Global Certificate in Aviation English

Aircraft Systems and Components

Aircraft Systems and Components Glossary

Aircraft Systems and Components:
Aircraft systems and components refer to the various parts and mechanisms that make up an aircraft, ensuring its safe and efficient operation. These systems can include electrical, hydraulic, avionic, and propulsion systems, among others.

Avionics:
Avionics, short for aviation electronics, refers to the electronic systems used in aircraft to control communication, navigation, and other flight-related functions. Avionics systems include radios, GPS, autopilot, and transponders.

Airframe:
The airframe of an aircraft is the structure that supports the plane and its components. It includes the fuselage, wings, and empennage (tail section) and is designed to withstand the stresses of flight.

Altitude:
Altitude is the vertical distance of an aircraft above a reference point, usually sea level. It is measured in feet or meters and is a crucial parameter for navigation and flight planning.

Automatic Dependent Surveillance-Broadcast (ADS-B):
ADS-B is a surveillance technology used in aircraft to broadcast their position, velocity, and other information to ground stations and other aircraft. It enhances air traffic control and situational awareness.

Air Traffic Control (ATC):
Air Traffic Control is a service provided by ground-based controllers to monitor and direct the movement of aircraft in controlled airspace. ATC ensures safe separation between aircraft and provides instructions to pilots.

Airworthiness:
Airworthiness is a term used to describe the condition of an aircraft that allows it to safely operate in flight. It involves compliance with design standards, maintenance requirements, and regulatory approvals.

Black Box:
The black box, also known as the flight data recorder (FDR) and cockpit voice recorder (CVR), is a device installed in aircraft to record flight data and cockpit conversations. It is crucial for accident investigation.

Cabin Crew:
The cabin crew, also known as flight attendants, are responsible for ensuring passenger safety and comfort during flights. They assist with emergency procedures, serve meals, and provide customer service.

Cockpit:
The cockpit is the area of an aircraft where the pilot and co-pilot sit to control the plane. It contains flight instruments, controls, and communication equipment necessary for flight operations.

Engine:
The engine of an aircraft is the power plant that generates thrust to propel the plane forward. Aircraft engines can be piston-powered, turboprop, turbofan, or turboshaft, depending on the type of aircraft.

Emergency Locator Transmitter (ELT):
An Emergency Locator Transmitter is a device installed in aircraft to transmit distress signals in the event of an emergency. It helps search and rescue teams locate the aircraft in case of a crash.

Flight Management System (FMS):
The Flight Management System is a computerized avionics system used in aircraft to manage navigation, flight planning, and performance. It calculates the most efficient route and provides guidance to the flight crew.

Flight Simulator:
A flight simulator is a device used for pilot training and proficiency testing. It replicates the experience of flying an aircraft by simulating various flight conditions and emergencies.

Fuselage:
The fuselage is the main body of an aircraft that houses the cockpit, passenger cabin, and cargo hold. It provides structural support and streamlines the airflow around the plane.

Hydraulics:
Hydraulics is a system used in aircraft to transmit power and control using pressurized fluids. It operates landing gear, brakes, flight control surfaces, and other components that require precise movement.

Inertial Navigation System (INS):
The Inertial Navigation System is a navigation system that uses gyroscopes and accelerometers to determine an aircraft's position, velocity, and orientation. It provides accurate navigation information independent of external signals.

Landing Gear:
The landing gear of an aircraft consists of wheels, struts, and mechanisms that support the plane during takeoff and landing. It retracts into the fuselage during flight to reduce drag.

Runway:
A runway is a designated area of an airport used for takeoffs and landings of aircraft. It is typically paved with asphalt or concrete and marked with lights and signage for guidance.

Propeller:
A propeller is a rotating blade or set of blades used to generate thrust in propeller-driven aircraft. It converts engine power into forward motion by creating a difference in air pressure.

Rudder:
The rudder is a flight control surface located on the vertical stabilizer of an aircraft. It is used to control yaw, or the side-to-side movement of the plane, by deflecting left or right.

Thrust:
Thrust is the force produced by an aircraft engine to propel the plane forward. It is generated by accelerating air through the engine and is crucial for achieving and maintaining flight.

Transponder:
A transponder is an electronic device in aircraft that responds to radar signals with identifying information, such as the aircraft's altitude and squawk code. It enhances air traffic control and collision avoidance.

Vertical Speed Indicator (VSI):
The Vertical Speed Indicator is a flight instrument that displays the rate of climb or descent of an aircraft in feet per minute. It helps pilots maintain a desired altitude and control the vertical profile of the flight.

Wing:
The wing of an aircraft is the horizontal surface that generates lift and supports the plane in flight. It is designed with airfoil shape and control surfaces to provide stability and maneuverability.

Xenon Landing Light:
A xenon landing light is a high-intensity light used in aircraft for landing and taxiing at night. It provides superior visibility compared to traditional incandescent lights, improving safety during low-visibility conditions.

Yaw:
Yaw is the rotation of an aircraft around its vertical axis, causing the nose to move left or right. Yaw control is achieved by using the rudder to maintain directional stability and control during flight.

Zero Fuel Weight (ZFW):
The Zero Fuel Weight of an aircraft is the total weight of the plane, including passengers, cargo, and crew, excluding fuel. It is used to calculate the maximum payload capacity and center of gravity limits.

This glossary provides a comprehensive overview of key terms related to aircraft systems and components in the Global Certificate in Aviation English course. Learners can use this resource to enhance their understanding of aviation terminology and improve their communication skills in the aviation industry.