide Enroute Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of transborder flights.

Floats: Landing gear that can be used on land, as well as water. There are two types of floats, fixed and popout. Popouts are inflated only as needed.

Floor Loading: The pounds-per-square-inch (PSI) maximum load limit on the floor of the helicopter.

Forced Landing: A landing necessitated by failure of engines, systems, or components which makes continued flight impossible and which may or may not result in damage.

FPM: See Feet Per Minute.

Freefalling Cargo: See Cargo Freefall.

Freewheeling Unit: A component part of the transmission or power train which automatically disconnects the main rotor from the engine when the engine stops or slows below the equivalent of rotor RPM.

FS-6500-122: USDA-FS Flight Use Report form.

FSS: See Flight Service Station

Fuel Consumption: Fuel consumption, given in pounds per hour, is computed for 5,000 ft. pressure altitude, 80° F (26° C). Fuel weight is computed at 6 pounds per gallon for AVGAS and seven pounds per gallon for jet fuel.

Fuel Capacity: The maximum amount of fuel that can be carried in the helicopter's fuel tanks.

Fusees: Highway flares used as handheld ignition devices.

-G-

General Use: This involves point-to-point transportation of personnel and/or cargo, and all other flights not categorized as special use. See Special Use.

Global Positioning System (GPS): A world-wide navigation system that uses satellite signals to determine position. GPS is replacing LORAN as the preferred system for determining aircraft position.

Government Aircraft: Any aircraft owned, leased, chartered or rented and operated by an Executive Agency.

GPS: See Global Positioning System.

GPU: See Ground Power Unit.

Gross Weight: See Maximum Certificated Gross Weight.

Gross Weight Limit: May be the Maximum Weight Limit for takeoff and landing, a Weight/Altitude/Temperature (WAT) Limit, or a Maximum gross Weight Limit for External Loads. Limitations may vary for HIGE, HOGE, and HOGE-J.

Ground Effect: When a helicopter is operated near the surface, the downwash velocity created by the rotor blades cannot be fully developed due to the proximity of (interference with) the surface. This restraint of rotor downwash occurs as the helicopter reaches a relatively low altitude - usually one-half a rotor diameter. A "cushion" of air beneath a helicopter hovering or operating near the surface results as air is pushed downward by the main rotor system and semi-compressed against the surface. The net result is a beneficial increase in lift and a lower power requirement to support a given weight. This ground cushion is normally effective, although diminishing, up to a height above the surface equal to the radius of a main rotor blade. Ground effect is adversely affected by uneven terrain below the rotor disc, vegetation (tall grass), etc. See Hover-In-Ground-Effect and Hover-Out-Of-Ground-Effect.

Ground Power Unit: Ground based unit for powering up all aircraft systems.

Ground Speed: The speed of an aircraft relative to the surface of the earth.

Grounded: Refers to an aircraft that is not airworthy, usually due to maintenance problems. May also refer to a Pilot who is not able to perform Pilot duties because of medical reasons.

Gust Spread: The difference between the lowest and highest wind speed.

-H-

Hand Signals: Standard signals authorized for use by ground crews to direct a helicopter during takeoff, landing, or while in a hover. In some cases, helicopter hand signals differ from those prescribed for airplanes.

Hard Point: An approved attachment point designed to carry a load.

Hazard Map: Map of the area of operations that shows all of the known aerial hazards, including but not limited to power lines, military training areas, hang gliding areas, etc.

Hazardous Materials: Hazardous materials are substances that are identified, classified, and regulated in the Code of Federal Regulations, Title 49 and Hazardous Materials Regulations 175. A hazardous material is a substance or material that has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated.

HBM-#: HeliBase Management Forms series (see Appendix B).

HCM-#: Helicopter Management Forms series. (See Appendix A.)

Heavy Helicopter: A helicopter with a certified gross weight of over 12,500 pounds. Under the ICS helicopter typing system, a heavy helicopter is a Type 1 helicopter and must have an allowable payload at 59° F. at sea level of 5000 pounds, 16 passenger seats (unless restricted category), and a minimum retardant or water-carrying capability of 700 gallons.

HEB1: ICS mnemonic for Helibase Manager (Type I).

HEB2: ICS mnemonic for Helibase Manager (Type II).

Height-Velocity Diagram: A diagram or chart that indicates the combinations of altitude and airspeed that need to be maintained by a helicopter to ensure a safe autorotation. Each model helicopter has its own height-velocity diagram.

Helibase - Permanent: A designated, permanent facility for helicopter operations. Permanent helibases should have the facilities and equipment outlined in Chapter 8.

Helibase - Temporary: A base for helicopter operations established to serve a temporary or intermittent incident or project need. See Chapter 15 for differentiation between management and operational requirements for helispots and helibases. Temporary helibases should have the facilities and equipment outlined in Chapter 8.

Helibase Manager: The Helibase Manager has primary responsibility for managing all activities at the assigned helibase. Within the ICS system, the Helibase Manager is supervised by the Air Support Group Supervisor. On projects, the Helibase Manager may report to an Air Support Group Supervisor or Air Operations Branch Director if these positions are assigned. Otherwise, the Helibase Manager usually reports to the Project Aviation Manager. There are two types of helibase managers: a Type I Helibase Manager is qualified to manage four or more helicopters; a Type II Helibase Manager may manage three or less helicopters.

Helicopter: Rotorcraft that, for its horizontal motion, depends principally upon its engine-driven rotors.

Helicopter Manager: A person trained in the management of helicopters. See Chapter 2 for training and experience requirements for fire and project helicopter managers. See Project Flight Manager.

Helipad: See Touchdown Pad

Heliport: A permanent facility for the operation of helicopters which has been built to FAA standards and which are marked on aeronautical charts. Natural resource agencies refer to agency heliports as Permanent Helibases. See Helibase - Permanent.

Helispot: A helispot is a natural or improved takeoff and landing area intended for temporary or occasional helicopter use. It may or may not have road access. In many cases, helispots do not meet the requirements of a helibase and thus should not be referred to as helibases. See Chapter 15 for differentiation between management and operational requirements for helispots and helibases. Helispots should have the facilities and equipment outlined in Chapter 8.

Helispot Manager: The Helispot Manager is supervised by the Helibase Manager and is responsible for providing safe and efficient management of all activities at the assigned helispot. See Chapter 2 for training and experience requirements.

Helitack: Helicopter Attack. The utilization of helicopters to transport crews, equipment, and fire retardants or suppressants to the fireline during the initial stages of a fire. The term also refers to the crew that performs helicopter management and attack activities.

Helitank: A tank attached to a helicopter that is filled with water, foam, or retardant and which is configured to drop the liquid in flight. The tank is fixed but removable. See Snorkel Tank.

Helitanker: A helicopter equipped with a helitank or bucket.

Helitorch: The helitorch is a device that dispenses ignited gelled gasoline, which, in turn, ignites fuels for backfires, burnouts, or prescribed burns.

Helitender: See Chase Truck.

Hertz: The standard radio equivalent of frequency in cycles per second of an electromagnetic wave. Kiloherz (Khz) is a frequency of one thousand cycles per second. Megahertz (MHz) is a frequency of one million cycles per second.

HF: See High Frequency

HIGE: See Hover-In-Ground-Effect.

High Frequency (HF): High radio frequencies between 3 and 30 MHz.

HJA-# Helibase Job Aids-Checklists and forms used in helicopter and helibase management.

Hobbs Meter: Flight hour recording device that is activated when power is applied.

HOGE: See Hover-Out-of-Ground-Effect.

Hook Person: Ground person who attaches external loads to cargo hooks on helicopters.

Hot and High: Term commonly used to mean an increase in the International Standard Atmosphere to 95° at 5000 feet MSL. See Standard Day.

Hover: A condition of flight where the helicopter remains fairly stationary over a given point on the ground, moving neither vertically nor horizontally.

Hover Ceiling: The highest altitude at which a helicopter can hover at maximum gross weight. In and out of ground effect hovering ceilings are computed at maximum gross weight in a standard atmosphere and calm air. The value given is density altitude.

Hover Check: Used to describe when a helicopter requires a stabilized hover to conduct a performance/power check prior to hover taxi, air taxi, or takeoff. Altitude of the hover will vary depending upon the purpose of the check.

Hover Hookup: Method of hooking an external load to a cargo-carrying device, usually a cargo hook, beneath a hovering helicopter.

Hover-In-Ground-Effect (HIGE): Operating at such an altitude (usually one-half the rotor diameter above the surface) that the influence of ground effect is realized. See Chapter 7. See Ground Effect.

Hover-Out-of-Ground-Effect (HOGE): Hovering without the benefit of the ground effect cushion. For any given altitude, hovering out of ground effect takes more power than hovering in ground effect. See Chapter 7. See Ground Effect.

Hover Taxi: Used to describe a helicopter movement conducted above the surface and in ground effect at airspeeds less than approximately 20 knots. The actual height may vary, and some helicopters may require hover taxi above 25 feet AGL to reduce ground effect turbulence or provide clearance for cargo sling loads.

Hunting: See Blade Hunting.

HZ: See Hertz

-I-

IAS: Indicated AirSpeed. See Airspeed.

IFR: See Instrument Flight Rules

IGE: See Hover-In-Ground-Effect.

IMC: See Instrument Meteorological Conditions

In The Blind: See Blind Transmission.

Incidental Pilot: Any person who acts as Pilot-in-command of an aircraft while on official government business whose job description does not include Pilot duties. An example would be Piloting of private or government aircraft for official government business in lieu of operation of private or government-owned/leased automobile.

Indicated Air Speed (IAS): See Airspeed.

Indicated Altitude: See Altitude.

In-Ground Effect (IGE): See Hover-In-Ground-Effect.

Instrument Flight Rules (IFR): Rules governing the procedures for conducting instrument flight. Also, a term used by Pilots and controllers to indicate type of flight plan. See Visual Flight Rules and Instrument Meteorological Conditions.

Instrument Meteorological Conditions: Meteorological conditions which can be expressed in terms of visibility, distance from cloud, and ceiling less than specified minima for visual meteorological conditions.

Interagency Qualifications and Certification System (IQCS): The IQCS system is an information management system that tracks training and certifications for wildland firefighters.

Internal Load: A load that is carried inside the fuselage structure.

Internal Load (Non-Jettisonable): An internal, non-jettisonable load is generally associated with cargo being transported inside the helicopter. Freight secured in cargo compartments is a non-jettisonable internal load. Cargo secured in a basket on the side of the helicopter is also defined as non-jettisonable, although it also technically classified as a Class A external loads under 14 CFR 133.

IR: InfraRed

IR Route: Military Training Route conducted under IFR. See Interagency Airspace Coordination Guide.

ISA: International Standard Atmosphere. See Standard Day.

ITT: Inter-Turbine Temperature.

-J-

Jet-A: Most commonly used fuel used in natural resource agency turbine helicopter operations. See Chapter 13.

Jettisonable Load: One that can be jettisoned by the Pilot from his or her normal flight position. See Non-Jettisonable Load.

-K-

KIAS: Knots Indicated AirSpeed. See Airspeed.

➔ **Knot:** A measurement of speed equal to nautical miles per hour (1.151 x knots = MPH.)

-L-

L.A. Tank: Helicopter fixed tank developed by Los Angeles County.

Landing And Takeoff Area: The landing and takeoff area contains touchdown pads and safety circles and includes that part of the helibase complex where flight operations are concentrated.

Large Helicopter: See Heavy Helicopter.

Leadline: A line or set of lines used in external load operations. See Chapters 9 and 11.

LEO: Law Enforcement Officer

LF: See Low Frequency.

Life-Threatening Emergency: See Emergency.

Light Helicopter: A helicopter with certified gross weight of less than 6,000 pounds. Under the ICS helicopter typing system, a light helicopter is a Type 3 helicopter and must have an allowable payload at 59° F. at sea level of 1000 pounds, 2-5 passenger seats, and a retardant or water-carrying capability of 100 gallons.

Limited Use Helicopter: Limited Use Helicopter is an interagency term used to denote a Restricted category helicopter or a Standard category helicopter that is designated and utilized in a limited role (not for passenger transport). Use would typically be external cargo transport, water bucket or retardant missions. See IHOG Chapter 2, Chart 2-4 for staffing requirements. See the National Type I & II CWN Helicopter Contract, Section C for further information and requirements.

Line Manager (Line Officer, Agency Administrator): Agency individual with authority and responsibility for an agency unit; has line item signature authority for policy decisions. Examples: District Ranger, Park Superintendent, Refuge Manager, Field Manager, etc.

Load Calculation: Written documentation of a helicopter's lifting capability for a given altitude and temperature. See Chapter 7.

Loadmaster: The Loadmaster is supervised by the Deck Coordinator and is responsible for the safe loading and unloading of personnel and/or cargo. See Chapter 2.

Longline: A line or set of lines, usually in 50' increments, used in external load operations that allow the helicopter to place loads in areas in which the helicopter could not safely land. See Chapters 9 and 11.

Loran: An electronic navigation and position-determining system by which hyperbolic lines of position are determined by measuring the difference in time of reception of synchronized pulse signals from two fixed transmitters. The Global Positioning System (GPS) is replacing Loran as the system of choice for aircraft position determination.

Low Frequency (LF): The frequency band between 30 and 300 Khz.

-M-

Main Rotor: The rotor or rotors that supply the lifting force for the helicopter.

Maintenance Deficiency: A defect or failure causing mechanical difficulties encountered in flight operations. Not specifically identified as an incident or aviation hazard.

Management Information System (MIS): Information system operated by USDI that collects and collates aviation use and cost statistics from flight payment documents.

Manifest: A written list of personnel and/or cargo and their weights to be transported. See Chapter 10.

Maximum Computed Gross Weight: The gross weight, obtained from the appropriate performance chart, which is the maximum weight appropriate to the applicable circumstances of configuration and/or environmental conditions. See Maximum Certificated Gross Weight. See Chapter 7.

Maximum Certificated Gross Weight: Maximum certificated gross weight is the absolute maximum allowable weight (crew, passengers, fuel, oil, fluids, cargo, and special equipment) as established by the manufacturer and approved by the Federal Aviation Administration. Some helicopter models have higher gross weights for jettisonable external loads. If no number appears in the external weight block, the weight is the same as internal. See Maximum Computed Gross Weight. See Chapter 7.

Mayday Call: The international distress signal indicating that the Pilot of an aircraft is experiencing an in-flight emergency. When repeated three times, it indicates imminent and grave danger and that immediate assistance is requested. Dispatch or other flight following personnel must listen closely since the Pilot or other air crew will be relaying location information essential to the dispatch of rescue services.

Mean Sea Level (MSL): Commonly used in conjunction with a number of feet and, thereby indicating altitude above mean sea level, such as 10,000 feet MSL.

Medical Attention: An injury, less than serious, for which a physician prescribes medical treatment and charges for the medical service. Also see First Aid and Serious Injury.

Medium Helicopter: A helicopter with a certified gross weight between 6,000 and 12,500 pounds. Under the ICS helicopter typing system, a medium helicopter is a Type 2 helicopter and must have an allowable payload at 59° F. at sea level of 2500 pounds, 6-10 passenger seats (unless restricted category), and a minimum retardant or water-carrying capability of 300 gallons.

Memorandum Of Understanding: A written agreement between two or more parties.

MHEC: Military Helicopter Crew Member. See Military Operations Guide.

Military Aircraft: An aircraft maintained and operated by an active or reserve component (all Reserve forces, as well as Army and Air National Guard) of the DOD, or by any active or reserve component of the U.S. Coast Guard (USCG). All references to "military aircraft" include both DOD and USCG aircraft.

Minimums: Weather condition requirements established for a particular operation (for example, landing minimums, takeoff minimums, VFR flight minimums).

MIS: See Management Information System.

Missing Aircraft: A missing aircraft is one that has not made a check-in and which has exceeded the fuel endurance specified on the flight plan or which was relayed to the flight following facility upon departure.

Mission Flight: These flights are defined by exclusion as all flights not meeting the definition of "point-to-point" flight. As such, mission flight requires work to be performed in the air (for example, retardant or water delivery, reconnaissance, etc.), or through a combination of ground and aerial work (for example, delivery of personnel and/or cargo from helibases to helispots or unimproved landing sites, rappelling or cargo letdown, horse herding, etc.).

MOA: Military Operations Area. See Interagency Airspace Coordination Guide.

Monitor: When used in communications, to listen on a specific frequency and stand by for instructions or communications. Under normal circumstances, a frequency that is being monitored is not being used by the Pilot for communications.

Motorcycle-type Throttle: A handgrip throttle is mounted on the collective pitch stick for coordinated use on piston-engine-powered helicopters. As the pitch is increased, power must be added to maintain rotor revolutions per minute (RPM) when the helicopter lifts off or climbs. On turbine-engine-powered helicopters, this power coordination is accomplished automatically through the fuel control and governor systems of the turbine engine.

MOU: See Memorandum Of Understanding. A written agreement between two or more parties.

MTR: Military Training Route. See Interagency Airspace Coordination Guide.

-N-

NAS: See National Airspace System

National Airspace System (NAS): The common network of U.S. airspace; air navigation facilities, equipment, and services, airports, and landing areas; aeronautical charts, information, and services; rules, regulations and procedures, technical information, and personnel and material. Included are system components jointly shared with the military.

National Transportation Safety Board (NTSB): The NTSB is charged with the responsibility to investigate all civil transportation mishaps including air, ground, water rail, and pipeline and those public transportation mishaps which have high public interest.

NAVAID: See Navigational AID.

Navigational Aid (NAVAID): Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight.

NDB: See NonDirectional Beacon.

Negative: “No,” or “permission not granted,” or “that is not correct.”

NFDC: National Flight Data Center. See Interagency Airspace Coordination Guide.

NFES: National Fire Equipment Supply.

NIFC: National Interagency Fire Center.

Night: 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. Civil twilight ends in the evening when the center of the sun’s disk is 6° below the horizon and begins in the morning when the center of the sun's disk is 6° below the horizon.

Nomex: Fire resistant synthetic material used in the manufacturing of flight suits and pants and shirts used by firefighters.

Nondirectional Beacon (NDB): A L/MF or UHF radio beacon transmitting nondirectional signals whereby the Pilot of an aircraft equipped with direction finding equipment can determine his/her bearing to or from the radio beacon and “home” on or track to or from the NDB station. See Automatic Direction Finder (ADF).

Non-Serious Aircraft Incident: An incident that does not meet Serious Aircraft Incident criteria. See Serious Aircraft Incident.

NOTAM: See Notice To Airmen.

Notice To Airmen (NOTAM): A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

1. NOTAM (D): A NOTAM given (in addition to local dissemination) distant dissemination beyond the area of responsibility of the Flight Service Station. These NOTAM's will be stored and available until cancelled.
2. NOTAM (L): A NOTAM given local dissemination by voice and other means, such as teleautograph and telephone, to satisfy local user requirements.
3. FDC NOTAM: A NOTAM regulatory in nature, transmitted by USNOF and given system wide dissemination.

NTSB: See National Transportation Safety Board

NVG: Night Vision Goggles

-O-

Official Passenger: The following categories of personnel are official passengers:

- Officers and employees of the Federal Government traveling on official business.
- Members of Congress and employees of Congressional committee staffs whose work relates to the agency's programs.
- Non-Federal passengers when engaged in missions which enhance accomplishment of an agency program such as personnel of cooperating state, county, or local agencies; representatives of foreign governments; and contractors' representatives.

On-Call Contract: See Contract Aircraft.

Operating Weight: The equipped weight plus the weight of the crew and fuel.

OSHA: Occupational Safety and Health Administration.

One-Skid Landing: The maneuver of placing one skid of the helicopter on the ground, while the other is still above the ground. Caused by steep changes in terrain, power is still maintained to the rotor system. Requires agency authorization and training.

Operational Procedures Memorandum (OPM): Temporary or interim directives are issued by AMD as OPM's to permit the timely dissemination of instructional and procedural material. They are published under the issuing authority of the AMD Director. They are consecutively numbered within each calendar year.

Operational Emergency: See Emergency.

OPM: See Operational Procedures Memorandum.

Out-Of-Ground-Effect (OGE): See Hover-Out-Of-Ground-Effect (HOGE).

Overdue Aircraft: An overdue aircraft is one that fails to meet a check-in specified on the flight plan.

-P-

Parking Tender: The Parking Tender is supervised by the Deck Coordinator and is responsible for ground and air traffic in and around the assigned landing pad and for the landing and parking of helicopters at that pad. See chapter 2.

Passenger: Any person aboard an aircraft who does not perform the function of a flight crew member or air crew member. See Air Crew Member and Flight Crew Member.

Payload: Payload is established by subtracting the equipped weight of the helicopter, including two hours of fuel and Pilot from the computed gross weight for a calm day, 5,000-foot pressure altitude, 80° F. (26° C., 7,400 feet density altitude), two hours fuel, and a Pilot. Downloading is not included in this computation.

Performance Chart: A chart, table, or graph provided by the helicopter manufacturer for use in determining an aspect of helicopter performance.

Personal Flotation Device (PFD): A twin-cell, self-righting, life preservers providing a minimum of 35-pound buoyancy; with two CO2 charging cartridges and provision for back-up inflation by mouth; meeting the standards of TSO-C13. See Chapter 9.

Personal Protective Equipment (PPE): Includes clothing and equipment that provides protection to an individual on board an aircraft or who is engaged in ground-based aviation support activities. See Chapter 9.

PI: See Project Inspector.

Ping-Pong Ball Machine: See Plastic Sphere Dispenser (PSD).

PIC: See Pilot-In-Command.

Pilot-in-Command (PIC): The Pilot responsible for the operation and safety of an aircraft during flight time. The PIC has final authority over any flight mission.

Pilot Qualifications Card: Documentation carried by the Pilot listing the type of helicopters for which the Pilot is approved, as well as the different types of missions that he/she is approved to fly.

Pitch Angle: The angle between the chord line of the rotor blade and the reference plane of the main rotor hub or the rotor plane of direction.

Plastic Sphere Dispenser (PSD): The Plastic Sphere Dispenser is a device that dispenses a sphere of polystyrene containing potassium permanganate, after injecting each sphere with ethylene glycol. The exothermic reaction of the two chemicals creates enough heat to ignite the plastic sphere.

Point-To-Point Flight: Typically, the flight originates at one developed airport or permanent helibase, with flight route being direct to another developed airport or permanent helibase. The flight is conducted solely for the purpose of transportation of persons or cargo for administrative travel purposes, and does not involve mission-type flight. See Mission Flight.

Portatank: Container, either with rigid frame or self-supporting, which can be filled with water or retardant and from which helicopters can fill buckets or tanks. Helicopters are also used to transport water to the portatank for ground personnel to use.

PPE: See Personal Protective Equipment.

Precautionary Landing: A landing necessitated by apparent impending failure of engines, systems, or components which makes continued flight inadvisable.

Private Aircraft: Any aircraft owned by an individual, partnership, or club.

Procurement Document: Contract or rental agreement.

Project: A non-incident mission or task which utilizes aviation assets. Used in this guide to differentiate from fire or other all-risk incident uses.

Project Flight Manager: The government representative responsible for coordinating with the Pilot concerning mission planning, needs and conduct. This individual fulfills managerial duties during non-complex helicopter flight missions. See Chapter 2.

Project Inspector (PI): The Project Inspector (PI) is designated by the to assist in implementing the COR's instructions, as required. Responsibilities of the PI may include verifying services performed by the vendor; ensuring vendor's compliance with contract specifications and provisions; discussing daily work requirements and ordering service within the contract provisions; discussing problems which occur with the vendor and recommending solutions to the COR; and completing Form HCM-1, Aircraft Contract Daily Diary (see Appendix A). Any problems of a serious nature are brought immediately to the attention of the COR and CO. See Contracting Officer, Contracting Officer's Administrative Representative, and Contracting Officer's Technical Representative.

PSD: See Plastic Sphere Dispenser (PSD).

Public Aircraft: An aircraft used exclusively in the service of any Government or of any political subdivision thereof, including the Government of any state, territory, or possession of the United States, or the District of Columbia, but not including any Government-owned aircraft engaged in carrying persons or property for commercial purposes. "Used exclusively in the service of" means

for, other than the Federal Government, an aircraft which is owned and operated by a Governmental entity for not less than 90 continuous days.

-R-

RA: Restricted Area. See Interagency Airspace Coordination Guide.

Radio Altimeter: Aircraft equipment which makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

Rappeller: Individual who uses the helicopter as a platform to perform rapelling operations for all types of missions to include fire, search and rescue, law enforcement etc.

Rescue And Firefighting (RFF): Crash-rescue term to describe those personnel who have been trained to respond to aircraft accidents, possibly involving an aircraft fire.

Restricted Category: Restricted category aircraft are aircraft that do not qualify for certification in any other category because of design, intended use, or flight tests have not been conducted to qualify for other categories of operation. This type aircraft is generally used for cargo, retardant dropping, agricultural operations, survey work and other specific projects.

RFF: See Rescue and Firefighting.

Rigid Rotor: A rotor system with blades fixed to the hub in such a way that they can feather but cannot flap or drag. See Semirigid Rotor and Articulated Rotor.

Roger: "I have received all of your last transmission." It should not be used to answer a question requiring a yes or no answer. See Affirmative and Negative.

Rotor: An assembly of airfoils (rotorblades) together with a hub and attachments, that rotates about an axis to provide lift and/or thrust for a helicopter.

Remote Hook: Cargo hook that is attached to the end of a long line that has both electrical and manual releases. See Chapters 9 and 11.

Resource Tracking: In order to facilitate cost-effective use of aircraft and planning of resources, scheduling offices and ordering offices may request Pilots or the government representative on board an aircraft (that is, the Helicopter or Flight Manager) to relay flight status information at designated intervals.

Rotor Disc: See Disc Area.

-S-

Safety Circle: A safety zone that provides an obstruction-free area on all sides of the touchdown pad. For helispots and helibases, the only items that should be within the safety circle are a fire extinguisher, a pad marker, and, if applicable, external or internal loads awaiting transport. The Parking Tender may also be within the safety circle. The size of the safety circle depends on the size of the helicopter (see Chapter 8).

SAR: Search And Rescue

Seating: The number of seats in the helicopter, including Pilot's seat.

Sectional, Aeronautical: 1:500,000 scale chart designed for visual navigation of slow or medium speed aircraft. Topographic information on these charts features surface elevation. Aeronautical information includes visual and radio aids, airports, controlled airspace, special-use airspace, centerlines of military training routes, obstructions, and related data.

See And Avoid: A visual procedure wherein Pilots of aircraft flying in visual meteorological conditions (VMC), regardless of the type of flight plan, are charged with the responsibility to observe the presence of other aircraft and to maneuver their aircraft as required to avoid the other aircraft. Right-of-way rules are contained in FAR Part 91. See Instrument Flight Rules; Instrument Meteorological Conditions; Visual Flight Rules; and Visual Meteorological Conditions.

Semirigid Rotor: A rotor system in which the blades are fixed to the hub but are free to flap and feather. See Articulated Rotor and Rigid Rotor.

Senior Executive Branch Officials: Civilian officials appointed by the President with the advice and consent of the Senate, or civilian employees of the Executive Office of the President.

Senior Federal Officials: Federal employees paid at a rate of pay beyond a GS/GM-15.

Separation: In air traffic control, the spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

Serious Aircraft Incident: An incident or malfunction that could adversely affect the safety of a flight. An unplanned event that results in significant damage to the aircraft, which is less than substantial, rendering the aircraft unairworthy, and/or caused injury requiring medical attention. See Non-serious Aircraft Incident.

Serious Injury: (Also see First Aid.) An injury incurred that, when determined by a physician, causes death or:

- Requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
- Results in a fracture of any bone (except simple fractures of fingers, toes or nose); or,

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- Involves lacerations causing severe hemorrhages, nerve, muscle or tendon damage; or,
- Involves injury to any internal organ; or involves second or third-degree burns, or any burns affecting more than 5% of the body surface.

Service Ceiling: Altitude at which the aircraft can no longer climb at a minimum rate of 100 feet per minute.

Shorthaul: To transport one or more persons externally suspended below a helicopter. The use of a helicopter and an externally attached line (length varies) for the purpose of inserting and/or extracting personnel to areas that are inaccessible to a normal landing. Used primarily for search and rescue operations or life threatening emergencies.

SIC: Second-In-Command (Co-Pilot of the aircraft)

Single-Rotor Helicopter: The most common design of helicopter uses a single main rotor, which imparts lift and thrust. Except for newer helicopters with no tail rotor, torque is countered by a smaller tail rotor.

Skids: Most common type of landing gear used in light- and medium-class helicopters.

Sling Load: An external load supported by a sling, net, bag, line, or combination of these.

Slip: The controlled flight of a helicopter in a direction not in line with its fore and aft axis.

Small Helicopter: See Light Helicopter.

Snorkel Tank: A fixed tank attached to the belly of the helicopter that has a pump-driven snorkel attached. The helicopter hovers over the water source with the end of the snorkel immersed. The pump then fills the tank.

Snow Landing Conditions: Conditions in which snow pads are necessary to help support the weight of the helicopter on the snow's surface. There is no specified snow depth or condition which dictates use of pads. It is the responsibility of the Pilot to anticipate and prepare for landings on snow surfaces which will require snow pads.

SOP: Standard Operating Procedures.

Special Use: Operations which require special considerations due to the functional use of the aircraft. This may require deviation from normal operating practices where authorized by the agency. Special Pilot qualifications and techniques, special aircraft equipment, and personal protective equipment are required to enhance the safe transportation of personnel and property. See General Use.

Squawk: Activate specific modes/codes/functions on the aircraft transponder, for example, "Squawk three/alpha, two one zero five, low."

SR: Slow Route flown by military aircraft. See Interagency Airspace Coordination Guide.

Stall: See Blade Stall.

Stand By: Means the controller or Pilot must pause for a few seconds, usually to attend to other duties of a higher priority or to determine information requested. If a delay is lengthy, the caller should reestablish contact.

Standard Day: Properly known as International Standard Atmosphere (ISA). Atmospheric conditions in which (1) the air is a dry, perfect gas; (2) the temperature at sea level is 59° F. (15° C.); (3) the pressure at sea level (or reduced to sea level) is 29.92 inches of Hg; and (4) the temperature gradient is approximately 3½° F. per 1,000-foot change in altitude.

Standard Use Helicopter: Helicopter authorized to perform passenger transportation, external and internal cargo missions.

➔ **STC:** A Supplemental Type Certificate (STC) is a document issued by the FAA, approving a product (aircraft engine or propeller) modification. The STC defines the product design change; states how the modification affects the existing type design, and lists serial number affectivity.

Step-Out Landing: Passengers/ air crew members exit the helicopter while it is at a low hover, stepping off the skid or float. Requires agency authorization and training.

SUA: Special Use Airspace. See Interagency Airspace Coordination Guide.

Substantial Damage: Any damage or structural failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, or which would normally require major repair or replacement of the affected components.

Sunset And Sunrise: The mean solar times of sunset and sunrise as published in the Nautical Almanac, converted to local standard time for the locality concerned. Within Alaska, the end of evening civil twilight and the beginning of morning civil twilight, as defined for each locality. See Night.

Supplemental Type Certificate (STC): A document issued by the Federal Aviation Administration approving a product (aircraft, engine, or propeller) modification. The STC defines the product design change, states how the modification affects the existing type design, and lists serial number affectivity.

Swivel: Helicopter accessory used with external jettisonable loads that hooks into the cargo hook or the remote hook. The swivel allows the load to oscillate in flight with binding the lines. See Chapters 9 and 11.

-T-

TACAN: See TACTical Air Navigation

Tactical Air Navigation (TACAN): An ultra-high frequency electronic air navigation aid which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station. See VORTAC.

Tail Rotor: The force that compensates for torque and keeps the fuselage from turning in the direction opposite to the main rotor is produced by means of an auxiliary rotor called a tail or antitorque rotor located on conventional helicopters at the end of the tail boom. The tail rotor produces thrust in the direction opposite to torque reaction produced by the main rotor. Foot pedals in the cockpit permit the Pilot to increase or decrease tail-rotor thrust, as needed, to neutralize torque effect. Operation of the pedals also provides a measure of directional control. See Torque.

Takeoff and Landing Coordinator (TOLC): The Takeoff and Landing Coordinator is supervised by the Helibase Manager and is responsible for providing coordination of arriving and departing helicopters and movement around the helibase. When this position is not filled, the Deck Coordinator or Aircraft Base Radio Operator will usually assume this function. See Chapter 2.

Taxi: The surface movement of helicopters equipped with wheels. See Hover Taxi.

TBO: See Time Before Overhaul.

Technical Standard Order: A Technical Standard Order (TSO) is a minimum performance standard issued by the FAA for specified materials, parts, processes, and appliances used on civil aircraft.

Time Before Overhaul: Specified period of time for aircraft components at the end of which they must be overhauled or replaced.

Tip-Path Plane: The plane in which rotor blade tips travel when rotating.

Tip Speed: The rotative speed of the rotor at its blade tips.

TIT: Turbine Inlet Temperature.

Toe-In Landing: The front part of the skids (toes) are placed on some type of ground surface to stabilize the helicopter. Requires agency authorization and training.

TOLC: ICS mnemonic for the Takeoff and Landing Coordinator.

Torque: A force or combination of forces that tends to produce a countering rotating motion. Looking down on the helicopter, in a single rotor helicopter where the main rotor turns counterclockwise, the fuselage tends to rotate clockwise. Use of anti-torque controls affect the tail rotor, which counters the effects of torque produced by the main rotor. Pedal movement induces pitch changes to the tail rotor blades, thereby accomplishing heading and directional control in a hover. With forward movement, the Pilot must blend pedal action with other control movements to produce coordinated flight. On dual-rotor helicopters, the problem of torque control is solved through the counterrotation of the main rotor system.

TOT: Turbine Outlet Temperature.

Touchdown Pad: A designated area, usually with a prepared or improved surface, on a heliport, airport, takeoff/landing area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters. See Chapter 8.

Traffic Pattern: The traffic flow that is prescribed for landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

1. Upwind Leg: A flight path parallel to the landing area in the direction of landing.
2. Crosswind Leg: A flight path at right angles to the landing area in the direction opposite to landing.
3. Downwind Leg: A flight path parallel to the landing area in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
4. Base Leg: A flight path at right angles to the landing area off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended approach path centerline.
5. Final Approach: A flight path in the direction of landing along the extended approach path centerline. The final approach extends from the base leg to the extended approach path centerline. An aircraft making a straight-in approach VFR is also considered to be on final approach.

Translational Lift: The additional lift obtained through airspeed because of increased efficiency of the rotor system, whether it be when transitioning from a hover into horizontal flight or when hovering into a wind. The rotor system produces more lift in forward flight because the higher inflow velocity supplies the rotor disc with a greater mass of air per unit time upon which to work than it receives while hovering. Translational lift is present with any horizontal movement, although the increase will not be noticeable until airspeed reaches approximately 15-20 knots.

Transmitting In The Blind: See Blind Transmission.

Transponder: The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Radar Beacon System which automatically receives radio signals from interrogators on the ground, and selectively replies with a specific reply pulse or pulse group only to those interrogations being received on the mode to which it is set to respond.

True Airspeed: See Airspeed.

➔ **TSO:** A Technical Standard Order (TSO) is a minimum performance standard issued by the FAA for specified materials, parts, processes, and appliances used on civil aircraft.

Types of Helicopters: The FAA typing of helicopters (heavy, medium, light) denotes maximum takeoff/landing weight. ICS typing (1-3) denotes minimum number of seats, payload, and water/retardant carrying capability. See Chapter 6.

-U-

U61/U Jacks: Interagency standard connector plug for flight helmets.

UHF: See UltraHigh Frequency

Ultrahigh Frequency (UHF): The frequency band between 300 and 3,000 MHz.

Unauthorized Passenger: All personnel who are not official or unofficial passengers are considered unauthorized personnel and are not authorized to be transported in any aircraft owned or operated on behalf of the agency.

Uncontrolled Airspace: Uncontrolled airspace is that portion of the airspace that has not been designated as continental control area, control area, control zone, terminal control area, or transition area and within which ATC has neither the authority nor the responsibility for exercising control over air traffic. See Controlled Airspace.

UNICOM: A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOM's are shown on aeronautical charts and publications and in the Airport/Facility Directory.

Upwind Leg: See Traffic Pattern.

USDA: United States Department of Agriculture

USDI: United States Department of the Interior

Unimproved Landing Site or Area: A landing spot used for the first time at the discretion of the Pilot and to which no improvements (for example, pad leveling, obstruction removal, placement of wind indicator) have been made. If it is to be used on a recurring basis, approval is necessary and improvements should be made. See Chapter 8.

Useful Load: This number, in pounds, is established by subtracting the average equipped weight of the helicopter from gross weight.

-V-

Vendor: Operator of aircraft who provides aircraft services through a procurement document.

Vertical Separation: Separation established by assignment of different altitudes or flight levels. See Separation.

Very High Frequency (VHF): The frequency band between 30 and 300 MHz. Portions of this band, 108 to 118 MHz, are used for certain NAVAID's. 118 to 136 MHz are used for civil air/ground voice communications, with certain pre-authorized frequencies for air-to-air communications.

Very High Frequency Omnidirectional Range (VOR) Station: A ground-based electronic navigation aid transmitting very high frequency (VHF) navigation signals, 360 degrees in azimuth, oriented from magnetic north. VOR has been used as the basis for navigation in the national airspace system (navigation by Global Positioning System (GPS) is a new alternative). The VOR periodically identifies itself by Morse code and may have an additional voice identification feature. Voice features may be used by Air Traffic Control or Flight Service Stations for transmitting instructions/information to Pilots.

Very High Frequency Omnidirectional Range/Tactical Air Navigation (VORTAC): A navigation aid providing VOR azimuth, and TACAN distance measuring equipment (DME) at one site.

VFR: See Visual Flight Rules.

VHF: See Very High Frequency.

Visibility: The ability as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night. Visibility is reported as statute miles, hundreds of feet, or meters. Refer to FAR 91.

Visual Flight Rules: Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by Pilots and controllers to indicate type of flight plan.

Visual Meteorological Conditions: Meteorological conditions which can be expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.

VMC: See Visual Meteorological Conditions

VNE: Velocity Never to Exceed

VOR: See Very High Frequency Omnidirectional Range Station.

VORTAC: Very High Frequency Omnidirectional Range/TACTical Air Navigation. See TACAN.

VR Route: Military Training Route conducted under VFR. See Interagency Airspace Coordination Guide.

-W-

Weight Reduction: A fixed weight, differing for each make and model of helicopter, that provides a margin of safety.

Wheels: Primarily used on airplanes and medium and heavy helicopters.