

Appendix II

GLOSSARY

Aileron--movable part of an airplane wing or a movable airfoil external to the wing which imparts a rolling motion and thus provides lateral control.

Airbrakes--airspeed-retarding devices which increase the resistance of the aircraft during a glide, landing, or maneuver.

Airfoil--any object, such as a wing or rotor blade, with surfaces designed to produce lift when air passes over it.

Angle of attack--angle at which an airfoil passes through the air.

Antitorque rotor--variable-pitch small rotor mounted on the tail of the helicopter to compensate for the torque created by the main rotor.

Argon--colorless, odorless, inert gas obtained from the atmosphere and used in some incandescent light bulbs.

Burbles--whirlwinds of air moving against the main current, causing turbulence and spoiling lift.

Camber--rise in the curve of an airfoil section from its chord, usually expressed as the ratio of the departure of the curve from the chord to the length of the chord.

Carbon dioxide (CO₂)--inactive, harmless gas formed when carbon burns with a clear flame in the presence of oxygen.

Center of pressure--point on an airfoil at which the resultant aerodynamic forces acting on an airfoil intersect the zero lift chord.

Chord line--an arbitrary datum line from which the curvature of an airfoil section is measured. It is the straight line passing between the centers of leading and trailing edges of the airfoil.

Collective pitch control--the control that changes the pitch of all the main rotor blades equally and simultaneously.

Cyclic control--mechanical means employed to change the plane of the main rotor disc.

Dissymmetry of lift--difference in lift that exists between the advancing half and the retreating half of the disc area in forward flight.

Exosphere--outermost fringe or layer of the atmosphere, where collisions between molecular particles are so rare that only the force of gravity will return escaping molecules to the upper atmosphere.

Gyroscopic precession--result of an applied force against a rotating gyro. It occurs approximately 90° in the direction of rotation from the point where the force is applied.

Helixpteron--Greek word used in Leonardo da Vinci's notes meaning spiral wing.

Horsepower--unit of energy. One horsepower is the amount of energy that must be expended in order to raise 33,000 lb through a distance of one foot in one minute.

Induced drag--the resistance offered by the large area of the wing moving through the air.

Ionosphere--that part of the earth's atmosphere consisting of layers of highly ionized air that can bend certain radio waves or reflect them back to the surface of the earth.

Jet stream--narrow band of high-velocity wind near the tropopause.

Laminae--sheets of air in the boundary layer that slide over one another without much mingling of the molecules.

Lapse rate--rate at which air temperature decreases as altitude increases is 2°C or 3 1/2°F per thousand feet average. Also called temperature lapse rate.

Mean sea level--average sea level elevation.

Nitrogen--one of the chemical elements. Its symbol is N; it is the most abundant component of the atmosphere.

Oxygen--element that is found free as a colorless, tasteless, odorless gas in the atmosphere.

Parasite drag--resistance created by the entire aircraft passing through the air.

Rotor disc--plane made by the rotation of the rotor blades.

Rotor tip vortex--air swirl at the tip of wings or rotor blades.

Standard air--14.7 pounds per square inch at sea level, 15°C., 29.92 inches mercury, or 1,013.2 millibars.

Stratopause--upper boundary of the stratosphere.

Stratosphere--upper region or external layer of the atmosphere, in which the temperature is practically constant in a vertical direction.

Tandem rotors--on a helicopter, two or more sets of main rotors, placed one in front of the other.

Torque--measurement of a force producing rotation about an axis.

Tropopause--dividing line between the troposphere and the stratosphere.

Troposphere--lower portion of the atmosphere extending from the earth's surface to an altitude of about ten miles at the equator, and about five miles at the poles.

Venturi--short tube having a large opening in the front and the rear with a smaller-diameter neck in between. The flow through the venturi causes a pressure drop in the smallest section. The amount of the drop is related to the velocity of flow.

Vortex--conflicting whirling or circulating airflow around a wing tip. It is caused by the air flowing laterally out from the high pressure area on the under surface of the wing into the lower pressure area on the upper surface of the wing.

Wing dihedral--acute angle between an airplane wing and true horizontal.

Wing root--that section at the base of the wing or next to the fuselage where it is attached to the aircraft.